

Footprints of Regional Science
The Voice of Regional Science

Karima Kourtit
Bruce Newbold
Peter Nijkamp
Mark Partridge *Editors*

The Economic Geography of Cross-Border Migration



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Karima Kourtit · Bruce Newbold ·
Peter Nijkamp · Mark Partridge
Editors

The Economic Geography of Cross-Border Migration



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Springer

Editors

Karima Kourtit
Jheronimus Academy of Data Science
'S-Hertogenbosch, Noord-Brabant
The Netherlands

Bruce Newbold
McMaster University
Hamilton, ON, Canada

Peter Nijkamp
Jheronimus Academy of Data Science
'S-Hertogenbosch, Noord-Brabant
The Netherlands

Mark Partridge
The Ohio State University
Columbus, OH, USA

ISSN 2662-9623

Footprints of Regional Science

ISSN 2662-9704

The Voice of Regional Science

ISBN 978-3-030-48290-9

<https://doi.org/10.1007/978-3-030-48291-6>

ISSN 2662-9631 (electronic)

ISSN 2662-9712 (electronic)

ISBN 978-3-030-48291-6 (eBook)

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This Springer imprint is published by the registered company Springer Nature Switzerland AG
The registered company address is: Gewerbestrasse 11, 6330 Cham, Switzerland

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Part I
Conceptual and Historical Contributions

Chapter 1

Geography of Migration: An Introduction



**Karima Kourtit, Bruce Newbold, Peter Nijkamp, Mark Partridge,
and Oudom Hean**

1.1 Setting the Scene

We live in the “*age of migration*.” Migration can take different forms: local, domestic, or cross-border (regional or international). In recent years, a considerable amount of attention has been directed to the socio-economic aspects of cross-border (interregional and international) migration (see, e.g., Stough et al. 2018). In the Handbook on the “*Economics of International Migration*” (Chiswick and Miller 2015), we find many interesting economic contributions on migration phenomena, mainly from a macro- or meso-economic angle. It should be recognized, however, that migration is not only an economic or demographic phenomenon, but it also has clear geographical dimensions in terms of socio-economic drivers of, or impacts on, places of origin or destination. In other words, the economic geography of contemporaneous migration movements, in relation to the characteristics of places of origin and destination, also deserves full-scale attention. Since modern—in particular, large—cities and metropolitan areas act mainly as attractors of these rising migration flows, it is certainly pertinent to focus regional science and economic-geographical research on current migration, in particular, on urban agglomerations; cities appear to turn into local diaspora economies (see Tranos et al. 2015). The geographical dimensions

K. Kourtit (✉) · P. Nijkamp
Open University, Heerlen, The Netherlands
e-mail: k_kourtit@hotmail.com

P. Nijkamp
e-mail: Pnijkamp1@gmail.com

B. Newbold
McMaster University, Hamilton, ON, Canada
e-mail: newbold@mcmaster.ca

M. Partridge · O. Hean
The Ohio State University, Columbus, OH, USA
e-mail: partridge.27@osu.edu

of migration—ranging from local to international aspects—deserve increasingly scholarly attention.

Cities are not only characterized by size and density, but also by a considerable share of strangers in the local population (Jacobs 1961). Consequently, the presence of migrants in modern urban agglomerations is not a peculiarity, but a normal phenomenon. Nevertheless, the drivers and impacts of a large influx of (foreign) migrants may lead to intriguing and cumbersome policy and research concerns, in particular, in spatial economics and related disciplines (see, e.g., Kondoh 2017). In this context, Nijkamp et al. (2012) argue that *Migration Impact Assessment* (MIA) is a much needed tool to understand—and cope with—the complexity of the modern multi-cultural urban fabric. MIA does not only refer to conventional economic impact studies (such as local labor market effects, housing market tensions, or spatial convergence and poverty issues), but also to broader and system-wide effects (such as innovativeness or creativity in cities, cultural enrichment, citizens' empowerment, alternative scientific approaches, and the like). An extensive account of the societal and cultural dimensions of foreign immigration can *inter alia* be found in a wide-ranging publication by Nijkamp et al. (2015) on the economics of cultural diversity (see also Bakens et al. 2013).

Especially in the “*urban century*” with its unprecedented rise in urbanization (not only in the Western World, but even more so in the developing world including emerging economies), the urban agglomeration becomes a melting pot of different people, mixed cultures, diverging welfare positions, and heterogeneous talents. In an interesting modeling study, it is noteworthy that Wang et al. (2016) have demonstrated that the choice of migrants toward specific destinations is co-determined by their cultural distance and their cultural diversity. It is thus evident that in *The New Urban World* (Kourtit 2019), cities (ranging from towns to urban agglomerations, polycentric constellations or metropolitan areas) do not only grow in size and number, but also in diversity.

It should also be added that migration is not a static phenomenon, but reflects the trajectory of global dynamics. Apart from complex fluctuations in incoming and outgoing migrant flows, there is also a clear dynamic demographic component: migrants also go through an aging process that affects their economic earning potential and their social network relationships (see for an interesting study on these issues Baykara-Krumme and Fokkema 2018). Migration mirrors the complex socio-economic fabric of our world.

In light of the above anecdotal observations, it is clear that the economic geography of migration should address, in particular, the genesis, dynamics, and consequences of the economics of diversity in cities and regions as a result of an alien migration influx. In the next section, we will offer a sketch of the complexity in geographical patterns as a result of various forms of migration movements.

1.2 Migration: Internal and International

Cross-border migration is one of the prominent, but sometimes also alarming population developments in many parts of the world (e.g., Asia–Europe, Africa–Europe, Latin- and Central America–USA, etc.). Population geography has dealt extensively over the past years with various forms of migration movements, such as labor migration, forced migration, or social migration. In recent times, the New Economic Geography (NEG) has offered a new perspective on regional dynamics and spatial-economic development, by addressing, in particular, the effects of trade/transport flows, the role of agglomeration advantages in large metropolitan areas, and the pressure of product heterogeneity; population flows and dynamic spatial interactions (e.g., commuting, tourism, migration) have received far less attention. In particular, the role of migration in the framework of NEG has prompted sparse interest in the contemporaneous literature. It is clearly important to explore how migration does intervene in the principles of NEG, and also how spatial dynamics (e.g., innovation, creativity) does change the pattern of (domestic and foreign) migration.

Against this background, the present volume offers a wide-ranging refreshing contribution to the geographical dimensions of cross-border migration, mainly ranging from interregional to international migration flows. First, some terminological remarks are in order. There are two ways of delineating population mobility using two commonly used terms originating from North America. Domestic or internal migration is a change of residence from one municipality to another *within* a country, whereas cross-border migration is residential relocation across countries (or major different regions in a country). While internal migration is typically viewed in a positive context, at least by economists, other social scientists, and policymakers, it is noteworthy that cross-border immigration—in particular, foreign migration from nations with a different socio-economic or cultural background—has sometimes been a subject of heated public debate during various time periods.

We will first briefly address domestic or internal migration. As noted above, domestic migration is usually viewed positively by academics and policymakers as a way for households and individuals to voluntarily improve their socio-economic well-being by “voting with their feet.” In particular, domestic migration is one way for workers to move in order to gain economic opportunity. The standard wisdom is that at the macroeconomic level, internal economic migration generally improves overall macroeconomic performance by shifting underutilized workers from declining regions to expanding regions, which, in turn, increases GDP and reduces overall aggregate unemployment. Some caveats should be mentioned in this general proposition.

Even though internal migration has positive socio-economic features, it may also have negative attributes including cases where it relates to persistent population loss in lagging regions that reduces their regional development potential. In lagging regions, negative out-migration may precipitate a brain drain that further limits the region’s long-term prospects. Low migration rates also imply that in declining

regions, displaced workers may remain, even though there are few economic opportunities. One implication is that if people are not moving to economic opportunity, then policy may have to shift to place-based or geographically targeted policies aimed at bringing economic opportunity to them, though such policies also have their downsides (Partridge et al. 2015). For example, declining U.S. migration rates since the late 1980s is one possible cause of declining U.S. macroeconomic performance and sluggish income growth, as well as divergence in regional incomes across the country (Partridge et al. 2012; Tavernise 2019).

International immigration, with its historic ebbs and flows, has periodically become a sensitive or even a divisive topic in many countries. For example, the United States has a long history of immigration periodically becoming a source of heated public debate and controversy. In the 1840s and 1850s, there were calls to limit immigration from Ireland; the American political party (aka, the Know-Nothing) was an outgrowth of the strong anti-immigrant party. Beginning in the 1890s through the early 1920s, calls to limit immigration from Italy and Central European countries grew louder, leading to the Immigration Act of 1924. The Immigration Act of 1924 almost entirely shut the door to immigration to the United States. Indeed, much of the concerns regarding immigration are virtually the same as in contemporary discussions. Notable examples of political-economic arguments include immigrants reducing wages of native residents and nationalistic concerns that immigrants of different races and religions may “undermine” the traditional makeup of the country. Probably the most racially based immigration act was the Chinese Exclusion Act of 1882 that nearly ended Chinese immigration.

The Immigration Act of 1965 reopened the United States to immigration, especially from Latin America and Asia. Not surprisingly given its history, beginning in the late 1970s, immigration, especially from Mexico and other Latin American countries, increasingly became a source of heated public debate and controversy, in which the underlying arguments raised in the immigration debates of the nineteenth and early twentieth century re-emerged.

Fast forwarding to contemporary North America and Western Europe, three recent case examples illustrate the ongoing controversy surrounding immigration. First, supporters of the 2016 Brexit vote in the United Kingdom often pointed to immigration from Central European members of the European Union and Asian and African immigrants as a key reason to vote “yes” because of supposed negative effects associated with immigration into the UK. Likewise, across Europe, the rise of so-called right-wing populist or nationalistic political parties is often linked to nationalistic concerns about immigration, especially regarding immigrants from Northern Africa and the Middle East (e.g., Syria and Iran). Finally, President Trump’s surprising election victory and strong support from his right-wing base are often attributed to negative perceptions related to immigration (e.g., “build the Wall that Mexico will pay for”). Scholars also debate the actual impacts of immigration, though it is likely that the *net*-initial effects of immigration in most advanced countries is near zero, though as immigrants and their decedents assimilate, the benefits increasingly exceed the costs. For extensive studies on the quantitative (socio-)economic implications of migration, we refer to Nijkamp et al. (2012).

1.3 Classes of Effects of Migration

1.3.1 *Types and Determinants of Cross-Border Migration*

Following the seminal works of Rosen (1979) and Roback (1982), the key determinants of migration from an economic perspective are wages, housing prices, and amenities. A place that offers high wages, low housing rents, and better amenities will attract migrants, until the macro-economy reaches a stationary spatial equilibrium where utility and profits are equalized across all regions. The key point is that determinants of migration include economic opportunity and income, as well as other quality-of-life factors such as amenities (broadly defined), a social climate that is tolerant to economic and political ideas, and religious, ethnic, and racial composition. The resulting decision to migrate depends on the net benefits and costs associated with migration (Partridge et al. 2012). If these net benefits are positive, the household will migrate, at least in the economist's view of the world.

Taking each of the economic and noneconomic factors, in turn, economic factors, including wage differentials and income variability, are considered main determinants of south-to-north immigration, as well as internal migration from lagging regions to prosperous regions. In countries where the credit market is imperfect or does not exist, an individual may be unable to smooth his/her consumption through borrowing and saving; therefore, he or she is motivated to move place (Simpson 2017). Yet, internal migration is stimulated by improving access to financial markets, which can potentially increase migration/immigration of households from poor-performing to high-performing regions/countries.

Other determinants of cross-border migration include social networks in destination regions (Card 2001), cultural and language factors (Adserà and Pytliková 2016), environmental conditions, and demographic characteristics (Simpson 2017; Jennifer 2006; Simpson and Sparber 2013). For example, major droughts are thought to be a key reason for conflict and subsequent migration from contemporary Syria (Kelleya et al. 2015), as well as for historical migrations such as the mass migrations away from the Great Plains due to the Dust Bowl during the Great Depression (Hornbeck 2012).

Political freedom, civil rights, and wars are other key factors that can trigger massive cross-border migration flows (Simpson 2017; Karemera et al. 2000). Notably, the current humanitarian crises in developing countries, such as those in Central America and in Syria, have led to mass immigration to the United States and Europe, spurring political conflicts. Additionally, political and economic relations between origin and host countries can play a vital role in determining cross-border migration.

1.3.2 Effects of Migration on the Host Region/Country

The public, policymakers, and scholars have long debated the net benefits of cross-border migration on the destination/host region/country (Bell 2019). One heated debate is about the impact of immigration on the host labor market. Borjas (2001, 2006) from the US finds that immigration solely affects wages of American unskilled and minority low-wage workers, but not generally the rest of the workforce. He also argues that domestic high-school educated workers are more likely to out-migrate from immigrant-receiving states. On the other hand, Card (2001, 2005) generally finds a small impact of immigration on native migration patterns, employment, and wages. Similarly, Chung et al. (2020) find evidence that the 1980 Marial Boatlift caused permanent changes in Miami's skill distribution and racial composition, shifting it to a less-skilled and more Hispanic area, as it persistently abstracted subsequent migration flows.

Another policy-sensitive issue revolves around the possible effects of immigration on crime, although there is plenty of empirical evidence to suggest that any positive link is fragile. For instance, Bell et al. (2013) find that the late 1990s/early 2000s increases in asylum led to a rise in U.K. property crimes. However, they also find that post-2004 EU immigration has an opposite effect on U.K. crime. They find no significant effects of mass immigration on other crime indicators, including violent crime, arrest rates, and changes in crime. Clearly, the causality in this finding is generally weak. Bianchi et al. (2012) find no significant impact of immigration on overall crime, except robberies in Italy over the 1990–2003 period. They suggest that more effective policies are to improve labor market conditions for disadvantaged foreign-born workers rather than those targeting immigration itself when the goal is to reduce crime (Bell 2019).

It is of paramount importance to state that immigrants can be a key source of labor and human capital. First, many low-skilled immigrants in developed countries have jobs that are undesirable for native workers (Felbab-Brown 2017; Hoban 2017). Those undesirable jobs are generally physically demanding works such as farming, construction, cleaning, or meatpacking (Felbab-Brown 2017).

Other studies also find immigrants, especially high-skilled foreign-born workers, to be relatively innovative (Chellaraj et al. 2005) and entrepreneurial (Vandor and Franke 2016), which raises economic growth in destination countries and regions. Hunt and Gauthier-Loiselle (2010), for instance, show that a one percent increase in immigrant college graduate population increases 9.8% of patents per capita. Likewise, Perez-Silva et al. (forthcoming) find that immigrants that earned their Ph.D. in the United States are more likely to produce scientific papers that generate citations, make academic presentations, and produce patents than otherwise equal domestic Ph.D. graduates. Additionally, Carpenter and Loveridge (2017) find that immigrants of Hispanic origins drive most self-employment growth in the United States. These findings confirm also the general results from many studies all over the world on ethnic or migrant entrepreneurship.

1.4 Effects of Migration on the Origin Region/Country

Migration is typically a push-pull phenomenon. The drivers for out-migration can be manifold, ranging from economic conditions (poverty, unemployment) to cultural factors (ethnic discrimination, religious suppression). But in many cases of poor regions of origin, migrants are sending remittances to their family back home.

Remittances can be an essential source of GDP for poor regions/countries and a valuable source of income for needy families. The World Bank (2019) reports that global remittances reached \$529 billion in 2018, an increase of 9.6% compared to 2017. When examining Albania, Bulgaria, Macedonia, Moldova, Romania, and Bosnia Herzegovina, Meyer and Shera (2017) find that remittances have statistically significant positive effects on the economic growth of these countries.

Cross-border migration can produce so-called “brain drain,” which is good for the host region/country but can limit growth in the origin region/country. When a significant number of high-skilled emigrants leave their origin region/countries, it could reduce human capital in the origin country, creating a brain drain. Agrawal et al. (2011) analyze patent data and find that emigration of high-skilled workers from India is, on average, harms invention rates in India.

Emigrants, however, can accumulate human capital abroad and still benefit the origin country even if they remain abroad. That is, high-skilled emigrants can still work in their origin region/countries and remit to their families, or cooperate with other high-educated scholars residing in the origin region/country. For example, Batista et al. (2007) find that emigrants from Cape Verde increase their education when they move abroad, thus increasing their ability to provide remittances. Such innovation effects may also emerge from tourism and trade flows between countries of origin and destination. There is considerable evidence for a win-win situation in case of balanced migration flows.

1.5 Brief Overview of the Handbook

This Handbook aims to provide a stock-taking of the economic geography of cross-border migration by providing an extensive set of refreshing and original contributions of the spatial aspects of contemporaneous migration.

In the following chapters, the Handbook has contributions from some of the world’s leading scholars on migration in relation to economic geography, providing a global perspective. Leading scholars were asked to author chapters on the key issues related to cross-border migration. The focus is on historical and contemporary issues pertaining to cross-border migration—both international and interregional. The literature on cross-border migration is vast, and some of the key issues include the determinants of cross-border migration; the effects of immigration on a host

region/country; and the effects of emigration on the origin region/country. The Handbook stresses also emerging immigration issues, such as the well-being and health of immigrants.

The remainder of the book is divided into five major sections. Part A reviews *theories and provides historical discussions of migration*. Part B surveys *types of migration* and its determinants. Next, Part C assesses the effects of migration on *receiving regions/countries*, while Part D considers the effects of emigration on *origin countries or regions*. Finally, Part E analyzes *migration-related policies*.

Part A discusses conceptual and historical contributions to the literature, while this chapter introduces general migration issues, Luc Normand Tellier and Guillaume Marois in Chap. 2 reviews significant historical events related to mass migrations and uses current data to appraise “invasion” mechanisms. In Chap. 3, Victoria Vernon and Klaus Zimmerman analyze the economics of border walls and fencing using historical documentation in reducing immigration. They conclude that open borders produce more significant economic returns than closed borders with walls and fences. In Chap. 4, James Raymer and James O’Donnell explore the effects of migration on demography. They illustrate these effects using regional population change in the Australian state of New South Wales and Capital Territory from 1981 to 2011.

Part B examines the effects of migration on host countries. In Chap. 5, Steven Deller, Tessa Conroy, and Matt Kures explore the impact of immigration on entrepreneurial activities across U.S. countries. Thomas Knap and Nancy White in Chap. 6 further examine economic opportunity-seeking migration in the United States. In Chap. 7, Amelie Constant carefully examines return migration, circular migration, and temporary migration in a knowledge society. In Chap. 8, Pieter Bevelander and Nahikari Irastorza provide an overview of the market integration of humanitarian and refugee immigrants. Employing Sweden data, they find that the employment rate of asylum seekers is lower relative to the native, suggesting that asylum seekers are less competitive in the job market. For Chap. 9, Angela Parenti and Christina Tealdi discuss the substitutability between migration and commuting in Europe. Finally, in Chap. 10, Authur Grimes and Dennis Wesselbaum assess the role of subject well-being due to migration.

Part C surveys the literature on the effects of emigration on origin countries. Beginning with Chap. 11, Daniel Crown, Jonathan Corcoran, and Alessandra Faggian examine the role of migration on human capital and wages for workers residing in Australia. They find that accessibility to high-paid jobs is a crucial factor explaining the wage for workers leaving big cities. Followed by Chap. 12, Bill Cochrane and Jacques Poot survey the literature on the impact of immigration on housing rents and prices. They conclude that immigration plays a minor role in explaining the rise of housing prices and rents in fast-growing cities in developed countries. Bruce Newbold assesses migration and urban geography of segregation in Chap. 13, while Ivan Etzo, Carla Massidda, and Romano Piras investigate the complementarities between native and immigrant workers across sectors in Italy in Chap. 14. In Chap. 15, Bernadette Kumar and Allan Krasnik survey the literature on migration health. In Chap. 16, Maryna Tverdostup and Tiiu Paas conduct an assessment of both general and task-specific human capital of migration and native

workers. The final chapter in this section, by Christian de Kraker and Alexander Grit, explores the entrepreneurial journey of Syrian refugees in the Netherlands.

Part D carefully examines the impact of emigration on the origin country. In Chap. 18, Ngoc Thi Minh Tran, Michael Cameron, and Jacques Poot discuss how political and economic institutions affect the decision of returned immigrants. Sucharita Ghosh and Amanda Weinstein, in Chap. 19, discuss emigration from Asia and especially China. Barış Alpaslan and colleagues explore the economic effects of remittances on sending regions in Chap. 20, and Murat Genc and Dennis Wesselbaum investigate the impact of immigration on foreign market access in Chap. 21. Li-Wen Hung and Shin-Kun Pengz study about unskilled migration, remittance, and income inequality in Chap. 22.

Finally, Part E offers a discussion on migration policies. Peter Schaeffer explores place-based policy and migration in the depressed areas in Chap. 23. Miriam Marcén and Marina Morales analyze the role of culture and migration in Chap. 24. Lastly, Tony Fielding studies migration in a “Post-Global World” in Chap. 25. Overall, the research contributions reflect the state of the art in current research in migration/immigration. They show that while migration appears to be on balance a positive factor, there are important offsetting factors as well as heterogeneous effects that mean that migration/immigration’s overall *net* benefits can vary across time and location.

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Chapter 2

The “Invasion Peril” in Light of the Topodynamic Theory, and Some Recent Statistics



Luc-Normand Tellier and Guillaume Marois

When the four horsemen of the apocalypse—climate change, famine, state failure, and migration—ride together, and especially when a fifth horseman of disease joins them, disruptions can turn into collapses, sometimes even driving social development down.

Ian Morris

Why the West Rules—for Now (2017), 224.

The above quotation does not refer to the present situation of the world, but to that of the Western world, whose twin core areas were Mesopotamia and Egypt, had to face, more than three thousand years ago, between 1200 and 1000 BC. However, it finds particular resonances in our modern world.

Throughout history, the states have attempted to keep the control of their immigration (and even of their emigration, as in the case of the Revocation of the Edict of Nantes), but, several times, circumstances prevented them to do it, sometimes with major consequences, as in the cases of the fall of the Western Roman Empire, the fall of the Byzantine Empire, or the conquest of China by the Mongols, or the Manchus.¹ Presently, confusingly, in Europe and the non-hispanic North America, many people

¹The distinction between immigration and invasion is a matter of circumstances. A population that enters a state peacefully, with the approval or tolerance of the state, is considered to be an immigration, whereas a population that penetrates the same state militarily, uninvited or unwelcome, is perceived as being made of invaders, as the Mongols and the Manchus were by the Chinese citizens at the time of their arrival. Both kinds of population movements may have historical consequences.

L.-N. Tellier (✉)

Département d'études urbaines et touristiques, Université du Québec à Montréal, Case postale 8888, succursale Centre-ville, Montréal, QC H3C 3P8, Canada
e-mail: tellier.luc-n@uqam.ca

G. Marois

Department of Sociology, Asian Demographic Research Institute (ADRI), Shanghai University, 266 Jufengyuan Rd, Baoshan, Shanghai, China
e-mail: maroisg@gmail.com

feel that immigration is getting out of control,² and that this heralds a cataclysm that could compare with the fall of the Rome and Constantinople, or the conquest of China. Are such concerns defensible? This paper intends to put that question into perspective by adopting a historical and topodynamic point of view and looking at some recent demographic statistics. Let us start with the topodynamic view of urban world history.

This theoretical approach is adopted because migrations are a spatial phenomenon, and the topodynamic theory directly stems from space economy. That theory is not focused on migrations, but it perceives the urban world history in terms of locational forces, and people and commodity flows. According to the classification of Wickramasinghe and Wimalaratana (2016), it belongs to the “world systems theory” category. Other theories specifically focused on migrations stemming from sociology, non-spatial economics, geography, psychology, demography, or history, offer complementary viewpoints on migrations, and the present text does not pretend to replace them.³ The other chapters of the book amply allude to them.

The topodynamic theory shares with Braudel and Wallerstein’s approaches the use of the core, periphery, and economy-world concepts, but it differs from them by its space-economic basis, its dynamic aspect, and its search of a spatiotemporal logic of the historical succession of the various dominant cores. In that logic, spontaneous and regulated migrations play an important role.

2.1 The Place of Mobility in the World Polarization Process: The Topodynamic Theory

To a large extent, the specificity of space economy within economic theory stems from its addressing economic phenomena in terms of location forces instead of market transactions. This goes back to Pierre de Fermat who, before 1640, formulated a very simple mathematical problem whose direct numerical solution was such that it took more than 330 years to find it. That problem is described in the following: given three points A, B, and C located in a homogeneous Euclidean space, what is the location of a fourth point D that is such that the sum of the distances between D and each of the three given points is minimized? Evangelista Torricelli found a geometrical solution to the Fermat problem in 1645. Later, in 1750, Thomas Simpson generalized the problem by analyzing the case where the objective was to minimize the sum of the transportation costs between point D and the three given points. Weber (1909)

²In March 2007, the number of illegal immigrants in the United States was estimated at 12 million, which is considerable for a country that spends a lot to control its borders. That number slightly declined thereafter, but the movement impelled by the Honduras migrants in October 2018 has revived the fear of an invasion of illegal aliens in the United States.

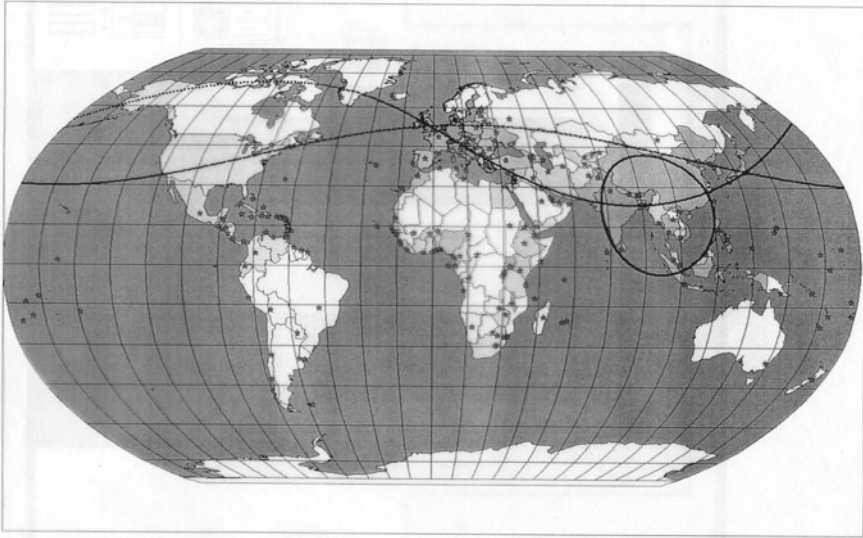
³Among the more recent theories, let us mention, in sociology, the Transnational Social Spaces Theory (Pries 1999; Faist 2000), in macro-economics, the Dual Market Labour Theory (Piore 1979), in micro-economics, the New Economics of Migration (Stark and Bloom 1985), and, in spatial interaction, the Catastrophe Theory and Bifurcations (Wilson 1981).

made that problem famous by applying it to the case of the location of industries. The “Simpson problem” ended up being known as the “Weber problem.” It is from the Weber contribution that space economy started being interpreted in terms of attractive forces (in the classical Weber problem, the attractive force exerted by point A, B, or C on point D is equal to the transportation rate per kilometer multiplied by the transported quantity, that product being equal to the first partial derivative of the transportation function with respect to the distance to A, B, or C).

Tellier (1972) found the direct numerical solution of the Fermat and Weber problems, and in 1985, he generalized them to the case where both attractive and repulsive forces are involved in the locational optimization. This gave birth to the “attraction-repulsion problem.” The most frequent example of repulsive force is found in the land-rent theory whose main conclusion is the following: in a city, every dweller and every activity ends up to locate at the distance from the central business district (CBD) where the resultant of all the attractive forces exerted by the CBD on the considered dweller or activity is canceled out by the repulsive force exerted by the CBD on the considered dweller or activity through the land prices (which decrease as the distance from the CBD increases).

The topodynamic theory interprets the history of urbanization in terms of attractive and repulsive forces. In ancient Greek, *topos* means “location” and *dunamis* means “force.” The following 11 theses lay at the heart of the topodynamic theory (we quote or paraphrase excerpts of Tellier 2019 , pp. 419–425):

1. Polarization and economic development do not occur anywhere anytime. They result from a spatiotemporal evolution marked by development trajectories, like the well-known southwest shift of the population and production gravity centers in the Canado-American space during the last 230 years.
2. Economic development is polarized, and it is characterized by the appearance of “urbexplosions,” that is, of urban systems that have an organic unity, which transcends the political borders, and of economy-worlds, that is, to say of urban macro-systems covering an important part of the globe, and including a center constituted of merchant states and city-states, a semi-periphery made of territorial states, and a periphery made of colonies or economically dependent states. The first major economy-worlds were the Fertile Crescent one dominated by Babylone, the Roman one dominated by central Italy, and the Chinese one dominated by Changan-Xi’an.
3. The semi-periphery tends to follow “central-place” very hierarchical logic (France is a classical example of this), whereas the periphery and the relations between the center and the periphery are marked by the tentacular logic of the “network systems” (we may think of Northern Europe with the British, French, and Dutch colonies).
4. The spatiotemporal succession of the economy-world centers occurred historically inside three almost circular topodynamic corridors (see Map 2.1):
 - a. The Great Corridor (passing through Istanbul) that goes from the Persian Gulf and the Sumer region (with the cities of Eridu, Ur, and Uruk) toward the west, toward London, along the Euphrates, the Syrian Corridor, the Aegean



Map 2.1 The three topodynamic corridors

- Sea, the Italian Peninsula, the Rhône and the Rhine, and from Sumer toward the east, toward Tokyo, along the Persian Gulf, the Ganges, the south of China, the region of Hangzhou and Ningbo, and the China Sea.
- b. The Asian Corridor (passing through Singapore), which goes, to the north, from the Indus Valley to the mouth of the Yangtze River along the northern continental Silk Road, and the Imperial Grand Canal, and, to the south, from the Indus toward the Malabar Coast, Singapore, Indonesia, the Philippines, and Taiwan along the southern maritime Silk Road.
 - c. The modern Mongolo-American Corridor (passing through New York), which goes from London toward the west, toward Los Angeles, along the transcontinental railway linking New York City, Chicago, Kansas City and Los Angeles, and from London toward the east, toward Tokyo, along the Mittellandkanal, between the Ruhr Valley and Berlin, and the Trans-Siberian, between Moscow and Manchuria.
5. The economy-world centers have succeeded to each other within those three corridors in six main steps:
 - a. The birth of the three corridors.
 - b. The rise of Rome within the Great Corridor, and of the Loess Plateau (where Changan-Xi'an lies) within the Asian Corridor.
 - c. The Great Ebb caused by the fall of the Western Roman Empire within the Great and Asian Corridors.
 - d. The conquest of America and the rebirth of the Western world.

- e. The advent of the motorized transportation and the Big Bang of the Industrial Revolution centered on London.
 - f. The generalization of the use of automobile and the triumph of the Mongolo-American Corridor.
6. The world evolution is marked by spatial trends stemming from a phenomenon of “topodynamic inertia” based on the interaction between potentiality and reality, all modification of reality causing a change in the virtual optimal locations, which orient the real location decisions in a way that favors a change similar to the one, which initially modified reality.
 7. Topodynamic inertia has an entropic character in the sense that it is fed by the process of disintegration of the old dominant poles that feed a negative-entropy process leading to the forming of new poles, which eventually supplant the old dominant pole.
 8. There exists a process of aging and reproduction of urbexplosions. Those are not immortal, and they give birth to new urbexplosions.
 9. “Economy-worlds” (in the sense of Braudel and Wallerstein) include a center, a semi-periphery, and a periphery. In the center, merchant states and city-states predominate. Centralized regimes are normal in the territorial states of the semi-periphery. Dictatorships and repressive regimes are frequent in the far periphery, which is subjected to the domination of the center. The economy-world centers are generally heterogenous, in the sense that they are open to the diversity of cultures and languages. The territorial states, which surround the centers, are naturally orthogenous: they tend to impose a single language and a single culture. As for the periphery, it experiences a colonial-type heterogeneity, one “dominant” world culture imposing its domination over the colonized local cultures.
 10. The urbexplosion and economy-world peripheries depend a lot on the exploitation of natural resources, whereas the centers depend above all of the human resources. The urbexplosion and economy-world centers are vast aspirators, which drain off the human and material resources of the peripheries.
 11. The population drifts, which result from such situations, follow the second Ravenstein’s Law,⁴ which says that populations locate according to a process of sedimentation nurtured by the flows of goods, services, and persons. Along an important road of communication, populations “deposit” themselves on the way in accordance with rules similar to those by which alluviums deposit at the bottom of waterways. The more important the flow, the more important the quantity deposited. And the quantity of deposited alluvium is inversely proportional to the speed of the flow.

From a topodynamic point of view, cross-border migrations result from the interplay of the attractive and repulsive locational forces that influence the evolution of urbexplosions and economy-worlds. Vector field analysis helps to understand

⁴Ernest G. Ravenstein, “The Laws of Migration,” *Journal of the Royal Statistical Society* 48 (1885): 167–235, and 52 (1889): 241–301.



Map 2.2 The Great Corridor and the largest gravity potentials, 2000

that interplay. The layout of the three topodynamic corridors can be computed mathematically thanks to it⁵:

1. The Great Corridor, to a great extent, corresponds to the most important population densities of the planet, namely, the highest densities of Europe, the Ganges valley, the lower Yangtze River Valley, and Japan. Its layout can be derived from the year-2000 spatial distribution of attraction gravity potentials based on population, and an inverse-distance gravity model with an exponent of distance equal to 2 (see Map 2.2).⁶ The Great Corridor is the one that has concentrated most wealth, and attracted most migrants through the history of urbanization.
2. The Mongolo-American Corridor can be traced by means of an inverse-distance gravity model with an exponent of distance equal to 1, and by computing the gravity attraction vector-resultants corresponding to the year-2000 world spatial distribution of value-added (productions) (see Map 2.3).⁷ The gravity attraction vector-resultant computed at a given point in space corresponds to the resultant of all the attractive forces exerted by the economic “masses” of all the urban regions

⁵See Tellier (1997, 2002).

⁶Gravity potential G_i at point i is given by the following equation:

$$G_i = \sum_{j \neq i} \frac{m_i m_j}{d_{ij}^\alpha}$$

where m_i is the population at the i th point, d_{ij} is the distance between points i and j , and α is a positive real number representing the “deterrence effect” of distance in the inverse-distance gravity model ($m_i m_j / d_{ij}^\alpha$). Here α is equal to 2.

⁷A vector-resultant of gravity attraction corresponds to the vector-resultant of all the attractive forces that are exerted on a point i by all the other points in the system, those forces being calculated by means of a gravity model. It has a “norm,” that is, a length and a direction. Maps 2.3 and 2.4 represent only the directions.

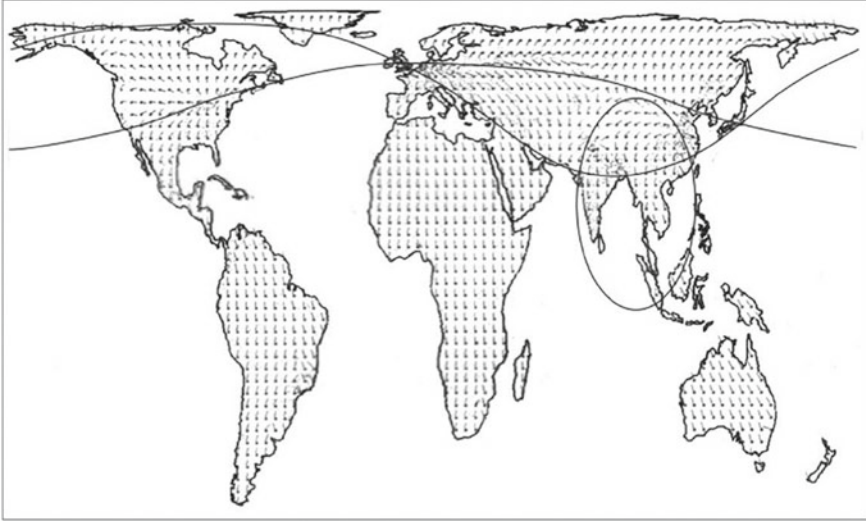


Map 2.3 The Mongolo-American Corridor and the gravity attraction vectors (exponent 1), GDP 2000

of the world on an individual located at that point who considers migrating. The layout of the Mongolo-American Corridor is obtained by considering Central and North America as a single region, and Eurasia as another region. The gravity attraction vector-resultants of South America are computed while taking into account the attractive force of North America, and those of Africa, while taking into account the attractive force of Eurasia. Then, all the vectors of the world are oriented toward the Mongolo-American Corridor, which dominates the world right now, and attracts most migrants in the Americas, Africa, and Eurasia, including those who never reach the Mongolo-American Corridor.

3. By changing the exponent of distance for 2 and by treating the whole world as a single region, the Asian Corridor is obtained (see Map 2.4). In the northern part of the corridor, vector-resultants tend to follow the corridor. To the northwest of that part of the corridor, the farther the vector-resultants get from the corridor, the more they point toward the Mongolo-American Corridor, whereas to the east of the northwestern part of the corridor, vectors are attracted by the Shanghai Region. The northern part of the Asian Corridor corresponds to the continental Silk Road that skirts round the Himalayas. It has channeled the commercial exchanges between the west and the east of Eurasia, especially between the Roman and the Chinese economy-worlds before Vasco de Gama’s discoveries. After those discoveries, the maritime southern part of the Asian Corridor, which was already used before Vasco de Gama, prevailed.

In terms of migrations and invasions, the most important historical interactions took place between the Mongolo-American Corridor, on the one hand, and the Great and Asian Corridors, on the other hand. The Mongolo-American Corridor offered the maximal mobility to horsemen and barbarian invaders (Indo-Europeans, Celts,



Map 2.4 The Great, Mongolo-American, and Asian Corridors, and the gravity attraction vectors (exponent 2), GDP 2000

Germans, Hellens, Slavs, Aryans, Huns, Mongols, etc.), whereas the Great Corridor permitted transporting goods at the lowest cost by boat thanks to the various rivers and waterways it is made of. As for the Asian Corridor, it corresponded to the continental and maritime Silk Roads that skirted around the Himalayan huge obstacle.

Before the advent of motorized transport, the Great Corridor concentrated the wealth to the southwest of the Himalayas, and the Asian Corridor did the same to the northeast of the same mountain range, while the Mongolo-American Corridor supplied the horseback riding invaders of the two former corridors. Motorized transport transformed the Mongolo-American Corridor into a dominant economic power because its plains, steppes, and fords offered the best conditions to build railways, and motorways that linked and dynamized the cores located in that corridor, that is, the northeast of the United States, the Chicago and Los Angeles regions, the Tokyo conurbation, the Seoul one, the Beijing–Tianjin megalopolis, the Moscow and the Berlin metropolitan areas, the Ruhr conurbation, the Dutch Randstad, and the London–Paris core. This explains why it now dominates the world and attracts so many migrants to its North American and Western European sections.

It must be noted that four cities are strategically located in the network of the topodynamic corridors. They are London, Mumbai, Beijing, Shanghai, and Tokyo. The Great and Mongolo-American corridors intersect at London and Tokyo, the Great and Asian ones do at Mumbai, and the Great and Asian ones at Shanghai. As for Beijing, it is located at a point where the Asian and Mongolo-American corridors, which never intersect, get very close to each other.

Some classical cross-border migrations looked at in a topodynamic perspective

Let us now examine some cases of cross-border migrations that have had major historical impacts. Some of the most important migrations in world history probably took place before the notion of border emerged. Migrants just came and attempted to settle somewhere, and most of the time nobody really stopped them. This is what happened when Amerindians, Aboriginal Australians, and Māori settled in America and Oceania, and this is probably what happened with the penetration of the Semite stockbreeders in Mesopotamia, the Celtic invasions of Western Europe, the numerous migrations of pastoralists in Africa (let us refer to the Nilo-Hamites: Fula in Sahel and West Africa, Toubou in Chad, Lybia, Niger and Sudan, Maasai in Kenya and Tanzania, Luo in East Africa, and Tutsi in Rwanda and Burundi), as well as the huge Bantu migration of farmers from Nigeria and Cameroon through Congo to Urewe (present Rwanda and Burundi), and, from there, down to South Africa.⁸ The penetration of the stockbreeders in cultivated areas, and vice versa (the spreading of agriculture in the prairies), took generally a peaceful form thanks to the transhumance system. When cereals were growing, the droves were kept away from the fields, and, after the harvest, cultivators were glad to welcome the stockbreeders and their herds in order for them to graze on what was left in the fields, and to manure the ground. This way migrants coming from distant regions could peacefully swarm into new areas.⁹

Military invasions preceded the establishment of guarded borders. Except for the Semitic and later Arab invasions of the Near and Middle East parts of the Great Corridor and the Tibetan invasions of the Asian Corridor, almost all the invasions of the central zones of the Great and Asian Corridors, both to the west and to the east, originated from three main zones of the Mongolo-American Corridor: (1) the cradle of the Indo-Europeans located north of the Caucasus; (2) the cradle of the Uralic speakers in the Ural Mountains; and (3) the cradle of the Altaics in the Altai range that extends over parts of Russia, Mongolia, and China.

Indo-Europeans lost their unity during the 4th millennium BC.¹⁰ From their place of origin, they rode and invaded Minor Asia under the names of Hyksos, Luwians, Mitanni, Hittites, Hurrians, and Kassites. They migrated to the south of the Balkans under the names of Phrygians and Hellenes, the latter comprising the Aeolians, Dorians, Ionians, and Achaeans. They swept Persia and India under the names of

⁸The region of origin of the Nigero-Congolese sub-group called the Bantu, who are mainly farmers, is situated in the region of the Benue River, a tributary of the Niger River, and of the Mount Cameroon Massif, at the present border of Nigeria and Cameroon. The expansion of the Bantu populations, which began around 3000 BC, constitutes one of the great phenomena of world's history. See Luc-Normand Tellier, *Urban World History* (Cham, Switzerland, 2019), 144–146, Bernard Lugan, *Histoire du Rwanda, de la Préhistoire à nos jours* (Paris, Bartillat, 2001), and Bernard Lugan, *Atlas historique de l'Afrique des origines à nos jours* (Paris: Éditions du Rocher, 2001).

⁹Luc-Normand Tellier, *Urban World History* (Quebec: Presses de l'Université du Québec, 2009), 43.

¹⁰Igor M. Diakonoff and Philip L. Kohl, *Early Antiquity* (London and Chicago: University of Chicago Press, 1991), 367–368. The following paragraphs are inspired by Luc-Normand Tellier, *op. cit.*, 44–45.

Iranians, Aryans, Indo-Iranians, Indo-Aryans, Medians, Persians, Scythians, Sarmatians, Parthians, Kushans, and Yue-Che (also written Yüeh-chih). Finally, they occupied Western Europe under the names Proto-Celts, Celts, Italics, Alans, and Germans, as well as Eastern and Northern Europe under the names of Slavs, Vikings, and Normans.¹¹

In the group of the horsemen that came from the Ural Mountains, we find the Finns, Estonians, Magyars (Hungarians), and Mordvins. Finally, three linguistic groups of horsemen came from the Altai Region: the Turks, the Mongols, and the Manchus-Tungus-Juchens. Among the Turks, we find the Huns, Azeris, Turkmen, Bulgars, Khazars, Pechenegs, Kipchaks (called Polovtsy by the Russians, and Kumans by the Byzantines), Mamlüks, Seljuq Turks, Ottoman Turks, Kazakhs, and Uzbeks. As for the Mongolian group, it includes, among others, the Avars, Tatars (or Tartars), Liao-Khitans, and Mughals.

Actually, the Caucasus, the Ural Mountains, and the Altai range constituted the three “pivots” of Eurasian history, referring to the expression of H. J. Mackinder who described Central Asia as the “pivot of History.”¹² It must be remembered that, among the tribes coming from the Altai, we find the Huns who invaded the Roman Empire; the Turks who, despite the fact that they had been vassals of the Avars, conquered the Byzantine Empire and the Arab world; and the Mongols and Mughals who took control of the Indus Valley and northern India, as well as the Mongols who conquered China. Originating also from the Altai, the Khazars, Kumans, and Pechenegs penetrated into Eastern Europe.¹³

Among the German tribes, the Goths, Visigoths, Ostrogoths, Burgundians, Jutes, Angles, Saxons Franks, Alemanni, Suevi, Vandals, and Lombards penetrated into the Roman Empire, both peacefully and militarily. The Roman emperors’ attempt to control the German inflow became systematic with Trajan’s heir, Emperor Hadrian, whose reign began in AD 117. Hadrian judged preferable to put an end to the expansion of the empire, not because, militarily, conquering new territories was impossible, but because defending the empire had become too expensive given the technological and military constraints of the time. He decided to give back to the Parthians Mesopotamia that Trajan had conquered, and to build walls at the northern limit of Britannia, but also fortifications, forts, outposts, and watchtowers along the Danube and Rhine borders. The German threat receded, but did not disappear. It is possible that the fate of the Roman Empire was decided around 180. The Parthians having tried to recapture Armenia that Trajan had conquered, Marcus Aurelius, nephew, son-in-law and heir of Antoninus Pius (himself the nephew and heir of Hadrian), sent troops that succeeded in beating off the attack. However, the Germans took advantage of that diversion to cross the Danube and penetrate into Roman territory. Marcus Aurelius had no choice but to counter-attack. He even undertook to

¹¹The Slavs differ from the Germans that include the Vikings, and the Normans originate from the Vikings.

¹²Sir Halford John Mackinder, *The Scope and Methods of Geography and the Geographical Pivot of History* (London: Papers of the Royal Geographical Society, 1951 edition).

¹³Gérard Chaliand, *Guerres et civilisations* (Paris: Odile Jacob, 2005).

annex the Germans' territory (Germania in Latin) to definitely put an end to the Barbarian threat by romanizing the Germans, like the Gauls had been two centuries before.¹⁴ The Emperor died in 180 while his troops were winning over the Germans. Commodus, his son and heir, probably jealous of his father's success, decided not to carry on his father's plan despite that all indicated that it could succeed. Instead, he quickly came to terms with the Germans. Had he done what his father intended to do, the Germanic invasions that later devastated the empire might have been averted, the Germans could have become as good Roman subjects as the Gauls, and the fall of Rome, three hundred years later, in 476, could have been avoided.

The Slavs, who are not German, probably came from the swamps of the Pripyat River, an affluent of the Dnepr River that passes from Ukraine to Belarus. Rather peacefully, they entered the Byzantine world and Central Europe. Finally, coming from the Ural Mountains, the Finns and the Magyars-Hungarians invaded Central and Northern Europe.

It must be noted that except for the black Nubians, whose penetration was ephemeral, and the white Egyptians, who somewhat belong to the Great Corridor, the Semites (Amorites, Aramaeans, Jews, and Arabs) are practically the only group in history to have penetrated in a lasting way from the south into the Great Corridor. This deserves all the more mentioning since Semites originate from Africa. Actually, Semitic languages constitute one of the three branches of the North-Eritrean language family, the two other ones being those of ancient Egyptian, and Berber. All suggests that the Afro-Asian language family originates from Africa, and only one of its branches expanded to the Near East.¹⁵

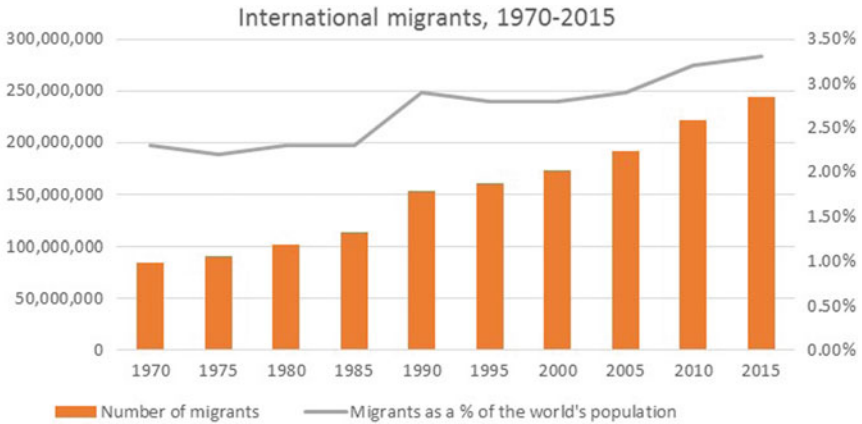
Migrations may also be launched by decisions of rulers. Jewish migrations often resulted from expulsions or deportations. The Jews were exiled to Babylon, and, later, they were induced to leave Palestine after the siege by Titus and the destruction of Jerusalem in AD 70, which marked the end of the Jewish state for almost two thousand years. Their dispersion was accentuated by the Roman conquest of the Massada fortress in AD 73, and, above all, the order denying all Jews access to Jerusalem given by Emperor Hadrian in AD 135. In Europe, they were expelled or persecuted at one time or another by almost all countries.

Incitations to leave homelands have also resulted from good intentions instead of persecutions. The huge European migrations to the New World and to some African or Oceanian colonies were of that type. On the other hand, certain states organized massive deportations. Let us mention, the Acadian deportation by the British, the Armenian deportation by the Ottoman Empire, and the huge slave trade that took place for centuries. They all belong to that category.

That being said, the migration, which is closest to the “Invasion Peril” felt by some people today, may be that of the Boat People who fled Vietnam in the 1980s. The Vietnamese immigrants having integrated their new societies rather easily that migration was by large a social and economic success. However, the images of

¹⁴See Anthony King, *Roman Gaul and Germany* (London: British Museum Publications, 1990).

¹⁵Jared Diamond, *Guns, Germs, and Steel: The Fates of Human Societies*, (New York and London: W.W. Norton, 1997), 383.



Source: United Nation, World Migration Report 2018

Fig. 2.1 International migrants, 1970–2015 (Data Source United Nations 2018; graph drawn by one of the authors)

those refugee crowds impressed in a lasting manner the citizens of the countries that welcomed them. The present invasion fear is not merely psychological. Figure 2.1 shows that, between 1970 and 2015, the number of international migrants has tripled, and that their proportion of the world population has gone from about 2.5–3.3%, which represents a very significant progression.

2.2 The Gears of the Invasion Mechanics: The Conventional Thinking

According to the conventional thinking, migrations and invasions are driven by both “pull,” and “push” factors, but they are also marked by inertia phenomena and loops. The main “pull” factors clearly are wealth and economic opportunities. The richer an area is, the less its inhabitants have children, and the more it attracts migrants. The flip side of that statement is the fact that the richer an area is, the more it attempts to secure its borders or, at least, the more it aims to select its immigrants.

Conversely, the poorer an area is, the more its inhabitants have children, and the more it generates migrant outflows. Moreover, the more a country is overcrowded, the more its environment is threatened. This also applies to the whole world: the more the Earth is populated, the more its environment, its animal population and vegetal diversity and abundance are in jeopardy. The main threats are related to global warming, ocean levels, water, and food shortages. The U.S. National Intelligence Council has identified an “arc of instability” stretching from Africa through Asia. That arc includes the Nile Basin, the part of the Great Corridor located between the Mediterranean Sea and the Indus mouth, and the continental part of the Asian Corridor

from the Indus to Northern China. The National Intelligence Council underlines the fact that most of the poorest people of the world live in that arc. It estimated that between 2008 and 2025 the number of people facing food and water shortages should leap from 600 million to 1.4 billion, most of them in the arc. In 2006, the *Stern Review Report* had already forecasted that by 2050 hunger and drought should set 200 million “climate migrants” moving.¹⁶

The problem is worsened by the existence of “loops.” For instance, the migrants are often the more dynamic part of their society of origin, which contributes to further impoverish the latter and perpetuate the invasion process. Moreover, the degrading of the Earth environment increases the level of poverty, while the poors get more and more children to maximize their chance to secure their future, which causes a further increase of the world population, which worsens the environmental prospects, which mainly affects the poorer parts of the planet, and so on.

2.3 The Gears of the Invasion Mechanics: Checking the Facts

Let us now look at Fig. 2.2 that represents the flows of migrants and refugees between the world regions observed between 2010 and 2015. The width of the arrows represents the number of migrants and refugees. A scale around the circle shows how many millions each arrow represents. The black arrow shows the number of migrants from the Middle East, including those from Syria, migrating to Europe up until mid-2015.

A Martian looking at that figure would conclude that the conventional thinking we have just described is often wrong, since it appears that

1. The region that attracts most migrants and refugees is not the rich North America, Western Europe, or Oceania, it is the troubled West Asia (with about 9 million migrants and refugees), which experienced wars and conflicts in Syria, Iraq, Palestine, Lebanon, Afghanistan, and Turkish Kurdistan;
2. The region that generated more migrations is not poor Africa, but the emerging South Asia (with close to 8 million emigrants; Africa generated less than 7 million emigrants).

Furthermore, Fig. 2.3 shows that the statement that “the poorer an area is, the more it generates migrant outflows” prevails just above a minimal income threshold of about 11,000\$ (in 2005 purchasing power parity US dollars). Under that threshold, the opposite statement prevails, that is, the poorer an area is, the less it generates emigrants.

¹⁶See: National Intelligence Council, *Global Trends 2025*, (Washington, D.C.: Government Printing Office, 2008); Nicholas Stern (dir.), *The Stern Review Report: the Economic of Climate Change*, (London, U.K.: HM Treasury, 2006), 603 pages; Ian Morris, *Why the West Rules for Now: The Patterns of History and What they Reveal About the Future* (London, U.K.: Profile Books, 2010), 601–603.

Migrant flows between regions of the world 2010–2015

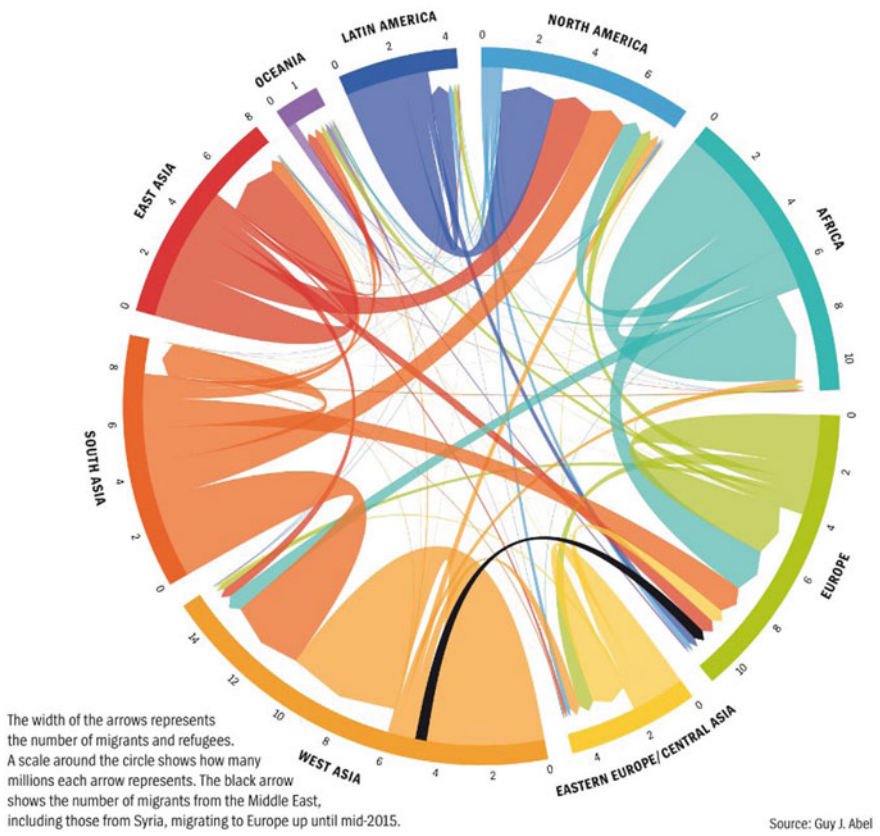
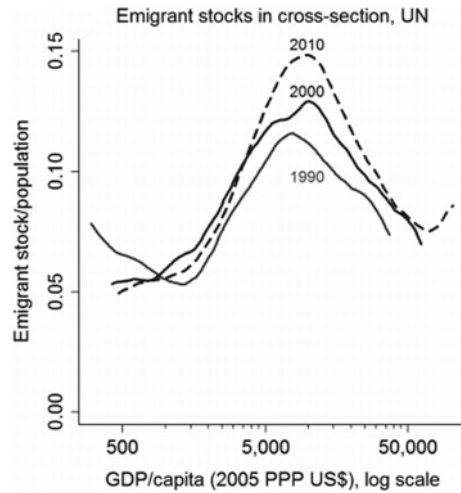


Fig. 2.2 The flows of migrants and refugees between the world regions, 2010–2015 (Source Abel 2016)

The statement that the richer an area is, the less its inhabitants have children must also be nuanced. It holds at the world macro-level, but, if we look at developed countries having completed the demographic transition, it appears that some rich countries may have more children than less rich countries. For instance, Scandinavian countries and France have relatively more children than East European countries that are poorer. However, this must not distract anybody from the facts, for instance, that a country like Rwanda, which occupied rank 206 over 229, in terms of per capita GDP in PPP (purchasing power parity) for 2017, and which has experienced, since 1959, troubled periods and a major genocide in 1994, went from a population of 2,5 million inhabitants in 1958 to 13 million in 2017. Similarly, Niger, which stands at rank 222 and suffers the pangs of desertification, has the highest fertility rate with 7–8 children per women, which means that, if that level was to prevail till 2100, its

Fig. 2.3 Emigration level as a function of per capita GDP in 2005 PPP US\$ (Source Clemens 2014)



population would go from 20 million today to one billion inhabitants at the end of this century.

Finally, the statement that climate change generates migrations is also challenged. According to Abel et al. (2017), there is no direct statistical link between the migration levels and climate changes. However, indirectly, it remains true that climate changes can generate or exacerbate conflicts, which will foster migrations in unstable countries.

2.4 Reconciling Conventional Thinking and Facts

The facts that have been evoked do not really contradict the conventional thinking. They just point out that

1. Migrating bears a human and financial cost that very poor people may not afford, when migrating is not yet a matter of survival; a starving family may dream of migrating to richer countries, but they may not have the financial capability to migrate in situations where there is no grave crisis that could convince richer countries to help them to migrate.
2. The second Ravenstein’s Law can partially explain that poor countries receive numerous emigrants coming from still poorer countries that first migration being considered by the migrants as a first step toward a future migration toward a true rich country.
3. The incredible world population growth that made the population grow from 1.6 billion in 1900 to 7.6 billion in 2018 threatens the global environment, favors the climate warming, and generates higher and higher probabilities of catastrophies,

especially in poorer countries, such catastrophies being likely to generate harsh regional conflicts and uncontrolled migrations.

4. According to the *World Population Prospect: The 2017 Revision*, “the 47 least developed countries are expected to see their collective population nearly double from 2017s one billion to 1.9 billion by 2050”; the main source of optimism coming from the expected decline in the world fertility rate based on the fact that “as for 2017, the total fertility rate for the world was 2.5, down from 2.8 in 2002 and 5.0 in 1965.”

2.5 Conclusion

The future of humanity depends on the following challenge: the present world population growth can be managed if the uninhabited or underdeveloped lands can be developed without threatening the global ecosystem, its diversity, and its regenerative power, but that still important population growth is likely to compromise the chances to do so because it accelerates global warming, which favors desertification, forest fires, deforestation, rising ocean levels, ocean warming, hurricanes, etc.

The numerous historical migration and invasion waves that have been evoked provide serious warnings. The world has seen empires crumble, whole continents decline, and civilizations disappear in circumstances less serious than those the world is facing now. The time has probably come to realize that Malthus was right, and that the most critical variable in the present situation is linked to the ability of humankind to control its population growth and impose a population ceiling.

For doing so, the world needs a minimum level of stability. Borders have a role to play for that. Borders must remain. They are still useful, but, as the Western Roman Empire learnt, in the long run, they are not enough to protect the rich from being invaded by the poors. The ultimate solution lies in the ability to reduce world inequalities by bringing development to the less developed areas while favoring birth control where it is most needed. The best way to deal with the fear to be invaded remains developing the countries of origin of the likely refugees.

Peace is a precondition for reaching such goals, and peace requires welcoming real refugees, respecting human beings wherever they are, precisising the criteria for distinguishing true and false refugees, and realizing that the very consumption behavior of the rich countries is a big part of the problem. The rich are considerably more responsible for the climate changes than anybody else. The watchwords should be for the rich “responsible consumption,” and for the poor “responsible reproduction.” In fact, the two goals are complementary: by restraining their consumption the rich can better invest in the poor countries and help them to get richer, which is the best way for the latter to achieve responsible reproduction.

As for the lessons we can draw from history, the most important one may be that the best way to regulate the steam pressure or the river flow is surely not to attempt to prevent the steam from getting out or the rivers to continue to run, but rather to find a way to optimally control the steam and river discharges. International inequalities generate a seismic energy that is doomed to erupt some time; the more that energy is

constrained and prevented from being released, the greater the unavoidable eruption will be. In short, in response to the “barbarian invasion peril,” Marcus Aurelius’ inclusion strategy was better than Hadrian’s exclusion one.

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Chapter 3

Walls and Fences: A Journey Through History and Economics



Victoria Vernon and Klaus F. Zimmermann

3.1 Introduction

Since the dawn of time, people have moved across land and ocean in search of a better life. When humans first left Africa to settle across the globe, they were motivated by their need for food, space, and resources. Early large-scale migrations were people fleeing wars, famine, and disease. Warriors and settlers from strong empires moved across continents to conquer weaker neighbors. Cross-border economic migration gained momentum in the twentieth century, fueled by rising per capita incomes in poorer countries, booming international business, strengthened personal ties with people in foreign countries, and cost-cutting advances in transportation. Voluntary and peaceful labor mobility has been beneficial for migrants, whose labor is more productive in richer economies; for businesses in search of qualified workers; for the natives of host countries, whose assets gained value; and for migrants' families back home who receive transfers (Constant and Zimmermann 2013; Zimmermann 2014b; Blau and Mackie 2016).

Contribution to The Economic Geography of Cross-Border Migration.

V. Vernon
State University of New York and GLO, New York, NY, USA
e-mail: victoria.vernon@esc.edu

K. F. Zimmermann (✉)
UNU-MERIT, CEPR and GLO, Maastricht, The Netherlands
e-mail: klaus.f.zimmermann@gmail.com

Table 3.1 Modern Walls and Fences

Builder	Target	Constructed aprox.
<i>Dismantled</i>		
East Germany	West Germany	1960s–1989
Hungary	Austria	1960s–1989
Czechoslovakia	West Germany	1960s–1989
Russia/USSR	Finland	1960s–1992
Russia/USSR	Norway	1960s–1992
<i>Before 1990</i>		
Cuba	US (Guantanamo)	1961
Hong Kong	China	1962
Israel	Syria	1973
Cyprus	Cyprus Northern	1974
South Africa	Mozambique	1975
Israel	Lebanon	1976
North Korea	South Korea	1977
Thailand	Malaysia	1978
Morocco	Western Sahara	1980
South Africa	Zimbabwe	1984
India	Pakistan	1988
<i>Between 1990 and 2001</i>		
United States	Mexico	1993
India	Bangladesh	1994
Israel	Gaza	1994
Kuwait	Iraq	1994
Uzbekistan	Afghanistan	1994
Spain	Morocco-Ceuta	1995
Spain	Morocco-Melilla	1998
Uzbekistan	Kyrgyzstan	1999
Turkmenistan	Uzbekistan	2001
<i>Between 2002 and 2010</i>		
Israel	West Bank	2002
Botswana	Zimbabwe	2003
Iran	Afghanistan	2003
Saudi Arabia	Yemen	2003
India	Myanmar	2004
Lithuania	Belarus	2004
Brunei	Malaysia	2005
Arab Emirates	Oman	2005

(continued)

Table 3.1 (continued)

Builder	Target	Constructed aprox.
Arab Emirates	Saudi Arabia	2005
Kazakhstan	Uzbekistan	2006
Saudi Arabia	Iraq	2006
Iran	Iraq	2007
Iran	Pakistan	2007
Jordan	Iraq	2008
Jordan	Syria	2008
Russia	Georgia	2008
Egypt	Gaza	2009
Myanmar	Bangladesh	2009
Israel	Egypt	2010
Kazakhstan	Kyrgyzstan	2010
<i>Between 2011 and 2018</i>		
China	North Korea	2011
Greece	Turkey	2012
Bulgaria	Turkey	2013
Algeria	Morocco	2014
Oman	Yemen	2014
Turkey	Syria	2014
Turkmenistan	Afghanistan	2014
Austria	Slovenia	2015
Azerbaijan	Armenia	2015
Hungary	Croatia	2015
Hungary	Serbia	2015
Kyrgyzstan	Kazakhstan	2015
Kyrgyzstan	Uzbekistan	2015
Latvia	Russia	2015
Macedonia	Greece	2015
Morocco	Algeria	2015
Slovenia	Croatia	2015
Ukraine	Russia	2015
UK	France	2015
Israel	Jordan	2016
Norway	Russia	2016
Tunisia	Libya	2016
Estonia	Russia	2017
Lithuania	Russia	2017

(continued)

Table 3.1 (continued)

Builder	Target	Constructed aprox.
Pakistan	Afghanistan	2017
Turkey	Iran	2017
Iraq	Syria	2018
<i>Planned</i>		
Algeria	Libya	
Hungary	Romania	
India	Bhutan	
Latvia	Belarus	
Malaysia	Brunei	
Malaysia	Indonesia	
Poland	Belarus	
Poland	Ukraine	
Russia	Ukraine	
Turkey	Iraq	

Foreign-born people now account for 28% of the total population of Australia, 23% of Israel, 20% of Canada, 13% of the US, 13% of Germany, and 12% of the UK.¹ Yet even at its highest level ever, international migration is surprisingly uncommon: only about 3% of the world population lives outside of their country of birth.² In the last decade, regional conflicts in the Middle East, rising inequality and poverty in Africa, violence in South America, and natural disasters in various parts of the world have sent a flow of refugees to Europe and the US. Between 2015 and 17, over 1.5 million refugees arrived to Europe by sea.³ This is a small fraction of 21.5 million people displaced by climate-related catastrophes between 2008 and 2015 (Miller 2017).

Gallup estimates that 14% of world adults, 710 million people, would migrate permanently if they could, and even more would move temporarily.⁴ More than 40% of respondents from very poor countries and countries with armed conflicts are potential migrants. In Africa alone, working age population is projected to rise by about 1 billion in 2055, increasing the pressure at the gates to Europe and China, two areas where population is predicted to decline substantially (Bruni 2019). The flow of refugees is likely to continue. According to the World Bank, water scarcity, crop failure, and rising sea levels will displace as many as 143 million people in Sub-Saharan Africa, South Asia, and Latin America by 2050 (Rigaud et al. 2018).

¹The Organization for Economic Cooperation and Development <https://data.oecd.org/migration/foreign-born-population.htm>.

²United Nations Population Fund <http://www.unfpa.org/migration>.

³The UN Refugee Agency <https://data2.unhcr.org/en/situations/mediterranean>.

⁴<http://news.gallup.com/poll/211883/number-potential-migrants-worldwide-tops-700-million.aspx>.

Faced with unprecedented inflows of immigrants, developed countries have a choice of policies to allow or restrict migration. Governments of richer nations have responded by erecting walls and fences, investing in border protection, and adopting policies to restrict undocumented migration.

In this chapter, we examine the global phenomenon of building walls, fences, and other man-made physical barriers between nations. We offer a historical perspective on why border barriers existed in the past, and how the rationale for building walls has changed. We discuss the costs and benefits of walls and fences, and review literature on alternative policies, including the open border policy. Section 3.2 surveys the history of walls and fences. Section 3.3 discusses their rationale. Section 3.4 deals with the economics of open borders. And Sect. 3.5 concludes.

3.2 A History of Walls and Fences

3.2.1 *Ancient and Medieval Walls*

Humans on all continents have been building walls for millennia. The main motive for their early construction was to defend city-states against armies of unwelcome nomadic neighbors. A large physical obstacle also served as a signal of political power, wealth, and strength, intended to deter future threats, a claim to land, and a way to define who belonged inside and who stayed out. The scale of walls has differed greatly throughout history, ranging from simple barriers between cities to massive fortifications between kingdoms.

One of the oldest known city, Jericho in modern-day Palestine, was walled as early as 8000 BC (Encyclopedia Britannica 2019). The 600-meter long stone wall was built and improved over several hundred years. The wall had a tower and a long ditch, and was likely intended as protection against floods and raiders. The construction project required enormous amount of physical labor—excavating the ditch, cutting through solid rock for materials, and hauling the stone to assemble the wall itself. Economists today may wonder how our ancestors planned, organized, and managed such a sophisticated project with so little training in engineering. This was a time when humans were barely transitioning from hunters to farmers, did not yet use domesticated animals, and would not invent metal tools or the wheel for thousands of years. It is not clear what kind of manpower was used—communal labor, hired workers, or early slaves—or what type of surplus of an essential tradable resource the population of Jericho produced through mining or agricultural production to generate enough wealth to finance the wall.

As ancient cities grew all over the world, so did the walls. In 3000 BC, a 9 km wall surrounded the largest city in the world: the Sumerian city of Uruk in modern Iraq, with a population of 80,000 residents (Dumper and Stanley 2007). Around 2030 BC, ancient Sumerians constructed a massive 160 km fortified barrier across its territory to keep out the Amorite nomadic tribes. It succeeded in fending off enemies for a

few years, until the invaders either broke through the wall or simply walked around it to destroy Sumerian cities (Spring 2015).

Ancient Greeks built a number of walls, including the siege-proof long walls of Athens around 460 BC. The fortifications, extending from the city to its harbor, protected Athens during one war with Sparta, but the city surrendered after its navy was defeated at sea (Conwell 2008).

Around 83–260 AD, the Roman Empire reinforced its borders with a variety of wall and ditch structures made of turf and stone, known as limes. Limes were intended to keep barbarian tribes out of the Roman Empire, and were also used as customs checkpoints for the movement of goods and people. Among the best known limes are the 118 km Hadrian's Wall, and the 60 km Antonine Wall in Scotland, a 750 km wall in North Africa, and 568 km Limes Germanicus in Germany. The Roman Empire invested heavily in its military, and for a while its military conquests supplied a steady supply of slave labor to service the walls. Over time, expansion slowed down, and pressure from neighboring barbarians increased. Overspending on the military and walls led to a financial crisis and a host of negative effects—oppressive taxation and inflation, widespread tax evasion, and a widening gap between the rich and the poor, foreshadowing its eventual collapse. Roman Limes made for a good defense from disorganized robbers from Britain to the Arabian Peninsula, yet they did not protect the empire against the better-organized barbarian armies of Vandals, Alans, and Goths (Jones 1964).

Around 460–512 AD, the Byzantines built the 56 km Anastasian Wall near Constantinople, a stone and turf system of fortifications with towers, forts, and ditches. For over a century it helped protect the empire from invasions from the west, but two hundred years later, the wall was no longer manned due to decreased threats and the high cost of troops (Williams and Friell 1998).

In 430–570 AD, the Sasanid Empire, located in modern-day Iran, invested in several large-scale public defense projects to fortify its borders in response to territorial disputes with nomadic neighbors. The most impressive part of the project was the 200 km Gorgan Wall, the world's largest defensive structure at the time and a masterpiece of ancient engineering, made out of uniformly shaped mud bricks, featuring 38 forts, a well-engineered network of canals that acted as both a water supply system and a defensive moat, and a garrison of at least 20,000 troops. This effective border defense system is thought to have contributed to the empire's longevity for the next 200 years, but later it was abandoned as the empire's prosperity came to an end and its maintenance became unaffordable (Chaichian 2013).

Between 430–800 AD, Anglo-Saxon kings built and maintained Offa's Dyke, a 240 km long ditch and piled soil structure. It was intended to demarcate the border between England and Wales, as well as defend against invaders. The Danish kings built and reinforced Danevirke, a 30 km long defensive structure between 650 and 968 AD. It was last fortified before 1180, and then abandoned 150 years later (Pulsiano and Wolf 1993).

Construction of the Great Wall of China began before 220 BC and continued until the seventeenth century, the total distance reaching 21,196 km. Its original purpose was to separate the civilized Chinese farming heartland from nomadic barbarians to

the north, and to claim the disputed territory.⁵ Over time the wall became a tool to control trade, prevent smuggling, and serve as entry portal with customs checkpoint. Millions of conscripted peasants lost lives building the wall in harsh climate on steep hillsides due to inadequate transportation, inhumane living conditions, and insufficient food. The total annual expenditure on the wall in 1576 was estimated to cost three-quarters of the annual emperor's budget. Maintaining and garrisoning the wall was financed by higher taxes and revenues from government monopolies on selling salt and iron, at the expense of other social projects (Lovell 2006). Early unconnected fortifications were not real obstacles against nomads. In later centuries, the wall did provide some protection, but not against the organized army of Genghis Khan in the thirteenth century. The wall did not protect against nineteenth- and twentieth-century barbarians arriving by sea: Europeans, Americans, and Japanese (Waldron 1989; Lovell 2006; Jones 2016). Throughout Chinese history, weaker emperors made investment into the expensive wall as a policy of last resort when all other options—diplomacy, bribery, trade, tribute, or punitive military expeditions—had failed. In contrast, expansionist dynasties—Tang and early Ming—refused to repair the “wall of shame” of their military superiority (Langerbein 2009). The wall did not prevent trade and cultural exchange: steppe nomads came to the early wall to trade horses and leather for pottery and clothing; Chinese rulers learned nomad's fighting techniques and integrated nomads as leaders of their own armies. Even though the protective function of the imperial wall was long obsolete in the twentieth century, the government of communist China kept investing into the wall as it became a symbol of national identity, a monument to the military superiority of China, a poetic inspiration, and a lucrative tourist attraction.

Virtually all cities in Northern China had defensive walls from as early as 2000 BC. Larger cities with more economic activity had longer walls; frontier cities subject to a higher probability of attack had stronger walls. The protective function of the walls may have contributed to a perceived sense of security and attracted more people and commerce to the walled cities: even today these cities have larger population and employment densities (Ioannides and Zhang 2017; Du and Zhang 2018).

In Nigeria, a number of fortifications were built over several centuries from around year 800. Benin city was possibly the largest urban planning project in the world at the time, a web of walls with a total length of 16,000 km that enclosed an entire kingdom made of hundreds of interlocked cities and villages (The Guardian 2016). Benin walls were destroyed by the Europeans in 1897. The other massive wall in the area, Sungbo Eredo, was a 160 km wall and ditch earthworks financed by a rich queen around year 1000, intended for defense, unification, and as a shrine for spirit worshiping (Onishi 1999).

In Mexico, a small Mayan city of Tulum was surrounded on three sides by a 740 m long wall around the year 1200, for defense against larger city-states (Bley 2011). In 1281, Japan built a 20 km stonewall Genko Borui against Mongol invasion, and it is said to have contributed to the defeat of the invaders (Vallet 2016).

⁵Climate change has been identified as a major source of the nomadic invasions against the agriculturalists in mid-to-late imperial China (Pei et al. 2018).

Between 1500 and 1800, the Russian empire fortified its southern borders with barricades of felled trees with ditches and earth mounds, palisades, watchtowers and forts, moving the barriers south as the empire expanded. These fortifications protected against Tatars and other nomads who were active participants in the slave market, kidnapping thousands of Eurasians per year and selling them into slavery to the Ottoman Empire. They also prevented domestic runaway serfs from fleeing, and demarcated new land for peasant farmers (Kollmann 2017).

Plagued with chronic raids and territorial disputes, settled agricultural tribes sought to protect themselves against outside threats to survival by asserting control over land and strategic routes. Walls were expensive to build and even costlier to maintain. Early construction materials—wood and mud bricks—would be eroded by weather, leveled by earthquakes, or ruined by invaders. Despite costing much in resources, wealth, and manpower, ancient walls were only partially successful in achieving their intended goals. These defenses appeared to have worked for the lifetimes of their builders, sometimes for several subsequent generations, but ultimately lost their value (Spring 2015). It is unclear whether the gain of security provided by walls was worth the opportunity cost of their construction, whether the damage inflicted by barbarians could outweigh the financial burden of the projects.

It is tempting to speculate how building a wall relates to the lifecycle of a city-state or an empire. Do expanding, flourishing, or declining powers build defensive barriers? In premodern history, the pattern suggests that richer rulers whose power was on the decline were more eager to build a physical defense system. Excessive spending on the walls may have in turn weakened empires and expedited their collapse.

3.2.2 *Modern Walls*

Between the late medieval times and early twentieth century, empires rose and fell, national borders moved numerous times, finally settling on what later became political borders of modern nations. This period in history is characterized by declining violence in Europe: rates of homicide from violence and wars in European countries decreased 10–50 times during that time (Pinker 2011). Pinker (2011) attributes the trend to the spread of the power of centralized authority with monopoly on the legitimacy of violence, adoption of law and order, the advent of diplomacy, development of trade partnerships, advances in transportation, the rise of literacy, increased life expectancy, adoption of the values of tolerance and human rights, aversion to violence and cruelty. Recognition of sovereignty over a territory among states became more common after the 1600s, in part due to advances in cartography that allowed better records of borderlines (Jones 2016). Consequently, the need for defense walls declined and fewer new defense barriers were built during that time.

While the construction of physical barriers was on the decline, new legal border barriers emerged. Their purpose was no longer defense, but rather control over the movements of civilians. Early steps toward a modern passport system

appeared in fourteenth-century England, sixteenth-century Germany, seventeenth-century France, and eighteenth-century Russia with the introduction of migration permits (Torpey 2000). Throughout fourteenth- to eighteenth-century population growth in Europe was slow, people were seen as wealth and a valuable asset for extraction of military service, taxes, and labor, thus governments sought to restrict outbound migration. At various times European monarchies introduced restrictions on emigration of skilled labor, such as artisans (1534, England), shipbuilders, sailors, and fishermen (1669, France). Prussia restricted all emigration without permission in 1686. China had severe punishments, even death, for anyone going abroad in the sixteenth to eighteenth century (Xu 2005). The majority of European settlers who colonized the United States were “illegal” migrants who bypassed emigration restrictions. Spain, Russia, England, Holland, and the Ottoman Empire, among other countries, welcomed immigrants and refugees with tax breaks and other incentives (Dowty 1987).

Most Western countries adopted passports and visas after WWI. Travel documents, ID cards, registration, and censuses, were early forms of state surveillance and control over citizens’ identities and their whereabouts. By allowing or depriving people of the freedom to move, states could efficiently conduct law enforcement, prevent potential anti-government insurgencies, target national security operations, distribute incentives and punishments, prevent brain drain, administer claims to assets, supervise population growth and composition (Torpey 2000).

Leading up to WWII, Europe experienced a revival of defense fortifications. Finland constructed two lines of fortified defense on the Soviet border in 1920–1940, the Mannerheim Line with fallen trees and boulders, and the Salpa Line with 350,000 stones weighing 3 tons each. Czechoslovakia 1935–38 built border fortifications with infantry blockhouses and anti-tank obstacles. Greece built the 155 km long Metaxas Line of 21 independent fortification complexes to protect from Bulgarian invasion in 1936–41. France 1929–38 constructed the Maginot Line, a 380 km long permanent system of fortifications with concrete bunkers, tunnels, tank obstacles, artillery casemates, machine gun posts along the German and Italian borders. Sweden built the 500 km Skåne Line on its borders with barbed wire and concrete bunkers along the shore, armed with machine guns and cannons. Mussolini’s Italy 1930–42 built the Alpine Wall, a system of defensive fortifications along the 1851 km of its northern frontier facing France, Switzerland, Austria, and Yugoslavia. Nazi Germany built the Atlantic Wall equipped with coastal guns, batteries, mortars, artillery, and thousands of stationed troops along the coast of continental Europe and Scandinavia in 1942–44 against an anticipated Allied invasion from the United Kingdom (Kaufmann and Donnell 2004). None of these wartime fortifications could stop attacks by air, and some did not even deter the enemy armies arriving by land and sea. When the Allies eventually invaded the Normandy beaches, most of the Atlantic Wall defenses were stormed within hours. In the case of the Maginot Line, Nazis avoided it while invading France using an alternative route through Belgium.

After WWII, the United Nations was formed and countries recognized each other’s political borders and territorial integrity. The triumph of diplomacy and peaceful

coexistence could render the border walls and fences obsolete. However regional conflicts persisted, and security walls were a frequent solution.

France built an electric fence with minefields, the Morice Line, before the Algerian War of 1957, to prevent the rebel guerrillas from entering Algeria from Tunisia and Morocco. Israel built a 150 km defense system known as the Bar Lev Line, a massive sand wall supported by a concrete wall, along Suez Canal during the 1967 Six-Day War with Egypt, Jordan, and Syria. Guantanamo/Cuba, and China/Hong Kong fortified their mutual borders with 30 km walls in the early 1960s. Oman built a 50 km mined Hornbeam line against guerrilla insurgents in 1973 (Peterson 2008). Cyprus was divided by a UN buffer zone after Turkey took over Northern Cyprus in 1974, and Northern Cyprus built a 300 km concrete wall. Morocco built a 2,700 km sand “berm” with trenches, barbed wire, and landmines against Western Sahara in 1987 to claim disputed territory. North and South Korea built a 243 km heavily fortified demilitarized zone in the late 1970s.

During the Cold War of 1945–91, the Soviet Union and its allies put up the “iron curtain”, a set of self-imposed physical, legal, and informational barriers between themselves and the West intended to prevent trade with the West and to stop emigration of citizens to the West, in order to protect the emerging fragile new communist society based on work, cooperation, and egalitarianism from western capitalism based on individualism, competition, and hierarchy. It also included militarized borders with the West: a 240 km electric fence between Hungary and Austria, and the Berlin Wall.

Berlin Wall, built by East Germany in 1961, was a complex 150 km long system with sensors, a fence, barbed wire obstacles, dog-runs, an anti-tank ditch and obstacles, an access road for guards and vehicles, an alley of lights, 186 guard towers, a control strip of raked sand, followed by the main exterior wall with 25 border crossings. The wall employed 12,000 elite patrol soldiers and 1,000 dogs; troops were equipped with 567 armored personnel carriers, 156 heavy engineering vehicles, 2,295 other vehicles, 48 anti-tank guns, 48 grenade launchers, and 114 flame throwers. Despite the high-tech engineering of the wall, tens of thousands of East Berliners managed to escape by climbing over the wall, digging under, and hiding in secret compartment of cars; 75,000 people received prison sentences for attempting to flee, and 140 lost lives. Operating much like a prison wall, the Berlin Wall blocked emigration of skilled labor without which East Germany would arguably not be able to survive. It extended the life of the regime by at most 28 years till 1989, and when it finally proved to be an economic failure, the wall collapsed along with the ideology that supported it (Rottman 2012).

Fences erected by communist regimes were the only physical barriers in history intended to restrict out-migration. At least 5 were demolished at the end of the Cold War (Berlin Wall, Hungary–Austria, Czechoslovakia–West Germany, USSR–Finland, USSR–Norway), only the barrier between the Koreas remained. In contrast, the rest of the world was about to see a wave of walls against inbound migrants.

South Africa put up a lethal electrified fence on its border with poorer neighbors Mozambique and Zimbabwe in 1986. The fence was responsible for hundreds of refugee deaths in the first 3 years of its existence as migrants who tried to cross the

fence got electrocuted, while those who tried to bypass the fence by going through a national park got eaten by lions. Yet most illegal migrants managed to cross the fence (New Scientist 1990).

The decade of 1990s was marked by giant strides of the developed world toward unification, as evidenced by the adoption of NAFTA and common borders in the EU. But it was also the decade of fast population growth and rising inequality, the emergence of new regional conflicts, and the expansion of trade in drugs, weapons, and human trafficking.

Between 1990 and 2001, six security walls were built against potential terrorists (here and elsewhere the first country is the builder): Israel/Gaza, Kuwait/Iraq, India/Bangladesh, Uzbekistan/Afghanistan, Uzbekistan/Kyrgyzstan, Turkmenistan/Uzbekistan. In addition, two countries built migration walls: US/Mexico, and the Spanish enclaves of Ceuta and Melilla in Morocco. Smuggling of drugs, weapons, and other controlled goods were secondary reasons for several of these fences. Although not explicitly stated, claims to land may be additional reasons to erect walls in case of Israel, India, and Central Asian countries, given their history of territorial disputes.

3.2.3 *Twenty-First-Century Walls*

Concerns over terrorism magnified after the terrorist attacks of 9-11-2001 in the US. Other countries including Israel, UK, Spain, Indonesia, Russia, Bangladesh, Pakistan, and India, were also attacked by terrorist organizations. Between 2002 and 2010, fifteen new security walls and fences were added to the map around Middle East, when ISIS insurgency began to threaten stability in the region. Israel built security fences separating it from the West Bank and Egypt. Egypt built an over-and under-ground wall with Gaza. Saudi Arabia built an 885 km security wall with Iraq and fences with UAE, Oman, Qatar, Jordan, and Yemen. UAE erected fences along its borders with Saudi Arabia and Oman (migration, smuggling, security). Jordan built walls with Syria and Iraq. Iran walled off Iraq, Afghanistan, and Pakistan (security, smuggling). Israel Defense Forces claim that the Israeli-Egypt fence was effective in reducing the flow of illegal migrants from Africa.⁶

Outside Middle East, eight new fences were constructed: between Brunei/Malaysia (smuggling, migration), Myanmar/Bangladesh (security), Lithuania/Belarus (smuggling), Kazakhstan/Uzbekistan (smuggling), and Kazakhstan/Kyrgyzstan (smuggling). Russia built a barbed wire barricade on the border with Georgia (conflict). In Africa, Botswana put up a fence against Zimbabwe in response to a flood of refugee migrants who were accused of taking jobs, committing crimes, and spreading HIV (Kopinski and Polus 2019).

⁶Financial Times <https://www.ft.com/content/ccf4b532-3935-11e6-9a05-82a9b15a8ee7>.

In response to massive migration of Middle Eastern and North African refugees to the EU between 2011 and 2018, seven migration fences went up in Europe. Macedonia built a fence with Greece. Greece and Bulgaria have erected barbed wire fences on the border with Turkey. Hungary built a 175 km fence on the border with Serbia and a 350 km fence on the border with Croatia. Slovakia put a fence with Croatia, Austria with Slovenia. The UK financed a 13-foot-high barrier in the French port city of Calais, aimed at preventing refugees and migrants from entering Britain.

Middle East and North Africa added nine more security fences, fully or partially built: Oman/Yemen, Turkmenistan/Afghanistan, Pakistan/Afghanistan. Turkey/Syria, Turkey/Iran, Israel/Jordan, Israel/Syria, Israel/Lebanon, Tunisia/Libya, and Algeria/Morocco.

Regional conflicts and land disputes resulted in seven additional fences in Eastern Europe and Asia: Azerbaijan/Armenia, Ukraine/Russia, Estonia, Latvia, Lithuania built barriers with the Russian territory of Kaliningrad, Kyrgyzstan/Kazakhstan, Kyrgyzstan/Uzbekistan, and China/North Korea.

Several countries have announced future construction of fences: Estonia/Russia, Latvia/Belarus, Poland/Belarus, Poland/Ukraine, Hungary/Romania, Turkey/Iraq, India/Bhutan, Malaysia/Brunei, Malaysia/Indonesia, Russia (Crimea)/Ukraine, and Algeria/Libya. These appear to be mostly motivated by smuggling, territorial claim, and animal disease control. Latin America is free of border barriers except for those erected by the US between Guantanamo and Cuba.

In addition to border walls between countries, there are separation walls within countries intended to reduce violence. One example is a wall in Baghdad built in 2007 by the US to separate a Sunni district. Another example is a series of forty “peace walls” in Belfast, Northern Ireland, constructed in the 1970s to separate Catholic and Protestant communities.

Modern borders differ greatly in their level of complexity and enforcement. Among the most serious borders is Kuwait/Iraq, made of electrified fencing and razor wire, braced by a 4.6 m-wide and 4.6 m-deep trench, complete with a 3.0 m-high dirt berm, and guarded by hundreds of soldiers, several patrol boats, and helicopters. Saudi Arabia/Iraq wall is equipped with ultraviolet night-vision cameras, buried sensor cables, thousands of miles of barbed wire, 50 radars, 78 monitoring towers, eight command centers, ten mobile surveillance vehicles, 38 night-vision camera-equipped gates, 32 rapid-response centers, and three rapid intervention squads, all linked by a fiber-optic communications network. Some of the equipment used at the borders can detect a person 19 km away and a vehicle at 39 km.⁷ Among relatively porous borders are fences between Malaysia/Thailand, and India/Bangladesh. Both are lightly patrolled and monitored, and thus not effective deterrents for migrants and smugglers who often use fake documents and bribes to cross between the two countries.

We estimate that at least 67 international borders are fortified to various degrees with man-made barriers as of 2018, and there are plans to build 10 more in the next

⁷Gulf News Jan 22, 2015 <http://gulfnews.com/news/gulf/saudi-arabia/saudi-arabia-building-hi-tech-border-fence-1.1445112>.

few years. These borders are precisely documented in the Appendix Table: Modern Walls and Fences and illustrated in Fig. 3.1: Border Walls and Fences 1970–2020.

3.2.4 US-Mexican Wall

The US–Mexico wall is an example of a border barrier with several official motives behind it: stop illegal migration, fight drug and human smuggling, and prevent drug-related violence (Andreas 2000; Dear 2013). The first piece of the wall, the 22 km San Diego fence, was built in 1990–93. Since 2006, a total of 1,000 km of steel and concrete were added in various parts of this 3,200 km border. About one-third of the border consists of natural barriers such as desert stretches and the Rio Grande. In between the walls, there is “virtual fencing” composed of sensors, surveillance cameras, and other detection technology. Since 9/11, the US side of the border has been further militarized, and the border patrol budget increased 20 times. There are plans to add another 1,000 km of the wall in the near future with the total cost up to \$25 billion, including labor but not including the cost of land acquisition from current owners. Once constructed, the government will need to invest a few billion a year in wall maintenance, repairs, guards, and support infrastructure (Economist 2016, Fig. 3.1, Table 3.1).

The number of undocumented immigrants in the US increased between 1986 and 2008 from about 3–12 million people, or 7% of the US population. In the 1960s, 70 million Mexicans crossed the border, but 85% returned home. Increased border enforcement made circular migration more costly and risky, forcing undocumented Mexican migrants to settle permanently in the US (Zimmermann 2014a, b, 2017a, b; Massey et al. 2016).

The US-Mexican wall does not deter drug smuggling. Most illicit drugs are delivered into the US in vehicles with secret compartments and difficult to inspect shipping cargo using legal checkpoints. Drugs are also conveyed through elaborate systems of tunnels under the wall. Between 1990 and 2016, 224 tunnels were discovered, some with air vents, rails, and electric lights (US DEA 2016).

Stricter border enforcement in the US raised the cost of human smuggling by pushing it farther into the desert into the hands of large drug cartels. Coyotes used to work independently or in small groups. Now they work for one of the four narco cartels, paying the cartels a huge cut of the profits. If migrants try to cross the border without paying, they risk getting beaten or murdered. The average price is upward of \$4,000 in 2017 dollars (US DHS 2017). Smugglers are more often armed and violent, and conflicts between them and border enforcement agents resemble a war. Migrants are sometimes left to die in the desert: there have been 4,500 migrant deaths along the U.S.–Mexico border between 2006 and 2017 (US Customs and Border Protection 2017).

Similar dynamics are observed in Europe. The Greek fence has forced migrants to pursue more dangerous and expensive alternative routes. Trips on the Eastern Mediterranean route from Turkey’s Western Coast to Greece now cost over €1,000

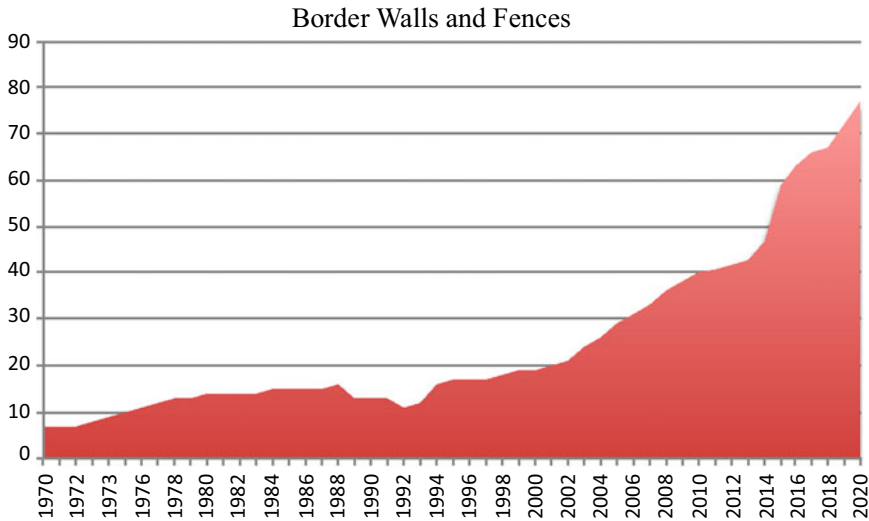


Fig. 3.1 Border Walls and Fences 1970–2020. *Note* The graph presents the authors’ count of all walls and fences in the world, including partially constructed (Estonia–Russia fence) and planned through 2020. Our estimates are overall similar to those in Vallet (2016), Jones (2016), and Carter and Poast (2017), although our estimates are more conservative. Vallet, Barry, and Guillarmou (quoted in Jones 2016) suggest an estimate of 69 fences in 2016 while our count is 63. We include only walls and fences on international borders (this excludes the Wall of Baghdad, the Walls of Peace in Belfast, and the Great Wall of China), the existence of which we could verify. For example, we are not sure if there is a fence on the border of Russia with China, Mongolia, and North Korea. There is probably at least partial fencing, but in the absence of information we did not count them. As construction start dates differ between sources, we used the most commonly reported dates. The Appendix Table lists all walls and fences included in our calculations. Rosière and Jones (2012) estimate that by 2012 more than 13% of the world’s borders were marked with a barrier of some kind

(Stamouli 2016). Between 2014 and 2017, over 11,000 migrants died or went missing in the Mediterranean at sea.⁸

The number of people detained without papers on the US–Mexico border has dropped markedly in 2017 to the lowest number since 2000 (US Department of Homeland Security 2017). Illegal immigration is on the decline because of demographics: Mexico’s birth rate has plummeted during the last 40 years from 6.1 children per woman in 1975 to 2.2 in 2005, which is not very different from 1.8 births per women in the US.⁹

⁸Migration Data Portal <https://migrationdataportal.org>.

⁹World Bank Open Data <https://data.worldbank.org>.

3.3 Making Sense Out of Walls

Consider the construction of a border barrier from a costs-and-benefits perspective. Costs include electric lighting, roads, security equipment, and guards. A physical wall requires masonry foundations, steel, and concrete, which is relatively expensive, while barbed wire fences are cheaper. Resources spent on walls and border enforcement come with opportunity costs—they could have been directed to alternative uses, such as building better schools and improving cities.

Should a security wall be built to prevent the infiltration of terrorists? Terrorism is costly for an economy as it leads to loss of life and destabilizes investment in productive assets. For example, terrorist attacks committed by the Somalian terrorist group Al Shabaab have had a large negative impact on Kenya's economy in recent years.¹⁰ A security fence may be justified in this case, even though Kenya does not have one. The costs of a security fence can be weighed against the benefits of preventing an attack for a country that faces threats from terrorism. One should keep in mind that historically, walls have not been effective against military attacks (Jones 2016). In recent times, most terrorist attacks in the US and Europe have been committed by legal residents "from within." The strongest walls could not have stopped 9/11. Planes and missiles can fly over walls, tanks can smash them, and biological weapons, drones, and cyberattacks bypass walls entirely. The security effectiveness of borders does not depend on military spending, but rather is a function of institutional design that encourages local cross-border collaborative policing (Gavrilis 2008).

Should a wall be built to prevent smuggling of illicit drugs and weapons? There is little evidence that walls are effective in the war on drugs. Even if they are, the cost of such barriers should be weighed against the results they achieve, given other law and policy options to regulate drugs and guns.

The main driving factor of undocumented migration—and therefore of walls—is inequality. Richer countries build walls against poor neighbors. Jones (2012) estimates that the average GDP of a country that built a barrier, from 2000 to 2011, was 5 times larger than the GDP of the target country. Similarly, Carter and Poast (2017) find statistical evidence that economic disparities have a significant impact on the presence of a physical wall using data on barriers constructed from 1800 to 2014. Therefore addressing the problem of poverty and inequality in the developing world is often suggested to be a way to reduce migration. However, this is only valid in the very long run.¹¹

Should a wall be built against illegal immigrants? The benefit of a migration wall may be high if uncontrolled migration imposes large costs on a society and if a wall provides sufficient protection against such inflows. For example, immigrants

¹⁰The Conversation <https://theconversation.com/why-al-shabaab-targets-kenya-and-what-the-country-can-do-about-it-87371>.

¹¹Economic development and emigration from developing countries are found to be inverse U-shaped. Hence, rising income increases the possibilities for migration, but migration has also a positive impact on development back home. See for a review of the rich literature Clemens (2014) and specific articles like de Haas (2010), Zimmermann (2017a, b), and Dao et al. (2018).

may commit crime, drain welfare resources, threaten national unity, and impose hardship on domestic workers. The cost-effectiveness of building a wall should also be compared to the alternative options of regulating migrant's privileges with policies.

Certain groups and industries—potential voters who influence policymaking—benefit from the proliferation of walls and militarization of borders. For example, the growth in border barriers created a multi-billion-dollar security business for private armament and defense companies specializing in communications, surveillance, information technology, and biometrics. Between 2002 and 2017, exports of Israeli companies specializing in high-tech border security increased 22% each year. Major international companies that have a large share in this market are American *Boeing*, Israeli *Elbit Systems*, Israeli *Magal Security Systems*, Spanish *Amper*, European *EADS Group* (Saddiki 2017). Among other likely beneficiaries will be Cemex, a Mexican firm with around half the quarries close to the border, given that it is not economically feasible to transport cement across great distances. Then, there are companies like the US Golden State Fence Company, a firm that built a significant portion of the border wall in Southern California, and was charged millions of dollars in fines for having hundreds of undocumented workers on its payroll.¹² The list of groups that stand to benefit from the wall also includes the Department of Homeland Security that employs 240,000 people and has an annual budget of \$61 billion, including border enforcement, militarized police units, ammunition, detention centers, biometric IDs, and surveillance (Miller 2017).

All types of border barriers reduce well-being of the population by restricting gains from cooperation, specialization, and trade between neighbors. Allen et al. (2018) show that the US–Mexico border wall expansion between 2007 and 10 harmed Mexican workers and high-skilled U.S. workers, but benefited U.S. low-skilled workers, who achieved gains equivalent to an increase in per capita income of \$0.36. In contrast, a hypothetical policy of openness, which reduced trade costs between the United States and Mexico by 25%, would have resulted in both greater declines in Mexico to United States migration and substantial welfare gains for all workers.

The noneconomic costs of walls include isolation, broken cultural ties, mistrust that can breed terrorism, damaged farmlands, and a threat to wildlife (Trouwborst et al. 2016). Political scientist Brown (2010) writes the following about Israeli and US–Mexico walls in the book “Walled States”: “Both intensify the criminality and violence they purport to repel, and hence, both generate the need for more fortifications and policing. Yet both are heralded for producing peace, order, and security. Both confound barricades and borders, and both articulate a border on confiscated lands. Both walled democracies are justified as state necessity in protecting the people, both draw upon the xenophobia they also exacerbate and project, both suspend the law in the name of blocking outlaws and criminals, and both build a ‘suspended political solution’ in concrete and barbed wire”.

Popular justifications for restricting migration are not based on real evidence, but rather the examples of signaling behavior by governments. In the words of Jagdish

¹²New York Times <http://www.nytimes.com/2006/12/15/us/15hiring.html>.

Bhagwati who spoke of the India–Bangladesh fence construction in the 1980s, for a politician, building a fence is “the least disruptive way of doing nothing while appearing to do something.” (quoted in Di Cintio 2013).

3.4 Open or Closed Borders?

There is a lively debate in the economic literature around the potential consequences of allowing more migration. Kennan (2013, 2014) and Clemens (2011) argue that lifting the restrictions on immigration could produce large efficiency gains because the unskilled workers become more productive when they move from a low wage to a high wage country. As a result, incomes in less-developed countries could more than double and the world GDP would increase by 67–147%.

A large body of research has documented that increased cross-border labor mobility has beneficial effects for host countries and their residents. For example, the EU labor market has become more flexible and better able to absorb shocks after the EU eastern enlargement (Kahanec and Zimmermann 2009a, 2016; Jauer et al. 2019) and this is attributed not only to migrants from the (new) member states but also to third-country nationals.

There is evidence that immigrants do not take jobs away or depress wages. Instead migrants help create jobs for natives, because their skills are most often complements rather than substitutes for the skills of native workers in the production of goods and services (Constant 2014; Peri 2014; Foged and Peri 2016). High-tech startups and established firms owned by foreign-born entrepreneurs have introduced more innovations than firms owned by US-born entrepreneurs (Brown et al. 2019).

Labor migrants tend to be economically successful taxpayers, and are less likely than natives to use welfare benefits (Giulietti and Wahba 2013). In the EU, the generosity of unemployment benefit spending across EU countries in 1993–2003 had a negligible effect on the inflow of non-EU migrants (Giulietti et al. 2013). In the US, the overall cost of public benefits is substantially less for low-income non-citizen immigrants than for comparable native-born adults and children (Ku and Bruen 2013).

It has been shown that higher share of foreign labor is associated with more equality in developed countries (Kahanec and Zimmermann 2000b, 2014). Social tensions are smaller and attitudes toward migrants are more open if immigrants are selected according to the needs of the labor markets (Bauer et al. 2000). The well-being of natives is shown to be higher in countries with more—and with more diverse—migrants (Akay et al. 2014, 2017).

Immigrants commit fewer offenses and less frequently end up in prison than the native population. For example, the number of illegal immigrants in the US tripled between 1990 and 2013, while the crime rate plummeted (Ewing et al. 2015). Data on migration flows between 145 countries between 1970 and 2000 shows that immigration does not cause terrorism; immigration leads to a decline in terrorist acts, largely because it fosters economic growth (Bove and Böhmelt 2016).

Labor migration, particularly that of undocumented workers, is largely circular migration in the absence of travel barriers, because workers go back home to their families after temporary work episodes abroad (Zimmermann 2014a, b, 2017a, b; Constant et al. 2013; Massey and Pren 2012). Mobility restrictions, paradoxically, create more permanent migrants, because workers, unable to move freely to and from the host country, bring families with them. This scenario selects for migrants who may be less willing to assimilate, and the children of immigrants remain culturally diverse (Galli and Russo 2019). When immigrant workers travel back and forth between their host and home countries, the home countries benefit from their skills, knowledge, and perspective, as well as from investments into local businesses and money they spend at home. Remittances sent home by migrants contribute to the development of some of the world's poorest countries, accounting for over 30% of GDP in Kyrgyz Republic and Tajikistan, around 25% in Haiti and Yemen, and close to 20% in Moldova, Honduras, and El Salvador.¹³ In other words, immigrants send home 3–4 times more money than countries receive in development aid.

Given the evidence, open borders policies rather than walls would improve the world's well-being. What are some of the drawbacks? Large inflows of migrants may be disruptive for the welfare system in the short run, even if in the long run the balance is restored. Host country natives may have legitimate concerns about preserving national identity and granting voting rights to the newcomers. Potential higher demand for housing, schooling, medical care, and the accompanying rise in property prices are also important short-run concerns.

In a world where wealth and opportunities are more equally distributed, a smaller number of individuals would be drawn by labor market needs or want to migrate to explore different cultures. More people would prefer to stay to be close to their extended families and friends and the home country culture. Unfortunately, simple solutions such as sending foreign aid to poor countries do not reduce emigration (Clemens and Postel 2018).¹⁴ In fact, rising incomes in developing countries may have the opposite effect at least initially, it will increase mobility among people who need resources to move. Reducing migration from poor countries requires complex solutions to global poverty, inequality, and conflicts. Long-term solutions to migration crisis should involve development of institutions in poor countries, including law and order, property rights, as well as investment in education, reduced corruption, and peaceful governance.

3.5 Conclusions: Politics Versus Economic Evidence

Contemporary border fences are built for much the same set of reasons as ancient walls. We have defense walls against external threats of terrorism and infiltration by insurgents. There are walls that separate conflicting cultures and religions, walls

¹³World Bank Migration and Remittances Data 2018. <http://www.worldbank.org/en/topic/migrationremittancesdiasporaissues/brief/migration-remittances-data>.

¹⁴See also footnote 10 and the literature cited there.

that establish ownership of land, barriers that regulate trade, and fences that restrict migration of civilians. The attributes of walls have changed from earthwork, bricks, and masonry to sophisticated structures that include concrete, razor wire, sensors, personnel, dogs, infrared equipment, patrol vehicles, drones, helicopters, planes, and satellites. There are additional invisible walls made of legal and digital barriers to restrict movement of goods and people, and maritime systems to detect unauthorized boats.

Like ancient walls, modern “security walls” are only partially successful in accomplishing their goals. No physical barrier can provide effective protection against homegrown terrorists and modern weapons. No fortification can stop migrants who arrive by air and sea. No wall will reduce the drug flow when most of it crosses the border through legal entry points. More than ever before, walls today are politically motivated, reflecting signaling behavior by governments who wish to appear tough on immigration, and serving the interests of defense industries that stand to benefit from the projects. Economic literature overwhelmingly suggests that policies of more open borders, with less restrictive migration and trade, benefit domestic citizens more than walls. Economic policies are also more effective than walls in dealing with illegal trade and trafficking, while diplomacy is more effective than walls in addressing security. Ignoring rational economic thinking over populist politics comes at a price, a loss in well-being.

Acknowledgements We thank K. Bruce Newbold and two anonymous reviewers for many helpful comments and suggestions on an earlier draft.

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Chapter 4

The Demography of Migration



James Raymer and James O'Donnell

4.1 Introduction

In this chapter, we focus on the study of migration from the perspective of demography. Demography is the study of population dynamics with a strong emphasis on compositions, e.g. by age and sex, and the underlying mechanisms of change, i.e. fertility, mortality and migration. What makes the demographic study of migration different from other migration studies is the importance placed on population change and measurement, especially in relation to the demographic accounting equation (Raymer et al. 2019; Rees and Willekens 1986).

Migration complicates demographic study because of the ambiguity of the population 'at risk' of experiencing an event which is a fundamental aspect of demographic thinking (Rogers 1990). While the population of any given country or region is at risk of producing babies (fertility), dying (mortality), out-migration (domestic) and emigration, the study of in-migration (domestic) and immigration is more problematic because the population at risk is outside the population of interest. Indeed, an out-migrant (emigrant) from one population must be an in-migrant (immigrant) to another. Therefore, in order to study the demographic effects of migration, one needs to consider at least two populations: the sending population and the receiving population.

How migration affects both origins and destinations simultaneously is the main focus of this chapter. In addition to the direct effects on both population age compositions, we also describe how migration can have other demographic consequences through their subsequent births, deaths and further migration. The basic model for studying the demography of migration is the multiregional demographic model

J. Raymer (✉) · J. O'Donnell
School of Demography, Australian National University, Canberra, Australia
e-mail: james.raymer@anu.edu.au

J. O'Donnell
e-mail: james.odonnell@anu.edu.au

pioneered by Andrei Rogers and colleagues starting in the 1960s (Rogers 1966, 1968, 1975, 1995; Rogers and Willekens 1976; Willekens and Rogers 1978). We use this model as a basis for understanding the role of migration in population change.

Understanding the demography of migration is important in today's world, where migration increasingly affects all spheres of life, from economic to social to political. The demographic distinctions between 'developed' and 'less developed' parts of the world are diminishing. Just about everywhere, populations are living longer and having fewer children, and they are increasingly being altered by both internal and international migration (White 2016, p. 1). Moreover, cross-border moves represent major political and security concerns for many countries throughout the world (Castles et al. 2014, pp. 312–314). Having a sense for the numbers, and their effects on population change, is needed to inform policies, and to eventually create better systems of migration management.

Migration has always been an important factor in society, and immigration policies have long sought to control the types and characteristics of people coming to their countries. However, a major gap in our knowledge of migration concerns the long-term demographic consequences of these policies and the subsequent implications for population distribution and composition. Moreover, we also know little about the consequences of domestic migration, which tend to involve larger numbers of people than international migration. Demographic consequences include, for example, those that are direct, such as changing the population size and composition of specific populations, and indirect, such as those involving subsequent generations (Edmonston 2010, 2016; Scott and Stanfors 2010) and other demographic processes, such as fertility or mortality (see, e.g. Kohls 2010; Kulu 2005, 2006; Milewski and Kulu 2014). Migrants from poorer areas of the world tend to bring with them their higher levels of fertility, and because migration involves a selection process, they also tend to bring with them their youth and ambition. Not all migrants remain to retire in the host country but many do, and this has implications for the health sector in an ageing society.

One major and long-standing issue concerning the demographic study of migration is data and its measurement on both migration flows and migrant population stocks. For example, the United Nations (1998) provides recommendations on how international migration flows should be measured but most countries in the world do not provide any data at all. For those (mostly developed) countries that do, they tend to collect data for their own needs and purposes. Rarely are considerations given for international comparability. So, we do not actually know how many people are crossing borders and contributing to population change. Some methods for indirectly estimating this information are available (see, e.g. Abel 2013, 2018; Raymer et al. 2013; Rogers et al. 2010), and they will likely continue to provide the necessary basis for augmenting the missing and inadequate data in the future so that we may better identify the role of migration in population change.

A demographic perspective on migration provides a unique line of enquiry. For example, a demographer might be interested in whether migrants from rural areas living in cities have higher or lower fertility? How many of the people who arrived in the past 15 years are still living in the area? And how many of them can be expected

to remain until they retire? What is the probability of return migration? Are migrants who cross international borders healthier than those who decide to remain in their country of origin? These are just a few examples that link the process of migration with demographic change.

4.2 Background

In order to study the role of migration in demographic change, we need to have a basic understanding of concepts, data, processing and estimation and outputs (Raymer et al. 2015). Here, concepts refer to particular types of population or migration statistics, such as usual residents and people present in countries with foreign citizenship. Data are any information gathered about the population of interest and its movements, usually obtained from censuses, surveys or administrative registers. Processing and estimation refer to data cleaning, imputation, combining two or more information sources through matching or proportioning and statistical modelling. Outputs are the published statistics.

The concepts of population may vary depending on the needs of the user. However, all types of population can be related to the actual population at time t in location i . Likewise, concepts of migration can be related to the movement of all people in and out of location i between two-time points. To estimate particular populations, therefore, one must consider the types of entries and exits (including births and deaths, respectively) between time points $t - n$ and t , where n refers to the width of the time interval (e.g. days, months or years). There are various data sources that can be relied on to capture particular populations present in location i at time t in statistical form. The geographies are obtained from the location attributes linked to these data sources. From the data sources, attributes of the population and migrants also can be obtained, where the main attributes are often age and sex. Processing is required to match the concepts to the data. In some cases, estimation is required to combine data or to include auxiliary information. The result of the data processing and estimation is the outputs. Due to time, budget and available data constraints, the outputs rarely consider all the different types of population present in location i and at time t . More often, they include just one type of population, such as those considered to be usual residents.

The conceptual framework described above, based on Raymer et al. (2015), is useful for reconstructing population change using data obtained from multiple sources. In Australia, for example, fertility and mortality are obtained from administrative registers, internal migration flows are obtained from censuses and Medicare, and immigration and emigration flows are obtained from processing arrival and departure cards. Population stocks are available from censuses as enumerations and the Australian Bureau of Statistics as official estimates. This information can be brought together using the demographic accounting equation. This relates population stocks at any given point in time to the components of population change as follows:

$$P_i(t + 1) = P_i(t) + B_i - D_i + M_i - O_i + I_i - E_i$$

In words, the population of region i at time $t + 1$, $P_i(t + 1)$ is equal to the population at time t , $P_i(t)$, plus the number of births in the intervening period B_i , minus deaths D_i , plus in-migrants arriving from within the country, M_i , minus out-migrants, O_i , plus immigrants, I_i , minus emigrants, E_i . At the national level, in- and out-migrants within the country are equal by definition and cancel each other out.

The demographic accounting equation thus situates the role of migration in the process of population change. Migration represents one of the three components of demographic change alongside births and deaths and is made up of at least two separate flows—arrivals (in-migration and immigration) and departures (out-migration and emigration). As stated in the Introduction to this chapter, distinguishing between these types of flows is important because they originate in two mutually exclusive populations at risk, in addition to having potential counteracting effects on population change. In constructing the demographic accounting equation, it is important to align the measurement of the demographic components to fit the population statistic or measurement of interest. Most countries use a 'usual residence' (de jure) definition of population, however, from the accounting perspective, any population could be used, such as the actual population present (de facto) or a temporary population of interest. Whichever definition is chosen, measurement of the components of change, including migration, must be drawn from and be consistent with this population.

The demographic accounting equation is the basis for understanding the demographic drivers of population change and for projecting the population forwards and backwards through time. These are typically achieved by calculating and projecting age- and sex-specific rates of fertility, mortality and migration, defined as the number of people experiencing these events divided by the populations at risk. Through multiregional life tables (described below), projected rates of mortality and internal migration transition probabilities are converted into survivorship ratios which, alongside projected values (rates) of fertility and international migration, are used to create population projections. Projections can identify and quantify the direct and indirect effects—in terms of the size and composition of migrant flows and the subsequent fertility, mortality and onward migration, respectively—on the size and composition of sending and receiving areas. In this respect, migration is not only an interesting phenomenon and area of research in its own right but also a critical input for understanding and estimating broader population dynamics.

Migration is a difficult and hard to measure statistic. Part of the problem is related to the difference between a concept of migration and the practical implementation of that concept. Moreover, migration data are hardly ever collected for the study of migration or demographic change. Rather, they are obtained as an offshoot of an administrative procedure or legal basis. Consequently, the measurement of migration is typically based on the number of people who change their residential address or who report different addresses at two separate points in time. Further, this may refer to any change in address or only changes across a geographic border such as a national, state, city or neighbourhood border. By contrast, migration may be thought to have a

deeper conceptual meaning. For example, Raymer and Smith (2010, p. 173) provide the following definition:

Migration is a loosely defined process that represents the relocation of people during a period of time that causes them to relinquish the ties with their previous locality. The key factors that separate migration from general mobility are distance travelled and length of time spent in the destination; together they work to alter the economic and social networks of the migrant. Migration can involve people moving within a country, as well as across international borders.

In this light, migration extends beyond an administrative by-product or accounting input, concerned as it is with the loss and formation of economic and social networks. However, few data sources appropriate for migration analyses capture such information. From a pure demographic perspective, arguably, the most important aspect of any definition is that it fulfils the requirements of the demographic accounting equation (Rees and Willekens 1986). In practice, this invariably means a permanent or semi-permanent change in residential address across a geographic border.

Migration data are typically collected from census and administrative sources. Most censuses ask respondents where they were living one year ago, five years ago, where they born and/or the year they arrived in the country if applicable. Cross-tabulating these past locations by locations at the time of the census produce matrices of migration transitions between origin and destination locations. These can be converted into migration transition probabilities using the methods described by Rogers (1995) and in the case study below. Population and health registers provide information on migration flows where individuals and families register a change of address or enrol with municipal authorities or health providers. Census and register data are particularly useful for measuring internal migration while also providing information on international migrant arrivals. Measuring emigration is complicated by the fact emigrants do not appear in national censuses (as they have left the country) and may not register a departure with authorities. Emigration (and immigration) may instead be measured from data on international air, land and seaports, including in the form of arrival and departure cards and international passenger surveys.

Detailed demographic and socio-economic data on migrants and sending and receiving areas are usually obtained from censuses. General-purpose surveys often collect migration data but, because of relatively small sample sizes, they are usually inadequate below the national or broad regional levels. Population or health registers may be used to track migration flows, however, these sources are often not accessible and do not contain much demographic or socio-economic detail. Also, because migration data tend to be collected from sources that have other purposes, the questions underlying the patterns may not fit a particular research question of interest, e.g. measuring migrant status tells us little about migration frequency. There may also be situations in which the required data are available but cannot be considered reliable due to, for example, statistical disclosure control. Missing data is usually caused by suppression of data or by non-response by migrants. Substantial time lags often exist between the time individuals move and the time their new address or emigration is registered in administrative data.

4.3 Theories

In thinking about the demography of migration, we review two theories that emphasise the fundamental relationship between population change and migration processes. The first is the mobility transition theory by Zelinsky (1971; see also recent review by Skeldon 2018). The second is the life course theory (Kulu and Milewski 2007; Willekens 1999). We provide brief overviews of both theories and their importance in understanding migration patterns. There are a host of other migration theories originating in other disciplines that are not treated here. These include, for example, neoclassical economic (“push-pull”) theories, dual labour market theory, migration network theory and cumulative causation (see Massey et al. 1993). While these theories are important for understanding the processes and motivations of migration, they do not emphasise the demographic aspects that are central to this chapter’s purpose.

Zelinsky’s (1971) mobility transition theory is tied with the demographic (vital) transition theory in that mobility and migration patterns are affected by changes in the economic development or modernisation process of a country. Five phases of the mobility transition linked to demographic and economic development are included:

1. *Pre-modern traditional society* which exhibits low migration or mobility;
2. *Early transitional society* which experiences large scale rural to urban migration, emigration to other countries, immigration of skilled workers, and increased mobility in general;
3. *Late transitional society* which experiences a slowing down of rural to urban migration and emigration but continues to experience increases in mobility and internal migration;
4. *Advanced society* which experiences stable and high levels of mobility and internal migration and net immigration of unskilled workers and
5. *Future super-advanced society*, which exhibits lower levels of mobility and internal migration with some control of its internal and international movements.

While some countries may not fit neatly into the five stages above, Zelinsky’s mobility transition theory provides explanations for why some countries are primarily senders of emigrants and others are receivers of large amounts of immigration. It also helps us to think about the likely changes countries will face as their economies develop. For example, consider Asia, a region currently experiencing rapid demographic and economic change (Castles et al. 2014, p. 151; see also Liu-Farrer and Yeoh 2017). Here, we find that rapidly developing countries, such as China and India, are major senders of migrants and recently developed countries, such as Singapore and South Korea, have become major receivers of immigrants.

The second demographic theory important for the study of migration is the life course. In this theory, an individual’s life is composed of a series of transitions or life events, which are embedded in trajectories (or status passages) that give them a distinct form and meaning (Kulu and Milewski 2007). This approach examines these trajectories with the aim of explaining movements between various statuses for the purpose of understanding social change and social phenomena. Here, an individual’s

life course is embedded in social institutions and is subject to historical forces and cohort pressures, among other factors. This approach has developed since the 1960s and has become a research paradigm in many areas of social sciences. The four key factors that shape an individual's life course are human agency, linked lives, historical and geographical context and timing of life events.

In studying migration, we are interested in the relationship between important life transitions and migration. These include those associated with early childhood, middle to late childhood, leaving the parental home, marriage and divorce, childbirth, retirement and loss of spouse or sickness in later stages in life. As a result, migration patterns often exhibit regularities in their age patterns.

The most prominent regularity in age-specific profiles of migration is the high concentration of migration among young adults; rates of migration also are high among children, starting with a peak during the first year of life, dropping to a low point at about age 16, turning sharply upward to a peak near 20 to 22, and declining regularly thereafter, except for a possible slight hump at the onset of retirement and possibly an upward slope after that hump. (Raymer and Rogers 2008, p. 177)

These age regularities or model migration schedules (Rogers and Castro 1981) have direct implications for the age-sex compositions of the origin and destination populations. Moreover, the shapes of the migration age schedules are reflective of the life course transitions that populations experience, and the patterns may vary depending on the characteristics of the origin and destination locations (Bernard et al. 2014).

The life course theory also corresponds with multistate demography or the modelling of subpopulations (Willekens 2014). Here, populations are stratified by age, sex and one or several attributes. This can include, for example, region of residence, marital status, education, number of children, household type, occupation, employment status and health status. A population that is stratified is a multistate population, and people who occupy the same state constitute a subpopulation. The evolution of multistate populations over time is governed by state-specific fertility and mortality rates, and transfers between subpopulations. When geographic units represent the subpopulations and migration is the mechanism of transfer between them, then it becomes multiregional demography.

4.4 Methods and Modelling

In order to fully understand the consequences of internal and international population movements, researchers and policymakers need to overcome the limitations of the currently available data sources on population stocks and demographic components of change, including inconsistencies in data availability, definitions and quality. This topic of research is important for most countries in the world. For example, in Australia, the main source of numbers on immigration and emigration comes from arrival and departure cards collected at major entry points with uncertainty about the destinations and origins within the country. For internal migration, the public have

access to census place of current residence by place of residence one year or five years ago, however, the Australian Bureau of Statistics relies on the Medicare health registration data for its population estimates, which are not publically available in detailed form.

Demographic estimation techniques and statistical modelling may be used to reconcile the measurement differences between the conceptual framework and the data, and to overcome other limitations, such as inadequate demographic or geographic detail and irregularities in the observed data caused by random or sample-based variation. Rogers et al. (2010) provide a useful strategy for estimation based on smoothing, imposing and inferring migration patterns. *Smoothing* limits the effect of randomness on the age, spatial or temporal patterns of migration caused by natural variation or variation due to insufficient sample size. For a contingency table of migration events, this may involve (i) fitting a line or curve to a particular pattern or (ii) removing higher order interaction effects in a log-linear model. *Imposing* refers to the borrowing of age, spatial or birthplace patterns from other areas or higher order patterns, e.g. when a national level age profile of immigration is used to represent the age profile of immigration of a particular geographic area not captured adequately in the reported data. *Inferring* refers to the borrowing of age, spatial or birthplace patterns from auxiliary sources that serve as useful proxies for the particular demographic pattern that requires estimation.

Lastly, multiregional (or multistate) population models provide a general and flexible platform for modelling and analysing population change over time and across space (Raymer et al. 2019). These models may be considered extensions of the life table and the cohort-component projection model. They allow the combination of all the main components of population change by age and sex with various transitions that population groups may experience throughout their life course. The developments of these models can be found in Rogers (1975, 1995), Rees and Wilson (1977), Willekens and Rogers (1978), Land and Rogers (1982) and Schoen (1988, 2006). Most standard cohort-component population models operate independently of other populations and ignore migration transitions. Instead, they rely on net migration or (slightly better) out-migration and in-migration rates to account for the change due to migration. Although more cumbersome, including the transition information maintains consistency and improves accuracy across demographic accounts, particularly in highly mobile societies (Wilson and Bell 2004).

Multiregional demography treats geographic areas, whether countries, states, cities or neighbourhoods, as interconnected units within a system. A demographic accounting equation applies to each in which area-level population change is governed by births, deaths and migration. Migration connects each unit in the system as shown in Fig. 4.1. Central to the estimation of the multiregional model, therefore, is the measurement of migration flows or transitions between origin and destination areas. This is achieved from two main types of data. The first and most common is aggregated cross-tabulations of the number of people living in each area at two points in time (usually one or five years apart). This information is most often collected in national censuses and converted into age- and sex-specific migration transition probabilities. These probabilities are applied to multiregional life tables which are

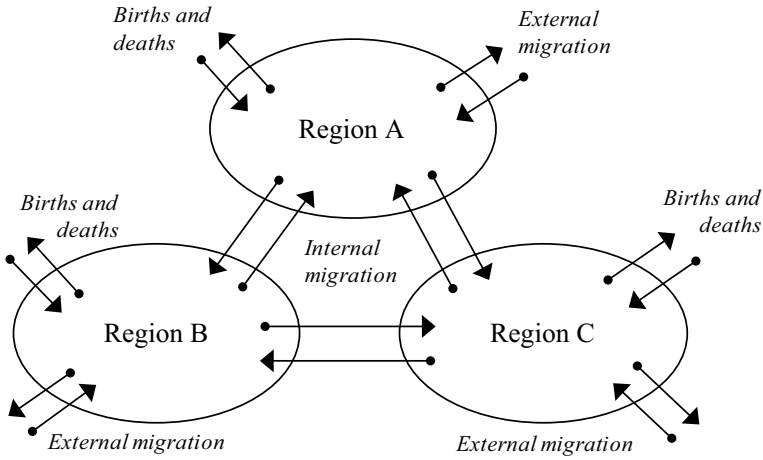


Fig. 4.1 Example of a three region multiregional system

used as the basis for population projections and location-specific life expectancies. This approach is also useful for analysing macro-level effects of migration such as the demographic and socio-economic consequences for origin and destination areas and for understanding migration processes and dynamics in the context of Zelinsky’s theory.

The second type of data is an individual unit record microdata. These are typically collected from administrative data, panel surveys and Census sample files that track migration flows or transitions for an individual sample or population. As above, migration probabilities can be calculated and applied to multiregional life tables with the advantage that other information in the dataset can be used to analyse the individual-level drivers and consequences of migration. Multivariate regression models can be specified, for example, to predict the effect on migration of (i) commencing or completing university education, (ii) obtaining, losing or retiring from a job or (iii) getting married or divorced for the entire population or by some social strata such as sex, ethnicity, birthplace, family type or economic class. Migration probabilities and life tables can be constructed that are specific to these sub-groups and events to estimate and project their effects on local level population change. To preserve some of the complexity and interactions between variables, microsimulation can be used to generate life histories for synthetic populations (Willekens 2014). This offers a promising approach for considering migration within life course theory, as well as considerable flexibility in analysing migration and other social phenomena. As previously noted, a key disadvantage is that census and survey samples are typically not large enough to model a large number of origin- and destination-specific migration probabilities, often necessitating relatively simple or stylised multiregional systems.

4.5 Case Study: Migration in New South Wales and the Australian Capital Territory

To illustrate the relevance of migration in demographic change, we present in this section an application of multiregional demography to analyse change in the population size, composition and distribution. This application is used to study the demographic effects of internal migration within the Australian state of New South Wales (NSW) and the Australian Capital Territory (ACT) over the period 1981–2011. NSW is the most populous state of Australia, containing the city of Sydney, as well as a relatively diverse mix of urban, rural and remote areas. The ACT contains the city of Canberra, the capital of Australia and a city of approximately 400 thousand people. The ACT is entirely contained within NSW. The multiregional demographic approach can be applied to any migration system, including a multi-country or global system. However, as described above, the required data are often readily available for internal migration and lacking for international migration.

In recent decades, internal and international mobility characteristics have placed Australia in the *Advanced Society* stage of Zelinsky's theory. After World War II and particularly since the mid-1970s, Australia has had a large immigration programme, progressively drawing migrants from Anglo, western, eastern European and increasingly south and east Asian countries and the Middle East (Jupp 2002). Tighter regulation in the last 20 years has focused the immigration programme on bringing in skilled migrants to fill identified shortages in the domestic labour market (Hugo 2014). Domestically, rates of internal migration are among the highest in the world and strongly linked to life course events (Bell et al. 2015; Bernard et al. 2016). The city of Sydney has played an important role in these internal and international dynamics, providing the largest point of arrival for immigrants, an important destination for internal migrants, particularly young adults from the rest of the state and a sending area, particularly for young families and retirees.

A map of NSW and the ACT is presented in Fig. 4.2. For the illustration, we focus on ten areas based on the old Statistical Division geography developed by the Australian Bureau of Statistics (ABS 2010). Aside from Sydney and the ACT, Illawarra takes in the city of Wollongong and parts of the south coast. Hunter includes the city of Newcastle, as well as towns of the Upper Hunter and parts of the coast north of Newcastle. North Coast stretches from Hunter up to the state border with Queensland. Murray, Murrumbidgee and South East, Central West and Northern are all predominately rural and regional areas, while Far West is largely remote.

In Fig. 4.3, population age-sex compositions are presented for six of the ten areas over time for the Australian-born population. These age-sex compositions show the population structure in 1981 in the salmon colour, 1996 in grey and 2011 in blue. In 1981, all regions had a relatively young Australian-born population. As throughout Australia, populations have become older over time, however, it is particularly evident in Hunter and the North Coast. Sydney, on the other hand, has remained relatively unchanged. Part of this is driven by foreign-born parents having children in Australia

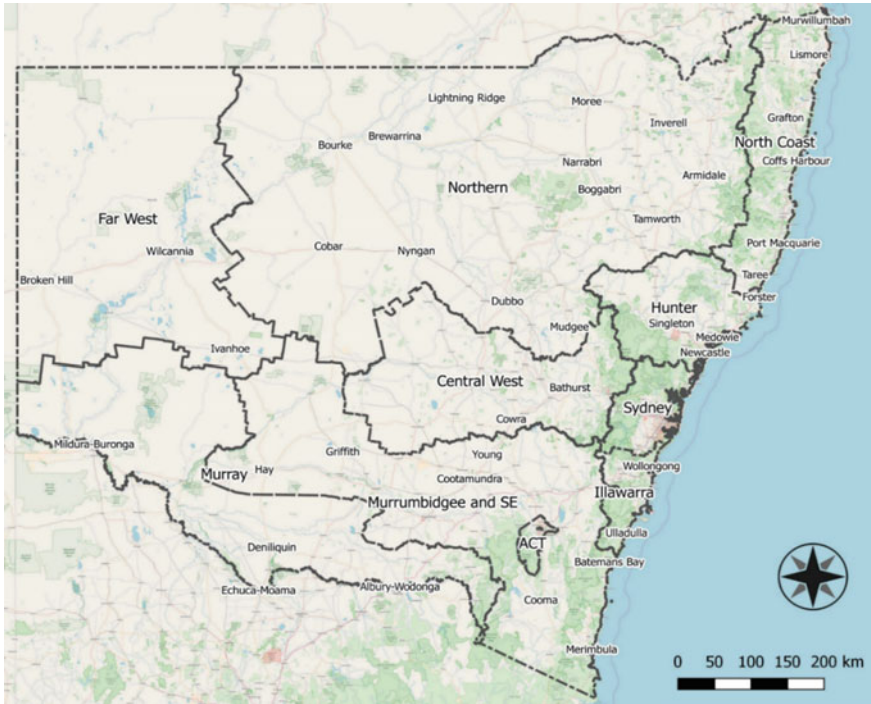


Fig. 4.2 Map of New South Wales and the Australian Capital Territory. *Source* Created by authors based on ABS (2010) geographies

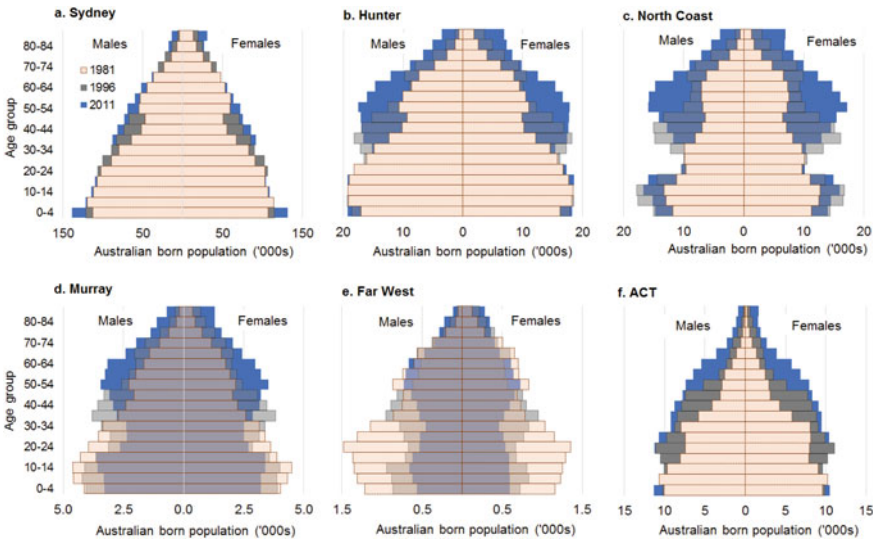


Fig. 4.3 Population pyramids for selected regions, 1981–2011

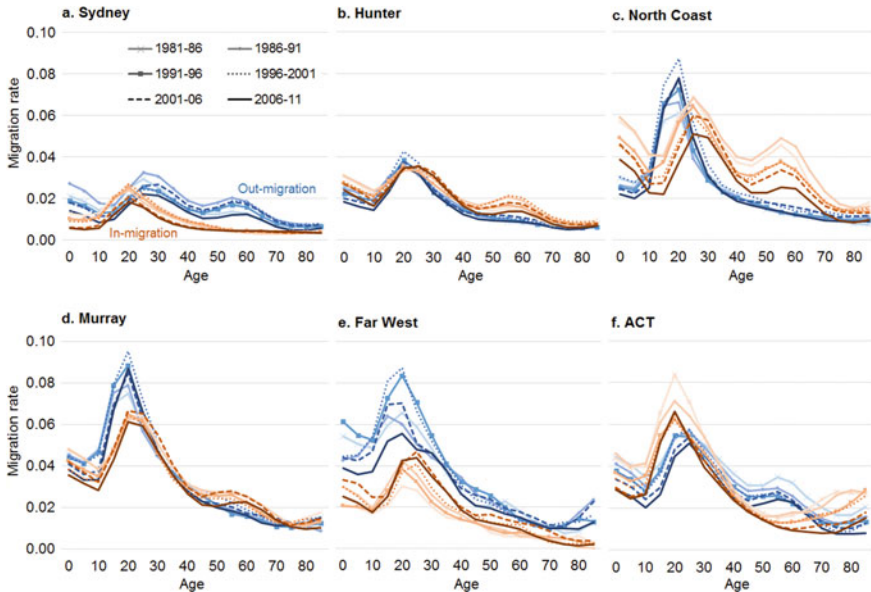


Fig. 4.4 Internal migration for selected regions, 1981–2011

and by sustained out-migration. The population decline experienced by young adult cohorts in the regional and remote areas during this 30-year period is striking.

For the purposes of our illustration, we are interested in the extent that internal migration contributed towards the changes in the age compositions over time. One important indicator is provided in Fig. 4.4, which presents the in-migration ratios (brown lines) and out-migration rates (blue lines) for the same six regions above and over time. Note that in-migration ratios are calculated by dividing the number of in-migrants to region i by the population of region i , which as we argued above is separate from the population ‘at risk’ of migrating. Here, and for the remainder of this section, we combine males and females together.

These patterns are strongly suggestive of both the effects of life course events on migration and the enduring influence of rural–urban migration. Out-migration of young adults has been very high in the North Coast, Murray, Far West and the other regional areas not shown. For example, during the 1996–2001 period, around nine per cent of 20–24 year olds left these areas. The slightly delayed peaks of in-migration most likely include some return migration of previous young adult out-migrants from these areas, bringing with them young families as evidenced by higher rates among 0–4 year olds. There are also clear retirement-aged bulges present in the age profiles of migration from Sydney and ACT. However, these bulges have been declining over time. Indeed, out-migration rates have declined across most age groups in Sydney, Hunter, Far West and ACT between the 1981–1986 and 2006–2011 periods. These declines have been observed across Australia (Bell et al. 2018), as well as in other developed countries (Champion et al. 2018; Cooke 2013). The underlying

causes are thought to be population ageing and changing economic structures (i.e. manufacturing to service-based). Interestingly, such evidence is line with Zelinsky's *Future Super-advanced* stage of the mobility transition theory.

The evidence also poses a series of other questions. For example, what happened to the young adult population in the North Coast, Murray and Far West areas? And, what were the implications for other areas in NSW and ACT? To answer these, we construct multiregional life tables, which combines age- and origin–destination-specific migration with age-specific rates of mortality to estimate the duration of life years spent in the areas of interest. Below, we provide a brief introduction to the calculations and key aspects of these tables. For a full description and set of equations on multiregional life tables, refer to Rogers (1995; see also Willekens and Rogers 1978).

Consider Table 4.1, which includes some of the multiregional life table inputs for the area of Sydney. A life table is constructed for each area that is joined together by origin–destination-specific migration probabilities as shown in the third to seventh columns. A person born in Sydney is estimated to have a half of 0.5% chance of dying before age five, an almost 93% chance of still being in Sydney at age five and a seven per cent chance of living elsewhere in Australia. (Note, emigration is also a possibility but is not included in this illustration.) From these probabilities, we can calculate life table survivorship by age (Columns 8 to 12 in Table 4.1). These represent the proportion of a synthetic population expected to be living in each location at each age, given where they were born and assuming age- and sex-specific migration and mortality rates remain constant. And, from these numbers, we can estimate the number of person-years spent in each location given their birthplace and location-specific life expectancies (Columns 13 to 17 in Table 4.1).

Estimating the migration transition probabilities usually starts with calculating survivorship ratios:

$$S_{ij}(x) = \frac{K_{ij}(x + 5)}{K_{i+}(x + 5)}.$$

These ratios are based on Census data calculated from the number of people K living in area j , who said they were living in area i five years ago and by dividing this by everyone who said they were living in area i five years ago. The multiregional survivorship ratios are then converted into conditional transition probabilities. These are the probabilities of a person exact age x living in region j in five years given they are currently living in region i conditional of their survival to the end of the five years:

$$p_{ij}(x) = \frac{1}{2} (S_{ij}(x - 5) + S_{ij}(x)) \times (1 - q_i(x)),$$

where q is probability of dying between age x and $x + 5$. The number of persons surviving to each exact age, l , are calculated in matrix form to incorporate each of the different possible migration transitions:

Table 4.1 Multiregional life table example for Sydney

Age	Death	Probability of transitioning to				Survivorship in region			Person years lived in			Rest of Aus.		
		Sydney	Hunter	Illawarra	Rest of Aus.	Sydney	Hunter	Illawarra	Sydney	Hunter	Illawarra			
x	q	P_{11}	P_{12}	P_{13}	P_{111}	I_{11}	I_{12}	I_{13}	I_{111}	L_{11}	L_{12}	L_{13}	...	Rest of Aus.
0	0.005	0.927	0.007	0.007	0.034	1.00	0.000	0.000	0.000	4.8	0.05	0.07	...	0.04
5	0.000	0.943	0.006	0.006	0.028	0.93	0.020	0.029	0.016	4.5	0.14	0.20	...	0.11
10	0.000	0.959	0.004	0.004	0.019	0.88	0.036	0.051	0.029	4.3	0.23	0.31	...	0.17
15	0.001	0.948	0.006	0.005	0.024	0.84	0.054	0.073	0.039	4.1	0.36	0.49	...	0.24
20	0.002	0.913	0.010	0.008	0.042	0.80	0.091	0.123	0.057	3.9	0.58	0.78	...	0.36
25	0.003	0.890	0.013	0.011	0.055	0.74	0.140	0.189	0.086	3.5	0.76	1.03	...	0.48
30	0.004	0.893	0.012	0.011	0.053	0.67	0.166	0.223	0.107	3.2	0.85	1.13	...	0.55
35	0.005	0.910	0.009	0.009	0.043	0.61	0.173	0.229	0.115	2.9	0.86	1.14	...	0.58
40	0.007	0.929	0.007	0.007	0.031	0.56	0.173	0.227	0.117	2.7	0.86	1.13	...	0.58
45	0.011	0.938	0.006	0.006	0.023	0.53	0.171	0.224	0.116	2.6	0.85	1.11	...	0.58
50	0.016	0.932	0.007	0.007	0.020	0.50	0.169	0.220	0.115	2.4	0.84	1.09	...	0.57
...
85+	1	0	0	0	0	0.188	0.082	0.103	0.054	1.2	0.53	0.66	...	0.35

$$\begin{bmatrix} l_{11}(x) & l_{21}(x) \\ l_{12}(x) & l_{22}(x) \end{bmatrix} = \begin{bmatrix} p_{11}(x-5) & p_{21}(x-5) \\ p_{12}(x-5) & p_{22}(x-5) \end{bmatrix} \times \begin{bmatrix} l_{11}(x-5) & l_{21}(x-5) \\ l_{12}(x-5) & l_{22}(x-5) \end{bmatrix}$$

This is a simple two region example with four possible transitions. A 10 region system would have a 100 different transitions and a 10 by 10 matrix for each age group and so on. So while the formulas are the same between a single and multiregional life table, the more regions we have, the larger the matrices become. The L s are calculated in the same way as the traditional life table—in this case with a linear estimation:

$$\begin{bmatrix} L_{11}(x) & L_{21}(x) \\ L_{12}(x) & L_{22}(x) \end{bmatrix} = \frac{5}{2} \times \left(\begin{bmatrix} l_{11}(x) & l_{21}(x) \\ l_{12}(x) & l_{22}(x) \end{bmatrix} + \begin{bmatrix} l_{11}(x+5) & l_{21}(x+5) \\ l_{12}(x+5) & l_{22}(x+5) \end{bmatrix} \right)$$

Finally, the multiregional life expectancies are calculated by summing person-years lived in location j over all ages and dividing by the starting population:

$$e_{ij}(0) = \frac{\sum_{x=0}^{85+} L_{ij}(x)}{l_i(0)}$$

The multiregional survivorship curves for the 2006–2011 data are plotted in Fig. 4.5. These results show that 50% of people born in Sydney will have died

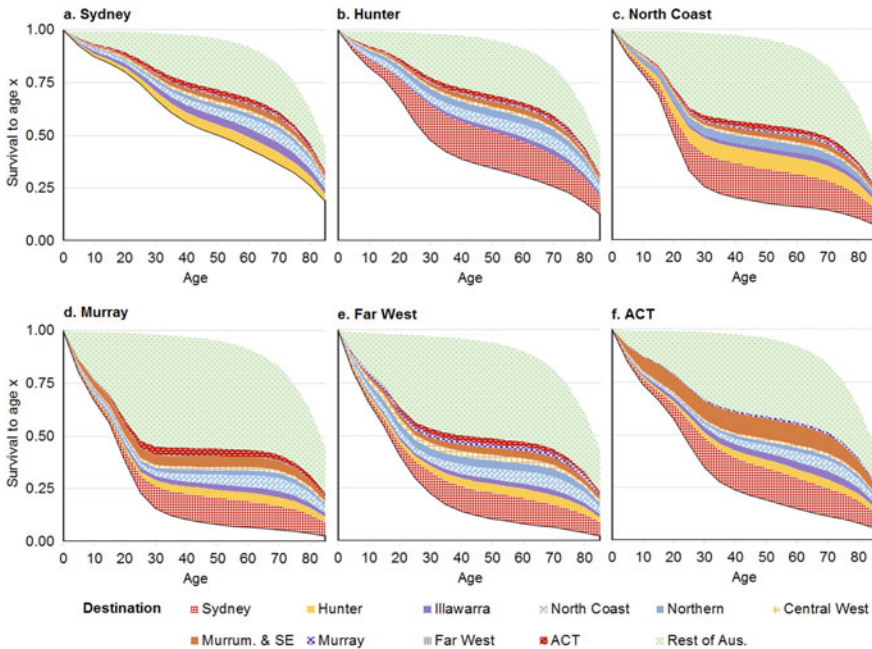


Fig. 4.5 Multiregional survival for selected regions, 2006–2011

or lived elsewhere by age 50. Given the low probabilities of dying at ages below 70 years, most of these persons end up living outside of NSW. In Hunter, fifty per cent of the population have left by age 30. In North Coast, Murray and Far West, the numbers leaving are even more extreme with 50% leaving before age 20. The sharpest declines in survivorship occur before age 30. In terms of destinations, Sydney is the most common in NSW, followed by Hunter and the North Coast. Murrumbidgee and South East is a relatively important destination for areas that share its border, particularly the ACT, which is close to the towns of Queanbeyan, Bungendore, Yass and Goulburn.

The multiregional life expectancies are shown in Fig. 4.6. Here, we find that a person born in Sydney can expect to live for 80.5 years based on the 2006–2011 mortality and migration rates. Of that, 50.9 years are spent in Sydney and 15 years outside the state of NSW. People born in other areas spend less time in their places of birth. Those born in Murray are expected to spend only a quarter of their lives living there. People in all areas are predicted to spend longer in their origin areas than they did in the past—particularly ACT. People living outside their origin areas spend longest in Sydney—though time spent in Sydney seems to have declined over the years. Based on 1981–1986 rates, for example, people born in the North Coast were expected to spend 16.3 years in Sydney. By 2006–2011, this had declined to 10.4 years.

Multiregional life expectancies assume that when people migrate to a different area they become exposed to the mortality rates of their new area. This assumption

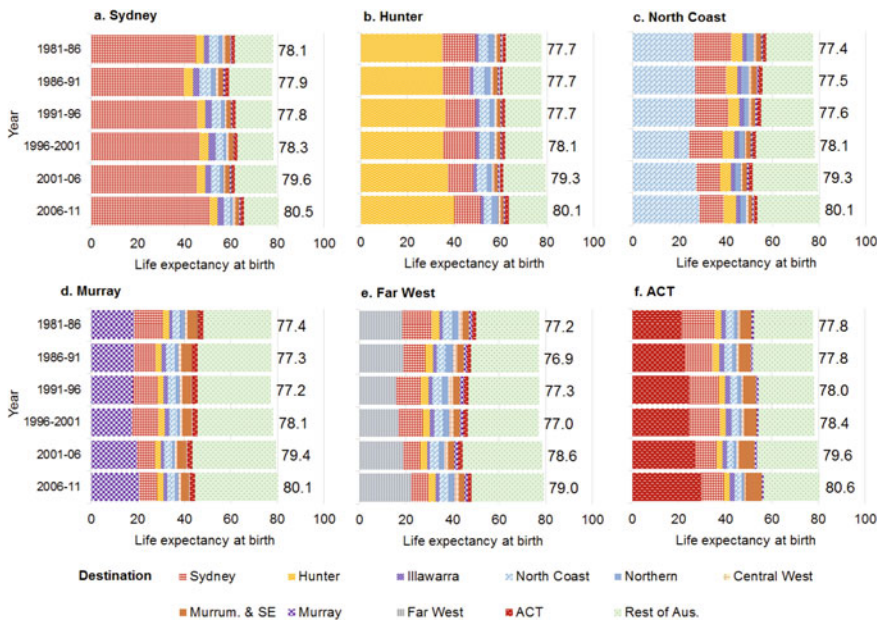


Fig. 4.6 Multistate life expectancy for selected regions, 1981–2011

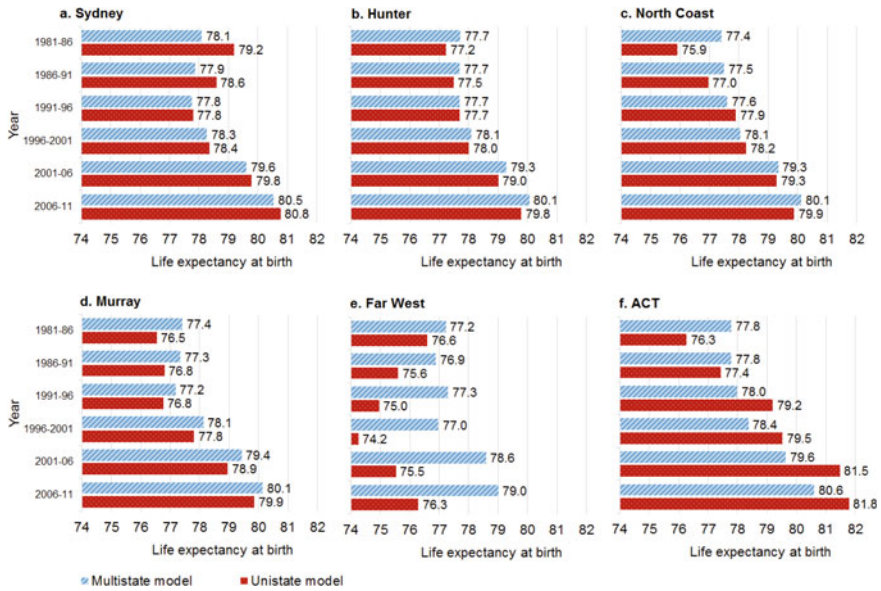


Fig. 4.7 Multiregional and single region life expectancies for selected regions

is standard practice in life table calculations and is a consequence of the underlying Markov process, i.e. the probability of transitioning from one state (location) to another depends on the state (location) at the start of the transition period (Keyfitz 1980, p. 197). Since the calculation of single state life expectancies does not include migration transition probabilities, the population is only exposed to mortality rates in one area.

The inclusion of migration transition probabilities may result in multiregional life expectancies that are different from the single state life expectancies, as shown in Fig. 4.7. Here, the differences in overall life expectancy are particularly important in relatively high mortality (and migration) areas such as Far West. Under the multiregional model, a person born in Far West is expected to live for 79.0 years, compared with 76.3 years in the single state model. The reason for this is that people born in Far West move in large numbers to areas with lower mortality rates—which the multiregional model accounts for. This may be more accurate for a number reasons. A person moving from Far West to Sydney faces a different climate, lifestyle, types of employment, income, health and aged care services. However, the multiregional life expectancy may also disguise part of the mortality disadvantage experienced in a region.

The multiregional life table can be put to all sorts of interesting purposes. Area-specific life expectancies and durations being one. Another is the net migraproduction rate. This is analogous to the total fertility rate in that it estimates the total number of migrations an individual will make over their lifetime given their place of birth. Briefly, the rate is calculated by summing the product of the person-years spent in

each area given their birthplace by the out-migration rate for that area. And that is summed across ages to give a lifetime estimate.

$$NMR_1 = \sum_x L_{11}(x) \times o_1(x) + L_{12}(x) \times o_2(x).$$

In Fig. 4.8, we find that migraproduction rates have been slowly declining over time. Note that these rates capture migrations across division borders. Obviously, there is a lot of movements within borders, particularly in places like Sydney. So thinking about cross-border migration, the rates are relatively low in Sydney and Hunter. They both peaked at about 1.6 in 1986–1991 and have since fallen to 1.1 in Sydney and 1.3 in Hunter. In the regional and remote areas, historically the rates have been closer to two migrations per person. Though since the early 2000s, these have been falling too. Thus, the migraproduction rate provides a useful summary measure, indicative in this case of declining rates of internal migration and perhaps a transition towards a *Future Super-advanced Society*.

The above analysis can be extended in various ways. Probabilities of emigration and assumptions about return immigration could be added to the analyses. The above analyses could be used to inform regional population projections. We could combine the results with employment data to look at the economic drivers of population change. Ethnicity and foreign-born populations could be introduced to analyse the changing face of regional NSW. Finally, although the data are not available for Australia, it would be particularly insightful to distinguish the migration patterns of

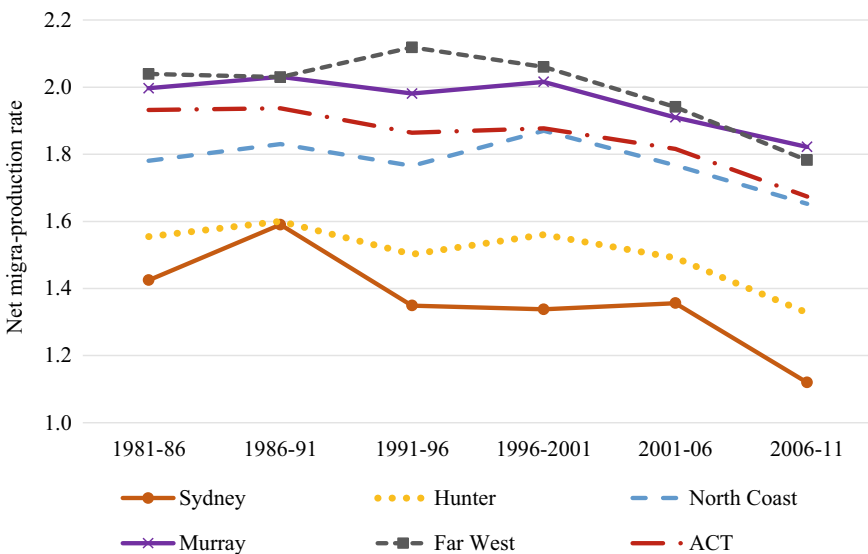


Fig. 4.8 Net migraproduction rates for selected regions

those born in the regions with those born elsewhere, that is, to introduce birthplace-specific information into the analyses (Ledent 1980; Rogers 1995, Chap. 6).

4.6 Policy Framing and Lessons

The study of migration and its impacts on demographic change provides researchers and policymakers with information about the fundamental sources of population change and subsequent impacts on the age and sex composition of the population. It also provides information on how the population is redistributing itself across the country, allowing one to assess where the areas of growth or decline are (or will be) and whether this growth or decline is affecting particular population groups. Furthermore, detailed accounts of population change over time allow a better understanding of how migrant groups are integrating and evolving within society, which can then be used to communicate areas of success or neglect with areas or countries of origin. For example, some migrant groups may exhibit very different demographic patterns or may be relatively isolated geographically. Having such information may be useful for designing social policies directed at migrants or at facilitating information to origin communities.

Acknowledgements This research has been funded by the Australian Research Council as part of the Discovery Project on ‘The Demographic Consequences of Migration to, from and within Australia’ (DP150104405).

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Part II
International Migration

Chapter 5

Immigration Within a US Context: A Drain or Driver of Economic Development?



Steven Deller, Tessa Conroy, and Matthew Kures

5.1 Introduction

One of the most contentious political issues in the United States today is immigration policy. Debates over the status of “Dreamers,” adults who were brought into the country illegally as young children, “chain migration” or “family reunification” policies, or number of refugees from war-torn countries remain and are deeply dividing the country. Several scholars have noted that under the Trump Administration the debate around immigration has escalated to where cities that claim to be “sanctuary cities” are threatened with the loss federal funds or other potentially harmful targeted policies. Some, such as Longworth, argue that these debates are pitting the interests of businesses that are struggling to find workers against citizens who perceive social costs such as cultural changes in their communities. As Hanson (2009) observes, some Americans have concerns that immigrants adversely affect native-born people by taking away jobs, placing downward pressure on wages, and burdening public services. Other Americans believe that immigrants positively affect the economy by taking jobs that native-born workers are unwilling to take and contributing to local communities by spending their wages locally along with paying taxes (Hanson 2009).

As detailed by Longworth these types of debates are playing out across the United States where firms competing in industries with thin margins are struggling to find workers while natives are leery of immigrants changing the culture of their communities. Consider Fremont, a town of 26,000 people in eastern Nebraska northeast

S. Deller (✉) · T. Conroy

Department of Agricultural and Applied Economics, Center for Community and Economic Development, University of Wisconsin—Madison, Madison, USA

e-mail: scdeller@wisc.edu

M. Kures

Center for Community and Economic Development, University of Wisconsin—Madison, Madison, USA

of Omaha, where Costco is proposing to build a poultry processing plant that could employ as many as 1,000 people. This is in addition to an existing Hormel hog processing plant that is the largest producer of SPAM in the United States. It has been estimated that the Hormel plant alone has resulted in 4,000 Latino workers and their families living in the immediate area. Many in Fremont believe the Costco plant would be an economic boost for the area including area poultry farmers but an equally larger number of residents are fearful of the already large Latino population growing even larger. Charges of blatant racism and countercharges of economic greed have caused neighbors to become enemies.

A study of Wisconsin dairy farmers found that 40% of the workforce was from Mexico or Central America with wages between \$11.50 and \$13.00/hr, depending on whether housing is part of the compensation package. Farmers are adamant that they cannot pay higher wages and native workers are not interested in these types of jobs. A study of Montana by the American Immigration Council found that rural Montana is dependent on immigrants for not only lower paying occupations but also high skilled professionals, particularly in the health care field. One rural Montana resident made the observation that without their “doctors from India” they would not have a medical clinic.

In a formal analysis of the role of immigrant labor in the Idaho economy, Watson et al. (2012) found that if all immigrant workers, who work predominately in agriculture, left the labor market, wages for native workers would increase modestly, but the overall economy would be severely impacted. Watson and colleagues found that because of thin margins in the agricultural sector, firms would not be able to pay sufficiently high wages to attract naïve workers and would be forced to close or make major investments in automation. Unfortunately, few firms are in a position to make those investments in automation. Although the computable general equilibrium model could not capture the inflection point where the industry would collapse, working knowledge of the Idaho economy led the authors to infer that without immigrant workers the agricultural industry would indeed collapse. While not explicitly stated in the study, similar inferences could be applied to dairy in Wisconsin.

As noted by Hanson (2009), immigrants are claimed to both adversely impact native-born people by taking away jobs and placing downward pressure on wages while burdening public services and at the same time positively impacting the economy by taking jobs that native workers are unwilling to take, contribute to local communities by spending their wages locally along with paying taxes. In addition, depending on the legal status, immigrants may never be able to collect on publicly funded social support programs. In the case of Fremont, Nebraska, burdening public services range from stressing public schools including costs associated with offering bilingual classes and health services to fears of increased crime. While these types of assertions have been studied extensively in a European and American context, there is little agreement within that extant literature.

The intent of this study is to provide additional insights into the impact of foreign-born immigrants on communities across the United States. The analysis proceeds in three steps. First, current trends in immigration into the United States are explored within a historical context with specific attention to changes in immigration policy.

Second, we provide broad insights into general patterns between levels of immigration to community social and economic well-being. For example, are higher concentrations of immigrants associated with poorer health outcomes, higher crime, lower wages, or higher levels of dependency on public support services? Using US county-level data we use simple correlation analysis to explore levels of association across several measures of community social and economic well-being and three broad measures of immigration, percent of the current population that is foreign born, the change in that percent over time (1970–2016), and the share of foreign-born persons who are now nationalized citizens.

The third, and primary, contribution to the literature of this study is a detailed exploration between immigration and entrepreneurship. As noted by Borjas (1986), Clark and Drinkwater (2000), and Schuetze and Antecol (2006) immigrants are an important source of entrepreneurial energy within the community. Using data from the Global Entrepreneurship Monitoring (GEM) program, numerous studies have found similar patterns from Spain, Luxembourg, and the United Kingdom, among others. Fairlie and Lofstrom (2015) document that a disproportionate share of proprietorships, including the self-employed, within the United States are immigrants. To explore how the concentration of immigrants, measured by the US Census as being foreign born, we match new business formation data from the Business Information Tracking System (BITS) which tracks all businesses that have at least one employee formation, expansions, contractions, and closures. We match the number of start-ups from 2010 to 2011 and match it to the 2010 Census at the US county level. Using a Tobit estimator that allows for spatial dependency within the data we estimate a family of models seeking to better understand how immigrants impact levels of entrepreneurship in US communities.

5.2 Historical and Current Trends

The United States is widely thought of as a country of immigrants. While the majority of the signers of the Declaration of Independence were native-born Americans, eight (of 56 signers) were immigrants. As outlined in detail in Abramitzky and Boustan (2017) the long-term view of immigration into the United States is composed of three parts: the “age of mass migration from Europe” (1850–1920), a lull of immigration from the Great Depression till the 1950s, and the recent period of upward trends with immigration from Latin America and Asia (Fig. 5.1). Between 1820 and 2016 the average inflow of legal permanent residents as a share of US population was 0.45% with a peak of 1.6% in 1850. Since the end of WWII, however, the average annual share is 0.25%.

Prior to the early twentieth century there was little, if any, national immigration policy. Most federally enacted laws focused on outlining the requirements to become a nationalized citizen or narrowly focused such as the Page Act of 1875 that banned criminals and prostitutes from entering the country or the Immigration Act of 1891 that created the Bureau of Immigration. There were a number of federal statutes

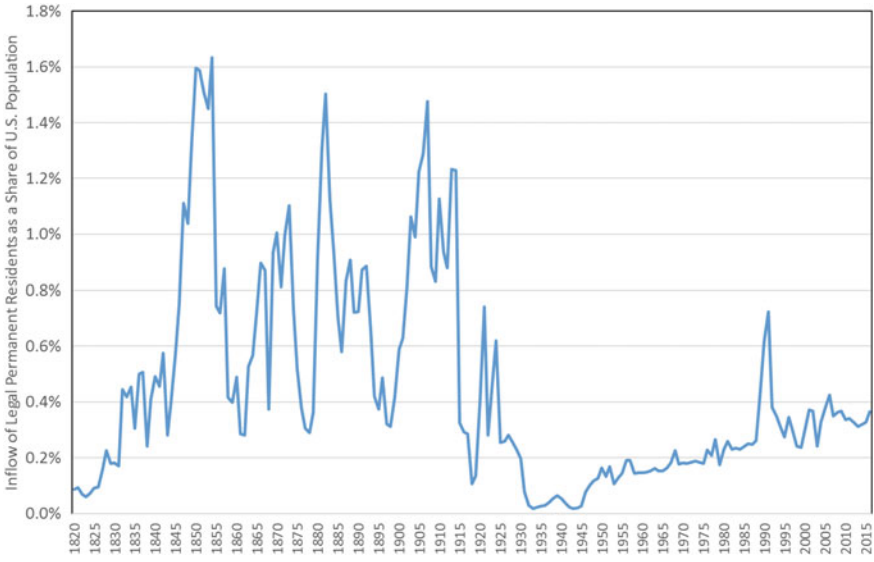


Fig. 5.1 Inflow of legal permanent residents as a share of U.S. population

imposed that specifically targeted the immigration of Chinese laborers such as the Page Act (1875), the Chinese Exclusion Act of 1882, and the Geary Act (1892). As suggested by Abramitzky and Boustan (2017) there is little doubt that these narrowly targeted immigration policies were racially motivated (Fig. 5.2).

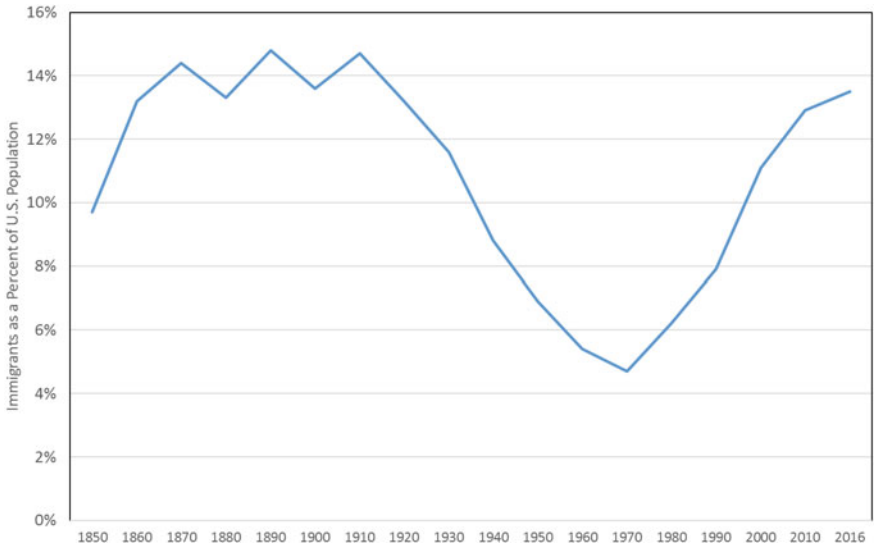


Fig. 5.2 Immigrants as a percent of U.S. population

The marked slowdown in immigration in the 1920s can be directly traced to the first real restrictions in immigration with the Immigration Act of 1917, or Asiatic Barred Zone Act, the Emergency Quota Law of 1921, and the National Origins Act of 1924. These latter laws put specific requirements on who can migrate to the United States through quotas and personal characteristics. For example, the Immigration Act of 1917 barred homosexuals, “idiots,” “feeble-minded persons,” “insane persons,” and alcoholics, among others. It also set a literacy standard for immigrants age 16 and older. The Emergency Quota Law of 1921 limited the number of immigrants into the United States to 350,000 persons per year and immigrants from any country were capped at three percent of the population of that nationality based on the 1910 census. This greatly favored immigrants from northern Europe over those from eastern or southern Europe. The National Origins Act of 1929 reduced the cap from 350,000 annually to 150,000 and from three to two percent quota linked to the 1920 Census.

In the 1960s, US immigration policies began to be reformed and updated with the Immigration Act of 1965 which removed the nationality quotes and placed a cap of 20,000 immigrants from any one country, but total caps of 170,000 from eastern hemisphere counties and 120,000 from the western hemisphere. Importantly, a preferential system for family members of US citizens, or what is now referred to as “chain migration” was established. The Immigration Act of 1990 set an annual cap of 700,000 for three years and 670,000 per year thereafter. There were other changes in policies, such as the Refugee Acts of 1980 which allow refugees from war-torn areas to be treated differently than other immigrants, and the Immigration Reform and Control Act of 1986 which allowed illegal immigrants a window of opportunity to obtain legal status, sometimes referred to as an “amnesty” program.

The liberalization of modern immigration policies over the past 50 years has seen a shift in the nature of US immigration today. Up until about 1960 about three in four immigrants came from Europe, first from northern and western and then from southern and eastern Europe, but today the source of immigrants has shifted to Latin America and Asia. Today about 38% of legal immigrants come from Latin America and the Caribbean region, and another 38% from the Asia-Pacific region and only eight percent from Europe. The remainder come from Sub-Saharan Africa (9%) and the Middle East and North Africa (6%). Based on analysis by the Pew Research Center (2015) the immigration of nearly 56 million people since immigration policy reforms has pushed the share of total US population that is foreign born to 13.5%, which is close to the 1910 peak of 14.7%. Pew estimates that this growth in immigration accounts for just over half of the population growth within the United States. If current trends continue, over the next 50 years immigrants will account for 88% of the US population increase.

One of the most noticeable changes in immigration patterns over the past 50 years is the spatial distribution of the location of foreign-born persons across the United States. A simple mapping of the percent of the population that is foreign born in 1970 when compared to 2016 (from the American Community Survey 5 Year Average, 2012–2016) several patterns become apparent (Fig. 5.3). For the typical US county in 1970 only 1.5% of the population was foreign born and less than one percent had 10% or more of their population foreign born. By 2016, the average had increased

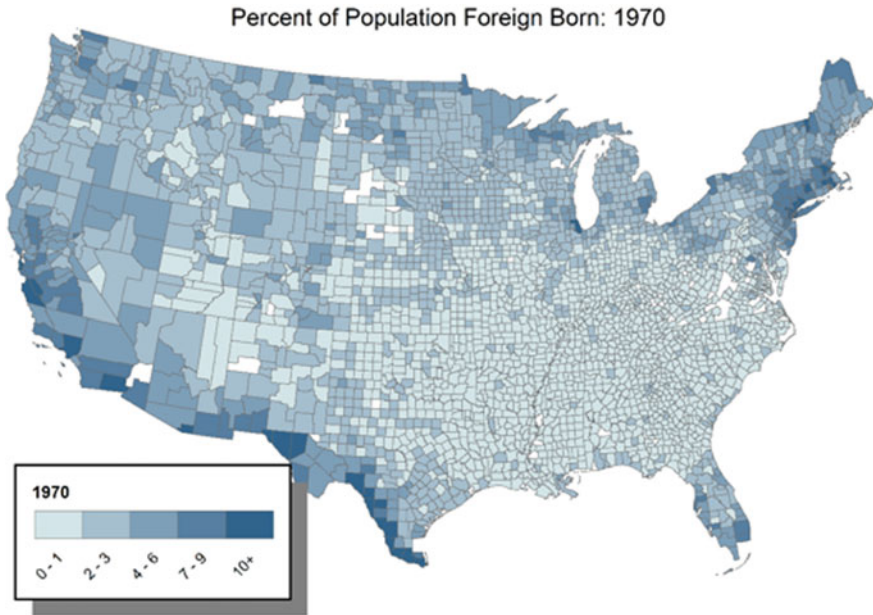


Fig. 5.3 Percent of population foreign born: 1970

to 4.5 and 10.5% of all counties had at least 10% of their population foreign born. If we group counties across the urban–rural divide using what is commonly referred to as the “Beale Codes” and compare and contrast 1970 and 2016 we can gain some additional insights into the pattern of changing immigration concentrations (Table 5.1). While immigrants tend to cluster in urban areas, and the subsample testing (F test, Median, Van der Waerden, and Savage) reveals that the patterns across the urban–rural divide are statistically significant, it is clear that the growth in foreign-born persons is not limited to urban settings. For both 1970 and 2016 counties with a population of one million or more had the highest concentrations (2.6 and 8.2%, respectively), with an average increase of 58,400 immigrants. Now consider nonmetropolitan counties that have at least one place with a population of 20,000 or more that is not adjacent to a metropolitan area.

One might think of Fremont, Nebraska in Dodge County as such a county, but Dodge County is adjacent to the Omaha metropolitan area. These more rural counties also have a high concentration of immigrants. Increasingly low margin manufacturers, and to some extent farms, located in more rural communities are finding it increasingly difficult to attract and retain native workers. This is also true of high amenity rural areas that have built strong tourism and recreation-based economies. These jobs can be particularly attractive to immigrants who are looking for any wage or salaried employment. Once a critical mass of immigrant workers are located within a rural community there is an agglomeration affect that makes the community even more attractive to immigrants.

Table 5.1 Changes in foreign born population across the urban–rural divide

Beale codes	Percent of population foreign born change		
	1970	2016	1970–2016
Counties in metro areas of 1 million population or more	2.62	8.28	5.66
Counties in metro areas of 250,000–1 million population	1.90	5.59	3.69
Counties in metro areas of fewer than 250,000 population	1.53	4.52	2.99
Urban population of 20,000 or more, adjacent to a metro area	1.67	4.52	2.85
Urban population of 20,000 or more, not adjacent to a metro area	1.79	5.86	4.07
Urban population of 2,500–19,999, adjacent to a metro area	0.98	3.45	2.47
Urban population of 2,500–19,999, not adjacent to a metro area	1.40	4.01	2.61
Completely rural or less than 2,500 urban population, adjacent to a metro area	0.97	2.37	1.40
Completely rural or less than 2,500 urban population, not adjacent to a metro area	1.35	2.79	1.44
F test	23.71*** (0.0001)	42.58*** (0.0001)	31.49*** (0.0001)
Kruskal–Wallis test	156.08*** (0.0001)	426.04*** (0.0001)	336.50*** (0.0001)
Median one-way analysis	87.18*** (0.0001)	332.74*** (0.0001)	261.37*** (0.0001)
Van der Waerden one-way analysis	181.16*** (0.0001)	427.61*** (0.0001)	322.31*** (0.0001)
Savage one-way analysis	183.57*** (0.0001)	359.43*** (0.0001)	253.72*** (0.0001)

Marginal significance or *p*-values in parentheses

***Significant at the 99.9% level; **Significant at the 95.5% level; *Significant at the 90.0% level

This growth across the urban–rural spectrum is evident with a simple mapping of the percent of the county population that is foreign born. In 1970 immigrants are clustered in the urban ban from Washington DC to Boston, particularly in the New York City to Boston region, the Mexican border region, coastal California and western Washington state, and southern Florida. A handful of major cities, such as Chicago, Detroit, and Pittsburg, also have higher concentrations of foreign-born immigrants. Large parts of the United States in 1970 have very low (less than one percent) concentrations of immigrants and is consistent with the subsample averages for 1970 reported in Table 5.1. In 2016, the pattern of higher concentrations of foreign-born persons is more scattered across the United States (Fig. 5.3). There is clear growth in many parts of the southwestern United States along with growth in many more rural counties in the Great Plains. We would hypothesize that if we were

to map the concentration of manufacturers, such as food processing facilities, in rural areas and the growth of foreign-born persons the spatial overlap would be significant.

There are two additional elements to the immigration patterns that warrant discussion: the rate at which foreign-born persons become nationalized citizens and the flow of undocumented workers. In 2016, for the typical county 43% of immigrants are nationalized citizens and for 5.2% of all counties over 75% are nationalized citizens. At the same time, for 16.2% of counties less than 25% of immigrants are nationalized citizens. From a spatial distribution perspective (Fig. 5.4) it appears that parts of the United States that traditionally have had a larger immigrant population the rate of nationalized citizenship appears to be higher than in the regions that have seen the largest increases in foreign-born people. Otherwise the spatial pattern appears to be somewhat random.

Immigrants that become nationalized citizens are making a commitment to the nation that separates them from other immigrants. As noted by Bratsberg et al. (2002) naturalization facilitates assimilation into the labor market allowing immigrants to gain access to a wide range of employment opportunities. Being a nationalized citizen removes many barriers, particularly those faced by potential employers, reducing the transaction costs of hiring an immigrant. But this theoretical expectation is not uniformly realized across countries and immigrant groups (Dancygier and Laitin 2014). Hainmueller et al. (2017) observe that the evidence of nationalization leading to higher rates of integration or assimilation in the host country is at best mixed with significant variation in results across host countries, backgrounds of the immigrants,

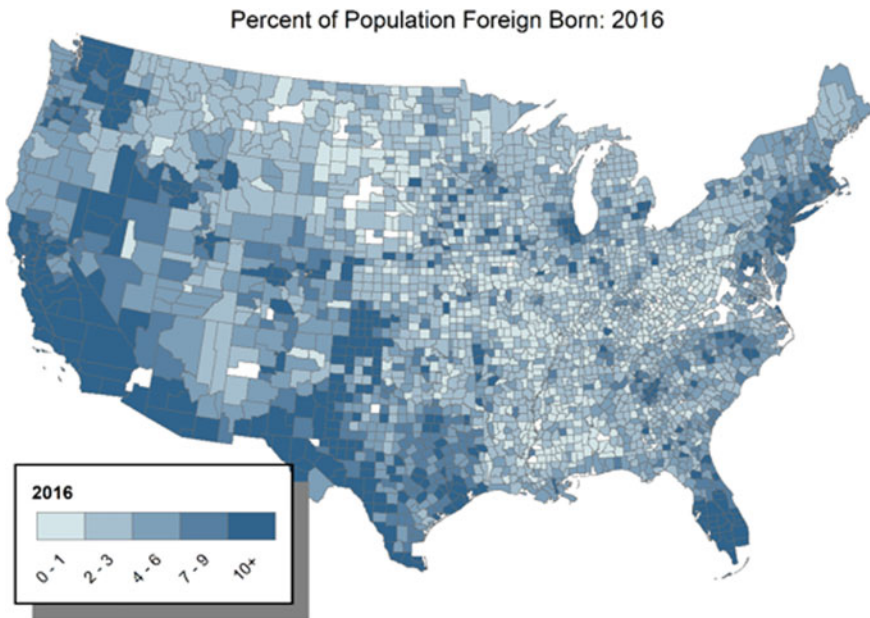


Fig. 5.4 Percent of population foreign born: 2016

and specific time frame examined. In the end, the receptiveness of the community to immigrants plays a vital role in understanding the economic, social, and political effects of immigrants regardless of citizenship status. Thus, the impact of being a nationalized immigrant on US communities remains an open question (Fig. 5.5).

Analysis of Passel and Cohn (2016a) suggests that in 2014 there were about 8 million unauthorized immigrants working, or looking for work, in the United States making up about five percent of the civilian labor force. This number is a slight decline from 8.3 million at the start of the Great Recession. While this is still higher than the number of unauthorized immigrant workers in 1995 (3.6 million) and 2000 (5.6 million), the upward trend appears to have been broken. Additional analysis by Passel and Cohn (2016b) suggests that the total number of unauthorized immigrants follows this same general pattern with about 11.1 million in 2014, up from 5.7 million in 1995 and 8.6 million in 2000, but lower than the peak of 12.2 million in 2007. It is unclear, however, if the “pause” in the upward trend of undocumented immigrants is temporary reflecting the effects of the Great Recession or more of a structural break. As the US labor market becomes tighter, as captured in declining unemployment rates, some expect the upward trend in unauthorized immigrants to return. Unfortunately, for our examination of the effects of immigrants on US communities we lack quality data at the county level. Therefore our analysis is limited to only immigrants with legal status.

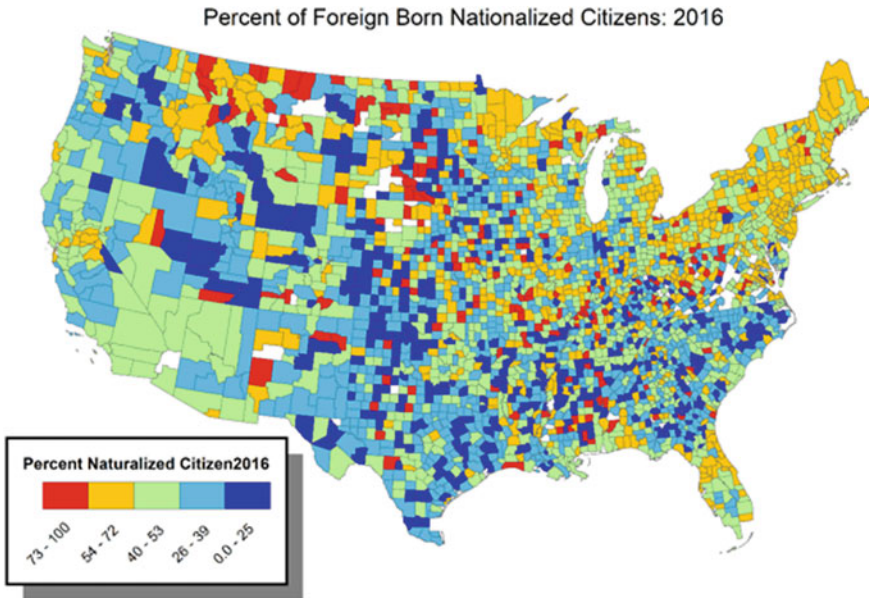


Fig. 5.5 Percent of foreign born nationalized citizens: 2016

5.3 Patterns of Foreign-Born and Community Well-Being

The vast literature seeking to better understand the impact of immigrants on receiving nations, regions or communities can be broken into four broad categories: (1) what are the characteristics of those who migrate to a new country, (2) the assimilation of the immigrant to the receiving community, (3) the impact of immigrants on native workers and the overall economy, and (4) the impact on public financing. For example, how many generations does it take for immigrants to realize the “American Dream” or are immigrants drawn to the United States to take advantage of the public support programs that are offered thus placing a strain on government financing? Do higher concentrations of immigrants place upward pressure on crime rates or strain public health services due to poor health? Perhaps the most studied question is if a higher concentration of foreign born place downward pressure on wages and take employment opportunities away from native workers. More specifically, does an influx of low education immigrants place downward pressure on the wages of low-skill, low-education occupations for all (including natives)? Given a neoclassical supply-demand framework for inexpensive labor, as the supply of labor goes up do wages trend downward for all workers including natives?

As argued by Bratsberg et al. (2002) as well as Abramitzky and Boustan (2017) a major challenge of this literature is that immigrants are extremely heterogeneous: some are highly educated and immigrating on a work priority visa (e.g., engineers, Ph.D.-level researchers, management executives, etc.) while others are entering the United States as refugees who may or may not have high levels of education, some speak English well, others do not, some are immigrating to live with families already in the United States and others have no immediate relatives to help with the transition. Much of the literature seeking to better understand who is immigrating to the United States is looking to gain insights into these types of questions. These differences play a significant role in helping understand the central question of this chapter, specifically how the concentration of immigrants impacts the well-being of the receiving community.

For example, as outlined in detail by Kerr and Kerr (2011) the impact of immigrants on labor-market outcomes is largely dependent on the level of educational attainment of the immigrants themselves. Studies of the impact of immigrants from Mexico on US labor markets are mixed: some find that immigrants are drawn from the middle of the educational distribution (e.g., Chiquiar and Hanson 2005; Orrenius and Zavodny 2005) but others find that immigrants are drawn from the low end of the educational distribution (e.g., Ambrosini and Peri 2012; Kaestner and Malamud 2014). Some studies focus on narrow geographic areas, such as Card’s (1990) examination of Cuban immigration into Miami, or as argued by Dustmann et al. (2016) use neoclassical frameworks that are predisposed to yield certain results (e.g., Borjas 1999).¹

¹Specifically, neoclassical frameworks, regardless of stylized complexity, will find that any increase in the supply of labor will place downward pressure on wages.

Kerr and Kerr (2011) suggest that the literature seeking to better understand the impact of immigrants on labor-market outcomes can be broken into three broad classifications: impacts on wages, impacts on employment, and displacement effects (i.e., immigrants are displacing native workers). As noted above, the outcome of this broad literature is largely dependent on the educational attainment of the immigrant workers, the time frame of the analysis, and the motivation of the immigrants to migrate. For example, educated immigrants who migrate for career opportunities and are fluent in English have a very different impact than refugees who may have low levels of education and do not speak English. The conditions of the larger labor market and regional characteristics can also influence the outcomes. Recent meta-surveys by Longhi et al. (2005, 2010) and Okkerse (2008) found comparable, small effects across many studies. Indeed, Borjas (2003, p. 1335) recently noted that “the measured impact of immigration on the wage of native workers fluctuates widely from study to study (and sometimes even within the same study) but seems to cluster around zero.” In essence, the labor-market elasticities associated with immigrants tend to be statistically significant but economically insignificant.

Impacts on labor markets, however, are not the sole focus of the immigrant impact literature. For example, Capps and Fortuny (2006) note that children of immigrant families have nearly twice the rate of poor health than native children and the stress that immigrant parents face can negatively spillover onto their children (Ayon and Marcenko 2008). As noted by Androff et al. (2011) and Lassetter and Callister (2009) language and cultural barriers can prevent immigrants from seeking and receiving adequate health care. Arguments have also been made that immigrants’ exposure to unhealthy diets (e.g., fast food) can lead to obesity and poor health outcomes, although Emerson and Carbert’s (2017) study of Canadian immigrants found no supporting evidence. The argument is that larger shares of immigrant populations may lead to poorer health outcomes which can have a negative fiscal impact on health and social support programs.

There are also arguments that larger immigration populations result in higher crime. Anti-immigration proponents point to cases such as the death of NFL player Edwin Jackson of the Indianapolis Colts who was killed by a suspected drunk driver who was in the United States illegally in 2018, or the death of Kathryn Steinle, who was shot to death by an undocumented immigrant in San Francisco in 2015, to argue for stronger immigration policies and target so-called sanctuary cities. There is some creditable research that does support the larger argument about immigrants and crime. Spenkuch (2013) studied the relationship between immigration and crime at the county level and concludes that there is a positive relationship between immigration, particularly Latino immigration, and robbery and burglary rate data from the FBI Unified Crime Reports. Spenkuch argues that his results are consistent with Becker’s rational choice theory of crime, or crimes motivated by financial gain and for immigrants most likely to have poor labor-market outcomes.

Chalfin (2015), however, is keen to note that the historically long decline in overall crime rates at the national level has been occurring at the same time that immigration rates have been increasing. Work by Ousey and Kubrin (2009) and MacDonald and Saunders (2012) appears to find evidence that the rise in immigration rates have

actually contributed to those long-term declines in crime. In a study of a panel of Canadian cities, Jung (2017) found that changes in immigration either had no impact on changes in crime rates, or a modest negative association. This is the opposite finding compared to Spenkuch (2013).

To gain some additional insights into the general patterns of immigrants on community well-being we use the percent of a county's population that is foreign born and the percent of those foreign born that are nationalized citizens from the 2016 American Community Survey (five-year average) and the change in the percent of the population foreign born from 2000 to 2016 and conduct simple tests of association (correlations) with a range of community (county) well-being measures. These include a range of community public health metrics, socioeconomic metrics, and violent crime rates. The results of these simple tests of association are provided in Table 5.2. While we find some variation across the three immigrant measures, there is general consistency in the results.

Of the five general health measures, drawn from the County Health Rankings (Hood et al. 2016), we generally find limited evidence supporting the idea that higher concentration of immigrants is linked to poorer health.² There is some evidence that a higher share of foreign born is linked to higher levels of people self-reporting fair or poor health, but as the share that are nationalized citizens increases as well as the growth in the percent of the population foreign born increases from 2000 to 2016 those rates of fair/poor health decline. The higher the share of foreign born tends to be associated with lower rates of low birth weight and smokers but higher share of the population that drink excessively. The relationship with teen birth rate is either statistically insignificant or negative. Other than excessive alcohol consumption the data tends not to support the idea that higher concentrations of immigrants, measured as foreign-born persons from the Census, is tied to poorer health outcomes. These broad results are fairly consistent with the findings of other studies looking at immigration and public health.

In terms of a handful of general socioeconomic well-being metrics, we find that higher and growing concentrations of foreign-born people are tied to lower unemployment rates and child poverty rates but higher violent crime rates, percent of household with severe housing problems (lack of access to affordable housing and/or high quality housing), and levels of income inequality. At the same time the higher the share of foreign born that are naturalized citizens the lower the violent crime rate, housing stress issues, and income inequality. We also find that foreign-born population concentrations have no impact on the share of households headed by a single parent, but the higher the share nationalized citizens the lower the rates of single-parent households. In general, the higher the rates of nationalized citizenship the stronger the community well-being, as defined by these measures, but the results are more mixed with simply foreign-born concentrations. This latter result may hint at the higher rates of integration or assimilation into the broader community, and hence access to support networks and positive community outcomes.

²Data and methods are available at: <http://www.countyhealthrankings.org/>.

Table 5.2 Simple correlations immigration and community socioeconomics

	Percent of the population foreign born: 2016	Percent of foreign born naturalized U.S. citizen: 2016	Change in percent of population foreign born: 2000–2016
Percent of the population in fair/poor health	0.0599** (0.0009)	-0.2080*** (0.0001)	-0.0375** (0.0373)
Low birth weight rate	-0.0995*** (0.0001)	-0.0837*** (0.0001)	-0.0314* (0.0860)
Percent of of population smokers	-0.3436*** (0.0001)	-0.0574** (0.0015)	-0.1789*** (0.0001)
Percent of population excessive drinking	0.1437*** (0.0001)	0.1102*** (0.0001)	0.1002*** (0.0001)
Teen birth rate	0.0094 (0.6101)	-0.2573*** (0.0001)	-0.0189 (0.3020)
Unemployment rate	-0.0495** (0.0060)	0.0187 (0.3005)	-0.1603*** (0.0001)
Child poverty rate	-0.1158*** (0.0001)	-0.1390*** (0.0001)	-0.1408*** (0.0001)
Share of households headed by single parent	-0.0151 (0.4029)	-0.0964*** (0.0001)	-0.0071 (0.6922)
Violent crime rate	0.1845*** (0.0001)	-0.0677** (0.0003)	0.0880*** (0.0001)
Percent of households with severe housing problems	0.4280*** (0.0001)	-0.0426** (0.0184)	0.1067*** (0.0001)
Gini coefficient of income inequality	0.1147*** (0.0001)	-0.1185*** (0.0001)	0.0118 (0.5135)
Per capita personal income	0.3085*** (0.0001)	0.1150*** (0.0001)	0.1993*** (0.0001)
Per capita net earnings	0.3477*** (0.0001)	0.0930*** (0.0001)	0.2466*** (0.0001)
Per capita personal transfer payments	-0.3135*** (0.0001)	0.0870*** (0.0001)	-0.2651*** (0.0001)
Per capita income maintenance payments	-0.0318* (0.0781)	-0.0995*** (0.0001)	-0.1166*** (0.0001)
Per capita unemployment insurance payments	0.1209*** (0.0001)	0.1316*** (0.0001)	-0.0386** (0.0321)
Average earnings per job	0.4250*** (0.0001)	0.0246 (0.1727)	0.2343*** (0.0001)
Average wages and salaries per job	0.4618*** (0.0001)	0.0700*** (0.0001)	0.2496*** (0.0001)

Marginal significance or *p*-values in parentheses

***Significant at the 99.9% level; **Significant at the 95.5% level; *Significant at the 90.0% level

Now consider the seven different income measures which include work-related income and income from public support type programs. We find consistent evidence that higher concentrations of foreign-born persons as well as nationalized citizens are associated with higher levels of work-related income including per capita net earnings, average earnings per job and average wages and salaries per job. We also find that negative relationships with per capita personal transfer payments and per capita income maintenance payments but a positive relationship to per capita unemployment insurance payments. It is important to note that to be eligible for unemployment insurance payments one must have been employed. The evidence strongly suggests that higher concentrations of foreign-born people does not drive down wages (income) or represent a drain on public support programs. We cannot assert that more immigrants drive up income as it is equally likely that higher income communities (counties) are attractive to immigrants. But we can infer that immigrants do not put downward pressure on employment-related income.

The literature is fairly consistent that higher concentrations of immigrants, or foreign-born persons, tends to not have strong negative impacts on the well-being of communities in which they locate. Our simple correlation analysis of US communities (counties) tends to support this broader literature (Table 5.2). Of the 18 measures of community well-being examined, the only evidence of negative outcomes is higher levels of excessive drinking of alcohol, weak evidence on higher violent crime rates, and some evidence of higher incidences of severe housing problems. The overwhelming evidence suggests that communities with higher concentrations of immigrants are not worse off than those with lower concentrations.

It is vital to keep in mind that these are tests of association and not causation. With that in mind it is possible, based on the urban–rural analysis presented in Table 5.1, that immigrants tend to be drawn to larger places and the patterns observed in Table 5.2 are a reflection of urban density. Given this caveat, we find little if any evidence that a larger share of the population that are immigrants is associated with negative community characteristics.

5.4 Immigrants and Community Entrepreneurship

Entrepreneurship has been shown to be vital to economic growth and development (Audretsch and Keilbach 2004; Van Stel et al. 2005; Audretsch et al. 2006; Acs et al. 2012; Lecuna et al. 2017). Building on the earlier work of Birch (1979, 1981, 1987) Haltiwanger et al. (2013), as well as Conroy and Deller (2015), find that without the creation of new businesses, or entrepreneurship, the economy would stagnate and decline. At the same time, it has been widely demonstrated in the economics, management, and sociology literature that immigrants tend to have higher rates of self-employment, the simplest form of entrepreneurship, than natives (Aliaga-Isla and Rialp 2013; Li et al. 2017; Razin and Langlois 1996). Bird and Wennberg (2016) and Razin and Langlois (1992) find that this higher rate of self-employment among immigrants in geographic areas with higher concentration of immigrants suggesting a self-reinforcing mechanism. These higher concentrations of immigrants provide

for networking and access to resources necessary to start and build a business. One could think of this as strong bonding social capital within the immigrant community that facilitates entrepreneurial activity.

This link between immigrants and business start-up and self-employment activity is important to understand the broader effects immigrants have on the larger community in which they locate. If immigrants tend to be more entrepreneurial than natives and entrepreneurship at all levels (entrepreneurs of necessity, opportunity, or Schumpeterian) is vital to economic growth and development, then communities wishing to foster economic growth and development should be embracing immigrants.

There is a line of research within the broader immigration and entrepreneurship literature that maintains that there is wide heterogeneity across immigrant entrepreneurs. Strömblad (2016) notes that higher self-employment among immigrants might be more out of necessity than choice (e.g., entrepreneurship of opportunity or Schumpeterian) because wage and salary employment may be more difficult to obtain (Chaganti et al. 2008; Li 2001). While Bird and Wennberg (2016), Sanders and Nee (1996) as well as Portes (1995) argue that initially being self-employed can help immigrants become more integrated into the local community and economy and opening up wage and salary employment opportunities, it is not readily clear if these “entrepreneurs of necessity” have the type of impact on regional economic growth and development as other types of entrepreneurs, particularly Schumpeterian entrepreneurs.

Consistent with the broader literature on the impact of immigrants on labor markets, the educational and skills attainment of the immigrant play a significant role in understanding entrepreneurship. Kahn et al. (2017) note that there is a U-shaped relationship between immigrant education and entrepreneurial activity. Lower educated immigrants tend to be more likely to be self-employed, which is consistent with the entrepreneurship of necessity hypothesis, then tapers downward only to swing upward for more highly educated immigrants. This latter positive relationship is linked to both entrepreneurs of opportunity, where higher educated immigrants might be able to identify and capture market opportunities, and Schumpeterian entrepreneurs who are bringing new products to market.

Research has also suggested that immigrants tend to be more tolerant of risk (Jaeger et al. 2010), which is intuitive given the revealed risky behavior of immigrating to a different country, and particularly in terms of commercializing research (Roach and Sauer mann 2015). Thus more highly educated immigrants are likely to be Schumpeterian entrepreneurs who are fundamental to the notion of creative destruction which drives economic growth and development. But Kahn et al. (2017) find the U-shape patterns hold true for what they deem as “non-science”-related types of businesses, but does not hold for science-related businesses.

Lassman and Busch (2015) note that the country of origin can greatly influence the entrepreneurial behavior of immigrants. In essence, in some parts of the world self-employment and entrepreneurial behavior is more common than in other parts of the world and these patterns will spill over onto the receiving country. In a study of US immigrants, Lassman and Busch find that length of time since the migration can greatly influence levels of self-employment. This is consistent with the argument

that initial self-employment can help immigrants integrate into the local economy thus creating wage and salary employment opportunities (Bird and Wennberg 2016; Sanders and Nee 1996; Portes 1995). More importantly Lassman and Busch find that the tendency toward self-employment is greatly weakened among second-generation immigrants. This latter result is consistent with the notion that the longer the immigrant is within the United States, or hosting country, the greater the likelihood of integration or assimilation into the larger community and greater opportunities for wages and salary employment.

Because of the importance of entrepreneurship and small business activity (e.g., Deller 2010) on economic growth and development we seek to better understand the relationship between concentrations of immigrants, or from the Census foreign-born persons, and entrepreneurial behavior. After controlling for community (county) characteristics, does a higher concentration of immigrants influence business start-up rates within the community? Does this relationship vary by type of business, or more precisely by industry type? Does being a nationalized citizen influence the relationship between being an immigrant and new business formation? Does this relationship change as the concentration of immigrants grows over time?

To help gain some insights into these basic questions we match new business formation data from the Business Information Tracking System (BITS) which tracks all business formation, expansions, contractions, and closures. We match the number of start-ups from 2010 to 2011 and match it to the 2010 Census at the US county level. Here we model the influence of the concentration of foreign-born population, measured as the share of the total county population that is foreign born, the change in the percent of the population foreign born from 2000 to 2010, and the percent of foreign born that are nationalized citizens. We include the percent of nationalized citizens because nationalized citizens are more likely to have been integrated into the community and economy thus limiting the need for entrepreneurship of necessity. In addition, nationalized citizens have revealed a long-term commitment to the United States and may be in a better position to start and expand a business.

The advantage of using the Business Information Tracking System (BITS) is that BITS includes only employer establishments and a new business is indicative of a transition from zero to at least one employee. That is, a new firm may be starting at the outset with employees or is transitioning from an existing sole proprietor or self-employed person to a business with hired employees. Thus the concerns expressed by Strömblad (2016) and others that much of the immigrants–entrepreneurship relationship identified in the literature is capturing entrepreneurship of necessity, which may or may not contribute to the growth and development of the local economy, is minimized. The second advantage of using the BITS data is that firms are tracked at the two-digit NAISC level thus allowing the analysis to gain insights into the types of businesses associated with foreign-born populations as well as nationalized citizens. Following the work of Kahn et al. (2017) we would expect that immigrants are more likely to be associated with one type of business classification over another. The limitation is that we cannot capture the immigrants that are self-employed as sole proprietors.

The basic model can be expressed as:

$$E_{i,j} = f(FB_i, \Delta FB_{i,t \rightarrow t-1}, NC_i, SD_i, SC_i, AM_i, EB_i)$$

where $E_{i,j}$ is the rate of business start-ups for the i th county within the j th industry classification were rates are number of new business per 10,000 persons within the county, FB_i is the percent of the county population that is foreign born, $\Delta FB_{i,t \rightarrow t-1}$ is the change in that percentage from 2000 to 2010, NC_i is the shared of foreign born that are nationalized citizens, SD_i is a set of sociodemographic variables, SC_i is a social capital measure, AM_i is a set of amenity measures, and EB_i is a simple economic characteristic measure. The sociodemographic measures include percent change in the population 2000–2010 to represent regional growth patterns, the percent of the population as 0–17 as well as the percent of the population aged 65 and over, the percent of the population African-American and the percent of the population Latino, and finally population density to reflect the rural or urban nature of the county. We expect faster growing counties (change in population) and more urban counties to have higher rates of entrepreneurship. We also expect counties with a younger (age 0–17) and older (over age 65) population to have lower rates of entrepreneurship. We offer no prior expectations on the African-American or Latino concentration measures.

Following the logic outlined in Markeson and Deller (2015) we expect that communities with higher levels of social capital to provide greater networking opportunities for potential and existing entrepreneurs, thus creating a more plenteous environment for business start-ups. Further and perhaps more fundamental, it is likely that communities with higher levels of social capital may be more receptive to new people moving into the community including immigrants and the ideas and alternative notions of conducting business. We use the social capital index offered by Rupasingha et al. (2006) (updated to 2010) who use principal component analysis to combine several factors such as the number of nonprofits, religious organizations, and gathering places among others into a single scalar index. Higher values of the index are associated with higher levels of social capital.

This measure, while gaining acceptance within the literature, is not without its shortcomings. The RGF Index captures community characteristics that tend to be associated with communities that have higher levels of social capital, but it is an indirect measure. We cannot infer that these measures reflect the openness or receptivity of the community to immigrants. Consider, for example, the measure of religious organizations which captures one aspect of peoples' ability to network. But as documented in Deller et al. (2018) there is significant heterogeneity across religious traditions with some being more internally focused (bonding social capital) while others are more receptive to newcomers (bridging social capital). Clearly, our use of the RGF Index captures some elements of social capital, it is not a comprehensive measure.

We include five broad measures describing the economic characteristics of the community: the unemployment rate, the percent of households with less than \$10,000 of income, the percent of households with income more than \$200,000, median household income, and the percent of employment in goods-producing

sectors. Goods-producing sectors include extractive industries (e.g., farming, forestry, mining), construction, utilities, and manufacturing. We expect higher unemployment rates, lower income, and greater dependency on goods producing to tamper entrepreneurial activity while higher income communities to have more entrepreneurial activity. The two amenity measures include average January temperature and average July humidity. We expect places with warmer winters and drier summers to have higher levels of entrepreneurial activity. In the end, we are less interested in the performance of the control variables and most interested in the three immigration-related variables.

The construction of our measure of entrepreneurial activity, a start-up rate, does create one empirical issue when we explore start-ups by industry classification, specifically, for many counties, particularly smaller or more rural counties, the data are truncated from below at zero suggesting that traditional regression analysis may lead to incorrect inferences. In addition, it is widely accepted that modeling economic activity using US county-level data is subject to spatial dependency within the data. Specifically, the geographic boundaries defined by counties do not coincide with the relevant economic region. This is best reflected by strong commuting patterns across county lines. Thus we have a need for a Tobit estimator that allows for spatial dependency within the data.

We use the spatial lag approach suggested by LeSage (2000) which can be expressed as:

$$y = \rho Wy + \beta X + e, e \sim N(0, \sigma^2 \Omega), \Omega = [(I - \rho W)(I - \rho W)]^{-1}$$

$$y = \begin{cases} y^* y^* > 0 \\ 0 y^* \leq 0 \end{cases}$$

Here the spatial weight matrix W captures the spatial proximity of neighboring counties and the spatial lag parameter ρ reflects the degree of dependency. LeSage, building on the work of McMillen (1992) points out that limited dependent variables in the presences of spatial dependency produce multiple integrals in the likelihood function for spatial autoregressive models making hypothesis testing cumbersome and a viable alternative to maximum likelihood is a Gibbs sampling Markov Chain Monte Carlo (MCMC) within a Bayesian framework. For this study we use 50,000 draws with a burn-in of 1,000, here the initial 1,000 draws are discarded. It is common practice to discard early iterations (draws) because these starting points are often arbitrary and not from the target posterior.

The results of the model for all business start-ups are provided in Table 5.3. Because this is a spatial lag model the parameters are composed of three parts, the direct effect within county relationship between the variable of interest and the business start-up rates, the indirect effect which is across county or spillover effects and then the total effect which is the sum of the direct and indirect effects. We find that all of the control variables, including direct, indirect, and total effects, are statistically significant. This includes a positive and significant spatial lag parameter

Table 5.3 Immigration and entrepreneurship (2011, Start-up rate, Spatial Tobit) + A33

All businesses	Direct	Indirect	Total
Percent of the population foreign born 2010	0.69459 (0.1057)	0.58820 (0.1094)	1.28279 (0.1066)
Percent of foreign born naturalized U.S. citizen 2010	-0.13791** (0.0421)	-0.11683** (0.0453)	-0.25473** (0.0429)
Percent change in foreign born 2000–2010	-0.02727* (0.0610)	-0.02309* (0.0644)	-0.05036* (0.0618)
Percent change in population 2000–2010	0.92509*** (0.0001)	0.78352*** (0.0001)	1.70860*** (0.0001)
Percent of the population age 0–17	0.96188** (0.0264)	0.81460** (0.0291)	1.77648** (0.0270)
Percent of the population age 65 and over	1.86130*** (0.0001)	1.57642*** (0.0001)	3.43772*** (0.0001)
Percent of the population African American	-0.34671** (0.0088)	-0.29367** (0.0105)	-0.64038** (0.0092)
Percent of the population Latino	-0.42301** (0.0103)	-0.35825** (0.0121)	-0.78126** (0.0107)
Population density	0.00003** (0.0033)	0.00003** (0.0042)	0.00006** (0.0035)
Rupasingha, Goetz, and freshwater social capital metric	0.22775*** (0.0001)	0.19289*** (0.0001)	0.42064*** (0.0001)
Average January temperature	0.00770*** (0.0001)	0.00652*** (0.0001)	0.01423*** (0.0001)
Average July humidity	-0.00605*** (0.0001)	-0.00513*** (0.0001)	-0.01118*** (0.0001)
Unemployment rate	-1.27209** (0.0062)	-1.07766** (0.0077)	-2.34975** (0.0066)
Percent of households with income less than \$10,000	3.05895*** (0.0001)	2.59097*** (0.0001)	5.64992*** (0.0001)
Percent of households with income more than \$200,000	8.49799*** (0.0001)	7.19702*** (0.0001)	15.69501*** (0.0001)
Median household income	0.09200*** (0.0001)	0.07793*** (0.0001)	0.16993*** (0.0001)
Percent of employment in goods producing sectors	-0.77411*** (0.0001)	-0.65569*** (0.0001)	-1.42980*** (0.0001)
Spatial parameter <i>P</i>	0.48427*** (0.0001)		

Marginal significance or *p*-values in parentheses

***Significant at the 99.9% level; **Significant at the 95.5% level; *Significant at the 90.0% level

(ρ) suggesting that nearby counties tend to move together in terms of business start-up rates. Across all of the control variables the direct and indirect effects move in the same direction. A detailed discussion of the control variable results is beyond the scope of this study, but a summary of findings is useful.

As expected growing counties, as proxied by population growth tend to see higher start-up rates. Somewhat surprisingly, the higher the share of the population under 18 as well as those over 65 is linked to higher start-up rates. The former is unexpected, but in terms of the latter there is growing evidence of increasing rates of self-employment for those in the 50s and early 60s (Kerr and Armstrong-Stassen 2011; Bruce et al. 2000; Cahill et al. 2006; and Quinn and Kozy 1996). Many “pre-retirement” age people are looking for second careers or a different challenge in their life and starting their own business is a viable option (Deller et al. 2019). We also find that the higher the concentration of both African-Americans and Latinos the lower the start-up rate while more urban areas see higher rates of entrepreneurship, which is as expected.

Consistent with prior expectations, higher levels of social capital are associated with higher levels of entrepreneurship and is consistent with prior work (e.g., Markeson and Deller 2015) and places with warmer winters have higher start-up rates and more humid summers lower rates. Higher levels of unemployment tend to place downward pressure on start-up rates. We would interpret this not as refuting the relationship between high unemployment and entrepreneurship of necessity, but of weaker demand for new businesses. At the same time, a higher share of households with very low income is tied to higher rates of entrepreneurship. We would suggest that the unemployment rate in isolation is not sufficient to capture entrepreneurship of necessarily but higher rates of very low income a better predictor. We also find that a higher share of households with high income, along with higher median household income, is associated with higher rates of business start-ups, which is as expected. Also as expected we find that a higher level of dependency on goods-producing industries for employment places downward pressure on entrepreneurship. This could be because, *ceteris paribus*, these economies are less dynamic creating fewer opportunities for new businesses.

Now turn to the three variables of interest associated with immigration or foreign-born populations and shares of that population that are nationalized citizens. While the coefficients on the percent of population in the county of foreign born is positive, the level of statistical significance is weak: we would need to drop below the generally accepted lowest acceptable threshold of 90%. Counties that are seeing that share increase from 2000 to 2010 tends to have lower rates of entrepreneurial activity. These results are not consistent with much of the literature that immigrants tend to be more entrepreneurial than natives. Also, the share of those that are foreign born that are now nationalized citizens is also negatively related to new start-ups. It may be the case that nationalized citizens are more integrated into the community and have greater access to wage and salary employment. This latter interpretation, however, would require that most immigrants are entrepreneurs of necessity rather than opportunity. These unexpected results on total business start-up rates could be that important differences across industry types is masked. To further explore this potential explanation we group new businesses by industrial classification and rerun

the models. These results are summarized in Tables 5.4 and 5.5. For simplicity we do not report the results for the control variables.

Consider first, the four goods-producing sectors which include agriculture, forestry, fishing, and hunting as a group, mining, construction, and manufacturing. We do not model utilities because this market is highly regulated and competes with public utilities in many places, thus making it a unique sector. As expected we do find different relationships between immigrants and start-ups across these four sectors. A higher percent of the population that is foreign born is associated with more start-ups in agriculture, forestry, fishing, and hunting along with manufacturing, but lower

Table 5.4 Immigrants and goods producing entrepreneurship (2011 Start-up rate, Spatial Tobit)

	Direct	Indirect	Total
<i>Agriculture, forestry, fishing and hunting</i>			
Percent of the population foreign born 2010	0.24121** (0.0062)	0.08385** (0.0131)	0.32506** (0.0065)
Percent of foreign born naturalized U.S. citizen 2010	-0.00317 (0.8365)	-0.00111 (0.8382)	-0.00427 (0.8365)
Percent change in foreign born 2000–2010	-0.00307 (0.3474)	-0.00107 (0.3594)	-0.00414 (0.3483)
<i>Mining</i>			
Percent of the population foreign born 2010	-0.44022** (0.0125)	-0.25646** (0.0173)	-0.69668** (0.0131)
Percent of foreign born naturalized U.S. citizen 2010	0.06456** (0.0481)	0.03766* (0.0569)	0.10222** (0.0496)
Percent change in foreign born 2000–2010	-0.00326 (0.6607)	-0.00190 (0.6642)	-0.00516 (0.6614)
<i>Construction</i>			
Percent of the population foreign born 2010	0.11300 (0.4098)	0.04044 (0.4160)	0.15344 (0.4103)
Percent of foreign born naturalized U.S. citizen 2010	-0.04111* (0.0636)	-0.01471* (0.0724)	-0.05582* (0.0642)
Percent change in foreign born 2000–2010	-0.00813* (0.0908)	-0.00291* (0.1007)	-0.01104* (0.0916)
<i>Manufacturing</i>			
Percent of the population foreign born 2010	0.12160 * (0.0779)	0.02350 (0.1091)	0.14509* (0.0788)
Percent of foreign born naturalized U.S. citizen 2010	-0.00617 (0.5880)	-0.00119 (0.5997)	-0.00737 (0.5884)
Percent change in foreign born 2000–2010	-0.00209 (0.4025)	-0.00040 (0.4210)	-0.00250 (0.4029)
Control variables	yes		

Marginal significance or *p*-values in parentheses

***Significant at the 99.9% level; **Significant at the 95.5% level; *Significant at the 90.0% level

Table 5.5 Immigrants and service producing entrepreneurship (2011 Start-up rate, Spatial Tobit)

	Direct	Indirect	Total
<i>Wholesale trade</i>			
Percent of the population foreign born 2010	0.19162** (0.0133)	0.03028** (0.0430)	0.22190** (0.0137)
Percent of foreign born naturalized U.S. citizen 2010	-0.06139*** (0.0001)	-0.00971** (0.0040)	-0.07110**: (0.0001)
Percent change in foreign born 2000–2010	-0.00815** (0.0065)	-0.00129** (0.0310)	-0.00943** (0.0067)
<i>Retail trade</i>			
Percent of the population foreign born 2010	0.31074** (0.0047)	0.05881** (0.0161)	0.36955** (0.0049)
Percent of foreign born naturalized U.S. citizen 2010	-0.00751 (0.6711)	-0.00143 (0.6773)	-0.00895 (0.6711)
Percent change in foreign born 2000–2010	-0.00426 (0.2646)	-0.00081 (0.2865)	-0.00507 (0.2652)
<i>Transportation and warehousing</i>			
Percent of the population foreign born 2010	0.00892 (0.9391)	0.00424 (0.9398)	0.01316 (0.9393)
Percent of foreign born naturalized U.S. citizen 2010	-0.03266* (0.0906)	-0.01559* (0.0982)	-0.04825* (0.0914)
Percent change in foreign born 2000–2010	-0.00418 (0.3162)	-0.00200 (0.3222)	-0.00618 (0.3169)
<i>Information</i>			
Percent of the population foreign born 2010	0.07284 (0.2073)	0.00675 (0.2963)	0.07959 (0.2078)
Percent of foreign born naturalized U.S. citizen 2010	-0.00030 (0.9768)	-0.00004 (0.9730)	-0.00034 (0.9763)
Percent change in foreign born 2000–2010	-0.00381 (0.1150)	-0.00036 (0.2177)	-0.00416 (0.1160)
<i>Finance and insurance</i>			
Percent of the population foreign born 2010	0.23419** (0.0012)	0.01274 (0.1799)	0.24693** (0.0013)
Percent of foreign born naturalized U.S. citizen 2010	-0.04413** (0.0003)	-0.00241 (0.1689)	-0.04653** (0.0003)
Percent change in foreign born 2000–2010	-0.00947** (0.0005)	-0.00052 (0.1734)	-0.00998** (0.0006)
<i>Real estate and leasing</i>			
Percent of the population foreign born 2010	0.13407* (0.0734)	0.02909* (0.0956)	0.16317* (0.0741)
Percent of foreign born naturalized U.S. citizen 2010	-0.03370** (0.0095)	-0.00732** (0.0225)	-0.04102** (0.0098)

(continued)

Table 5.5 (continued)

	Direct	Indirect	Total
Percent change in foreign born 2000–2010	−0.01120** (0.0002)	−0.00243** (0.0030)	−0.01364** (0.0002)
<i>Professional, scientific, and technical services</i>			
Percent of the population foreign born 2010	0.19767** (0.0395)	0.06493** (0.0476)	0.26260** (0.0399)
Percent of foreign born naturalized U.S. citizen 2010	−0.05079** (0.0014)	−0.01671** (0.0033)	−0.06750** (0.0015)
Percent change in foreign born 2000–2010	−0.01040** (0.0026)	−0.00342** (0.0052)	−0.01382** (0.0027)
<i>Management of companies</i>			
Percent of the population foreign born 2010	0.10354* (0.0513)	0.00273 (0.5972)	0.10627* (0.0520)
Percent of U.S. citizen 2010	−0.01501 (0.1625)	−0.00041 (0.6263)	−0.01542 (0.1638)
Percent change in foreign born 2000–2010	−0.00119 (0.6050)	−0.00003 (0.7970)	−0.00122 (0.6053)
<i>Educational services</i>			
Percent of the population foreign born 2010	0.02956 (0.4571)	0.00329 (0.5032)	0.03285 (0.4579)
Percent of foreign born naturalized U.S. citizen 2010	−0.01217 (0.1294)	−0.00136 (0.2090)	−0.01353 (0.1303)
Percent change in foreign born 2000–2010	−0.00599** (0.0037)	−0.00067* (0.0570)	−0.00667** (0.0039)
<i>Health care and social assistance</i>			
Percent of the population foreign born 2010	0.13056 (0.1650)	0.01948 (0.2057)	0.15004 (0.1658)
Percent of foreign born naturalized U.S. citizen 2010	−0.02309 (0.1362)	−0.00345 (0.1777)	−0.02653 (0.1371)
Percent change in foreign born 2000–2010	−0.00315 (0.3524)	−0.00047 (0.3814)	−0.00362 (0.3530)
<i>Arts, entertainment, and recreation</i>			
Percent of the population foreign born 2010	0.10089 (0.1771)	0.00404 (0.4681)	0.10493 (0.1778)
Percent of foreign born naturalized U.S. citizen 2010	−0.01895 (0.1388)	−0.00078 (0.4395)	−0.01973 (0.1398)
Percent change in foreign born 2000–2010	−0.00939** (0.0028)	−0.00038 (0.3319)	−0.00978** (0.0030)
<i>Accommodation and food services</i>			
Percent of the population foreign born 2010	0.08942 (0.4687)	0.02313 (0.4783)	0.11255 (0.4693)

(continued)

Table 5.5 (continued)

	Direct	Indirect	Total
Percent of foreign born naturalized U.S. citizen 2010	0.03648* (0.0708)	0.00945* (0.0862)	0.04593* (0.0715)
Percent change in foreign born 2000–2010	−0.00783* (0.0738)	−0.00203* (0.0896)	−0.00986* (0.0745)
<i>Other services (except public administration)</i>			
Percent of the population foreign born 2010	0.26855** (0.0052)	0.01297 (0.2246)	0.28151** (0.0054)
Percent of foreign born naturalized U.S. citizen 2010	−0.00535 (0.7300)	−0.00026 (0.7804)	−0.00561 (0.7300)
Percent change in foreign born 2000–2010	−0.00118 (0.7237)	−0.00006 (0.7735)	−0.00124 (0.7237)
Control variables	Yes		

Marginal significance or *p*-values in parentheses

***Significant at the 99.9% level; **Significant at the 95.5% level; *Significant at the 90.0% level

start-up rates in mining. The manufacturing result, however, is significant above the 90% level but below the 95% level. There is no relationship with start-ups in the construction industry. Growth in the share that are foreign born from 2000 to 2010 is only linked, inversely, to construction but the result is statistically weak, and has no influence on the other three sectors. The share that are nationalized citizens appear to have a weak inverse relationship with construction but a positive impact on mining. The rationale for this latter result on mining is not clear.

The results for the service-producing sectors (Table 5.5) provide us with a finer insight into the immigrant and entrepreneurship relationship. Before exploring each industry type, there is a general pattern for all the results: higher levels of foreign born in 2010 tends to be positively associated with entrepreneurship but growth in that concentration from 2000 to 2010 and the share that are nationalized citizens tend to be inversely related. While there are a small handful of exceptions to this pattern it is remarkably stable with only the levels of statistical significance driving differences across industry type. Consider the wholesale and retail trade industries where the pattern holds and is statistically significant for all three within wholesale, but only the share for foreign born in 2010 is significant in retail. The pattern found for wholesale trade also holds for finance and insurance, real estate and leasing, and professional, scientific, and technical services. Foreign born or rate of nationalized citizenship appears to have no statistically significant relationship with finance and insurance or health care and social services.

Similar to retail trade, the remaining service-producing sectors also have a mixed pattern of statistical significance. For transportation and warehousing the concentration of foreign born is not significant but the share that are nationalized citizens has, again, a negative and weakly significant coefficient. Higher percent of the population of foreign born in 2010 has a statistically weak positive link to firms that are classified as management of companies, but neither growth in that percentage

or share of nationalized citizens is statistically significant. This same pattern holds for other services (except public administration). For educational services (does not include public education) and arts, entertainment and recreation higher shares foreign born or nationalized citizens appear to be statistically significant but increase in the concentration of foreign born from 2000 to 2010 has a negative impact.

The only sector that breaks this pattern of a positive coefficient on share of the population of foreign born in 2010 and a negative coefficient attached to the change in that share from 2000 to 2010 and the percent of foreign born that are now nationalized citizens is accommodation and food services. Here the share that are nationalized citizens has a positive and statistically significant coefficient. It is not clear why this one sector would break from the general pattern of all other industries.

The analysis here does confirm that higher concentrations of immigrants, or foreign born persons, does lead to higher levels of entrepreneurship, but it varies by type of industry. We find this to hold for wholesale and retail trade along with other services, which tends to be dominated by personal service industries, but also for the more professional services such as management of companies, finance and insurance, real estate and professional, and scientific and technical services. These results follow the insights gained by Kahn et al. (2017) in that care must be taken in treating immigrants as a homogenous group of people. Immigrants vary in terms of education, skills, attitudes toward risk, and entrepreneurial ambition. Because this is an ecological analysis using community (county) level, as opposed to the individual level, data we cannot conclude that these immigrants are the ones starting the businesses. It is equally possible that the presence of immigrants is creating business opportunities for natives. In all likelihood it is probably a combination of the two: entrepreneurial immigrants and new opportunities for natives.

The larger result is that higher concentrations of immigrants, or foreign-born persons, is associated with higher rates of business start-ups including in those industries that tend to be associated with more dynamic economies. This would suggest that many of these businesses that are being created are not solely out of necessity but rather opportunity and may be Schumpeterian in that they become engines of innovation and significant economic growth and development. In summary, it appears that immigrants do have the potential to have an outsized effect on the creation of new businesses within a community.

5.5 Conclusions

International migration into the United States remains a strong and hotly contested political issue. Concerns are expressed that immigrants drive down wages, take the jobs of natives, place pressures on public services such as health care, and lead to higher rates of crime. In our analysis of US counties, we found very little evidence supporting these concerns. Rather, we found that a higher share of the population that are immigrants tends to be associated with higher levels of community well-being, as measured across a range of socioeconomic metrics. While our simple correlation

analysis cannot be used to draw inferences about causation the results, on face value, seems to refute the notion that higher concentrations of immigrants have negative outcomes on local communities.

More importantly, we found that immigration tends to be linked to entrepreneurship which is vital to a dynamic, growing economy. We also found that these immigrant-related new businesses are across a wide range of industries including professional services such as management of companies, finance and insurance, real estate and professional, and scientific and technical services. This latter group in particular, it could be argued, helps reinforce dynamic, growing economies through innovation. We do consistently find, however, that as the share of these immigrants become nationalized citizens the rates of entrepreneurship declines for some industry types. This is likely due to nationalized citizens having greater access to wage and salary employment opportunities.

While the number of undocumented workers appears to have stabilized over the past ten years, our analysis only considers legal immigrants. There have been attempts to estimate the number of undocumented workers by state and county, these estimates are crude and largely unreliable for rigorous statistical modeling. Therefore, our results and conclusions must be discounted to the extent that we do not consider undocumented workers in our analysis. Still, returning to our original question, are immigrants a drain or driver of economic development, we would have to conclude that they are a driver.

In the end, our results suggest that immigrants entering a community can be a source of positive outcomes. Through the lens of social capital theory and the extensive literature of immigration a fundamental element that drives the potentially positive outcome is the receptiveness of the community to these immigrants. Conversely, communities that present themselves as closed to outsiders, particularly immigrants from foreign countries, will not only miss out on potentially positive effects represented by immigrants, but may reinforce any negative outcomes.

Acknowledgements An earlier version of this study was presented at the 50th Annual Meetings of the Mid-Continent Regional Science Association, Madison, Wisconsin. June 2019.

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Chapter 6

Opportunity Seeking Migration in the United States



Thomas A. Knapp and Nancy E. White

6.1 Introduction

The factors that affect migration affect the spatial distribution of population. The migration decisions of individuals and households redistributes wealth and poverty, fosters growth or decline of labor and housing markets, and alters the bundle of site-specific attributes. In fact, where natural population increase is small or negative, the very viability of locations depends on the preferences and constraints of voluntary migrants.

The composition of population by economic and demographic characteristics has effects on individuals through the economic returns associated with a given location, housing prices, and quality, and the bundle of site characteristics such as consumer amenities. Who moves also influences regions. Where well-educated “power couples” locate, for example, may contribute to the diverging economic inequalities across regions. Moretti (2012) demonstrates that individuals who reside in poorer locations experience shorter life expectancies, confront higher crime rates, and generate spillover effects in the labor market, so much so that he asserts that where one lives is a more important determinant of one’s wages than ones’ resume. Furthermore, the composition of population affects the public sector characteristics of a location, such as school quality and public safety. Local governments have considerable experience with public policy aimed at firm location, but less experience

T. A. Knapp (✉)

Associate Professor of Economics Emeritus, Pennsylvania State University–Wilkes-Barre,
Lehman, PA, USA

e-mail: kzu@psu.edu

T. A. Knapp · N. E. White

Visiting Scholars in Economics, Minnesota State University Moorhead, Moorhead, MN, USA

e-mail: nwhite@bucknell.edu

N. E. White

Professor of Economics Emerita, Bucknell University, Lewisburg, PA, USA

with negotiating policy that acknowledges the complex relationship between people and place. The study of migration, especially with respect to its determinants and consequences for locations, is of increasing relevance to policymakers and planners.

The study of voluntary migration is inter-disciplinary, drawn primarily from geography, demography, sociology, and economics. The chapter focuses on U.S. domestic migration, which is generally motivated by improvement in economic opportunity (e.g., change in employment status, wage earnings) or the pursuit of enhanced site-specific attributes, such as natural or public sector amenities, which is often within the domain of economics and geography. Topics in migration such as life course migration and family migration are included in the research of demographers and sociologists.

We survey the literature on the determinants of household migration where migration is defined as a change in geographical units such as states, counties, and MSAs. The spatial unit is large enough to facilitate a change in labor market accompanied by a change of residence; we do not address residential adjustments within a particular spatial unit. The chapter is organized as follows: Sect. 6.2 consists of an overview of the migration literature, including the disequilibrium and equilibrium models and their relationship to economic development and public policy. Section 6.3 focuses on empirical techniques, such as location choice sets, selectivity, and panel data. In Sect. 6.4, we address topics such as the channels by which people and place interact to determine the returns to migration, with a role for migration in spatial income inequality; family migration, including the location of well-educated “power couples,” and life course migration. Section 6.5 is the conclusion, with suggested avenues for future research.

6.2 Overview of Migration Research

Changes in the spatial distribution of population in the United States have generated two views of the rationale for household migration. The historical migration of households to the Northeast and Great Lakes regions to pursue employment in manufacturing and the current migration in response to the agglomeration of innovative industries suggest one view. Another view is derived from the shifts in U.S. population beginning in the late 1960s, when population moved from the Northeast and the Midwest to the South and West to access natural amenities such as mountain views, sunshine, and access to a coastline. The former is the foundation for the labor demand side view of voluntary migration. From this perspective, migration is associated with seeking better economic opportunity such as higher wages or improvement in employment prospects. The second view is grounded in the notion that migration is influenced by features of a location, where households select a location that optimizes the bundle of natural or public sector attributes. The labor demand and labor supply perspectives provide different economic explanations for population dynamics, leading to competing views of the impetus for regional development and different roles for public policy. This section describes the relevant literature

that provides the foundation for today's understanding of household migration and its consequences for people and places.

The early regional development models from economics focus on the factors that influence either labor demand or labor supply. The labor demand driven models are generally attributed to Blanco (1963), Lowry (1966), and Mazek (1969), all of whom posited that shifts in labor demand drive regional development. As labor demand changed, regional wage variation and improvements in employment opportunities created the incentive to migrate. Tiebout (1956) provided early insights that influenced the labor supply oriented view of migration. Tiebout hypothesized that households express their preferences by comparing the attributes of alternative locations and move to the location that leads to the highest level of utility. While Tiebout's interest was in households' intra-city mobility in response to the attributes of the local public sector, the idea that households "vote with their feet" in response to site characteristics provided the groundwork for the study of amenity driven migration. The notion that migration decisions were driven by factors other than those related to labor demand had limited impact on the analysis of regional development until the early 1970s. The numerous net migration studies by Graves contributed greatly to the shift in emphasis from labor demand shocks to amenities as the driver of migration. Graves (1980) showed that empirical results on labor market variables such as employment and wages in net migration models were inconsistent with the expectations of labor demand theory. For Graves (1976, 1979, 1980; Graves and Linneman 1979; Mueser and Graves 1995), migration is motivated by amenity seeking behavior, where amenities, primarily climate, were normal goods whose demand increased as incomes rose.

Knapp and Graves (1989) describe the contrasting labor demand side and labor supply side theories of migration and regional development. The demand side model assumed that migration followed labor demand shocks, where household location decisions adjust earnings and unemployment levels toward a labor market equilibrium. From the supply side view, migration also drives earnings and unemployment levels; however, lacking the influence on labor markets of labor demand shifts, an explanation for the motivation for migration was necessary. The theoretical solution was that demands for amenities/local public goods are expressed through the location choices of households. A contribution of this research is that migration is an equilibrating mechanism in the spatial distribution of population.

The current specifications of empirical models of migration and regional development are legacies of both approaches. The labor supply driven model of migration gained prominence as household incomes were rising and the spatial distribution of the U.S. population was shifting toward high natural amenity locations. The labor supply models assumed that amenities are normal goods; as incomes rise, amenities are of increasing relative importance in migration decisions. As labor supply models became more prevalent in the literature, the specification of empirical migration models tended to include site attributes. While migration specialists were modifying their empirical models, regional development researchers were refining regional adjustment models (i.e., the "people follow jobs" or "jobs follow people" question). Carlini and Mills (1987) estimated regional growth models using

simultaneous equation models of employment and population growth. Their findings provide evidence of causality between employment and population growth. As noted in Carruthers and Vias (2005), traditional economic development policies tended to consist of incentives for firm location and job creation, placing little emphasis on population as a direct determinant of regional development. These authors, and de Graaf et al. (2012) found significant evidence that population growth is exogenous with respect to employment growth. The meta analysis of Carlino and Mills types of studies performed by Hoogstra et al. (2005) shows that the weight of the evidence supports the view that population growth is exogenous. Therefore, research from both literatures clearly demonstrates that the proper specification of both migration and regional development models must include controls for labor demand and for location-specific attributes.

Migration research has influenced and has been advanced by other, related literatures; for example, migration is the means by which the demand for features of locations is revealed in the hedonic pricing and quality of life literatures. Roback (1982) expands upon the hedonic pricing research of Rosen (1979) to show that inter-city variation in both wages and rents reflect compensating differences for variation in levels and types of amenities. A seminal contribution of the Roback study that population levels and migration flows are an essential component of the analysis of amenity demands. These models significantly changed the way that amenity demands are estimated because they laid the foundation for studies of the relationship between migration and amenities, which affects both land and labor markets. The quality of life literature [see Bayer et al. (2009); Cragg and Kahn (1997); Chen and Rosenthal (2008)] relies on amenity seeking migration behavior as an analytical device for revealing preferences for attributes of location rather than featuring migration as the primary focus of the analysis. Interestingly, the microfoundations of the labor supply model were derived from the quality of life literature [see Blomquist et al. (1988)], while current researchers rely on migration to advance the quality of life literature. The insight that migration is an expression of the demand for site-specific amenities has a lasting impact on migration research and related hedonic and quality of life literatures.

This section of the chapter includes brief descriptions of the early empirical models of migration. We emphasize the so-called micro models that characterize migration as a utility maximization problem. We do not include a discussion of aggregate models, with their net or gross migration flows. [For a review of aggregate models, see Cushing and Poot (2004).] Macro models were generally accepted as state-of-the-art until Muth (1971). Muth's seminal contribution led researchers to characterize regional development through simultaneous equations models of the labor market, where net migration serves as a proxy for labor supply and employment growth reflects labor demand. Furthermore, as Christiadi and Cushing (2008) point out, the increased availability of microdata and changes in computing technology altered the empirical tool kit available to migration researchers. We summarize the historical micro models of migration immediately below. In the next section, we address current econometric techniques.

Surveys of economic migration research often begin with Sjaastad (1962), who formalized an empirical utility maximization model of migration. Sjaastad posited that location decisions are a lifetime utility maximization problem, where spatial variation in economic opportunity was assumed to be the primary motivation for migration. The emphasis on labor market variables is consistent with the prevalence of the labor demand view of migration at that time. Human capital theory suggests that migration will decrease during the length of the working lifetime as the discounted stream of benefits associated with migration declines. Following Sjaastad, researchers initially focused on demand side variables, such as wages, unemployment, or employment growth. However, subsequent specifications of the basic model included amenities and other site-specific characteristics as the supply side perspective gained influence in the migration literature.

Household migration may be modeled by studying the influence of personal and demographic characteristics of people or attributes of locations. Individual determinants of migration may be personal or productivity related, or both. Migration has been found to be influenced by personal characteristics such as age, education attainment, marital status, gender, race, ethnicity, homeownership, presence, and number of children. Personal productivity characteristics often include income, employment status, duration of unemployment, and job tenure. Additional avenues of interest, which are addressed in the next sections, include life course migration, family migration, racial differences in migration propensities, and people-place interactions. The specification of place characteristics may include the features of the origin, destination, or both. Empirical studies using site characteristics began as quality of life variables, typically climate measures, for example, by days of sunshine and proximity to coasts. Models also include public sector attributes such as expenditures on education and property taxes. Huff and Clark (1978) develop a model of migration focusing on the heterogeneity of motives that distinguish stayers and migrants. Morrison and Clark (2016) and Clark and Lisowski (2017) expand this research to include prospect theory and loss aversion in the decision to move versus stay.

Regional science and regional economics have made and continue to make contributions to the study of the public sector, particularly through migration research. While Graves and Linneman (1979) recognized that local public sector variables could be included in the vector of site characteristics in models of household migration, their focus was on the influence of natural amenities as determinants of migration. Haurin and Haurin (1988) argued that public sector features such as education and police protection are important in residents' comparisons of perceived quality of life among locations. From the quality of life literature, Gyourko and Tracy (1989) demonstrated that local public sector characteristics are of similar importance to natural amenities in explaining quality of life among urban areas. However, early research on the relationship between regional development and state and local public policy (tax and expenditure policies) tended to analyze firm location, particularly manufacturing. As researchers (e.g., Muth 1991) found support for the supply driven migration model, the influence of public policy as a site attribute became an important subject for the analysis of regional growth and development.

The influence of the public sector on household migration decisions extends a Tiebout-type intra-city model across larger spatial units, typically MSA, county, or state. Fox et al. (1989) and Knapp and White (1992) examined the role of public sector variables in logit models of the decision to migrate. This approach reflected a shift in emphasis away from state or local policies aimed at firm location to policies that might affect the migration decision. Fox et al. (1989) briefly survey the early studies that analyzed fiscal factors as determinants of migration. These authors were among the first researchers to use individual migration data along with an extensive set of fiscal variables. Fox et al., estimate three migration models: move/stay; decision to leave or not (fiscal characteristics as push factors), the decision to enter (fiscal factors as pull factors). Their binary logit results show, *ceteris paribus*, that fiscal measures are most significant as factors in the decision to leave a particular location. Knapp and White (1992), using NLSY data from 1984 to 5, estimate a binary logit model of migration and find a similar result: fiscal attributes are significant in the migration decision. These authors argue, that if public sector attributes are determinants of migration, then a role for migration exists in policies aimed at local/regional development.

An aspect of the migration-public sector linkage that has not been well examined is the endogeneity of the public sector with regard to migration. Unlike climate variables, the composition and cost of the public sector changes in human rather than geologic time. White and Knapp (1994) developed a partial equilibrium theoretical model that endogenizes the public sector. They conclude that (p. 339) “fiscal characteristics of a location are a complex dynamic, since migration changes the attributes of a region, and these attributes themselves are determinants of migration.” Migration has consequences for locations. The composition of migrants by economic and demographic characteristics influences the composition of the bundle of public sector attributes of a location and its cost to residents and firms, a subject to which we will return in the conclusion.

A spatial equilibrium view of regions emerged from the hedonics and urban economics literatures, with site characteristics as important determinants of migration. This view held that regions may be in spatial equilibrium despite the persistence of wage and rent differences where these differences reflect compensating differentials for the features of location, mostly natural amenities. [See Graves and Mueser (1993) for a formal model of the equilibrium dynamics.] An alternative—disequilibrium—view of migration holds that persistent regional wage differences are a result of labor market imperfections that originate with either labor demand or labor supply (migration). As Hunt (1993) points out, one of the distinguishing characteristics of the disequilibrium approach is that disequilibrium has been hypothesized to continue for long periods of time because of stickiness in labor markets. In the spatial equilibrium view posited by Graves and Mueser, persistent disequilibrium in wages and rents is “non-systematic, largely white noise from the intertemporal perspective of relevance.” (p. 79).

The recent decline of interstate migration in the United States provided an opportunity to test the equilibrium view of migration. Partridge et al. (2012) examine the decline in U.S. gross migration rates after 2000, asking whether this is evidence of spatial equilibrium, or a result of structural changes in regional labor markets. These

authors find that migration in response to amenities has fallen modestly, suggesting continued convergence toward spatial equilibrium. However, the results demonstrate a decline in the responsiveness of net migration to labor market shocks. The authors suggest that the reduction in migration in response to demand shocks may be due to an increase in inter-industry mobility within local labor markets serving as a substitute for migration. Kaplan and Schulhofer-Wohl (2017) attribute the decline in interstate migration to two sources: first, a reduction in the geographic differences in the returns to skills, and, second, an increase in information available to potential migrants as to the amenities across locations.

Clark et al. (2003) use a spatial equilibrium framework to develop measures of over and under compensation for amenities and then estimate the influence of these measures on the probability of migration. Within the spatial equilibrium approach, site attributes at any given period in time may not be fully capitalized into wages and rents, providing an impetus for migration. These authors estimate temporary measures of over and under compensation (termed incomplete compensation) for features of locations, then use these measures in a binary choice migration model. The empirical measures of incomplete compensation are derived from the wage opportunity locus developed by Henderson (1982). Combinations on the wage opportunity locus represent compensating differences in wages for spatial variation in amenities, while wage-amenity combinations off the W_{OL} reflect incomplete amenity compensation.

Formally, the model is shown below. Utility for household i at location j depends on the amenity level (A_j) and the disequilibrium wage difference $W_{ACT,j} - W_{A,j}(A_j)$, assuming the characteristics of the household (H_i) are given. The utility function for household i at location j can be written as:

$$U_{ij} = U(A_j, W_{ACT,j} - W_{A,j}(A_j); H_i) \quad (6.1)$$

where:

$W_{ACT,j}$ is the actual wage at location j

$W_{A,j}(A_j)$ is the wage that reflects complete amenity compensation at location j .

Assuming that $W_{ACT,j}$ is constant, changes in utility result from the direct amenity effect (A_j) and differences in utility from wage differences associated with incomplete compensation. Migration is motivated by the potential for utility improvement. The probability of household i migrating between O (origin) and D (destination) is given by:

$$\text{Prob}(\text{migrate}_i) = \Pi(A_D, W_{ACT,D} - W_{A,D}(A_D), A_O, W_{ACT,O} - W_{A,O}(A_O), H_i, C_{D-O}) \quad (6.2)$$

These authors regress the log of annual wages on human capital, industry and occupational controls, median housing prices, and MSA fixed effects, where the fixed effects estimators capture the influence of location on wages. The estimated fixed effects coefficients for each MSA are then regressed on a comprehensive vector

of site attributes to explain the spatial variation in wages attributable to location characteristics. The factors related to spatial wage variation are measured in either stage one or stage two; therefore, the residuals from stage two are measures of systematic incomplete amenity compensation in wages. Finally, the authors include the second stage residuals, which measure over or under compensation, as regressors in a binary logit model of migration. The measures of incomplete compensation were significant and of the anticipated sign. For example, migration was found to be positively associated with destinations that over-compensate for site characteristics and migration from an origin was less likely when characterized by over-compensation for site characteristics. The observed migration responses to incomplete amenity compensation were found to be consistent with a movement toward spatial equilibrium. A subsequent paper (Clark et al. 2006) found evidence of a subsequent decade of tendencies toward spatial equilibrium. These studies provide evidence of the validity of the spatial equilibrium model.

As Partridge (2010) points out, the spatial equilibrium model of migration, with its central role for amenity seeking behavior, tends to prevail among current U.S. academic researchers who analyze regional development. Theoretical models of household migration decisions have significantly influenced the manner in which empirical migration models are specified. For example, past specifications of empirical migration models contained control variables related to economic forces typically associated with firm location; however, contemporary models generally include both labor market, amenity, and public sector variables. The shift in emphasis from labor demand to labor supply determinants changed the way that public policy entered migration models, particularly through the role of expenditures on education health care, and income and property taxes. Migration research by geographers, demographers, and sociologists has contributed to the importance of household and demographic characteristics in migration decisions, notably in recent life course and family migration. These topics are addressed in depth in Sect. 6.4.

6.3 Empirical Topics

In this section, we address three topics with regard to empirical studies of migration: choice set, selectivity, and the use of panel data. One of the most vexing issues in migration research is the appropriate choice set from which households make decisions. With the availability of microdata sets (PUMS, NLSY) and computational advancements, discrete choice models such as conditional logit and nested logit have resulted in contributions to the migration literature, particularly with regard to the appropriate specification of the choice set from which households select a destination.

6.3.1 Choice Set

Polychotomous choice models such as conditional and nested logit offer alternatives to binary choice models which typically pose a “mover/stayer” decision, where the latter is of limited value for studies of the determinants of where the household locates. Conditional logit and nested logit are random utility models where

$$U(\text{location choice } j \text{ for household } i) = U_{ij} = V_{ij} + \varepsilon_{ij} \quad (6.3)$$

The utility level U_{ij} is determined by the systematic component of utility V_{ij} and ε_{ij} is the random disturbance term that is assumed to be independently and identically distributed with a Gumbel distribution.

A conditional logit model includes variables that have different values for each alternative location. The probability that household i chooses location j among many alternative locations depends on variation in the attributes of alternative destinations. An assumption of the conditional logit model is that destination choices are independent of one another. The independence of irrelevant alternatives (IIA) is from the assumption that the stochastic disturbance terms are independent and identically distributed.¹

Davies et al. (2001), in a state-to-state model of migration showed that conditional logit improves the specification of the locational choice set. These authors argue that a “troubling problem [in early models of the determinants of migration] is the treatment of alternative destinations.” The choice set in a conditional logit model includes all possible destinations, including the origin. Davies et al., demonstrates an advantage of allowing a destination choice set to include all alternative destinations: The source of variation in a given location characteristic (e.g., unemployment) is a result of comparisons across all alternative destinations.

Knapp et al. (2001) address choice set issues using a nested logit model of the migration decision. The authors show that “although some residential adjustments may be achieved by relocating within an MSA, other household mobility occurs because the destination site attributes that maximize utility can be achieved only by relocating to another metropolitan area. Therefore, the types of move can be thought of as distinctly different but the destination decision cannot be made independently of the features of [close and distant] alternative locations.” (pp. 2–3).

Their model includes personal characteristics and site attributes that are associated with household mobility and matched these variables to the appropriate level of the nesting structure. For example, personal characteristics included family income, age, and race or ethnicity. Locational variables included measures for percent black, percent hispanic, sunshine, property crime, temperature variation, and labor market differences between 1985 and 1990, and county median housing price relative to U.S. average. Destination choice fiscal variables were matched with site attributes that cannot be accessed by relocating within an MSA and commuting such as per

¹Conditional logit retains the IIA assumption, while the nested logit model relaxes the assumption for a portion of the model structure [see Christiadi and Cushing (2007), Knapp et al. (2001)].

capita spending on education and police protection, and per capita property tax revenues.

Hunt and Mueller (2004) analyze the decision to migrate and destination choice among US states and Canadian provinces using a nested logit model. The model incorporates location specific amenities, differences in the returns to skill, and moving costs. Moving costs are measured in the form of border effects, language, and distance. The estimates for the inclusive value term suggest strong preference for the origin location over others. These authors, along with Davies et al., find a strong implicit preference for the home location.

6.3.2 *Selectivity*

Researchers have long viewed migration as a selective process; those with higher levels of talent, skill, educational attainment, are found to be more likely to migrate. A selectivity problem arises when empirical estimates are based on a selective subgroup of migrants instead of an entire population. A consequence of uncorrected selectivity, for example, is that ordinary least squares estimates of the impact of migration on earnings are biased because the estimated effect on earnings attributed to migration reflects the sorting or self-selection of households. There are three methodologies available for addressing this concern. First, proper specification of control variables associated with selectivity reduces the potential for bias. Second, selectivity correction methods may be applied which can control for bias in the estimates. Third, propensity score matching estimators offer a potential alternative estimation strategy.

The objective of the first strategy is to reduce the potential bias in OLS estimates by expanding the number of controls to include, for example, age, education, occupation, and parental educational attainment. Thus, utilization of data sets with measures for such variables are important for obtaining unbiased estimates of the return to migration.

The second strategy involves using selectivity correction techniques based in Heckman (1979). Beginning with Nakosteen and Zimmer (1980), a number of researchers have estimated selectivity corrected estimates of the returns to migration. A thorough analysis of selectivity correction and its implications is presented in Tunali (1986). These studies tend to confirm the positive selectivity of migration; namely, that those with latent or unobserved ability, or those with more education and skills, are more likely to migrate. This problem can be corrected by specifying a binary joint decision/outcome model. Individuals sort themselves into migrant or non-migrant categories/groups in response to prospective earnings gains associated with migration. The selection process is specified by an equation derived from the characteristics of respondents and their likelihood of migration. The information included in a selectivity correction term is then used to modify the earnings equation, and corrects for the unobserved heterogeneity among households. Studies generally find that migrants are positively selected, meaning that those who migrate tend to have characteristics associated with a higher likelihood of migration success.

When selectivity is uncontrolled, it is generally agreed that estimates of the return to migration are biased downward.

The third approach involves the use of propensity score matching estimators. This technique involves pairing or matching observations based on the similarity of their characteristics, which is similar to a randomized study that would assign respondents to a treatment (migrate) or control group (not migrate) to obtain a measure of the average effect of a treatment (migration). For a thorough exposition of propensity score matching applied to migration, see Ham et al. (2005).²

Discrete choice models such as conditional logit have the advantage that the choice set is not restricted—it includes all alternative locations. Selection models and propensity score matching techniques calculate the potential gains to migration for the non-migrant, and the returns to not migrating for the migrant. A question arises as to whether this is the appropriate choice set for non-migrants because it is assumed the only option for the non-migrant would be to move to the same location as the migrant. Recent work by Dahl (2002) and Kennan and Walker (2011) serve to highlight these concerns, and examine new frontiers for addressing them. Dahl (2002) developed a method to encompass a large number of alternative choices while including selectivity corrections.

6.3.3 Panel Data

Panel data methods have been used to model the effect of migration on earnings growth. These methods have several advantages as follows: First, detection of earnings growth in response to migration may occur over long periods of time; therefore, earnings growth might not be observable from a single cross section. Second, panel models have flexibility to include leads and lags when estimating the effects of migration on earnings growth. Last, panel models allow for selectivity controls by using individual fixed effects and controls for economy wide effects using year (time)-specific fixed effects.

Recent econometric studies [see Yankow (1999, 2003), Rodgers and Rodgers (2000), Cooke et al. (2009)] have demonstrated the efficacy of panel data in determining the influence of migration on earnings growth over time. Yankow's study of interstate migration (1999) allows for a long post-migration time horizon for calculating earnings that allow wage growth to vary over time, finding a migration wage premium of 5% five or more years after the event. In his subsequent work (2003) examining the same data, he finds that wage increases following migration occur only for those with more than a high school education. Those with high school or less migrate in response to negative wage shocks prior to migration, but do not experience wage increases following migration.

²An alternative to propensity score matching, coarsened exact matching, is explored by Korpi and Clark (2015).

Knapp et al. (2013) create an earnings history and a migration history using NLSY data from 1979 to 2002. These authors use panel data methods to estimate wage growth associated with four different types of migration: primary migration (initial move), onward migration (second move to a different location), and two types of return migration, one which is a migration to a “home” location (a “geographic anchor” such as birth or age 14 location) and return to a former place of work. The underlying model is derived from Yankow (2003) and Rodgers and Rodgers (2000). Knapp et al., estimate a three-way fixed effects model with controls for individuals, time, and county. Knapp et al., find considerable differences in wage growth because of heterogeneity by migration type. Primary migrants who stay in place have different characteristics than those who select into a subsequent migration. For example, onward migration, which is selective of more educated individuals, yields the largest wage growth, and the long term wage growth of those who return home is similar to non-migrants.

6.4 People and Place Issues

In this section, we address several contemporary topics in migration studies. First, we survey the research on the channels by which human capital and place interact to influence the returns to migration. We then briefly discuss the influence of migrants’ skill and demographic characteristics on the spatial distribution of income and identify gaps in the existing literature on income inequality. We then examine the literature on life course migration. Finally, we summarize the literature on family migration, including a discussion of the possible influence on individuals and places as a consequence of the location decisions of “power couples”.

Human capital theory predicts that migrants calculate the expected present value of the difference between the benefits and costs of a location and choose the destination which maximizes earnings or utility. From this perspective, the expected returns to migration are positive. An important finding in the returns to migration literature is that all migrants do not experience wage gains, and the returns to migration vary by subgroup. Yankow (2003) found gains to migrants with more than a high school education. Knapp et al. (2013) show that primary and onward migration types yield positive returns in earnings, with greatest gains to onward migration of the college educated. Knapp and White (2016) found that white male adult earnings gains from migration differ by youth county poverty rates, rurality, education, and ability. These authors found heterogeneity within onward migrants, especially with regard to the interaction of human capital and place characteristics. When the onward migration type was disaggregated by youth county poverty rates, rurality, education attainment, and ability, Knapp et al., found initial earnings losses associated with higher youth county poverty rates and rural county of origin.

The influence of place in migration studies extends beyond the role of amenities and public sector variables, labor market conditions, and the interaction of human

capital and place characteristics. The studies described below find that place influences the perceived costs and benefits of migration, alters attitudes regarding the risks of relocating, and affects the ability to acquire and use information in migration decisions. Other studies demonstrate that differences in the gains from migration can be attributed to variation in location specific human capital, social capital, and social networks. A brief summary of this literature follows.

The influence of community's poverty rate on earnings is suggested by Elliott (1999), who found that residents of high poverty neighborhoods and those who are less well-educated are more likely to engage in informal job searches, both of which affect wages. Pastor and Adams (1996) found that in Los Angeles County, the poverty of one's neighbor affects the quality of employment networks. These authors attempted to distinguish the negative influence on wages of low-quality networks (concentrated poverty) from the effect of distance between job and residence (spatial mismatch). However, the relationship between the community and individuals' labor market success is likely to extend beyond neighborhood effects and is a complex network of household and place interactions. There have been many approaches to these interactions in the migration literature. DaVanzo and Morrison (1981) focus on the importance of location specific human capital and information in the return migration decision. Return migration has been posed as corrective; it occurs as a miscalculation of the costs and benefits associated with the attributes of origin and destination locations. (For a discussion of information and re-migration, see Allen 1979). Differences in migrants' psychic costs by migration type are analyzed in Herzog and Schlottman (1982) and Herzog et al. (1985). Kau and Sirmans (1976) claim that return migrants have information advantages over other migrants, while Herzog et al. (1985) find that non-return repeat migrants acquire labor market information such that they arrive at a destination with no information deficiency relative to similar return migrants. Greenwood (1990) links education and information as determinants of return migration, because "less-educated individuals may be less likely to plan their moves and less likely to avoid risky situations." Maier (1986) argues that information costs should be lower for well-educated individuals, who are presumed to know how to acquire and interpret information. Therefore, well-educated migrants, *ceteris paribus*, are expected to move more frequently and longer distances. Maier also discusses the importance of informal networks, such as former migrants who are friends and relatives at a new migrant's destination, as a "cheap source of information." Following Schwartz (1973), the potential to assimilate to a labor market is increased by education or better sources of information because of transferable human capital. Perhaps the most thorough study of the interaction of persons and place is Newbold (1997). The nested logit empirical methodology is applied to the migration process, which consists of three decisions: stay or depart the current region; if leave, is the migration of the return or onward type; and if an onward migration, where does the migration relocate? Newbold finds that return and onward migrants in the United States and Canada are influenced by similar determinants; furthermore, this research suggests that disappointment is a factor in the relocation decision of repeat migrants, likely from incorrect or incomplete information.

The characteristics of the population influence the expenditures of the public sector, which likely influences migration and perpetuates spatial differences in earnings. Blank (2005) points out the influence on expectations of labor market conditions at the origin location. She states that “those who foresee only limited earning opportunities are less likely to invest in education, creating persistently lower skill levels in a region.” Gibbs (2002) demonstrates that wages in rural locations are more likely to accompany the lower skill requirements associated with the types of industries that locate in rural areas. Weber et al. (2005) suggest that out-migration from rural locations presents a disincentive for communities to increase investment in education. Furthermore, local governments in high poverty areas face fiscal constraints that make it difficult to improve education quality. For rural areas, remoteness and difficulty in achieving scale economies in providing public goods may explain persistent rural poverty [see Partridge and Rickman, 2007]. The effects of migration on local labor markets and conversely, the effects of local labor markets on migration are influenced by the composition of amenities and public sector attributes, which, in turn, depends on the characteristics of the location and its population. The spatial distribution of income is determined by these complex interactions, yet inequalities in income distribution across space have not been linked explicitly to migration. Moretti (2012) argues that one’s salary is more dependent on where one lives than on one’s resume. Migration decidedly has an influence on this assertion. Chetty et al. (2014a, b) show that intergenerational income mobility varies greatly by region of the United States, however, the interactions of individuals and place is not well understood. The literature above suggests the many possible channels by which migration could influence the spatial distribution of income.

6.4.1 *Life Course Migration*

Research by geographers and demographers establishes the influence of age on the propensity to migrate. [For a historical perspective on this literature, see Rogers (2008).] Plane (1992) postulated three channels through which changes in age composition contributed to shifts in U.S. population during the 1970s, including the historic shift out of the Northeast and Midwest into the South and West regions. An age composition effect is the increase in migration resulting from the transition of a cohort to early adulthood, where individuals age into migration, with higher mobility rates in young adulthood. A second factor is the comparative cohort size. As noted by Pandit (1997) and others, the unprecedented size of the baby boom cohort led to that cohort experiencing reduced earnings and employment opportunities compared to smaller cohorts in that regional labor markets did not have the flexibility to absorb the magnitude of the change in cohort size. This effect is termed the age composition change effect. Plane examines a third channel, termed the geographic distribution effect, which is a consequence of exogenous changes in economic conditions. The results indicate that the geographic distribution effect is the dominant determinant of migration flows during the 1970s, exceeding in importance the pure demographic

effects described above. Plane's research demonstrates the importance of the age distribution of the population as a determinant of migration.

Whisler et al. (2008) examine the effect of various quality of life factors on the out-migration of six subgroups of the college educated from metropolitan areas. The results indicate differences in the preferences for amenities and other site-specific characteristics across the life course. Out-migration of young college educated is dampened by cultural and recreational amenities, while out-migration of older individuals is tied to milder climates and factors associated with increased safety. The authors note that metropolitan areas with high levels of human capital experience less out-migration across all subgroups, suggesting that migration patterns reflect the increasing concentration of human capital. Clark et al. (1996) found that, within the retiree population, the interstate migration is heterogeneous with respect to the preferences for site attributes.

It is unclear what the future portends with regard to retiree migration and its consequences for labor and housing markets. Where the nation's population locates has the potential to exacerbate existing patterns of regional growth and decline, and where the older population will locate is not clear. Furthermore, it is unknown how the public sector will respond to the shift in demands for public services. From a regional perspective, the characteristics of the population are affected by the skill and age composition of migrants, which, in turn, has implications for regional growth in both the sending and receiving regions. [See Krieg (1991) on migration of human capital compared to population migration; Kanbur and Rapoport (2005) on migration selectivity and spatial inequality, Faggian in Chap. 15 of this publication on human capital migration.] If public policy yields spatial features that are unattractive to high human capital individuals, locations may suffer population losses that would lead to consequences that will likely increase income and wealth disparities across regions.

Newbold (2015) suggests six areas of future research for regional scientists on the subject of migration and an aging population, including directions for potential future research on both the determinants and consequences of migration, a topic of further discussion in the conclusion.

6.4.2 Family Migration

Migration models following Sjaastad typically do not address family migration. Early researchers [e.g., DaVanzo (1976), Sandell (1977), Mincer (1978)] recast the decision to migrate as a utility maximization decision where utility is maximized by the sum of discounted lifetime earnings less migration costs for all members of the family. DaVanzo and Sandell found that migration typically resulted in earnings gains for husbands accompanied by a decline in earnings of the wife. Mincer introduced the concept of tied movers and tied stayers, where a tied mover is one who, if single, would not have migrated.

The concept of a tied spouse reflects the tradeoffs associated with coupled decision-making. In the early literature, women were typically found to be tied

movers since women were often found to experience earnings losses associated with relocation. Mincer noted that the tied stayer/mover phenomenon suggests a weakening of the tendency toward earnings convergence across labor markets since sub-set of the labor force is constrained in its optimization decision.

The prominent role of the husband is a persistent feature of family migration. Since the 1960s and 1970s when the data were collected for the early studies, labor market participation, education attainment, child-rearing norms, and career opportunities have changed, especially for women. [See Cooke (2013) and McKinnish (2008) for a review of family migration studies.] A change in these factors suggests a weakening in the emphasis of husbands' characteristics in migration decisions. However, as we will demonstrate, recent studies find the influence of gendered roles in family decision-making, which has implications for the spatial allocation of human capital, efficiency, and the ability of migration to equilibrate regional labor markets. The recent research, which addresses changes in women's labor market participation and earnings, has found that family migration is a factor in declining migration rates and in the attraction of larger cities to so-called "power couples" where both spouses have at least a college degree. We now turn to a review of the family migration studies.

In view of changes in women's labor market participation, earnings, and employment, Cooke (2013) analyzes the tied migrant and tied stayer where the human capital models of DaVanzo, Sandell, and Mincer lay the foundation for Cooke's study. In the earlier literature, women are generally found to be the tied migrant; however, Cooke creates a series of classifications of movers and stayers in a propensity score matching model to develop counterfactual comparisons of married couples with single individuals who move or stay. For example, a tied stayer is a spouse who wants to move but does not because the other does not want to move. A tied stayer would move if single. A tied migrant does not want to move but does. A tied migrant would not move if single. The matching procedure that Cooke applied allows for family classification such as "Wife Tied Migrant," which is defined as a family migration where the husband is matched to a migrant and the wife is matched to a non-migrant. Cooke finds that migration rates are similar for tied migrants whether male or female. However, one of the insights of this study is that tied staying is more common and has not been the subject of considerable research. Applying multinomial logit analysis to data from 1997 to 2009 Panel Study of Income Dynamics (PSID), Cooke finds that the determinants of family migration decisions are gendered. Placement into a particular category is associated with the role of husband and wife within the family. Husband's employment and human capital, for example, are found to be factors for both to be stayers. Families are more likely to be both tied movers if the husband is searching for a job. The wife's human capital measures or job search have no significant effect on the decision to move, while the wife's role in family responsibilities is significant.

The family migration decision for dual-earner couples involves earnings trade-offs: for migration to occur, earnings losses of one spouse must be compensated, all other things equal, by earnings gains of the other spouse. This tradeoff is changing as spouses' incomes have become more equal, which has consequences for individuals and locations. Pingle (2006) finds that relative income is a determinant of

family migration and that migration rates have fallen as the incomes of spouses have become more equal. Lower migration rates may lead to misallocated human capital, compromise efficiency, and reduce the ability of migration to equilibrate regional labor markets. From the Mincer human capital model of family migration, the idea is that as spouses' incomes become more equal, greater gains in the income of one spouse must compensate for losses by the other spouse. If this is the case, then, as two-earner couples have become more common and wives' incomes contribute a higher share of family income, these human capital and demographic changes may contribute to declining migration rates. Pingle estimates hazard rate models of inter-state and inter-MSA migration, finding that the more equal are spouses' incomes, the lower is the propensity toward out-migration.

Furthermore, an index of one spouse's income to the other's income is found by Pingle to be a better predictor of out-migration than income levels. These results pose a challenge to the human capital model of migration where pooled income levels determine family migration, suggesting that other explanations may be more likely. Pingle postulates that relative incomes may reflect specialization of tasks within a family or bargaining in the migration decision. For example, families may make the migration decision according to the spouses' weights in relative income, where the spouse with higher relative income has greater bargaining power or, the income index reflects specialization and the migration decision is determined by which spouse "has a comparative advantage at market work".

Blackburn (2010) finds, on average, that the short-run incidence of family migration is borne by a decline in the wife's earnings, particularly through a reduction in hours of work. Contrary to the prediction of family migration models, the reduction in the wife's earnings is not compensated by an increase in the husband's income. Blackburn claims that the results suggest that families pursue greater location-specific amenities, which, in the short run, are achieved at the expense of the wife's earnings.

McKinnish (2008) challenges the assumption that decision-making power is symmetrical and that income gains or losses for husband and wife are of equal weight in the family migration decision. McKinnish disaggregates common occupations, then defines occupations by migration rates and by education attainment (college degree or higher, HS diploma, less than HS degree). This study finds that occupations with higher migration rates for either spouse will increase of the probability of migration; however, the impact is greater for the husband's occupation. For power couples (both spouses are college educated) and husband only has a college degree, a husband in a high migration occupation increases the likelihood that family migration will decrease the wife's earnings. When only the wife has a college degree, there is no statistically significant effect of husband's occupation's migration rate on the earnings of the wife. The same effects occur for presence and age of children. If there are children present, the husband's education creates an earnings disadvantage for the wife. McKinnish finds persistent asymmetry in the effects of the husband's occupation's migration rate. The effects depend on the husband's education rather than education attainment of the wife, except when the wife is better educated than the husband. McKinnish's results with regard to gendered influences on the effects of family migration are similar to Geist and McManus (2012). The latter authors found

that women who are equals in the household economy are less likely to experience the negative earnings consequences frequently associated with family migration.

The location of high human capital, dual earner “power couples” has implications for cities of all sizes. Location decisions of dual degree couples to bigger cities potentially allows for more efficient allocation of human capital, but also has the potential to increase spatial income inequality. In the decades since the early family migration research, expansion in career opportunities for women led to increasing interest in the location decisions of dual career couples, particularly those where both spouses have a college education. The migration decision reflects a complex joint optimization problem because the locational preferences of spouses may differ. As Compton and Pollak (2007) argue, this “co-location problem” reflects potential differences in preferences in amenities, family proximity, job opportunities, and careers that tend to be more highly specialized.

Costa and Kahn (2000) showed the increasing concentration of college-educated couples in large metropolitan areas. These authors’ findings, based on U.S. Census data from 1940 through 1990, suggest that large cities solve the co-location problem; therefore, power couples increase the demand for large cities and smaller cities will suffer from smaller human capital inflow and become less competitive. The authors suggest that larger cities may contain better potential job matches, and the financial sacrifice of living in a smaller city is particularly large in a power couple compared to other couples.

Compton and Pollak (2007) analyzed the Costa and Kahn arguments using panel data from the PSID for 1980–1993. The use of microdata enables the explicit modeling of the decision to migrate, whereas the Costa and Kahn and research examines the distribution of couples among city size across the decades in order to indirectly infer the solution to the migration decision. Compton et al., find that the husband’s education, rather than the joint educational attainment of the couple, explains the tendency to migrate to larger metropolitan areas. Power couples are found no more likely to migrate to large metro areas than other couples or singles. Thus, while power couples tend to be more concentrated in large metro areas, the co-location hypothesis is not supported by this study. Rather, the data show that the formation of power couples through marriage is more prevalent in large metro areas.³

Cooke’s (2011) results using the 2008 American Community Survey data are consistent with those presented in Compton and Pollak. Cooke provides empirical evidence that the high rate of marriage among single college graduates in larger cities is strongly associated with the growing presence of power couples in larger cities. Migration tends to disperse power couple households to smaller cities. Cooke notes that with declining migration rates in recent decades, the dispersion of power couples across cities of different sizes may slow. However, Cooke does not address the possibility that the formation of power couples in larger metro areas may slow

³Compton et al., examine U.S. Census data from 1990 to 2000, which was not available to Costa and Kahn, to show that the proportion of power couples residing in larger metropolitan areas declined over that period, reversing the prior trend.

since lower migration rates also implies that fewer single individuals may migrate to larger metropolitan areas and form power couples.

The recent literature reviewed above has revealed asymmetries in the effects on earnings and the determinants of family migration decisions. Husband's job search and human capital in couple's migration decisions remains persistent factor in family migration decisions, even after several decades of changing labor market opportunities for women. The location of human capital has important spatial implications, especially high human capital couples achieved through positive assortative matching, a subject that merits further study. Most of the existing research pertains to women as tied movers, which was established in the research of the 1970s. Cooke (2013) offers a methodology for isolating the characteristics of tied stayers, which is a more common occurrence than tied migration. There are compelling reasons, as Cooke points out, for additional research into the determinants and consequences of tied staying.

6.5 Conclusion

This chapter examines the factors underlying research on the subject of opportunity seeking migration. We trace the current state of knowledge on the determinants of migration to its origins in the debate that followed the historic shift in population out of the Northeast and Midwest regions of the United States into the South and Western regions. The prevailing view was that migration was a labor supply adjustment to shifts in regional labor demand. Researchers began to analyze the importance of quality of life factors as determinants of location choice, which is grounded in a utility maximization framework. The early research of Sjaastad cast location choice in terms of the net benefits of locational alternatives, which included both labor market opportunities and other location-specific characteristics. Models of regional development provided a further rationale for an increased focus on migration research. Simultaneous models of employment growth and population growth established the importance of migration as a causal factor of regional growth. The research of demographers, economists, and geographers established the importance of life cycle and age composition in models of migration. Hedonic pricing studies by environmental and urban economists developed the microfoundations for the relationship between location choice and the implicit valuation of site characteristics.

While supply side/equilibrium approaches to regional development research tends to prevail amongst academic researchers in the United States, and public policy has been found to influence supply side migration, policymakers tend to favor demand-side incentives that are attractive to firms. It is clear as we write that cities in the United States are avidly competing for Amazon's second headquarters, touting the promise of job creation. While a thriving labor market is an attractive feature of a location, a realistic calculation that evaluates budgetary costs, congestion costs, and rising housing prices often accompany demand-side policies that are successful in

achieving job growth, some of which may related to migration. [See Bartik (1991) regarding who gains from state and local economic development policy.]

The role of migration in regional spatial income inequality and differences in economic opportunity across regions requires further inquiry. Migration research has an important role in the “people vs. places” policy debate. At issue is the allocation of public sector resources. One view holds that resources are best allocated to development of human capital; while the alternative is to improve the well-being of a given population by improving local infrastructure. Such research that has the potential to complement the current research of Chetty et al., and Moretti. Chetty has found that intergenerational income mobility is impeded by one’s location, while Moretti claims that where one lives is more important to one’s wage earnings than one’s resume. There are unique insights that migration researchers can contribute to this important literature. The better understood are household location decisions, the more efficacious policy will be.

The role of local social capital in migration is in the early stages of development. Kan (2007) includes a control for local social capital in U.S. inter-county migration. The presence of local social capital is found to reduce the propensity to migrate. David et al. (2010) develop a model of local social capital and mobility and test it with data for European countries. The results indicate that local social capital is associated with lower mobility. Whether the immobility associated with social ties increases or decreases well-being has yet to be fully explored and warrants further examination.

A shortcoming of current research is that migration studies are typically based on samples of whites. Spilimbergo and Ubeda (2004) examined racial difference in migration, where blacks on average have lower migration rates. These authors hypothesized that the presence of family ties is a significant deterrent to migration across ethnic groups. However, black migration decisions are more responsive to the presence of family ties, and the results indicate that disparity in migration rates between blacks and whites is explained by differences in family ties. Additional research on the impact of family ties on migration and whether there is racial variation in the consequences of immobility due to these ties.

Finally, changing demographics will have an increasingly important role in migration patterns and regional population dynamics. Age group-specific amenity and public sector demands will be influenced by the spatial skill distribution of younger population and the wealth of the retiree population. The conflicting demands for site characteristics of these two populations provide fruitful opportunities for future migration research.

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Chapter 7

Return, Circular, and Onward Migration Decisions in a Knowledge Society



Amelie F. Constant

7.1 Introduction

The pressure to be “a knowledge economy/society” and ready for tomorrow’s jobs erupted in the twenty-first century, and knowledge became a commodity every country on earth wanted. Instead of physical or natural resources knowledge societies now want advanced technologies, scientific breakthroughs, and intense innovation, which require research, intellect, and expertise. Meanwhile, OECD (2009) predicted rising shortages of highly skilled labor until 2030, and PCAST (2012) warned that for the United States to retain its preeminence in knowledge society, it will need about 1 million more STEM workers than the country produces at the current rate over the next decade.

Short-run labor shortages can be overcome by hiring skilled/knowledge migrants under temporary, circular schemes, while adjusting to long-term labor market needs. Strong demand for skilled migrants, the majority of who come from developing countries, over the last twenty years has created new trends and patterns on top of the traditional migration. While we know a lot about the policies and regulations countries implement to attract talent, we know very little about the policies to retain and grow talent and their effectiveness. Research on the return migration of the highly skilled, their inventiveness and entrepreneurial endeavors, their onward or repeat migration will greatly help policymaking.

A pillar of human and economic geography, migration used to have a unidirectional “place” component, viewed as the movement from one place, the homeland,

A. F. Constant (✉)
Princeton University, Princeton, USA
e-mail: ameliec@princeton.edu

CESifo, Munich, Bavaria, Germany

GLO (Global Labor Organization), Essen, North-Rhine Westphalia, Germany

UNU-MERIT, Maastricht, Limburg, The Netherlands

to another, the host location. Its “time” component ranged from long term (staying in the new place for at least 12 months), to short term (staying between three and 12 months). But toward the later decades of the twentieth century, scholars observed return, repeat, circular, and onward migration patterns and started theorizing about them.

In the twenty-first century, return, repeat, and circular migration are even more pronounced, offering new time-space dynamics and intensifying research interest. Estimates, varying by host country, document that 20–75% of immigrants leave the host country within the first five years after arrival (OECD 2008). For example, 40% of skilled immigrants in Canada left within ten years after arrival, and those who arrived during recessionary periods had even higher return rates (Aydemir and Robinson 2008). The return rates of foreign students five years after receiving their Ph.D. in the United States ranged from 25% in computer science and engineering to 49% in social sciences (Finn and Pennington 2018).

Re-immigration or repeat migration rates in Norway were over 50% among the Pakistani immigrants who returned to Pakistan and re-immigrated to Norway (Bratsberg et al. 2007). In Germany, over 60% of the immigrants from guest worker countries were actually repeat or circular migrants (Constant and Zimmermann 2011) and about 80% of the migration transitions between host and home countries were about re-returning to Germany (Constant and Zimmermann 2012). Considerable *de facto* circular migration exists between Bangladesh and Saudi Arabia, or other Arab countries and the oil-rich Gulf countries (Newland 2009). Therefore, a good part of international flows is by return and repeat migrants.

Onward migration is not trivial either. Of the immigrants who left Sweden, 20–28% moved onward (Nekby 2006; Monti 2018). In Norway, some immigrant groups such as the Vietnamese had onward rates of 66% (Bratsberg et al. 2007). In Canada, 37% of immigrants moved onward to the United States (King and Newbold 2007). In the United States, about 15% of the high-skilled migrants came from a country different than their birth country (Artuç and Ozden 2018). While immigrants who migrate to countries with similar living standards to their homeland are more likely to return, immigrants who migrate to richer than their home countries are more likely to migrate onward (OECD 2008). Forced migrants and those from politically more unstable regions also migrate onward (Monti 2018).

Knowing and understanding how return, repeat, or circular migrants behave and why can improve the ability to forecast trends in migration. This knowledge is valuable to host countries that want to design sound immigration policies and effectively implement them. As decisions to recruit and retain skilled immigrants have implications for domestic labor markets, economic growth, the education system, etc., there is no room for unintended consequences. Understanding the determinants of onward migration, especially when countries recruit permanent migrants and bear the costs associated with their arrival, is equally important. What is more, comprehending the psyche of returnees can reduce undocumented or irregular migration.

Home countries on the other hand depend on the remittances of their expats. At the same time, they count on the returnees’ financial investments, their upgraded skills and knowledge, and their enlarged social capital. Knowing the underlying behavioral

mechanisms of return, onward, and repeat migration, is particularly useful to home countries, who often suffer from brain drain. Accordingly, they can take appropriate measures to lure their talent back, by catering to the returnees' needs offering them material and nonmaterial incentives and ensuring their successful reintegration. They can launch institutional reforms that promote the country's economic growth and social development.

This chapter focuses on international cross-border movement of economic return, repeat, circular, or onward migrants emphasizing the highly skilled. It aims to provide the state of the art on the subject and answer the basic questions of who, why, when, and where. It starts with typologies (Sect. 7.2), and continues with a depiction of the knowledge society (Sect. 7.3), which is followed by the theoretical foundations of different migration moves (Sect. 7.4). Section 7.5 examines the theories of self-selection. Section 7.6 presents an anthology of the empirical literature and discusses shortcomings. Section 7.7 concludes with policy recommendations.

7.2 Typologies and Definitions

While interconnected and interdependent, return, repeat and onward migration are distinct phenomena. Their definitions differ among social sciences, countries, and time frame. Nostalgia and the fantasy about returning to the homeland are an integral part of immigrants' life, permeating even the diaspora. Yet, even though immigrants swear that they will return to the homeland one day, not all of them do. Some move on to another host country, while others go on a circle of back and forth between host and home in regular or irregular intervals.

Return migration is the movement of persons, who have been living abroad—either short or long term—back to their country of citizenship and who plan to stay in their country for one year or more (UNSD 1998). In reality, people may naturalize in the host country and keep both citizenships, or may be forced to renounce their birth citizenship in the process. IOM (2004) provides a looser definition of return migration: “the act of going back from a country of presence (either transit or destination) to the country of previous transit, or origin” (p. 11).

The implicit assumption is that return or repeat migration pertains to first-generation immigrants. However, return migration applies to second, third, or third-plus generations as well as to the diaspora (Constant and Zimmermann 2016). Turkish children born in Germany, who may or may not be German citizens upon birth, are return migrants when they relocate to Turkey (Constant and Massey 2003; Constant and Zimmermann 2003, 2011, 2012). The term equally applies to other second-generation immigrants with conflicted and opposing identities, who feel that their home country is the birth country of their parents, rather than the one they have been born in and raised.

I define return migration as the relocation of first or higher generations from a country that is the host country of the first generation or one's immigrant ancestors to the birth and citizenship country of the first generation/ancestors planning to stay

for more than one year. To the definition of return migration I include the following variations: (i) repatriation, a static and one-time move back to the homeland and (ii) re-return or one-time circle static move from home back to the host country.

Circular or serial migration are repeated sequential moves such as repeat migration between home and host in a dynamic framework; but they could involve a third country as well. They stem from a different time-space strategy than return. Constant et al. (2013a) view circular migration as the systematic and regular movement of migrants between their homelands and foreign countries typically seeking work. While repeat migration can be a form of corrective migration due to unmet expectations, circular migration is a strategy chosen by the migrant as s(h)e shares their life between two locations. Circular migration can be seasonal or nonseasonal.

Circular migration is “the fluid movement of people between countries, including temporary or permanent movement which, when it occurs voluntarily and is linked to labor needs of countries of origin and destination, can be beneficial to all involved” (GFMD 2007): http://www.migrationpolicy.org/research/MPI-GlobalForum_circularmigration.pdf. It is then understood as a “win-win-win” scenario; the match-maker of international demand for and supply of labor that contributes to an efficient allocation of resources with minimum disruptions. Kourtiti et al. (2017) emphasize temporary circular migration as an organized mechanism for regional or national labor markets.

Onward migration, is a repeat migration with a twist. It denotes an exit from one host country and a further move to a third host country, also called secondary migration, transit migration, stepwise migration, circuit migration, or a three-way move. Onward migration could be a corrective move because of miscalculation, but it could also be pre-calculated and predetermined. Migrants from developing countries, who cannot go directly to the host country of their choice due to high entry restrictions, may go to other countries first, and use them as a means to an end.

Talented, skilled, or knowledge migrants are a special subcategory, mostly hired under demand-driven schemes on a temporary basis. They can move with greater easiness and shop around for the best location for them and their families. For them we use the term brain circulation. Scientific diaspora, transferring knowledge, norms, and social remittances are considered new approaches to counteract brain drain (Constant and Zimmermann 2016). Virtual research collaborations and other permutations that the digital economies allow are related to the migration of the highly educated. Outsourcing is another cheaper alternative that developed economies use when faced with labor shortages.

The typology described here assumes that migrants undertake these moves out of their own free volition as they try to take advantage of each location. Assisted Voluntary Return (AVR), imposed by the host country, offers help to immigrants to return to their home country through financial rewards or assistance with repatriation. AVR can target immigrants who are legally in the country as was the case of Turk guest workers in Germany in the late 1970s. Note that this program failed because money is not sufficient for a voluntary return; many Turks took the money but did not leave Germany. AVR can also target irregular immigrants or those who were

denied asylum and were ordered to leave. Forced return is equivalent to expulsion or deportation and does not involve any assistance.

7.3 Skilled Migration, the Knowledge Society, and Return/Repeat Migration

The global race for talent over the last two decades has more and more countries pursuing policies to stimulate innovation and entrepreneurship, to be at the forefront of the knowledge economy, and to ensure competitiveness. It is a race¹ because the sought after know-how and competencies cannot be immediately satisfied by the domestic workforce but need to be recruited from the global labor market. High-skilled or knowledge migrants are a readily available group to fulfill such short-run shortages, especially in aging societies and when labor markets are not flexible. To attract highly skilled migrants, countries started modifying their policies, developing new strategies, or initiating new policies such as flexible admission criteria and attractive residence pathways.²

Skilled migrants have, typically, tertiary education, that is, a minimum of a formal two-year college education. Occasionally, it is the occupation that defines the skilled migrants, each host country having a detailed list to choose from. Some governments use both education and occupation when they define skilled migrants to issue visas. A subcategory of skilled migrants is the international students who graduate from the host country's universities. Understanding their value, host countries have created new provisions to keep them.

Medical personnel, scientists, academics, managers, specialists, and investors, are under the skilled rubric. Science, Technology, Engineering, and Mathematics (STEM) majors are in highest demand among the skilled and have the highest rates of mobility. STEM includes computer scientists, IT, biologists, and scientific inventors. Interestingly, the demand for the highly skilled has continued during and after the great recession and policies have not become more restrictive (Zaiceva and Zimmermann 2016).

Arguments for skilled migration emphasize that in the production process, skilled migrants are not close substitutes to skilled natives, because of specialization, while they are complements to the less skilled and to physical capital. Thus it is difficult to displace the natives, and wages are less likely to be affected. Skilled migrants bring knowledge, increase productivity, and economic growth through innovation and creativity, they raise living standards, create jobs, make positive net fiscal contributions to the system, and integrate faster in the labor market (Constant 2014). Similar arguments apply to circular migration (Zimmermann 2014). Kourtit et al. (2017) find evidence of a triple-win for skilled immigrants in the Netherlands.

¹For example, to attract high-skilled migrants, Canada has been going after those denied the H-1B visa in the United States by advertising on US billboards (Kerr et al. 2016).

²OECD (2009) provides a useful summary of policies for high-skilled immigrants in the OECD.

Continuous dependence on skilled migrants may, however, be harmful to the host country, preventing it from developing its own skilled labor force. Dependency on foreign labor creates economic as well as national security and sovereignty issues. Lowell and Findlay (2001) propose policies to ensure the return migration of the skilled. Concerns about the integration of temporary migrants and their access to a permanent status are growing.

From the perspective of the home countries that are usually developing, the topic of skilled workers is related to brain drain.³ Skilled migrants typically arrive with their families, and assuming assortative mating, this could exacerbate brain drain.⁴ Remittances can alleviate some of the brain drain, as do technology transfers. The return of the skilled would balance brain drain. However, this is a delicate matter because developed countries may not want to lose their skilled migrants, developing countries may not be ready to receive these migrants, and immigrants may not want to return but move onward.

In addition to responding to wage differentials, skilled migrant workers care about other aspects relating to research opportunities, work conditions, and access to infrastructure. For example, while salary and labor market conditions were on the top of the engineers' and technicians' list, scientists and researchers cared more about the research environment, the nature of the work, and the prestige of the institution (OECD 2016b). Similarly, skilled migrants want to be able to bring their family with them and have a path to permanent residency. As dual-career couples are very common among skilled migrants, the option for the spouse to work is equally important. Skilled workers from countries with failed markets value welfare benefits very high and may be more likely to choose host countries that offer social security, not necessarily because they need them but as a safety net.

In Europe, it was the 2000 Lisbon Directives that shook the EU states and prompted them to invest in R&D and hire highly skilled immigrants. In this spirit, the EU28 initiated the Blue Card (BC), a work permit for non-EU high-skilled workers. The EU28⁵ adopted the BC directive in 2009 (ratified in 2013), which only sets minimum regulations and lets each EU state to fine-tune them according to their needs. The BC has more requirements for admission than the individual EU states, it is only from one to four years, and it is much more difficult to obtain.

EU states have also their own schemes to admit non-EU skilled workers such as specific quotas, which are configured in relation to the labor force, the resident population, the business cycle, etc. EU states require a job offer and a minimum salary. These schemes, were coupled with other stringent conditions and did not always offer a path to residency. Thus, less than half of the expected migrants went

³For the impact of skilled emigration on developing countries and the policy options of developed countries see Lowell and Findlay (2001).

⁴However, skilled emigration from developing countries is generally not a major cause of skilled shortages (Clemens 2013).

⁵Except the United Kingdom which introduced its own points-based system with different tiers in 2008, and Denmark and Ireland that have their own systems.

to the EU. Overall, compared to other OECD countries, the EU attracts fewer higher-educated migrants, hosting only 30% of them (OECD 2016a). But recent OECD (2017) projections for the EU show that the share of higher education individuals among the working-age population will increase to 34% in 2030 (up from 26% in 2015).

The United States hires temporary skilled migrants through the H1-B program, since 1990. The program sets annual numerical ceilings; the current statutory cap is 65,000. H1-B is a nonimmigrant visa program, valid for three years and renewed for another three as migrants can change employers at will.⁶ A 2017 report by the American Migration Council documented that the share of foreign-born workers in STEM occupations grew from 11.9% of the STEM workforce in 1990 to 24.3% in 2015.

Both the H1-B and the BC programs allow employers to attract the highly skilled by sponsoring their visas. Korea and Japan have analogous systems. They are all demand-driven systems that guarantee a job upon arrival. Some countries have also created occupational shortage lists, which facilitate recruitment and cut down on red tape. All countries try to ensure that migrants do not hinder the employment prospects of the native labor force.

Canada, Australia, and New Zealand employ points-based systems and offer skilled immigrants and their families' pathways to permanent residency. These systems are supply-driven, pertain to permanent migration, and are not necessarily targeting the highly skilled. They grant points for young age, education, intended occupation, language, etc., but do not require a bachelor's degree. To attract more highly skilled migrants, Canada reformed its system in 2002 and instituted the Express Entry program in 2015. The latter is similar to New Zealand's 2003 program that brings together suitable employers and skilled migrants, and invites top-ranking candidates to apply for permanent residency. In Australia, eligible applicants must have an occupation on the Skilled Occupation List.

China is a successful paradigm of a home country's stratagem to bring back its talented people from abroad and reverse the brain drain. Constant et al. (2013b) show that not only is China offering attractive packages to Chinese scientists and academics who are abroad, but it is also after other nationals who can help the country build its knowledge-based economy. Moreover, China is financing more and more Chinese students to study abroad with the provision to return, and, similarly, encourages foreign students to go and study in China with the hopes to keep them. In 2008, the "One Thousand Talents Scheme" aimed at attracting the most talented Chinese diaspora. The temporary return of Chinese talents to build the knowledge society is equally encouraged (Constant and Zimmermann 2016).

In sum, attracting the highly skilled and global entrepreneurial talent is often not enough for a country to fortify itself and compete in the digital economy. High return and onward migration rates can undermine talent recruitment efforts. To maximize benefits, a successful strategy should also consider enabling, growing, and retaining

⁶Lowell (2010) provides a good review of the admission system of foreign-born STEM workers in the United States.

talent⁷ (INSAED 2019). The latter correlates with the quality of life. For example, Singapore ranks first in attracting talent, but 26 in retaining talent; Switzerland, on the other hand, ranks fifth in attracting talent, but first in retaining it.

7.4 Theoretical Foundations of Migration Moves

There are several theories that offer answers to the question of why people move. Each discipline in the social sciences has its own theories which are not always compatible.⁸ However, fewer theories allow for return and repeat migration.⁹ Here I present a synopsis of the relevant theories that envision return/repeat migration, predict the self-selection of returnees, and show that they can complement one another.

Under Neoclassical Economics (NE) the decision-maker is a rational individual with full information, who performs a cost-benefit analysis over some time horizon based on wage differentials and undertakes the move when the present value of the expected discounted net return is positive. Assuming homogeneous income, utility or income is maximized subject to constraints. The duration of residence abroad is also maximized, intending to settle permanently and bring family. Viewing migration as investment in human productivity, Human Capital Theory (HCT) can predict the characteristics of the migrants. People move to where their human capital is rewarded best.

While NE explains initial migration and secondary/onward migration, it perceives return and repeat migration irrational and not income maximizing, *ceteris paribus*. By definition, returnees are those who did not succeed in the host country and the human capital they obtained abroad is not always transferable. Because immigrants are in the host country for the long haul, they will not return immediately after they fail, but will stay and spend time looking for a new or a better job. Returnees will be negatively selected in all economic outcomes (Constant and Massey 2002), and may be negative selected in unobservables such as ability or fortitude.

More flexible NE models allow for a combination of theories to explain return and repeat migration. Note that nonpecuniary benefits such as occupational prestige, joining family and friends, feeling part of the majority culture, finding sentimental stability with a region, and political regimes are included in total benefits. Likewise, nonpecuniary costs such as opportunity costs (income foregone while moving) and psychic costs (the psychological toll of separating from family, leaving familiar surroundings, and experiencing cultural shocks) are part of total costs (Constant

⁷Together with attracting, they constitute the four pillars of the Global Talent Competitiveness Index.

⁸For an excellent review and a theoretical synthesis see Massey (1999).

⁹An exception is Dierx (1988) who developed a theoretical life-cycle model analyzing the impact of the spatial distribution of a family's stock of human capital on its migration decision, including repeat migration.

and Massey 2002, 2003). Accordingly, return, repeat, and onward migration can be explained by adding assumptions to the model and other variations.

For example, assuming that immigrants have a strong preference for home-country residence, Hill (1987) could explain the US–Mexican repeat migration through a life-cycle model of immigrant behavior that maximizes net lifetime income. His model also accommodated the number of trips made and the total time spent working in the host country, although these two variables do not necessarily move together. Thus, if crossing the border is difficult and costly, the migrant will make fewer trips and border traffic will fall. Time spent in the host country is unclear because the substitution effect is of unknown sign. But the income effect will induce the migrant to stay in the host country longer.¹⁰

The New Economics of Labor Migration (NELM) has the family as the decision-maker. Migration is a strategy to minimize risk through diversification. Economic uncertainty, failed capital markets, the nonexistence of social security, and unemployment benefits prompt households to disperse family members to different locations. While wage differentials are not necessary, improving income in absolute and relative terms is important; income is not homogeneous. Immigrants are target savers, they remit, and do not stay abroad forever; they return when their goals are achieved, as winners. When abroad, immigrants improve their skills thus commanding higher wages upon return. Returnees are negatively selected with respect to work effort and if they are unemployed; they are positively selected with respect to earnings (Constant and Massey 2002).

NELM predicts repeat migration, which may be initiated by economic development in the home country. The position of the family across the income distribution is critical. Conspicuous consumption of the returnees and relative deprivation can cause a self-feeding cycle of migration that induces return migration even if wage differentials exist. Returnees alter the distribution of income and wealth in the home communities and induce further migration.

Migration is demand-driven in the Segmented Labor Market (SLM) theory. Countries with structural inflation, bifurcated labor markets, and occupational hierarchies need cheap and flexible labor from abroad to fill lower tier jobs. Migrants are typically recruited for specific jobs in a temporary framework and are expected to return to their country when they are not needed. They can be rehired under rotational schemes. Wage differentials are not necessary or sufficient. The Bracero program in the United States and Guest workers in Germany are paradigms of demand-driven migration. Ethnic enclaves, as a third sector in the host country, also demand these types of workers, while solidarity and social networks support and perpetuate the situation. SLM is compatible with remitting and target saving behavior. In SLM immigrants accept menial and odious jobs abroad because their reference point is

¹⁰Dustmann and Weiss (2007) explained return migration from the United Kingdom by allowing for the marginal cost of being abroad to be greater than the diminishing marginal utility of wealth. Dustmann (2003) modeled the optimal migration duration and assumed that immigrants' accumulated savings in Germany had higher purchasing power in their home country. Using endogenous return intentions the study found an inverse relationship between host country wages and completed migration durations.

the home country and the status or prestige or the money power these jobs afford them at home. But returnees are hardly successful winners. On-the-job training and human capital acquired abroad are irrelevant and cannot increase their earnings when they return. Likewise, savings accumulated abroad are not enough for a permanent return, spurring a constant need to repeat migrate.

Other temporary and demand-driven migration schemes target the highly skilled and are incorporated in labor market policies. Highly skilled foreign workers are sought to satisfy short-run labor market shortages in industries or occupations. Employers submit requests to the government and hire immigrants directly or through specialized ethnic firms. Such are the US H1-B and the EU BC schemes. Fulbright visiting scholarships, visiting researchers/scholars, and exchange visitors, can also fall in this category. They all have obligatory return migration embedded in them. Self-selection is not relevant in demand-driven migration because employers do the selection.

The Networks theory refers to intangible resources such as social/migration capital that predict initial, return, and repeat migration. Interpersonal networks are maintained and reinforced by the circulation of people, goods, capital, and information between home and host countries (Massey 1987). Both the individual and the family can be involved in the migration decision. Networks facilitate utility maximization and risk diversification. The ties and relationships migrants keep with both countries propagate with each new migrant. Through cumulative causation, migration brings about changes that in turn incite more migration over time and becomes self-sustained and self-perpetuating (Massey 1990). The probability to undertake an additional trip increases with the number of trips already made (Massey and Espinoza 1997; Constant and Zimmermann 2012). Belonging to networks is voluntary, based on commonality of interests, and does not depend on the diaspora or on economic profits (Cassarino 2004).

The theory of return migration is similar to the theory of first migration from a home to a host country, albeit with three important differences. First, because immigrants have already been through one migration experience, they are inherently more prone to move again. Second, return immigrants have more accurate information about the wage distribution, cost of living, and culture in both the host and home countries and they have a social circle in both countries. Third, familial and cultural considerations are relatively more important in return decisions making higher wages and employment opportunities at home neither necessary nor sufficient (Constant and Massey 2003).

In general, networks minimize the risks and lower the costs of migration, and can be easily converted into monetary benefits (Massey 1990). However, networks may be less valuable for the migration of the skilled and high educated, who have better access to information and can process it more efficiently. These migrants can mobilize their own resources, they speak the language of the host country, they often receive a job offer before arrival, and their skills are easily transferable. Migrants are mostly selected in unobservables such as likeability, affability, perspicacity, and savviness in keeping relationships.

Structuralists argue that it is structural relations within the political economy that cause migration, and return migration is a social as well as an individual issue. While there may be a core/periphery dichotomy, migrants return because of nostalgia. However, migrants can return to the same place, but cannot go back in time, thus “home” is no longer the same. Even when immigrants have been planning to return, they may be ill-prepared if they have not kept up with the home country while abroad. They face reintegration challenges that can affect the entire community and may be ill-received by their compatriots, causing a social rupture (Cassarino 2004). The realization that the home country has changed and that they themselves have changed may lead to repeat migration.

Transnationalism provides a framework for the durable links between home and host countries over time, as well as for the influence of networks on the identity of migrants (Cassarino 2004). The theory refers to settled immigrants. While ideological reasons are the motivation for return and family bonds are vital to this decision, global capitalism also motivates return and transnationalism. Ethnicity, religious affiliation, kinship and solidarity among the diaspora is what sustains the networks. Through regular visits, migrants are well prepared for their return and can exploit their human capital from abroad for upward mobility at home. Transnationals return as winners when conditions in the home country are favorable, but do not return permanently. They maintain links that facilitate cross-border mobility and can negotiate their place in society, while they convey knowledge and information. Migrants live in dual spaces that extend across the nation-state, while the involved communities exert considerable social, economic, and political power (Cassarino 2004).

7.5 Conceptual Framework and Empirics About Self-selection

This section examines the self-selection of migrants in terms of skills, ability, and income as well as other characteristics.¹¹ Self-selection is inherent in any migration move. The individuals who emigrate from their home country to go abroad are a self-selected sample of their compatriots who stay behind. They have something different that makes them undertake the move. These differences can be observed and measured, but they can also be unobserved. Ability, entrepreneurial spirit, creativity, inventiveness, risk aversion, beliefs, attitudes, expectations, personality traits, noncognitive skills, empathy, etc., are unobservables that can contribute to a successful or unsuccessful migration. Return migration is a double selection that intensifies or accentuates the initial self-selection.

When the best, healthiest, brightest, and richer people emigrate, they are positively self-selected and vice versa. Knowing the type of selection of return and repeat migration is extremely useful to policymakers who design migration policies. It is

¹¹Selection applied by host countries who screen potential immigrants is not discussed. For an overview of migrant selection by visa category see Aydemir (2013).

equally useful to scientists who grapple with assimilation issues, be it earnings, occupations, education, or health and communicate their results to policymakers. Even the best longitudinal studies suffer from return migration bias, because they are based on the immigrant population that lives in the host country at the time of the survey.

HCT conceptualizes that human capital is embedded in workers, makes them more productive, and can be rented out to employers for a higher remuneration. HCT predicts that the better-educated individuals are more likely to migrate first because they have a broader vision of the available possibilities abroad, they are less risk averse, and perceive the future differently. They also have more information, command higher wages abroad, have the means to travel, and prefer to be around more educated people in the western developed societies. HCT can equally predict positive selection when migrants move onward. However, HCT cannot explain selection in return and repeat migration, *ceteris paribus*.

The networks theory à la Massey predicts that the first migrants will be from the middle and upper distribution because they will be the ones who have the knowledge, connections, and the means to migrate. However, migrant selectivity varies over the different stages of individuals' migration careers (Garip 2012). It is up to empirical studies to test hypotheses and identify the characteristics that prompt return or onward migration and feed repeat migration. By mixing and matching competing theories, researchers try to mimic the complex interconnected reasons that prompt immigrants to return or circulate.

In their study on the probability of return under a critical comparison of the NE and the NELM, Constant and Massey (2002) raised the issue of return migration being negative time-dependence, indicating negative selection in skills that are unobservable. The authors found that immigrants remain in Germany irrespective of the wages and status they attain, so long as they have a stable job and no social attachments that raise the costs of returning. As the process of return migration is not unitary the authors caution against overreliance on single theories. They underline that remittances are a critical determinant and not including it creates serious omitted variable bias.

The theory of self-selection à la Roy (1951) relates earnings and skill distributions of the host and home countries. Specifically, if some countries have a more compressed or more equal income distribution than others, this can trigger the migration of specific workers. For economic migrants who maximize their wealth, the theory predicts that they will be negatively (positively) selected with respect to unobservables such as ability when the home country has a wider (narrower) dispersion in its income distribution than the host country. Furthermore, migrants will be negatively (positively) selected with respect to observables such as education if returns to education are higher (lower) in the home country than in the host country. This theoretical direction of selection is confirmed for international migrants to OECD countries (Grogger and Hanson 2011), for Romanians to different host countries (Ambrosini et al. 2015), and for high-skilled German graduates to countries with different earnings distributions (Parey et al. 2017).

The theory, as employed by Borjas and Bratsberg (1996),¹² equally applies to return migration. Thus, if the initial immigration selection was negative, selection in return migration must be positive and vice versa. These two double selection outcomes are known as the “best from the worst” and the “worst from the best.” The return of Finnish from Sweden lends support to the theory: Finnish émigrés to Sweden were less educated than Finnish native stayers, but Finnish returnees had two more years of education than other Finnish immigrants who stayed in Sweden (Rooth and Saarela 2007). The authors could not confirm selection with respect to unobservables. Romanian returnees were also positively selected in education, compared to nonmigrants and negatively selected in unobservables (Ambrosini et al. 2015).

Overall, selection in return migration with regard to education depends on context and data. While Carrion-Flores (2006) found that it was the highly educated Mexicans who returned to Mexico from the United States, Kaestner and Malamud (2014) did not find selection in observables or unobservables among Mexicans who returned from the United States. Yet others found that Mexican returnees from the United States were negatively selected with respect to both human capital and wages (Lindstrom and Massey (1994). The highly educated were also returnees from Denmark (Jensen and Pedersen 2007) and Sweden (Nekby 2006).

Studying life-cycle events, Constant and Massey (2003) found no self-selection in education among return immigrants in Germany. Instead, these returnees were negatively selected with respect to speaking German, stable full-time employment, and occupational prestige in Germany. Remitting, having family in the home country, and retirement increased the probability of return, which was the highest during the first five years since arrival; family in Germany, German citizenship, owning a home in Germany, and feeling German decreased the return probability.¹³

High-skilled immigrants from other EU countries in Germany were significantly more likely to return, compared to the medium skilled; but there was no skill selection among returnees from the “other” immigrant group nor for Turks who were mainly family immigrants¹⁴ (Kuhlenkasper and Steinhardt 2017). While Reagan and Olsen (2000) found no evidence of a skill bias in return migration, they found that immigrants with a college degree were more likely to leave the United States. Those with higher potential wages, who arrived at younger ages, had more years in the United States, and had participated in social welfare programs had a lower probability of emigration. Mexicans were more likely to leave.

Evidence of strong selection in both education and unobservables was found by Breschi et al. (2018). Based on data on patents and inventors in the United States, the

¹²The Borjas-Bratsberg model assumed portability of skills and constant gains from migration on the returnees’ home-country wages. Bratsberg et al. (2007) used similar Roy models as did Dustmann et al. (2011) who considered a two skills model.

¹³Compared to immigrants from EU countries who enjoy free mobility, Turks and guest workers from the former Yugoslavia had the lowest odds of leaving Germany.

¹⁴This is consistent with Borjas-Bratsberg, who predicted that family unification immigrants or chain immigrants are different than the initial economic immigrants and therefore selection issues are not as relevant; the self-selection of family returnees is most likely not clear-cut either.

return probability of Indian inventors was conditioned on status upon arrival: namely, employment or education. The return of employment immigrants was positively associated with their propensity to patent while in the United States, with age, and education from India. Conversely, the return of education immigrants, was negatively correlated with education obtained in the United States. Evidence of negative time-dependence in the return hazard ratios of the employment returnees indicates negative self-selection regarding unobservable skills acquired in the United States. The authors speculated that those who stay longer in the United States may develop skills beyond those for R&D, which can help them become permanent residents easier. However, evidence of positive time-dependence of the return hazard ratios of the education returnees was less conclusive.

A clear polarized U-shaped return migration pattern associated with income and education was found by Klinthäll (2013), whereby return rates for both men and women immigrants over 55 in Sweden were associated with the lowest and the highest income and education categories. Return migration was most common among the less integrated in socioeconomic terms and among the high earners. Target saving practices and returning for retirement explain these findings. Bijwaard and Wahba (2014) confirmed a U-shaped relationship between income and return migration for immigrants in the Netherlands, although the highest returns were among the lowest-income groups, and the intensity of return varied by home country.

The home-country variable explained the wide variation in return rates among immigrants in the United States (Borjas and Bratsberg 1996), the United Kingdom (Dustmann and Weis 2007), Sweden (Nekby 2006; Monti 2018), Denmark (Jensen and Pedersen 2007), and Norway (Bratsberg et al. 2007). Bratsberg et al. (2007) also found that variations in return migration by home country were closely related to the class of admission in Norway.

Most studies in the United States concur that immigrants, in general, who have lower earnings are more likely to leave the host country. Studies use selection equations and individual fixed effects to model return migration. Natural experiments, lifestyle characteristics, personality proxies, networking, capturing intangibles, reconstructing counterfactuals, and the virtual spread of knowledge and social norms are some of the innovations in estimation.

7.5.1 Selection in Repeat, Circular, and Onward Migration

Selection patterns in return migration may further differ according to whether immigrants are permanent, first-time migrants, repeat, or circular migrants. Therefore, an analysis that does not distinguish between different types of migration gives an incomplete perspective on the migration behavior of families (Dierx 1988). However, we do not have appropriate data to study such selection. Poor knowledge about the triggers for each type of migration is another reason. If, for example, repeat or circular migration is a response to economic shocks, then selection in skills is irrelevant, as by definition, economic shocks and skills are statistically independent.

It is important to note the role of social capital, which is related to unobservables. As more social capital is created through circular migration, circular migrants should be positively selected in unobservables such as having the ability to keep key contacts, a network to rely on, and the fortitude to withstand long-distance relationships and back-and-forth trips. Based on binational data, Massey and Espinosa (1997) established early on that migration between Mexico and the United States was indeed circular and more common than return or onward migration. Circular migration progressively increased with social capital, experience, occupational achievement, and the number of prior trips in the United States. Among undocumented Mexicans, amnesty to a family member increased the odds of taking an additional trip.

Distinguishing among first-time migrants, repeat migrants, and nonmigrants, Garip (2012) found that Mexicans who repeat migrate to the United States were negatively selected in education, but positively selected on wealth and significantly better off than the first-time migrants and nonmigrants. Moreover, among repeat migrants those with more trips were wealthier than those with fewer trips, suggesting that repeat migrants accumulate wealth through their trips.

Constant and Zimmermann (2003a, b, 2011, 2012) were the first to model circular migration in economics. Among immigrants in Germany over 60% were repeat or circular migrants (Constant and Zimmermann 2011). While immigrants from EU states were significantly more likely to repeat migrate and stay outside Germany for longer, Turks and Yugoslavs were less mobile both in their exit frequencies and number of years out; so were males, the single, the renters, and the middle aged. Immigrants with German passports exited more frequently; the higher educated exited less. Attachments to the labor market and speaking German fluently reduced repeat moves and time outside Germany, but family back home kept immigrants longer outside Germany. The policy lesson here is that when immigrants feel secure about coming back to the host country and can freely go in and out of the host country, they are more likely to leave (Massey and Pren 2012; Constant and Zimmermann 2012).¹⁵

Through a dynamic Markov Chain model, Constant and Zimmermann (2012) identified factors that generate single migration moves, circular migration, and absorption states. Accordingly, newly arriving migrants to Germany were more likely to leave shortly after they arrive and when they have social and familial bonds with the home country. Speaking German well and having a job in Germany deterred return migration, which was high among men. However, the probability to re-immigrate to Germany depends on remittances and having family in Germany. Education obtained in Germany in the form of vocational training was a strong determinant of repeat and circular migration, which increased with age. For circular migrants from Thailand to Brunei, Hong Kong, Israel, Taiwan, Singapore, and Korea, Lee et al. (2011) confirmed self-selection in being male and saving, but not in remitting, compared to first-time migrants.

¹⁵Monti (2018) confirms that Swedish citizenship actually increases the probability of return for forced migrants.

Significant differences between the earnings of permanent and repeat first-generation immigrants in Sweden were affirmed by Aradhya et al. (2017). Overall, repeat migrants had about 40% lower incomes compared to permanent immigrants. Interestingly, repeat migrants had the lowest incomes when YSM was calculated as the total elapsed time since first entry. But when YSM was calculated as the actual number of years physically spent in the country, repeat migrants had lower incomes than the permanent immigrants, but higher incomes than those in the first category. Lastly, when YSM was calculated as time since the last entry in Sweden, repeat migrants had the highest incomes. Plots of the log-income trajectories of these three YSM groups of returnees, showed that the first two had flatter profiles, suggesting a slower integration process due to lower returns to each additional year in Sweden. The log-income profile of those in category three was very concave, indicating more skilled immigrants and unique assimilation processes for each group.

The home country's role in re-return to the host country is evidenced in Bratsberg et al. (2007) for Norway. Re-immigration to Norway was higher when immigrants were from poorer home countries, probably related to differences in consumption cost levels, and when there were ongoing conflicts and turbulent political developments at home. Home countries are equally good predictors of onward moves by immigrants in Sweden (Nekby 2006; Monti 2018) and Norway (Bratsberg et al. 2007), where, onward migrants originate from poorer home countries that are also farther away from Norway; onward migration increases when there is a war at home.

Compared to return migrants, onward migrants are positively selected in education and negatively selected to income Nekby (2006). Those with tertiary education and previous migration experience (before arrival in Sweden) are linked to higher propensities of onward migration from Sweden (Monti 2018). King and Newbold (2007) confirm selectivity among onward immigrants from Canada to the United States, compared to immigrant stayers in Canada and to Canadian-born immigrants in the United States. They were primarily young, married, had a bachelor's degree, and earned at least USD 100,000 in 2000.

7.6 Relevant Literature on the Skilled: A Review and Appraisal

The first studies on the topic stemmed from the earnings assimilation literature, attempting to gauge bias in earnings due to return migration.¹⁶ Borjas' (1989) study on high-skilled foreign-born migrants in the United States was based on the longitudinal Survey of Natural and Social Scientists and Engineers. Estimating return migration from sample attrition, he provided evidence of negative self-selection in

¹⁶Lindstrom and Massey (1994) were not able to find biases in cross-sectional earnings assimilation results due to selective emigration of Mexicans in the United States. Constant and Massey (2003) confirmed that selective emigration among immigrants in Germany did not distort cross-sectional estimates of earnings assimilation in a relevant way.

earnings for returnees and biased cross-sectional estimations. Those who left the sample had also lower initial earnings and earnings growth trajectories. Kaushal (2011) affirmed negative selection in earnings for foreign-born scientists and engineers in the United States who returned and biases in cross-sectional studies in her study based on the National Survey of College Graduates. However, the country where these highly skilled immigrants acquired their education was not relevant for their return.

To model return propensities among high-skilled Indian immigrants in the United States, Depew et al. (2017) employed firm-level employee data from six large Indian IT firms that operate in the United States and provide H-1B and L-1 visas to Indians. They showed that returnees were negatively selected in earnings and their behavior was affected by the downswing of the business cycle, and elucidated the important role immigrants play during changing labor market conditions because they adjust their labor supply.¹⁷ A policy correlate is that return can be an automatic counter-cyclical stabilizer of labor supply while visa quotas are inferior instruments that lag behind.

The limited role for income maximization in the migration decision of the very highly skilled, was found by Gibson and McKenzie (2011) and their specific sample of Pacific Islanders. Initial migration was strongly associated with preference variables and choice of subjects in secondary school. The 40% return rate of these highly skilled Pacific Islanders was strongly linked to family and lifestyle reasons. Interestingly, returnees were motivated by non-monetary benefits such as improving career opportunities, boosting poor academic research environments, having better funding for scientific laboratories, the removal of regulations, more transparency in government, and more democracy.

The above study corroborated previous work about the highly skilled Italians living outside Italy. Constant and D'Agosto (2010) found that a desire to have adequate research funding and contribute to science in Italy were strong reasons for the return migration of the brainy Italians. Gaillard and Gaillard (2015) acknowledged such idealistic reasons among Moroccan scientists and engineers who returned home from Europe. Strong reasons for their return were helping their country to economic growth and a desire to be part of this development.

Investigating the return migration of foreign-born academics, who work in US universities in chemistry, chemical engineering or biochemistry, Gaule (2014) concluded that returnees were positively self-selected in ability, but not in education and the majority of returnees took an academic position in their home country. The probability of return increased when conditions in the home country improved relative to the United States and decreased for those over 50, while men were more likely than women to return. Overall, only a small percentage of academics returned.

Long-distance research collaborations between scientists in different countries and international research-visits duration can shape knowledge circulation. Andújar et al. (2015) examined the role of co-publications and collaboration through formal

¹⁷They also found that there was a lot of movement among these firms, opposite to Kerr et al.'s (2015) argument that H1-B workers are "effectively tied" to the firms that hired them initially.

participation on the return migration of Spanish scientists who are outside Spain. First, Spanish scientists who go abroad keep close contacts and collaborations with those who stay in Spain and these collaboration links persist over time. However, co-publication between other host scientists and Spanish at home is rather rare, both before and after the international stay abroad. Second, return probabilities diminish with longer stays abroad and with ongoing co-authorships. Formal participation in research projects, on the other hand, boosts the probability to return, compared to no collaboration. Interestingly, the most important variable for the return of young talented Spanish researchers abroad was receiving financial support for reintegration.

Significant differences in publication records exist among scientists who stay, return, or circulate. Based on scientists' publications, OECD (2016b) demonstrated that returnees and the more mobile scientists publish more in higher impact academic journals, compared to stayers.

Finn and Pennington (2018), found selection in return with respect to the subject of study. Based on combined data about doctorate recipients from US universities in science and engineering, they estimated 5-year and 10-year after graduation stay-rates for foreign students who had temporary visas at graduation. Compared to previous years, these stay-rates were at the highest level: 70% for the 5-year stay-rate and 62% for the 10-year stay-rate. Stay-rates also differed widely by discipline with the lowest rates recorded in social and related sciences. Computers and mathematics had the highest stay-rates. While the highly skilled from Europe and North and South America had very low stay-rates, those from China and India had the highest (90%).

Comunian et al. (2017) studied male and female graduates from UK universities 3.5 years after graduation. Overall, repeat migrants earned the most, followed by late migrants and university stayers. The only significant difference between genders was related to repeat migration which led to a significantly lower premium for women. The authors offer an insightful explanation through the process of continuous negotiations for wage increases practiced by repeat migrants. This process favors men who are better at asking for higher salaries.

High-skilled female migrants outnumbered males in 2010 (Kerr et al. 2016). They are also migrating in greater proportions than comparable men and low-skilled women (IOM and OECD 2014). Yet research on the return/repeat or onward migration of high-skilled women is undeveloped. For return migration, studies show that high-skilled women have the tendency to stay in the host country and not return (Grigoleit-Richter 2017). He finds that although STEM female immigrants in Germany face barriers in the highly gender-segregated German technology industry, they develop strong ties with the locality and are more likely to settle than return.¹⁸

Boucher (2016) fills some gap in understanding gender bias within skilled immigration selection policies in the OECD, and shows that the global race for talent is gendered. But it does not have to be that way. The author argues that governments can design skilled immigration policies that ensure equal treatment between potential men and women migrants.

¹⁸Monti (2018) confirms that women are less prone to return migrate and to move onward.

7.6.1 *Limitations to the Literature*

To guarantee reliability, validity, and generability studies need nationally representative longitudinal data, with low attrition rates, that are comparable across countries and have standardized definitions. Currently, such data do not exist. This is why, although researchers have calculated the optimal duration of migration and predicted the statistical probability of return or repeat migration using complex statistical and mathematical formulations, empirical studies only explain the movements of specific populations in specific countries.

Democratic countries typically let their people emigrate or out-migrate freely.¹⁹ Naturalized migrants and those with dual citizenship experience a fairly free return and repeat migration also resulting in no data collection. The Scandinavian countries require de-registration from population registers when natives or immigrants out-migrate and a new registration when they re-migrate. Home countries are accommodating to return and repeat migrants. Many have even instituted special provisions to encourage the return of their diaspora back home and benefit from their investments (Constant and Zimmermann 2016). But they have no means or money to collect data on the returnees.

The second reason is that even when host countries are able to collect registered data, these data are not compatible or harmonized with other countries' data, because there are no consistent definitions about return or circular migration, not even among the EU28. Often there is no conceptual compatibility about who is a migrant; some countries abide by the law of blood and some by the law of soil. Besides, the EU states that produce migration statistics such as Austria, Germany, the Netherlands, and Sweden use their own methodologies when it comes to circular migration. Additionally, while in theory return and repeat migration are distinct moves, in practice, they may be observationally equivalent to a mere static return if there are no data documenting the repeated moves/visits, but only document the initial and last move (OECD 2008).

Currently, studies rely on censuses (that are not longitudinal), population registers (that undercover return migration), social security data, labor force surveys (that lack other important information), other surveys, case studies (that have small samples), and rare binational surveys such as the MMP. An excellent suggestion for improvement, calls for multilevel datasets that integrate survey data with community-level variables such as the size of migrant networks and the availability of capital markets (Massey 1990). While these two elements of community structure condition the efficacy of migration as a risk-diversifying strategy, they are extrinsic to decision-makers.

In brief, conceptual and empirical issues with data are that national statistical offices generally do not standardize their data, and there is no systematic tracking of migrants who move to different countries through an appropriate matching of the national data (see OECD 2008, 2016b; UN 2016; Kourtiti et al. 2017; Clemens

¹⁹It is a normative question if democratic free countries should record the every move of their population, obliging them to reveal why they move, to which country, and for how long?

2013; and Newland 2009 for recommendations). Lastly, there are no comprehensive records about the flows and movements of researchers (MORE 2010).

The literature has overlooked the role of the success/failure of immigrants who change status after their arrival and their return/repeat behavior. Much can be learned, for example, from studying the behavior of immigrants who arrive as temporary and become permanent, as a referee observed.

A hole in the return/repeat literature of the highly skilled is the overlooked role of cities within a country. Cities have more flexibility in fostering entrepreneurship and an atmosphere of innovation and will be the entrepreneurial talent hubs of the future (INSAED 2019). Studies that explore the variations and idiosyncrasies of the cities will offer valuable new insights about the return/repeat or onward migration of skilled migrants.

Lastly, there remain significant knowledge gaps in the literature regarding highly skilled female migrants. While we have some rudimentary understanding about why highly skilled women migrate, we lack any understanding about their socioeconomic behavior and their return/repeat migration patterns. Given that women make different life-course choices and follow different career trajectories than men, this can render migration policies about skilled women inadequate (IOM and OECD 2014). Needless to say that data and statistics must include a gender perspective.

7.7 Conclusion and Policy Recommendations

A universal consensus from this chapter is that return, repeat, and circular migration are substantial in all countries and highly selective, but results on the nature of that selection are conflicting. There are no universal conclusions about the characteristics of immigrants who return, move onward, repeat, or circulate. Findings from empirical studies are tied to specific countries and populations.

Skilled immigrants are essential for knowledge societies and economies. As one of the inputs in the production function, skilled work cannot be viewed in isolation but together with the less skilled, physical capital, and land. Free and unfettered mobility increase benefits from return, repeat, and circular moves for all parties involved. Migrants move to places where there is demand for their skills, and in the process they equilibrate labor markets and increase welfare. Government interventions such as border patrols, raids, and quotas for employment immigrants distort free flows, are expensive, counterproductive, and produce negative unintended consequences, i.e., increase of illegal immigrants who stay underground.

“Circular migration is not intrinsically positive or negative in relation to human development; its impact depends upon the circumstances in which it occurs, the constraints that surround it and—above all—the degree of choice that individuals can exercise over their own mobility” (Newland 2009, p. 1).

Host and home countries should liaise and develop instruments to estimate as accurately as possible the stock of migrants in each country. Countries should develop mobility policies in the context of circular and temporary migration for

skilled and non-skilled workers, with clear definitions and transparent regulations, and should involve international organizations. Existing regional programs that are quite successful in registering the high skilled and their international mobility can be used as a guide. Such are Europe's MORE and EURAXESS, Japan's Bridge Fellowship Program, UN's Digital Diaspora Network and TOKTEN, IOM's MIDA program, and GATS's Mode 4 elements.

Intergovernmental agreements can ensure the well-being of the migrants, eliminate the recruiting agencies, and safeguard the human rights of migrants. While bilateral and multilateral agreements are useful, engaging the host country's employers would fortify such agreements, which should be revised often as the business cycle and labor market conditions change. Some effective policy tools for free mobility and circular migration governance are dual citizenship, flexible residential rights, pension portability, recognition of social and health benefits to foreign researchers, and provisions for the professional career of researchers' spouses.

The idea of Global Skills Partnerships as a triple-win scenario is discussed by OECD (2018). Concrete measures for their feasibility are: "involving employers in both programme design and validation of migrants' skills; acknowledging the diversity of approaches and situations across countries and sectors in how skills development and migration are combined; creating one-stop-shops for promoting skills mobility partnerships, supporting their implementation and conducting evaluation" (p. 1).

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Chapter 8

The Labour Market Integration of Humanitarian Migrants in OECD Countries: An Overview



Pieter Bevelander and Nahikari Irastorza

8.1 Introduction

The substantial international migration to Europe and to other Western countries over the last four to five decades has raised public concern about its socio-economic impact, including the labour market integration of newcomers. The economic structural changes that occurred during that time period together with changes in migration policies in many Western countries since the 1970s have gradually resulted in lower levels, and slower trends, of immigrant economic integration. The growing gap in employment rates between natives and immigrants is, in fact, partly a product of a shift from labour migration-oriented policies towards policies and programs favouring family reunification and humanitarian migration. The large migration flows of humanitarian migrants to Europe since the beginning of the Syrian war during the second decade of the current century have made the reception and integration of this refugee population a priority issue in the agendas of scholars and policy makers and also policy-oriented scholars in host countries.

International migration to Western countries has contributed towards the establishment of a dual labour market with natives employed in the primary and immigrants working in the secondary labour market. Categories of migration may line up with labour market segmentation. For example, humanitarian and family-reunion migrants base their decision to migrate, in part, on a different set of intentions and are therefore less positively selected for labour market inclusion (Borjas 1994; Chiswick 2000). The significant growth of the foreign-born population in a number of European and other Western countries—and the consequent employment gap between natives and immigrants—has also led to migration policy reforms. Most countries have

P. Bevelander (✉) · N. Irastorza
Malmö Institute for Studies of Migration, Diversity and Welfare, Malmö, Sweden
e-mail: Pieter.bevelander@mau.se

N. Irastorza
e-mail: Nahikari.irastorza@mau.se

turned towards more restrictive immigration, integration and citizenship policies for immigrants in general and refugees in particular.

This chapter provides an overview of the labour market integration of humanitarian migrants in relation to these policy shifts. The first section briefly describes different patterns of international migration to OECD countries, with a specific focus on the Europe context. Next we summarize the literature on the labour market integration of humanitarian migrants. A case study of Sweden is then presented to illustrate the trends discussed in the previous two sections. Despite the uniqueness of the Nordic economies, there are several reasons that make Sweden an illustrative case of humanitarian migrants' transition into the labour markets of Western economies. Sweden has been a destination country for asylum seekers since the 1970s and the one that received a large number of Syrian asylum seekers per capita. Sweden was also one of the first countries to design and implement an introduction program for refugees who had been settled in the 1980s. The last section of the chapter concludes and reflects on policy and policy-oriented migration scholarship.

8.2 Trends in Humanitarian Migration and Migrant Labour Market Participation

Increases in unemployment, fears of social tension and anticipation of further recession after the first oil-price shock caused a number of Western European governments to cease their active recruitment of migrants. Structural changes in Western European economies following the oil crisis prompted capital exports and investment in the establishment of manufacturing industries in underdeveloped areas including the Gulf States, South Korea, Taiwan and Singapore in the 1970s and 1980s. Lower rates of GDP growth and a lesser demand for labour resulted. Moreover, the micro-electronic revolution reduced the need for low-skilled labour which was usually the preserve of many immigrants in traditional manufacturing. A reaction to this new economic situation was more restrictive immigration policies. Even if the idea was that labour migration was temporary, especially to those countries that used the guest worker system, the return to the countries of origin of migrants was slow or non-existent. Instead, relatively liberal family reunification policies induced the migration of spouses and marriage migration.

At the same time, the signing by many countries of the 1951 Geneva Refugee Convention has over time paved the way for asylum seekers to gain refugee status and residence permits. In the 1980s and 1990s, although a very small proportion of the global stock of refugees, many "Protocol" refugees originated from Asia, Africa and Eastern Europe and have been resettled in developed countries in the North. Armed conflict, as well as limited and failed development strategies, have led to greater inequalities both within and between regions and increased internal and international migration. Since 2000, asylum applications from the Middle East have predominated in Europe, with a peak in 2014–2016 caused by the Syrian war.

The following figures illustrate the size, characteristics (countries of origin and residence) and employment situation of refugees for OECD and European countries over time. When the data allows it, we also provide characteristics for all immigrant groups in order to provide a comparative frame for humanitarian migrants.

Figure 8.1 shows the annual inflows of asylum seekers and other immigrant populations to OECD countries within the period 1997 and 2017. The UNHCR defines asylum seekers as “individuals who have sought international protection and whose claims for refugee status have not yet been determined, irrespective of when they may have been lodged”. Whereas refugees are those “individuals recognised under the 1951 Convention relating to the Status of Refugees; its 1967 Protocol, the 1969 OAU Convention Governing the Specific Aspects of Refugee Problems in Africa, those recognised in accordance with the UNHCR Statute, individuals granted complementary forms of protection, or those enjoying temporary protection. Since 2007, the refugee population also includes people in a refugee-like situation” (<http://popstats.unhcr.org/en/overview>). More generally, the United Nations defines refugees as “persons who flee their country due to ‘well-founded fear’ of persecution due to reasons of race, religion, nationality, membership of a particular social group or political opinion, and who are outside of their country of nationality or permanent residence and due to this fear are unable or unwilling to return to it” (UNHCR 2016).

It is important to recognize that, unlike other migrants, refugees “flee” their country under extreme circumstances and that asylum countries accept them based on humanitarian reasons rather than economic motivations. In resettling refugees identified by the UNHCR, host countries do not select refugees because of their professional skills or the labour market needs of such countries. This dimension of

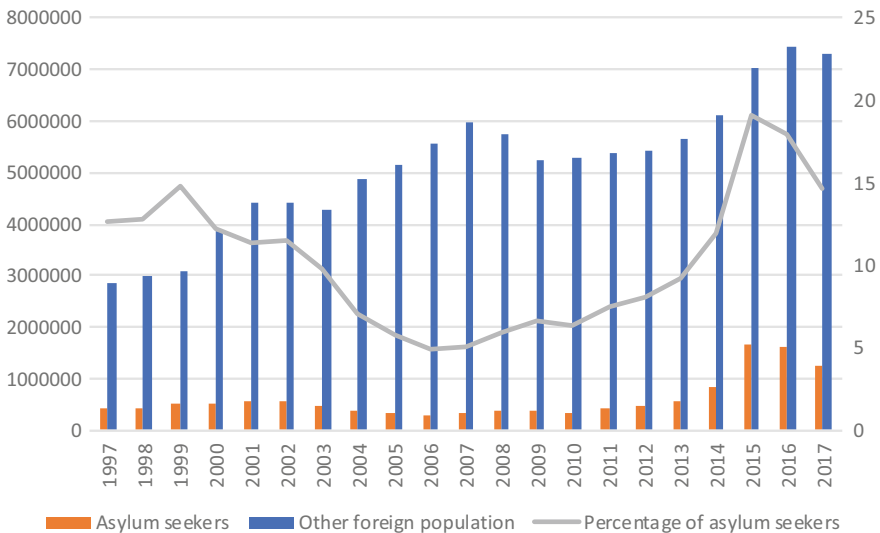


Fig. 8.1 Inflows of foreign-born population to OECD countries (1997–2017). *Source* OECD international migration data. Made by the authors

international refugee resettlement—along with other reasons such as high stress and traumas that refugees often experience due to hardship in their home countries and the journey to the asylum countries—often put refugees in disadvantaged positions when looking for employment in host countries relative to other migrants.

As illustrated by Fig. 8.1, asylum applications oscillated up and down between 300,000 and 600,000 until 2014, when many Syrians were granted asylum in Europe. After a peak that reached over 1,600,000 applications in 2015 and 2016, asylum applications decreased by 2017. Unlike asylum migration, the inflows of other type of migrants into OECD countries follow the economic cycle: an increasing pattern that breaks in 2008—the beginning of the economic recession—precedes a period of lower levels of immigration. A subtle increasing trend is noticeable again starting in 2010 and, driven also by humanitarian migration, becomes more obvious from 2014 onwards.

The graph also shows two peaks in the relative number of asylum applications out of the total migration inflows to OECD countries: one in 1999 and the other one in 2015, as a consequence of conflicts in the former Yugoslavia and in Syria. The top five destination countries for asylum seekers over the last ten years have been the United States, Canada, Australia, Sweden and Germany, with Germany jumping to the top position after granting asylum to 434,329 people in 2016 (OECD 2018). The International Migration Outlook 2018 further reports that family-related migration was the primary migration channel to OECD countries between 2007 and 2016, while humanitarian migration was the least common entry route until 2015–2016. The number of labour migrants decreased over time whereas the number of family and humanitarian migrants increased. Among migrants who received permanent residency status in OECD countries during 2016, 38% had followed the family migration path, 28% constituted free movements, 19% were humanitarian migrants and 9% had moved for work (OECD 2018).

Figures 8.2 and 8.3 depict the trend in the number of asylum applications by source countries between 2000 and 2017, in absolute and relative numbers. As shown in Fig. 8.2, the largest increase in the number of asylum claims emerged between 2007 and 2017 because of war and other armed conflicts, including post-war violence. Examples of these are the wars and post-war conflicts of Afghanistan (2001–present), Syria (2011–present), Iraq (2003–present); increasing violence and human rights violations in El Salvador, Guatemala and Venezuela; or environmental degradation, interethnic conflicts and the Boko Haram uprising in Nigeria. By 2017, over 100,000 asylum applications were submitted by Afghans, Syrians and Iraqis in OECD countries.

The next figure illustrates the proportion of asylum applications from the top ten source countries (as of 2017) in 2000, 2007 and 2017. Afghanistan, Iraq, China and Iran were in 2000 the countries with a highest representation of asylum seekers in OECD countries (over five percent) for the reasons mentioned above. In 2007, due to the war that started in 2003, Iraq had over 12% asylum claims, twice and three times more than the second and third most represented countries, China and Pakistan. In 2017, people from Afghanistan constituted ten percent of the total asylum claims in

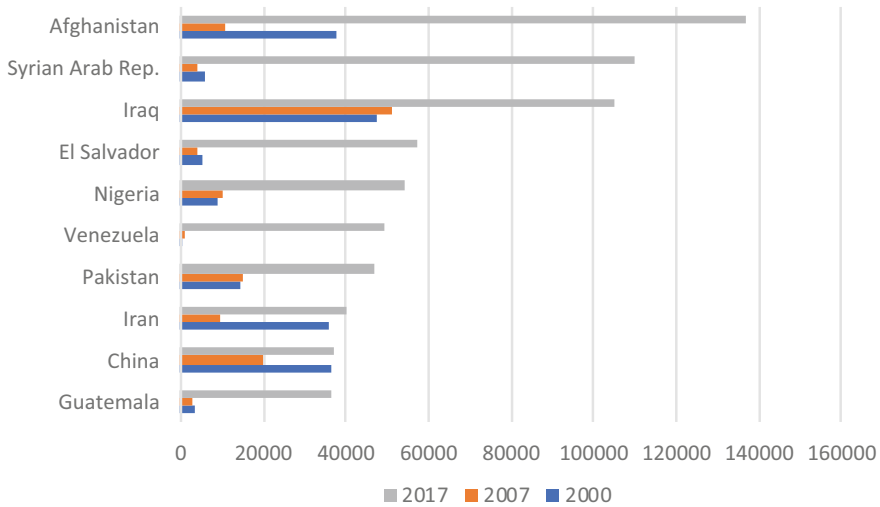


Fig. 8.2 Asylum applications in OECD countries by country of origin (2000–2017). *Source* UNHCR population statistics data. *Analysis* by the authors

OECD countries, followed by Syrians and Iraqis with eight and seven percent each, respectively.

Resettlement programs constitute an alternative way for humanitarian migrants to gain permanent residence in host countries. Figure 8.4 shows the number of refugees admitted under such programs in OECD countries between 2003 and 2019. The most significant increase in the number of resettled refugees happened in 2016 as a result of the expansion of resettlement quotas during the humanitarian crisis during the previous couple of years (OECD 2018). As reported in the OECD’s *International Migration Outlook 2018*, the United States, Canada, the United Kingdom, Australia and the Nordic countries resettled the largest numbers of refugees. From 2017 onwards the number of resettled refugees decreased sharply and became comparable to the 2012 level.

The last set of figures and tables included in this section refer to the employment of refugees relative to the other foreign-born populations and the native born in European Union (EU) countries. Figure 8.5 depicts refugee men and women’s employment rates in the EU in comparison to those of other migrants and native born persons. For the reasons discussed above, refugees show the lowest rates of employment in host countries: ten and seven percent points below family migrants for men and women, respectively. Family reunification migrants, who are often close relatives of refugees, present the second-lowest level of employment, while labour migrants who moved with a job, in the case of men, and those who moved without a job, for women, have the highest employment rate. On average, natives are employed 14 and 16% points more often in the EU than refugees.

While the above figure provides the average refugee employment level in the EU, there are differences across countries that are worth considering. The next figure and

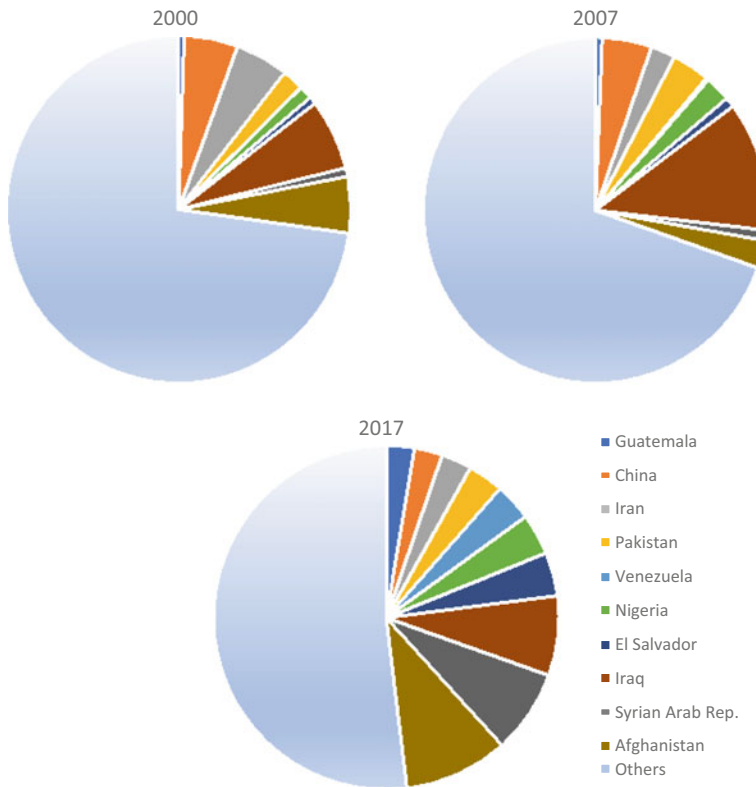


Fig. 8.3 Asylum applications in OECD countries by country of origin, 2000–2017 (%). *Source* UNHCR population statistics data. Analysis by the authors

Table 8.1 illustrate such differences. Specifically, Fig. 8.6 shows that employment rates of male refugees range between 39% in Spain to 84% in Switzerland. For women, refugees show the lowest rates in the United Kingdom (37%), followed by Belgium (41%) and Spain (42%), and the highest in Slovenia (78%) and Switzerland (73%).

With the exception of Slovenia, refugee men have higher employment rates than women among EU countries. On average, refugee men living in the EU have 12% points higher employment rates than women. In Sweden, included as a case study in this chapter, employment rates of refugee men (62%) and women (53%) are just above the EU average, and similar to those in Norway, Germany, Croatia, France and also the United Kingdom for men. The United Kingdom presents the most significant gender gap in refugee employment (25% points) whereas Spain and Finland show the lowest (3%).

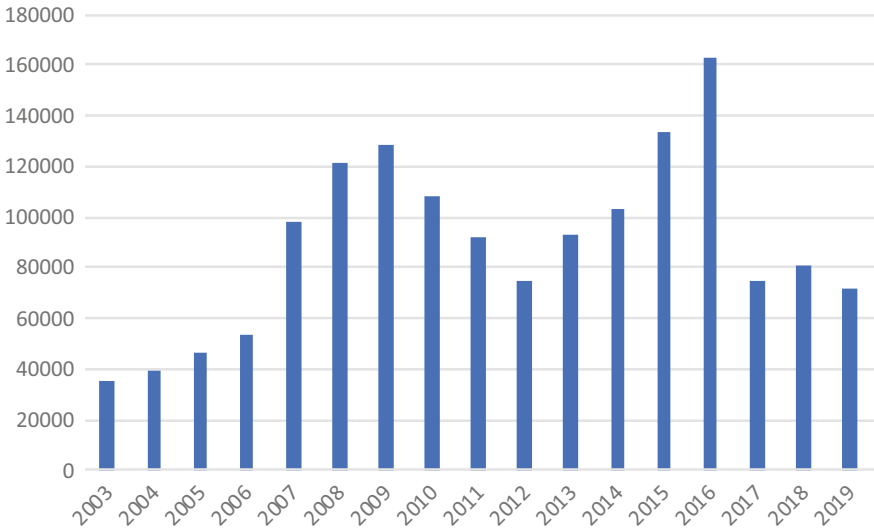


Fig. 8.4 Refugees admitted under resettlement programs in OECD countries (2003–2019). *Source* UNHCR resettlement data. *Analysis of the authors*

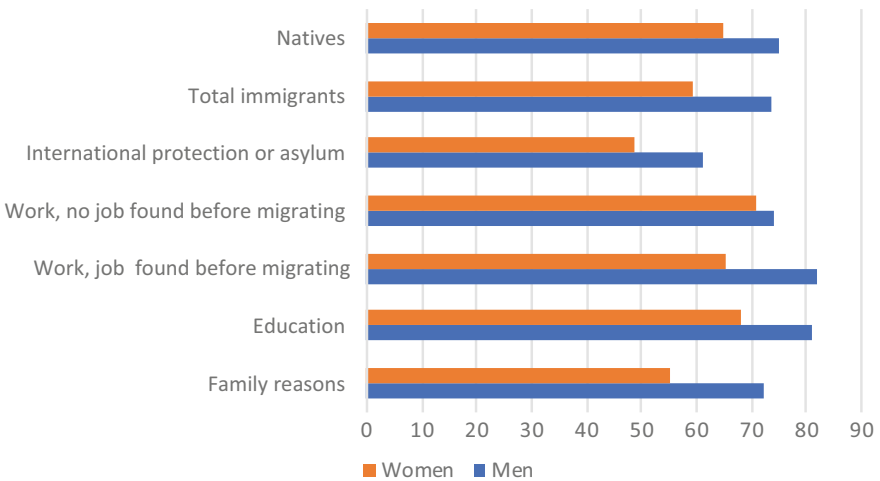


Fig. 8.5 Average employment rates of first-generation immigrants aged 20–64 in the EU by gender and reasons for migration (2014). *Source* EUROSTAT. Labour Force Survey, 2014 ad hoc module “Migrants and the Labour Market”. *Analysis of the authors*

Table 8.1 Employment rate of first generation immigrants aged 20–64 by gender and reasons for migration in the Eurostat (2014)

	Family reasons	Education	Work, job found before migrating	Work, no job found before migrating	International protection or asylum	Total immigrants	Natives
<i>Males</i>							
Belgium	59.4	59.2	89.9	65.7	51.8	64.1	73.1
Bulgaria						68.3	67.9
Czech Rep.	79.9	77.4	90.2	94.0		86.2	82.5
Germany	82.3	63.9	92.6	79.2	66.5	78.4	82.9
Estonia	79.4		65.7			77.9	79.7
Greece	45.5	54.9	58.5	63.9		60.9	62.9
Spain	57.0	68.1	64.5	58.9	38.9	59.6	66.2
France	65.9	76.5	73.7	72.9	63.1	68.7	74.6
Croatia	59.6		54.5	62.4	61.2	60.4	65.1
Italy	63.7	69.8	84.5	77.3	62.1	73.3	69.3
Cyprus	71.1		90.1	69.9		72.9	71.5
Latvia	72.2	93.1				72.8	72.9
Lithuania	79.7					72.3	72.3
Luxembourg	74.2		91.0	79.5		81.5	74.3
Hungary	78.9	90.3	94.7	87.1		86.7	72.7
Malta	92.2		87.0			79.5	79.4
Austria	77.8	58.0	83.1	65.9	67.2	72.9	79.6
Poland	56.7					68.5	73.0
Portugal	76.6	74.7	76.6	68.2		73.8	71.3
Romania							74.3
Slovenia	71.2	53.1	77.1	62.3	69.3	70.2	72.4
Slovakia	73.0					76.3	72.8
Finland	72.0	84.5	87.6	80.0	47.6	71.9	74.5
Sweden	72.8	86.1	89.1	68.6	61.7	71.7	84.9
United Kingdom	79.1	70.2	95.4	89.4	63.3	82.2	81.8
Norway	79.6	62.7	87.3	77.8	57.1	75.0	82.4
Switzerland	82.6	74.0	88.1	86.0	83.9	84.5	87.7
EU total	72.1	81.1	82.0	74.2	61.1	73.5	74.9
<i>Females</i>							
Belgium	45.0	54.2	81.5	69.5	41.3	50.1	66.0
Bulgaria						52.4	61.7

(continued)

Table 8.1 (continued)

	Family reasons	Education	Work, job found before migrating	Work, no job found before migrating	International protection or asylum	Total immigrants	Natives
Czech Rep.	53.5	62.3	65.5	71.5		59.3	65.2
Germany	63.0	59.3	77.2	70.5	485	60.6	75.8
Estonia	61.9		71.8			62.9	72.3
Greece	30.2		40.5	58.1		44.3	44.1
Spain	39.6	56.7	65.2	68.1	41.8	52.1	55.4
France	46.7	64.6		72.1	54.8	51.0	69.8
Croatia	45.4	62.8			45.4	45.5	55.4
Italy	39.7	52.6	72.9	70.7		52.8	49.9
Cyprus	56.9		92.3	73.2		70.2	61.9
Latvia	64.2					62.4	70.3
Lithuania	69.5					69.1	70.7
Luxembourg	59.3		82.8	71.3		66.8	63.6
Hungary	51.1		75.3	71.8		58.4	59.9
Malta	58.5					56.0	51.7
Austria	58.3	56.9	79.0	67.3	52.2	60.5	72.8
Poland	57.9	82.2		86.4		66.2	58.7
Portugal	68.2	73.6	83.2	71.0		67.7	63.7
Romania							57.8
Slovenia	51.2	60.2	54.7	57.1	78.0	53.8	65.9
Slovakia	53.1					54.1	58.5
Finland	61.8	56.3	83.5	80.4	44.1	61.0	73.0
Sweden	65.0	66.5	87.6	59.5	53.5	63.9	81.3
United Kingdom	54.1	63.6	88.6	81.1	37.7	62.5	72.4
Norway	63.8	84.6	83.3	73.1	60.2	68.4	77.2
Switzerland	62.3	63.3	89.9	72.6	73.2	68.6	80.5
EU Total	55.2	68.0	65.5	70.8	48.5	59.3	65.0

Source EUROSTAT. Labour Force Survey, 2014 ad hoc module “Migrants and the Labour Market”. Analysis of the authors

Data presented in Table 8.1 expands the results shown in the previous figure by including the employment rates of other non-humanitarian migrants in EU countries comparing to other categories of migration. Among men, the largest employment gaps between refugees and labour migrants who moved with a job emerge for Finland (a difference of 40% points) and Belgium (38% points); among women, large differences in rates of employment between refugee and labour migrants occur in the

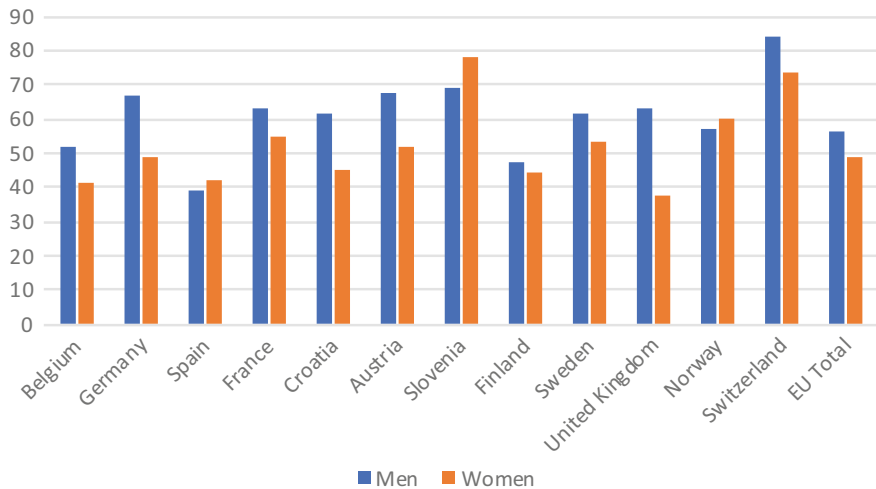


Fig. 8.6 Employment rates of refugees aged 20–64 EU countries by gender (2014) (some EU countries were omitted from the graph due to a lack of data). *Source* EUROSTAT. Labour Force Survey, 2014 ad hoc module “Migrants and the Labour Market”. Analysis of the authors

United Kingdom (50% points), Belgium (40% points) and Finland (39% points). The differences between refugee and native employment levels are slightly lower than those between refugees and labour migrants. Among men, differences are largest in Spain, Finland (each with a 27% point difference) and Norway (25% points). Among women, the most significant differences between refugees and native born are for the United Kingdom, Finland and Germany with gaps of 35, 29 and 27% points respectively.

The countries that have the lowest gaps are the same when we compare refugees to labour migrants and natives: Croatia (−7% points relative to labour migrants and 4 compared to natives) and Switzerland (4% points as compared to both groups) among men, and Slovenia (where refugees employment rates are 23% points higher than those of labour migrants and 12 points higher than the rates of natives) and Switzerland (refugees employment is 17 and 7 points lower than those of labour migrants and natives) among women.

For Sweden, which we are going to discuss later in this chapter in more detail, these gaps are higher than the EU average. The employment difference of refugee men compared to labour migrants and natives is 27 and 23% points, whereas for the total EU countries is 21 and 14. Among women, the numbers for Sweden are 27 and 23 in contrast to the EU’s 17 and 16.

Considering the differences in migration history among migrant populations as well as patterns of asylum inflows at the aggregate level, some of these numbers might be somewhat misleading. In fact, according to the classic literature on labour market participation, human capital attributes are key determinants of economic performance (Becker 1992). In the case of immigrants, not only education but also time spent in

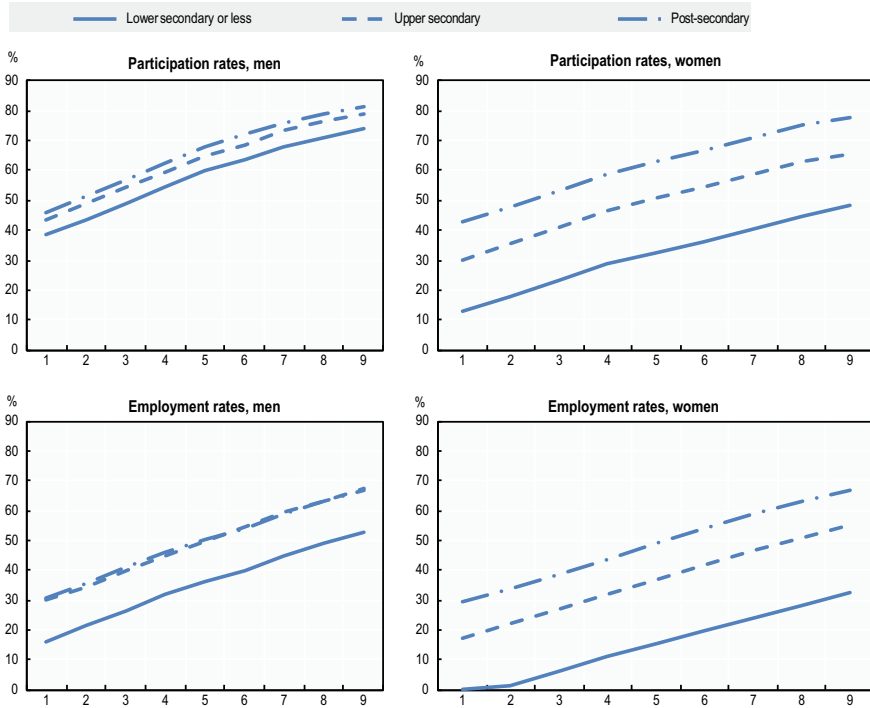


Fig. 8.7 Participation and employment rates of refugees in European countries by years of residency, gender and education: 2014. *Source* International Migration Outlook 2018. <https://dx.doi.org/10.1787/888933751954>

the host country contributes to enriching their host country-specific human capital. Figure 8.7 depicts the association between these factors and a key indicator of labour market integration, employment, and shows employment rates of refugees in European countries by years of residency and education for men and women.¹ While the correlation between participation and employment rates, and time spent in the host country seems to be similar for men and women, notable differences are observed in employment by gender depending on educational attainment. The impact of education on both participation and employment rates is more significant for women than it is for men. At the same time, both rates are closer between highly educated men and women than they are between men and women with lower education.

This section has provided a brief overview of world trends in humanitarian migration and the labour market participation of refugees. To summarize, after the signing of the Geneva Refugee Convention in 1951, humanitarian migration to OECD countries increased over time with a peak in 2015–2016 because of the Syrian war. Yet,

¹Estimates for Fig. 8.6 are based on the 2014 European Labour Force Survey, ad hoc module on the labour market situation of immigrants and their descendants.

humanitarian migration is the least commonly used channel that leads to permanent migration. The year 2016, when humanitarian migration constituted 19% of all permanent settlements, constitutes an exception. In 2017 Afghanistan, Iraq, Iran, Pakistan, Syria, Nigeria, Venezuela, El Salvador, Eritrea and Guatemala were the top ten source countries of humanitarian migration to OECD countries. Generally, Germany, the Nordic countries, Austria, Switzerland, the Netherlands and the United Kingdom in Europe, plus the United States, Canada and Australia have been major receiving countries of asylum seekers and resettled refugees over the years. The employment rates of male refugees in 2014 ranged between 39% in Spain to 84% in Switzerland, whereas for women, refugees show the lowest rates in the United Kingdom (37%) and the highest in Slovenia (78%). On average, refugee men living in the EU have 12% points higher employment rates than women, with the gender gap being the highest in the United Kingdom (25% points) and the lowest in Spain and Finland (3% points). Participation and employment rates of refugee men and women in OECD countries increase steadily by years of residency whereas education seems to have a bigger impact on women than it does on men.

8.3 Labour Market Outcomes of Humanitarian Migrants

Integration into the labour market is one of the key indicators of structural integration (Ager and Strang 2008). There are a number of standard sub-indicators that are used to measure the labour market outcomes of immigrants. Employment and relative earnings as well as unemployment are labour market outcomes for immigrants commonly considered in migration scholarship.² Employment is when an individual is engaged in work that generates a marked income, whereas unemployment is measured when an individual does not work but is actively searching for employment. Earnings or income is the total of salary that a person has received by working during a certain time period, often during a calendar year.³ Other indicators of labour market integration include hours worked per week or hourly/monthly wages, etc. Results of studies on labour market outcomes are not always comparable given reliance on different sources of evidence, for example, survey data versus administrative sources. Importantly, labour market outcomes of immigrants are often compared to the outcomes for natives or other immigrant sub-categories, e.g. labour migrants, refugees, those who come for study, marriage or for family-reunion.

²In OECD publications as well by statistical offices of several OECD countries, employment and unemployment levels on an aggregate level by immigrant group are often provided to indicate to what extent there is a native-immigrant employment/unemployment gap (see for example OECD 2016).

³Since the measurement of employment, unemployment and earnings still is not entirely standardized among countries it is important that studies describe how the actual indicator is defined (see for example Careja and Bevelander 2018 for a discussion on the pros and cons of administrative statistical information for integration studies in Denmark and Sweden).

From the perspective of economic theory, the labour market integration of immigrants is commonly explained by selectivity on the supply-side—that is, by the characteristics of the migrant—or by the opportunities and restrictions on the demand-side, such as labour market needs and immigration policies in the receiving country. One of the standard propositions in the economic migration literature is that migrants tend to be favourably selected on the basis of their skills, health and other traits. However, with a growing diaspora, there is a diminishing selection of new emigrants (Ferrie and Hatton 2015).

Chiswick's (1978) ground-breaking paper has been both the starting point and the trigger for numerous studies on the labour market integration of immigrants in host countries. Over subsequent decades, research on this topic has grown massively. Increased migration worldwide, public and political discourse, and better and more available statistical information are key elements of the burgeoning of migration scholarship. Most economic studies still employ standard labour market supply approaches. Accordingly, the probability of employment, higher relative earnings and skills match is hypothesized to be determined by the level of human capital (Becker 1992), including formal education, labour market experience and skills acquired at work. However, for migrants, educational qualifications and skills may not be perfectly transferable between labour markets in origin and destination countries. Challenges to transfer of skills include the extent of labour market information, destination-language proficiency and process of accreditation including occupational licences, certifications or credentials, as well as more narrowly defined task-specific skills (Bevelander 2000; Chiswick et al. 2005). It is reasonable to expect that the lower the international transferability of the migrant skills, the wider the gap in native-immigrant employment and earnings.

The literature on the labour market outcomes specific to refugees proposes that a range of factors contribute to poorer economic outcomes for humanitarian migrants compared to other migrants, especially labour migrants. First, as a result of the search for safety and protection, refugees are less favourably selected for labour market success in host countries (Chiswick 2000) and have greater difficulties in the transferability of credentials (Hatton 2011). Second, when asylum seekers enter a potential host country and seek asylum, both the length of the asylum procedure as well as legal restrictions during the asylum process can affect the probability for rapid and efficient labour market integration (Bevelander and Pendakur 2009; Hainmueller et al. 2016). Third, refugees may exhibit poor health status, especially a higher level of mental health conditions compared to other migrants. The experience of trauma from, as examples, violence, persecution, torture, rape, shortage of food, forced separation of family and home, affect their health and subsequently their possibility for effective labour market integration (Frijters et al. 2010; Giuntella et al. 2018; Zdravkovic et al. 2016). Finally, whether refugees and family-reunion migrants obtain permanent or temporary residence can also affect their investment in acquiring proficiency in the host language and ultimately, their success in employment and labour market integration (Dustmann et al. 2017).

Additional research also suggests that refugees could be positive selected compared to other migrants and have better outcomes over the long run (Van Hear

2006; Borjas 1987). Refugees with more resources, both human and social capital, can more often afford the cost of migration and may have easier integration into host labour markets. Refugees with high levels of education are likely to have the capacity to overcome complex asylum procedures in refugee access countries resulting in lower the costs of migration (Chiquiar and Hanson 2005). Moreover, Borjas (1987) suggested for the possibility of “refugee sorting”, referring to that migrants can be selected from the lower tail of the income distribution in the home country but end up in the higher tail of the host country distribution. This reflect minority group discrimination in the home country; relocation but to a host country with lower levels of discrimination to the particular ethnic group may yield better labour market outcomes. Finally, Ruiz and Vargas-Silva (2017) point out that in many cases, refugees chose their final destination after securing asylum in safe first country. For those, economic and social incentives may play a larger role when moving onward.⁴

It is important to note that research on economic outcomes by category of entry is often hampered by the lack of availability of the relevant data. In order to assess the labour market integration of refugees, detailed statistical information relating to immigrant categories is of critical importance. Disaggregation of data by reasons for, and categories of migration is too often lacking in national statistical sources. In general, data sources supporting research on labour market integration of groups of migration vary widely between countries of origin and destination, and perhaps more critically among countries of settlement. Some countries rely on administrative data while other countries employ surveys for national estimate. National census data disaggregated by country of birth and cohort of arrival among the foreign-born are significant sources for comparative migration research but challenges to comparability remain. For example, the national datasets in Scandinavia contain information about entry class whereas, in general, those in North America do not. Thus, quantitative assessments of outcomes by category of entry are much more common in Northern Europe than in the United States or Canada.

Few studies on the labour market integration of refugees in a historical perspective have been conducted. Notable contributions take the form of case studies on particular refugee groups in specific countries: for example: Wigerfelt Svensson (1997) on Hungarian refugees and Hosseini-Kaladjahi (1997) on Iranian refugees in Sweden or Cubans to the United States (Portes and Stepick 1994; Card 1990). Bauer et al. (2013) studied the economic integration of East German refugees into post-war West Germany. Their analysis shows that even after 25 years since their dislocation, migrants perform worse than native West Germans with having lower labour incomes, higher unemployment risks as well as that migrants to a far larger degree are employment in industry versus agriculture compared to native West Germans. Using census data for 1950, Braun and Mahmoud (2014) studied the employment effects of the large inflow of displaced Germans to West Germany after WWII on native West Germans. They find that a 10% point increase in the share of migrants decreased the

⁴Direct resettlement accounts for a minor share of the entire refugee flow to host countries. See <https://www.unhcr.org/resettlement-data.html> for more info on the latest resettlement data.

employment rate of native West Germans with 4% points. The displacement effect, however, was short-lived (see also Card 2001).

In general, studies on more contemporary refugee flows and their labour market integration have been performed in the United States, Canada, the United Kingdom, the Netherlands, Switzerland, Denmark, Norway and Sweden. Considering this body of research as a whole, refugees generally have lower employment rates, particularly soon after their arrival in the host country, compared to other immigrant groups. However, over time, refugees “catch up” and show similar employment levels as other non-economic immigrant categories (Bevelander 2011; de Vroome and van Tubergen 2010; Hatton 2011; Aydemir 2011; Cortes 2004; Bratsberg et al. 2017; Schultz-Nielsen 2017; Auer 2017; Hainmueller et al. 2016). In specific comparison to economic migrants, however, refugees have lower levels of employment (Yu et al. 2007).

Turning to other indicators of economic integration, studies analysing the income attainment of refugees indicate similar income trajectories for them compared to other non-economic immigrant groups (Bevelander and Pendakur 2014). Refugees lag behind labour migrants in terms of earnings in the early years after settlement, and show increased earnings development. However, they do not reach similar levels as labour migrants (Connor 2010; Ruiz and Vargas-Silva 2017; Chiswick et al. 2006) over the time frames considered.

Research has revealed that the difficult conditions of refugee migration, health status of refugees and loss of human capital, and the challenges to regularization of refugee status in host communities poses challenges to labour market integration. Some countries have responded to these obstacles by introducing integration programs including language training and labour market specific skill preparation to enhance labour market integration among settled refugees. However, the effectiveness of these policies remains an under-researched area of migration and refugee research. Moreover, there is little consensus and often conflicting results about how well integration programs may “integrate” refugees within receiving communities. While some countries have seen an improvement in refugees’ labour market outcomes (Neureiter 2018; Auer 2017; Sarvimäki and Hämäläinen 2011; Andersen et al. 2019; Irastorza et al. 2019), others found insignificant or negative impact (Goodman and Wright 2015; Clausen et al. 2009).

An increasing number of studies have begun to consider more carefully so-called dispersal policies of refugees throughout the host country, in contrast to government policies that constrain refugees in their choice of settlement location by assigning refugees housing in specific locations. For example, Edin et al. (2003) for Sweden found the random assignment of refugees in the period 1985–1989 had a negative effect on their income. Auer (2017) showed that in Switzerland random placement had negative effects on refugee labour market integration. Similar results emerge for Denmark (see Damm 2009) and for Australia (see Colic-Peisker and Tilbury 2006). For Sweden, Bevelander et al. (2019) showed that asylum seekers choose to live with family and friends during their asylum seeking process compared to those that choose to live in government housing during the process, had no detrimental effect on their employment propensities.

Other policies that have shown to have effect on labour market integration of refugees embody different kind of restrictions. Marbach et al. (2018) studied the long-term impact of employment bans on the economic integration of refugees and found for Germany that these resulted in a downward trend in economic outcomes. Their subsequent cost analysis suggests a 40 million Euro cost for the German taxpayer per year as a consequence of these restrictive policies. Survey data from a sample of 400 refugees in the United Kingdom point to the fact that policies which restrict access to the labour market also have a negative impact on refugees' employment probabilities (Bloch 2007).

In addition to national-level datasets, a number of special surveys have been carried out that support the relation between immigrant entry category and economic outcomes. In the case of the Netherlands, de Vroome and van Tubergen (2010) found that host-country-specific education, work experience, language proficiency and contacts with natives were positively related to the likelihood of obtaining employment and occupational status. In another study on the Netherlands, Bakker et al. (2013) showed that post-migration stress or trauma affects refugees' labour market integration.

A number of receiving countries have the benefit of longitudinal data sources to investigate the economic integration of refugees. Using the Longitudinal Survey of Immigrants to Canada to compare the labour force participation and earnings of differing categories of immigrants two years after their arrival, Aydemir (2011) concluded that refugees have lower participation rates than family-reunion immigrants but that their earnings are about the same. Longitudinal studies using high-quality administrative data for both Norway and Denmark show that refugees and family members have an initial promising increase in labour market integration but a subsequent levelling out and even a reverse process after about 10 years in residence (Bratsberg et al. 2017; Schultz-Nielsen 2017). A similar study for Sweden similarly reveals a levelling out but at a higher employment level, and for some refugee groups for both male and females employment levels similar to natives (Bevelander and Luik 2020). These studies underscore the heterogeneity within admission class and country-of-origin schooling as explanatory factors for labour market success.

Overall, the majority of the studies cited above conclude that refugees are in a disadvantaged position when it comes to labour market integration in receiving countries. Critically, there are also discrepancies among such studies: while some report that the performance of refugees is comparable to that of other migrants, others indicate that the differences between them are substantial. These results underline the importance of the receiving context for labour market integration of refugees. Most of these studies were conducted in single-countries and therefore, lack a comparative perspective among different contexts of reception.

In contrast, Bevelander and Pendakur (2014) conduct a comparative study of the economic integration of the same admission class (asylum migrants, resettled refugees and family-reunion migrants) and source country groups in Sweden and Canada. They report that, after controlling for other variables, the probability of being employed is roughly the same in Canada and Sweden, whereas the difference in earnings between the countries is greater and favours Canada. Differences between

admission categories are smaller in Sweden than they are in Canada. The authors argue that this could be due to the fact that all these categories are entitled to receive the same services and to participate in the same introduction programs, whereas in Canada only resettled refugees have access to such services and programs.

8.4 Refugee Economic Integration: The Case of Sweden

Sweden provides an ideal context to deepen into the ideas and trends on the labour market integration of humanitarian migrants presented in the previous sections. As a major destination for asylum seekers from Europe, Africa and the Middle East, Sweden also has a long record of refugee resettlement system and integration programs implemented as far back as in the 1970s. Also illustrative of a theme of this chapter, Sweden was innovative in its design and implementation of an introduction program for refugees. Despite the uniqueness of the Nordic economies, however, empirical evidence across countries show that the challenges for humanitarian migrants to integrate into the host labour markets do not differ substantially among such countries. As we have shown in an earlier section of this chapter, employment rates of refugee men and women in Sweden are very similar to the EU average, and also to those in several other countries such as Norway, Germany, Croatia, France and the United Kingdom.

After providing a brief history of migration and integration policy in Sweden, we discuss previous studies on labour market participation of refugees to Sweden before we conclude by showing some descriptive analysis based on the latest employment data available.

8.4.1 Immigration to Sweden

Migration flows to Sweden can be classified in three periods, each shaped by changes in national, regional and international migration policies. First, until the mid-seventies, immigrants to Sweden were attracted by a high demand for foreign labour, a trend that was enhanced by the gradual liberalization of regional immigration policies. People who migrated to Sweden during this period came from neighbouring countries such as Finland, Norway, Denmark and Germany and to a lesser extent from Mediterranean countries. Smaller refugee flows to Sweden during this period came mainly from the former Eastern European block, and including the countries of Hungary, former Czechoslovakia and Poland. Second, due to the oil crisis in the early 1970s and the lower demand for labour in the subsequent period, Sweden shifted towards a more restrictive labour migration policy. As a result, from the mid-seventies until the mid-nineties immigration flows primarily consisted of refugees and family-reunion migrants from countries both inside and outside Europe.

Finally, Sweden's entry into the EU in 1995 increased migration flows from other EU countries (Irastorza and Bevelander 2017).

A significant proportion of the immigration to Sweden over the last 40 years, therefore, has consisted of individuals seeking asylum who have subsequently gained residence. Starting in the middle of the 1970s, refugee migration to Sweden was dominated by Chileans and ethnic Chinese from Vietnam. Shifts came in the 1980s when the lion's share of refugee migration to Sweden originated from Ethiopia, Eritrea, Iran and other countries in the Middle East. Individuals from Iraq and the former Yugoslavia dominated in the 1990s. Since the beginning of the new millennium, Iraqi, Somali, Syrian and Afghan refugees have represented the largest share of the refugee intake to Sweden. Relatively liberal asylum rules have been one of the explanations for the comparatively high number of people seeking asylum in Sweden.

Swedish refugee policy is based on the UN Geneva Convention of 1951 (which Sweden signed in 1954) and established in the Swedish Aliens Act of 1989. According to this act, Sweden may give asylum to one category of refugees only, so-called *convention refugees*. These are individuals who are either stateless or are living outside the country of their nationality or former habitual residence, and who have a well-grounded fear of persecution in that country due to their race, nationality, membership of a particular social group, religious beliefs or political opinions. These refugees have entered Sweden individually, applied for asylum and subsequently obtained a residence permit. Outside this act, Sweden obviously cooperates with the UN High Commissioner for Refugees, the UNHCR, and admits its share of *resettled refugees*. In contrast to convention refugees, resettled refugees are individuals who often directly resettled from a refugee camp into a Swedish municipality. The size of the quota is decided annually by the Swedish government in agreement with the UNHCR. Over time, the Swedish Aliens Act of 1954 has been interpreted in a wider sense than the original Geneva Convention, creating an established practice that has enabled other refugees beyond convention and quota refugees to obtain permanent residence in Sweden.

Labour market integration policies targeting refugees have been implemented in Sweden since the 1970s. According to the 2015 Migrant Integration Policy (MIPEX) Index, Sweden scored highest among all European countries and Canada on all six indicators studied, including the labour market access indicator for immigrants and ethnic minorities. The primary elements in the labour market integration program over recent decades have remained the same—language training, civic orientation and labour market activities—and are provided by either the municipalities or since the 2010 reform, by the labour market authorities.

The aim of the 2010 Swedish introduction program reform was to strengthen the focus on labour market integration. While the main elements in the program remain the same as before—language training, civic orientation, and labour market activities—the basic content and scope of the program were, for the first time, laid down in law. The target groups for the introduction program are refugees and their reunited families, also of whom have the right to access the program within the first two years after they obtain their first residence permit. In 2012, this time period was

extended for the reunited family members of refugees up to six years after gaining first residence. While participation in the program is not mandatory, those who choose not to participate have no right to receive any economic support. The program lasts for a maximum of 24 months (Irastorza and Bevelander 2017; Irastorza et al. 2019).

As explained by Bevelander and Emilsson (2016), the reform introduced two new instruments designed to speed labour market integration: a new economic compensation and the support of “introduction guides”. The first tool, the introduction benefit, provides stronger economic incentives to participate in the program. The economic support is slightly higher than the social assistance level and is not affected by the income of other household members. This also implies that when refugees and their spouses participate in the program, the household income doubles. Furthermore, if participants find employment, they are allowed to continue receiving the introduction benefit, on top of their job income, for two years. The motivation behind these measures was to increase the participation of refugees and their relatives in the program or in the labour market. Introduction guides constituted the second new instrument of the 2010 reform. These guides are independent actors hired to help refugees and their families find a job. Migrants can choose their own guides from a list of organizations and the compensation to the guides is partly based on their success. Preliminary evaluations of the program show positive effects of these ambitious introduction programs and the guides were abolished in 2014 (see Bevelander and Emilsson 2016 and Irastorza et al. 2019 for a more extensive overview and evaluation).

8.4.2 Previous Studies on the Labour Market Participation of Refugees to Sweden

In Sweden, as in most other European countries, refugees and family migrants are also found to have lower employment opportunities and outcomes than labour migrants (Bevelander and Irastorza 2014; Irastorza and Bevelander 2017). Furthermore, previous studies have claimed that the reasons for migration of the total immigrant population are an important explanatory factor of the native-immigrant employment gap (Bevelander 2016). An early study by Rooth (1999) shows that refugee integration into the Swedish labour market is dependent on individual human capital, investment in human capital development (in both the source and the host country) and labour market experience in the host country. Most refugees spend the first two years after they have been granted asylum, learning the Swedish language, culture, system and labour market as part of an introduction program designed to boost their labour market integration. Furthermore, while asylum seekers are allowed to choose where they want to settle, due to limitations in the capacity of local authorities in some attractive destinations to host them, they may end up in regions where economic opportunities are scarce. The majority of non-EU immigrants, both women and men, who moved to Sweden in the last four to five decades arrived as asylum seekers

or as family members of former refugees and therefore, most of them follow the introduction program.

Other studies point to differences in the employment trajectories of government-assisted refugees, asylum seekers and family-reunion immigrants in Sweden and conclude that these differences are the product of integration policies that vary by entry category (Bevelander 2011; Luik et al. 2018). They also point to possible differences in access to social capital and in mobility choice. Government-assisted refugees are often located in municipalities in which housing is available but where employment opportunities are scarce (Bevelander and Lundh 2007; Hagström 2009). Asylum seekers often have personal resources and can settle where the job prospects look the most promising. Family-reunion immigrants are likely to draw on the social capital acquired by family and friends who have already settled in the country (Bevelander and Pendakur 2009, 2014).

Using Swedish administrative data to assess the impact of mobility on economic outcomes for refugees, Rashid (2009) concludes that internal migration generates a positive outcome in terms of higher family income for newly arrived refugee families and is in line with earlier research on the attractiveness of the larger and more diversified labour markets in more densely populated areas and larger cities. This is partly because refugees often move from an area with few jobs to one with greater employment opportunities (Edin et al. 2003). The internal migration of immigrants in general and refugees in particular is thus an important factor when it comes to their employment opportunities. Moreover, it has been shown that the municipality of residence is an important predictor of labour market integration. Moving to a larger city, for example, is often correlated with the presence of larger co-ethnic populations and the possibility of accessing ethnic networks (Rashid 2009; Haberfeld et al. 2019).

8.4.3 An Overview of the Employment of Humanitarian Migrants to Sweden: Facts and Figures

We conclude our overview of refugee migration and integration to Sweden by presenting a series of figures on the employment of humanitarian migrants by gender and cohort of arrival over time.

Figure 8.8 depicts annual employment rates for immigrants, 20–64 years, including humanitarian migrants—regardless of their time of residency in Sweden—by gender, starting in 1997, when the Swedish authorities started registering data on type of migration systematically. While the gap between immigrants and natives remains similar between 1997 and 2015, the disparity between refugees and the rest of the groups has decreased over time. By 2015 there was no difference between immigrant and refugee women and the gap between immigrant and refugee men was minor. Still, the average employment rates among these groups in 2015 were around 60%, 20% lower as compared to natives. However, we should bear in mind

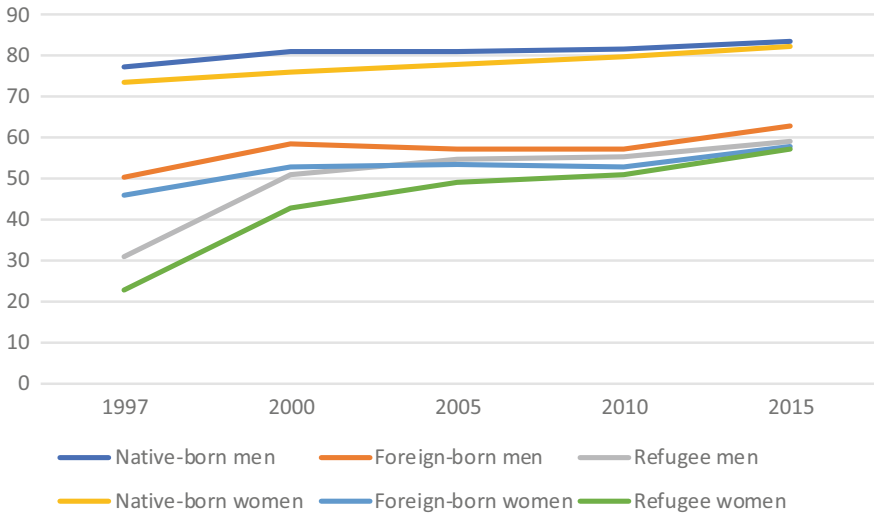


Fig. 8.8 Employment rates of immigrants to Sweden aged 20–64 (1997–2015). *Source* Own calculations based on Swedish register data

that recently arrived immigrants are also included among the foreign-born and humanitarian migrant groups.

As discussed in previous sections, time of residency in the host country constitutes a key factor for the labour market integration of immigrants. To address this effect, some researchers select only immigrants who have been living in the host country for five years or more for analysis (see, for example, Bratsberg et al. 2014). Most immigrants not only need to learn the language of the host country but also lack other country-specific human and social capital that would facilitate their access to employment; restricting analysis to refugees with five or more years of residence controls in part for the effects of transition to Swedish society.

Taking this into consideration, Fig. 8.9 shows employment rates for four refugee cohorts—1997, 2000, 2005 and 2010—over time. Each cohort represents the year in which asylum seekers were granted refugee status or they were resettled in Sweden and became residents of the country. The share of refugees who became employed the same year as they were admitted to Sweden was below ten percent for all cohorts. Furthermore, despite the fact that employment rates are positively correlated with their time of residency and they all showed a steady increase, the proportion of those who were working after ten years or more in the country among the early cohorts was below 70% (for natives, the rate in 2015 was over 80%). The average employment rates of the 2005 cohort shortly after arrival were almost twice as high as those of to the rest of the cohorts and ten years after arrival they had caught up with the 2000 cohort. Among the 2015 cohort, 3.6% gained employment during the same year.

In order to explore the potential impact of out-migration on the differences in employment rates among cohorts that we presented above in Table 8.1 we provide

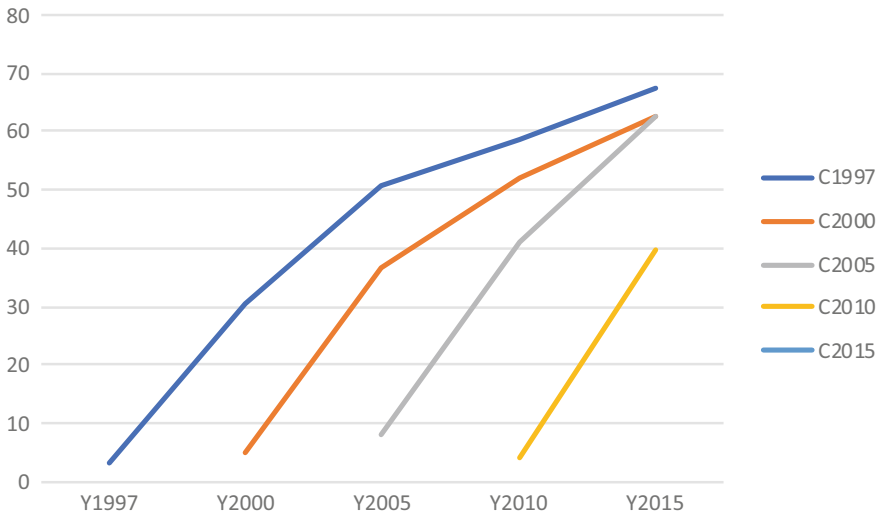


Fig. 8.9 Employment rates of refugee cohorts aged 20–64 over time % (1997–2015). *Source* Calculations of the authors based on Swedish administrative register data

frequencies for the size of each cohort as well as an estimate of the size of out-migration (in percentage points) over time in Table 8.2 shown below. If we assume that out-migration is associated with poor labour market outcomes, then this should result in an increase of the average employment rates of the same cohort as the out-migrants. In other words, out-migration should have a positive impact on the employment rates of people who stay. However, the opposite hypothesis could also be posed as a result of an out-migration of people who are more successful and who,

Table 8.2 Out-migration of refugee cohorts (1997–2015)

		Cohort			
		1997	2000	2005	2010
Year	1997	9817	–	–	–
	2000	9670	9548	–	–
	2005	9288	9209	6763	–
	2010	8912	8734	6492	10,811
	2015	8577	8378	6168	10,358
Out-migration (% points)	1997–2000	1.50	–	–	–
	2000–2005	3.95	3.55	–	–
	2005–2010	4.05	5.16	4.01	–
	2010–2015	3.76	4.08	4.99	4.19
	Total out-migration	12.63	12.25	8.80	4.19

Source Authors’ calculations based on Swedish administrative register data

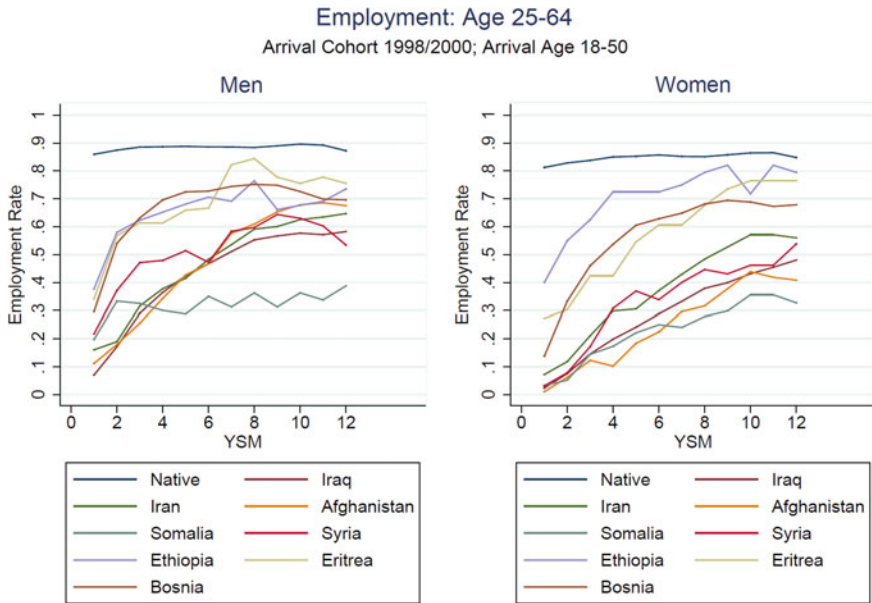


Fig. 8.10 Employment rates for major refugee groups by years since migration. *Source* Bevelander and Luik (2020)

therefore, have the opportunity to move to countries where they think they could be doing even better. The descriptive data presented in Table 8.2 do not show notable differences in out-migration among cohorts. Therefore, we are not able to suggest any possible associations between out-migration and differences in employment rates among cohorts.

Our last Fig. 8.10 illustrates the evolution of employment rates for the 1998–2000 cohort by source country, years of residency and gender in Sweden, and causes a few interesting patterns to emerge. First, two groups seem to prevail in both subsamples while being more marked among women that include refugees from Bosnia, Ethiopia and Eritrea in the group that have over time an employment probability similar to native Swedes. Second, we can identify a group of very low and medium-low employment integration. Iraqis, Iranians, Afghans, Syria and Somalians only had an employment share of around 20% for males and 10% for females, whereas already 20, 30 and 40% of males and females Bosnians, Eritreans and Ethiopians respectively have been employed after one year in the country. Thus, for all origin groups except the Ethiopians, the initial female employment shares were lower than those of their male counterparts. However, in both groups a remarkable catch up takes place. For men from Bosnia, Ethiopia and Eritrea, the employment growth plateaus after roughly six years since migration. Among these men, only the employment share of Bosnian men who entered Sweden as humanitarian immigrants decreases from the seventh year since migration. The same hump shape pattern can be observed for Syrians on a much lower employment level. For humanitarian male immigrants from Iraq,

Iran and Afghanistan, growth is slower but continues until the twelfth year since migration; for their counterparts from Somalia, the growth almost stagnates. While the employment path of Bosnian refugees is comparable to evidence for humanitarian immigrants in Norway (Bratsberg et al. 2017), we do not observe this for the majority of Swedish humanitarian immigrants. It is noteworthy that the drop is absent for most of the groups despite the confounding effect of the 2008 recession.

Like the Norwegian case, however, we find a slower but continuous catch up for female humanitarian immigrants within the first 12 years. However, our data even suggest that the employment share in year 12 is slightly higher for Ethiopian and Eritrean women compared to their also comparatively successful male counterparts.

To summarize, our exploratory analysis of the employment situation of refugees in Sweden is overall illustrative of the global and Swedish literature on the labour market integration of humanitarian migrants. In line with this literature, we have shown that refugees have lower employment rates than other migrants. However, in Sweden this gap has decreased over the past 15 years. We have also shown that the employment situation of humanitarian migrants improves with time elapsed in the country. Moreover, significant differences are found among source country groups and the employment outcomes of some of them (like the Ethiopians and Eritreans, especially among women) get very close to those of natives. However, they never catch up with them.

8.5 Concluding Remarks

This chapter provides an overview of the labour market integration of humanitarian migrants in receiving countries in the OECD, with a particular focus on Europe and the case of Sweden. The current evidence shows that humanitarian migrants have slower employment integration and relative earnings assimilation compared to both natives and labour migrants in these receiving countries. However, over time also humanitarian migrants show improved adaptation and dependent on the receiving country as well as the country of origin, including individual demographic and socio-economic characteristics, show rather different integration pathways. Several factors emerge that are specific to processes of labour market integration among refugees, holding implications for both policy evaluation and migration research:

- First, a number of countries have taken policy initiatives to enhance the integration of refugees in different segments of society and especially the labour market. In this chapter we have presented the case of Sweden. Since refugees not primarily move for labour market reasons, future housing (dispersal), language and labour market policies should be more tailored towards this category of immigrants to increase effectiveness in integration.
- Second, being a forced migrant does in the majority of cases implies that these individuals have suffered from harm in the home country, during the migration route and even during the asylum process. Harm could be both physical as well as

mental. Refugee health issues should be detected in an early stage as possible and be adequately addressed by policies and health institutions to increase integration of refugees in host societies.

- Third, with the Nordic countries as the exception, the lack of large longitudinal individual level-based statistical information on refugees does that it is difficult to understand the long-term integration process of refugees compared to other migrant categories. Moreover, based on this, reliable and representative survey information, also for smaller refugee groups, can be used to cover other integration issues not available in the longitudinal datasets. In short, more knowledge about refugee labour market integration is needed to discern general patterns in refugee labour market integration and which factors are explaining this process. This in turn would assist policymakers to design policies that support the integration of humanitarian migrants.

Acknowledgements A chapter prepared for the “Handbook on the Economic Geography of Cross-Border Migration”.

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Chapter 9

Cross-Border Labour Mobility in Europe: Migration Versus Commuting



Angela Parenti and Cristina Tealdi

9.1 Introduction

The high and persistent unemployment rates in most European countries, the growing economic imbalances and the widening social inequalities in the European Union (EU) have cast doubt on the EU's capacity to reach its goals of promoting stable economic growth as well as economic, social and territorial cohesion and solidarity. By operating as an adjustment and balancing mechanism, increased cross-border labour mobility can represent a viable approach to achieve inclusive growth within the EU, as emphasized by the Europe 2020 strategy.

Cross-border mobility is one of the pillars of the European integration and it is profoundly linked to the four fundamental freedoms set out in the Treaty of Rome: the free movement of people, capital, goods and services (Barslund and Busse 2016). The right to live, work and study anywhere in the EU territory through the freedom of movement of people can be considered one of the success stories of the European project. Although there might be important challenges and some degrees of scepticism, as per the case of Brexit, the freedom of movement continues to remain popular among the majority of European citizens. The Eurobarometer survey conducted in 2017 showed that, on average, 75% of respondents support the freedom of movement. Moreover, support for intra-EU mobility of EU citizens is steadily increasing from 2014 to 2017 in the majority of Member States, and even in the UK (Batsaikhan et al. 2018). Even though still low compared to inter-state mobility in the US, cross-border mobility in Europe is growing and developing into new shapes and forms. On

A. Parenti (✉)
Department of Economics, University of Pisa, Pisa, Italy
e-mail: angela.parenti@unipi.it

C. Tealdi
Edinburgh Business School, Department of Economics, Heriot-Watt University, Edinburgh, UK
e-mail: c.tealdi@hw.ac.uk

IZA Institute of Labour, Bonn, Germany

top of cross-border migration, cross-border commuting has increased considerably over the past decade and especially after the crisis: in 2016 1.4 million Europeans commuted across borders for work, increasing by 8% compared to 2015 (Fries-Tersch et al. 2018). On the other hand, the growing market for specialized and innovative services has pushed towards the diffusion of posted workers, who temporarily work in another country while remaining committed to their employer in the home country. The increased number of posted workers in recent years is evidence of an improved cross-border market integration of services in the European labour market (Mussche et al. 2018).

The benefits of cross-border labour mobility in all its forms have been proven to be numerous. From a micro-economic perspective, evidence shows that cross-border labour mobility rises the chances to find a job, it improves the workers' economic well-being, it reduces skills mismatch and it increases employment satisfaction. From a macroeconomic point of view, cross-border labour mobility is found to boost the demand for goods and services, and it has a positive impact on competitiveness and workers' productivity. From a European perspective, it favours the redistribution of jobs and workers across different European countries, generating a more efficient and integrated market, with positive effects on economic growth (Kahanec and Zimmerman 2010). While there is no strong evidence of a short-run large negative impact on the employment and wages of native workers, the labour market integration of mobile workers is not always smooth. Indeed, not everyone shares the perception that the benefits of labour mobility are substantial, and not everyone has a share in the benefits (Borjas 2014). Evidence shows that the effects of immigration are largely asymmetric across groups of individuals, with winners and losers in terms of wages, employment, housing, social benefits. However, in the context of EU mobility the losers are fewer than the winners (Ritzen and Kahanec 2017) and labour mobility may have reduced income inequality in receiving countries (Kahanec and Zimmermann 2014). At aggregate level, the positive externalities from labour mobility outweigh the negative externalities, with positive efficiency gains, which justify the objective of further boosting cross-border mobility with the long-term objective of developing a European Single Labour Market (Bonin et al. 2008). Nevertheless, large barriers to cross-border mobility in EU still exist, particularly in terms of lack of information on rights and opportunities, language differences, legal and administrative obstacles, recognition of professional qualifications, etc. Reducing these barriers is then a key priority for the EU in order to enhance the integration process. However, this comes with a non-trivial list of challenges and risks. While the freedom of movement is considered among the greatest achievements in modern history (Kahanec and Zimmermann 2016b), it is also the most controversial in this time of declining public support for labour mobility, as the recent surge of consensus among populist parties and anti-immigrant movements indicates. The severity of the 2009 economic crisis has fueled the fears that immigrants take jobs away from natives and put downward pressure on wages, that immigrants are a burden to the welfare state, that local cultures are declining and taken over by foreign ones and that local neighbourhoods are disappearing. All these forces drive the anti-immigrant sentiment across EU countries to high levels and undermine the pillars on which the EU and the free

movement of labour are built (Kahanec and Zimmermann 2016b). EU leaders are currently striving to handle the pressures between the push for a deeper economic integration as foreseen in the treaties, the preservation of the power to design the welfare state at national level and the presence of large economic disparities across Members. This ‘social trilemma’ is a great challenge that the EU is currently facing, and the outcome of this debate will surely shape the future of the EU as we know it. Nevertheless, this conversation is emerging in a time in which the need for increased intra-EU mobility is more urgent than ever. By operating like a balancing and harmonizing force between countries, cross-border mobility can actually be the solution, and not the problem, to the difficulties that the EU is currently facing.

This chapter is organized as follows. In Sect. 9.2 we review the policies that have been implemented to increase internal and external mobility, in Sect. 9.3 we describe the taxonomy of different types of cross-border workers, while in Sect. 9.4 we provide some statistics about cross-border mobility in Europe. In Sect. 9.5 we review the empirical and theoretical literature on the benefits and determinants of cross-border migration and commuting, and in Sect. 9.6 we conclude the paper by describing the challenges and risks of cross-border mobility and advancing some policy recommendations.

9.2 Policies Implemented for Internal and External Mobility

The two core policies that have been implemented in the EU to stimulate labour mobility are the free movement of people and the Schengen agreement. While the first is one of the four principles on which the EU is based and it provides European individuals with the right to work in any other EU country without restrictions, the second one eliminates borders among countries which are members of the Schengen area, by abolishing border checks at the signatories’ common borders and introducing a harmonized system of visa policies. These two measures can be thought as two complementary policies, that are effective particularly when they are implemented simultaneously. In fact, the opening of the borders promoted by the Schengen agreement represents the concrete implementation of the freedom of movement which is at the basis of the Single Market (Parenti and Tealdi 2018).

9.2.1 Free Movement Principle

The freedom of movement of persons is a keystone of the EU since the Treaty of Maastricht of 1992. By introducing the right of EU citizenship to be retained automatically by every national of a Member State, it allows for the freedom of individuals to move and reside naturally within the territory of the Member States.

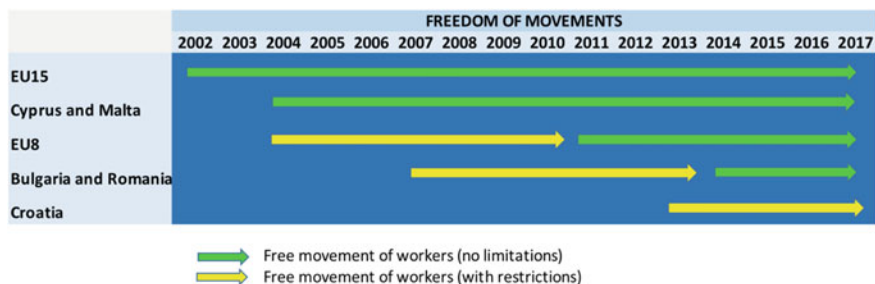


Fig. 9.1 Timeline of freedom of movements for EU workers

This includes the rights of movement and residence for workers, the rights of entry and residence for family members and the right to work in another Member State. The 2009 Lisbon Treaty by confirming this right, also contributed on making the EU an area of freedom, security and justice without internal frontiers, where the free movement of people is guaranteed and appropriate measures with respect to external border controls are implemented. The EU free movement laws identify the intra-EU migration as part of the European Single Market; mobile EU citizens formally have the same rights and duties as native citizens in the Member State of destination, and they should not be treated differently. In contrast, immigrants from extra EU countries need to fulfil specific requirements before being allowed to get access to work in the EU, and their rights depend on the type of residence permit granted.

Restrictions on the free movement of workers may apply to workers from EU member countries for a transitional period of up to 7 years after they join the EU. This was the case for the eight countries that joined the EU in 2004 (Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia and Slovenia) and the two countries that joined the EU in 2007 (Romania and Bulgaria) due to concerns of mass migration from the new members to the old EU-15. Restrictions are currently still in place for workers from Croatia (Fig. 9.1).

9.2.2 *The Schengen Agreement*

The key milestone in establishing an internal market with free movement of persons is the implementation of the Schengen Agreement in 1995, which abolished passport and all other types of border controls among participating countries by establishing a common external border and reinforcing control measures. The Schengen Agreement was signed in 1985 by five countries: France, Germany, Belgium, Luxembourg and the Netherlands. Currently, the Schengen Area consists of 26 countries: 22 out of the 28 EU Member States and the four EFTA countries (Iceland, Liechtenstein, Norway and Switzerland). Of the six EU members that are not part of the Schengen Area, Cyprus, Bulgaria, Romania and Croatia are legally obliged to join the area, while

Ireland and UK opted out (Figs. 9.2 and 9.3). The Schengen Agreement entails the removal of police and custom procedures at the interior borders, the tightening of external border controls, a common visa policy for short stays, the cooperation and coordination in criminal and judicial matters and the establishment and development of the Schengen Information System (SIS), which allows states to exchange data on suspected criminals, on people who may not have the right to enter into or stay in the EU, on missing persons, and on stolen, misappropriated or lost property. The abolition of border controls affected positively the EU Member States in numerous ways and has proved to be highly beneficial for EU citizens. Cross-border commuters, in particular, benefited the most from the absence of border controls (Ademmer et al. 2015; Parenti and Tealdi 2018): commuting time was significantly reduced given that vehicles could cross internal EU borders without stopping and away from fixed checkpoints (European Commission 2016).

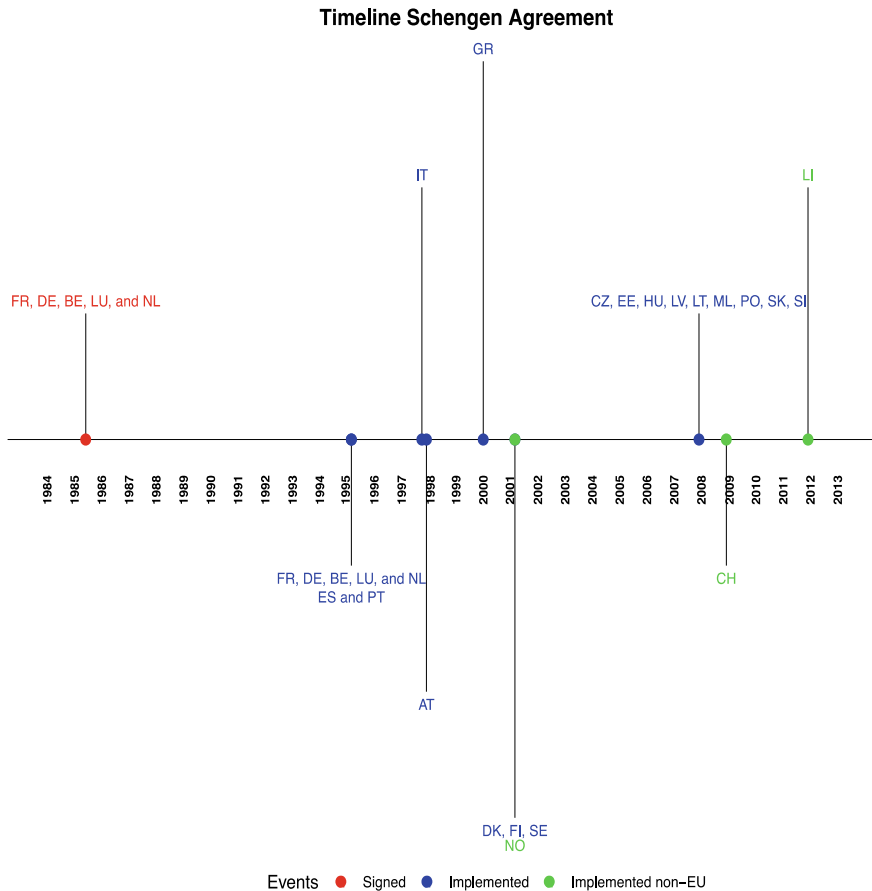


Fig. 9.2 Timeline of Schengen agreement

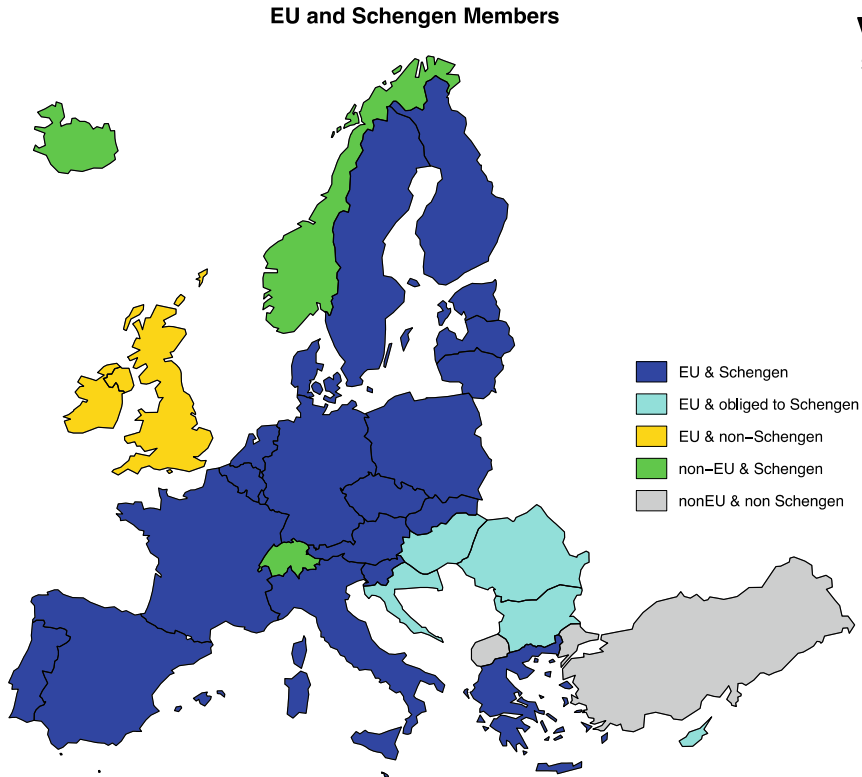


Fig. 9.3 Map of Schengen area

While the Schengen area is widely looked upon as one of the greatest achievements of the EU, it has been recently put under pressure by the massive influx of refugees and migrants and by terrorist attacks. Starting from September 2015, a number of Member States have temporarily reintroduced border checks. Several studies have tried to quantify the potential cost of reintroducing permanent border controls (EPRS 2016; France Strategie 2013, 2016), showing that this would significantly affect the quality of life of almost 1.7 million workers who cross-commute every day across internal EU borders.

9.3 Taxonomy of Different Types of Cross-Border Mobility

The definition of cross-border labour mobility refers to the flows of workers moving across national borders within Europe. While conventionally when we refer to cross-border labour mobility we have in mind *cross-border migrants* (mobile workers), there are other forms and shapes of cross-border mobility which are actually evolving

quite fast, such as cross-border commuters and posted workers. In the EU, *cross-border migrants* are workers who establish their usual residence in the territory of a Member State for a period of at least 12 months, having previously been residents of another Member State or a third country. *Cross-border commuters* are instead characterized on the basis of two criteria, a political and a temporal one. Based on these principles, cross-border commuters are workers (employed and self-employed) who work within the territory of a Member State while residing in another (neighbouring) Member State (political criterion) and return to their main place of residence abroad at least once a week (temporal criterion). While cross-border migrants face a much more fundamental decision, which affects the change of both workplace and residence, and as such migration is undertaken few times during a whole working life, for cross-border commuters the decision is somewhat less complex as the place of residence is unaffected.

As a consequence of the expansion of the service sector, with the diffusion of specialized and innovative services, which require the presence of specialized workers in situ, a new type of cross-border workers has emerged: posted workers. *Posted workers* are EU citizens with an employment contract in their home country, who are temporarily posted to a host EU country by their employer who provides a certain service. Posted workers have regular employment relationships in the usual country of work and maintain these employment relationships during the period of posting, hence they do not integrate in the labour market of the host country. The increasing number of posted workers across the EU signals the tighter integration among EU countries for what concerns the service sector, which according to the empirical evidence has had a positive impact on economic growth.

9.4 Overview of European Cross-Border Labour Mobility

The cross-border mobility of EU citizens remains low and well below inter-state mobility within the United States and other large countries, both in terms of cross-border migration and cross-border commuting, as well as in terms of posted workers.

9.4.1 Cross-Country Migrants

In 2016, approximately 11.8 million EU-28 citizens of working age (20–64 years) were living in an EU Member State other than their country of citizenship, making up 3.9% of the total working age population across the EU-28 (Table 9.1). Of those, 9.1 million were active on the labour market (either employed or unemployed), corresponding to approximately 4% of the total EU-28 labour force. The majority of movers lived in Germany and the United Kingdom (UK) (almost 50%), with Germany acquiring considerable importance as a destination country (Fig. 9.4). Italy, Spain and France hosted an additional third of EU-28 movers. Italy and Spain however have not

Table 9.1 Composition of intra-EU mobility by different types, EU-28 citizens in the EU-28, 2016

Type of mobility	Extent
EU-28 movers of working age (20–64 years) living in EU-28	11.8 million
Share of EU-28 movers of working age on the total EU-28 working age population	3.9%
EU-28 <i>active</i> movers of working age living in EU-28	9.1 million
Share of EU-28 <i>active</i> movers of working age living in EU-28 on the total EU-28 labour force	4%
Cross-border workers (20–64 years)	1.4 million
Share of cross-border workers (20–64 years) on total EU-28 employed workers	0.6%
Number of postings	2.3 million

Source 2017 annual report on intra-EU labour mobility, Fries-Tersch et al. (2018)

redeemed their attractiveness from the time before the crisis: inflows to Italy in 2016 were only half of the size compared to 2009 while Spain had an overall negative net mobility of EU-28 nationals (Fries-Tersch et al. 2018). Other important destination countries were Belgium, Austria, the Netherlands and Sweden. Among the countries which joined the EU between 2004 and 2013 (i.e. Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia, Slovenia, Bulgaria, Romania and Croatia) Poland and Czech Republic were the primary destinations.

Luxembourg, Cyprus, Ireland, Belgium and Austria were the countries with the highest proportion of EU-28 movers compared to the overall population in 2016 (Fig. 9.5). With respect to the countries of origin, around half of all movers across the EU-28 Member States were Romanian, Polish, Italian and Portuguese (Fries-Tersch et al. 2018). When looking at non EU-28 immigrants, the picture is rather different as Italy and France seem to be the most chosen host countries, followed by Spain and the UK (Fig. 9.4).

Even though the most commonly presented figure on mobility relates to the stock of people living in an EU country different from their country of birth, the annual flow, i.e. the share of people moving every year from one country to another, is also an informative measure. In Europe the flow of EU-28 cross-border migrants is only one tenth of the stock, at 0.3%. Luxembourg is by far the country with the highest inflow of EU-28 cross-border migrants, followed by Austria, Belgium, Czech Republic and the UK. When compared to the US where 3% of the population move to another state each year, EU rates appear significantly low.

Moreover, in Europe labour mobility is not equally distributed: Eastern European countries have been the major sending countries since they joined the EU, while only 7% of EU mobile citizens reside in Eastern Europe, which corresponds roughly to 1% of the Eastern European population (Barslund and Busse 2016). Finally, while for the new Member States, mobility rates from EU-15 countries show an increasing trend, the mobility rates within EU-15 countries are relatively stable.

The eastern enlargements of the EU in 2004, 2007 and 2013 increased the potential for East–West mobility within the EU, with Germany and the UK being the main destination countries. Some exceptions are represented by the Romanians who

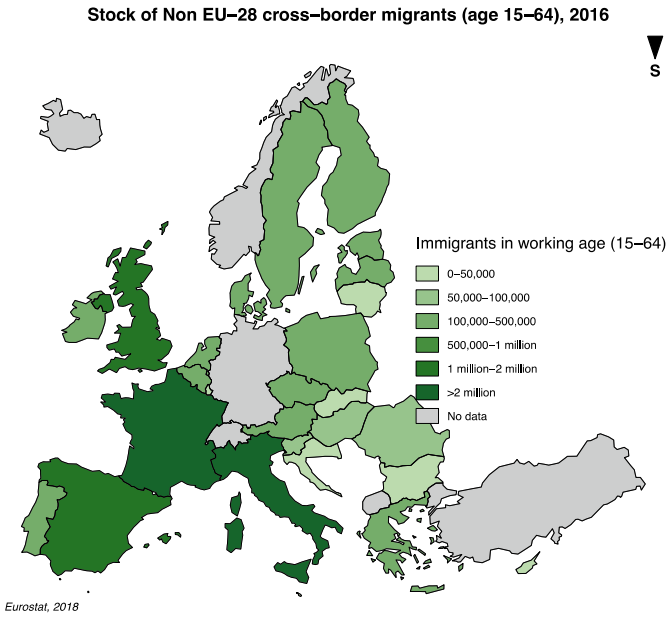
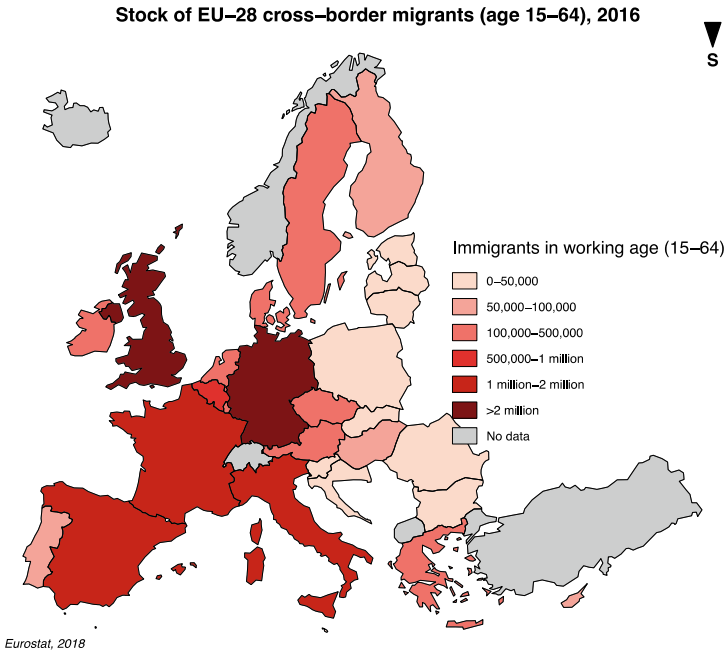


Fig. 9.4 Stock of EU-28 and non EU-28 working age cross-border migrants in Europe by country (2016)

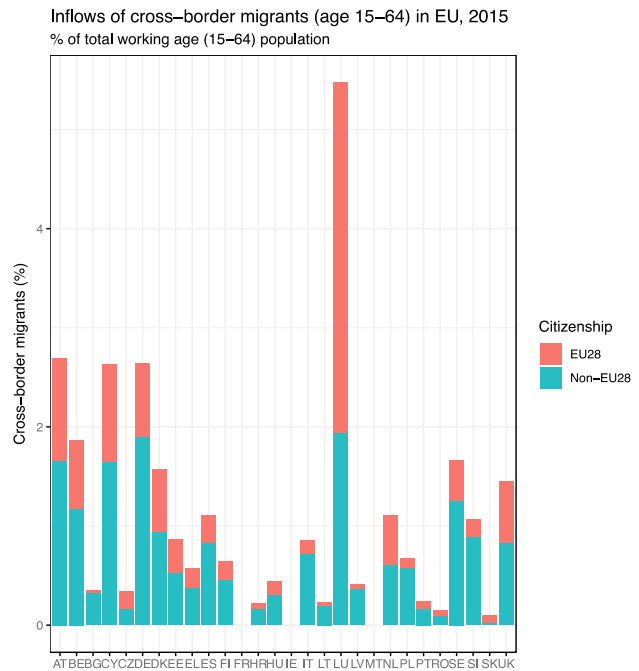
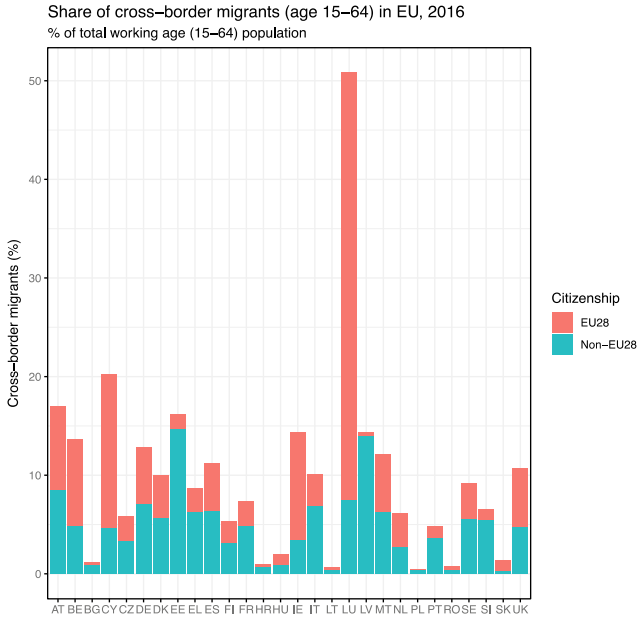


Fig. 9.5 Stock and flow of EU-28 working age cross-border migrants in Europe (2016 and 2015 respectively)

preferred to move to Italy and Spain, while the majority of Estonians moved to Finland because of geographical closeness and cultural similarity. Austria is the second most important destination country for mobile individuals from Croatia and Slovenia, with which they share the border, and the third most important destination for Hungarians. France instead seems to be one of the least chosen destination.

The economic crisis played an important role in reshaping the migration flows in the EU. First, by significantly shrinking the labour market opportunities and the attractiveness of some key Southern destination countries, such as Italy and Spain, the crisis reduced the cross-border mobility from the East to the West. Moreover, the strong contraction of GDP and employment of about 10–20% points in Latvia and Lithuania lead to a massive exodus of people (Darvas 2013). As a result, the population of these two countries dropped by more than 10% during the period 2008–2012. On the other hand, while from 2000 to 2012, migration from Southern (Greece, Italy, Portugal and Spain) to Northern and Western EU countries showed a declining trend, after 2013 an increasingly large number of citizens of Southern European countries, which were severely hit by the crisis, moved to economically healthier Northern EU countries. Some studies have discussed about a shift in mobility patterns from East–West to South–North (Fries-Tersch and Mabilia 2015; Barslung and Busse 2014), as a consequence of the economic crisis. However, the East–West flows continue to be much larger in terms of number of people, and as a share of source-country population.

9.4.2 Cross-Border Commuters

The number of cross-border workers in 2016 was much smaller compared to the number of cross-border migrants and close to 1.4 million, accounting for 0.6% of the EU-28 employed population. The share of cross-border commuters on the total number of employed workers in the EU-28 in 2016 was 0.9%, which is rather small compared to the share of employed EU-28 movers which was over five times higher, at 4.1% (Fries-Tersch et al. 2018). However, cross-border commuting has increased considerably over the past decade (Fig. 9.6) and especially after the crisis. In 2016 cross-border commuters as a share of total employment were more than three times higher than in 2007 in Hungary and Denmark, and more than two times higher than in 2007 in Bulgaria, Czech Republic, Ireland, Latvia, Luxembourg, Poland, Romania and Slovenia. Only in few countries (Lithuania, Slovakia, Sweden and UK) the share of cross-border commuters in 2016 was lower compared to 2007.

The total number of EU-28 cross-border commuters working in another EU-28 country in 2016 was 1.4 million, approximately 8% higher compared to 2015 (Fries-Tersch et al. 2018). Of these, the great majority (94%) were employed in an EU-15 Member State, while the remaining 6% in EU-13 countries. Roughly 50% of the cross-border workers were residing in EU-15 Member States (around 688,000) and 50% in EU-13 Member States (around 694,000). The main destination countries were Switzerland and Germany (around 22% and 21% respectively), followed by

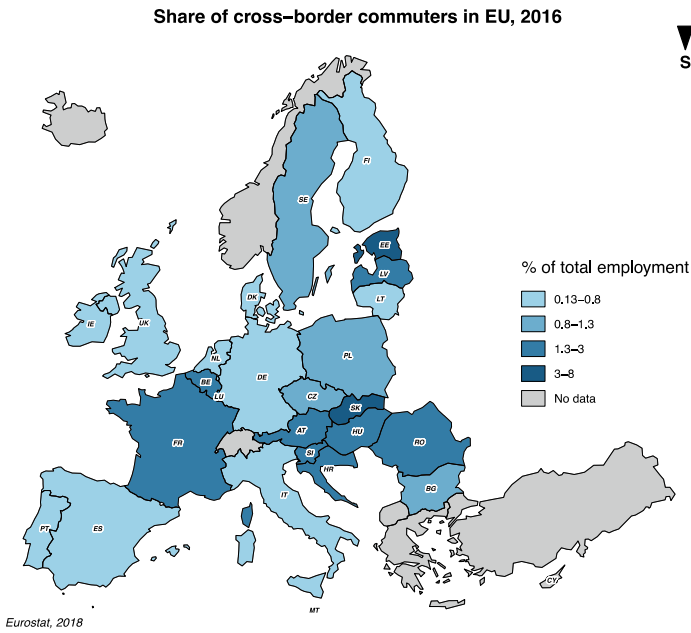
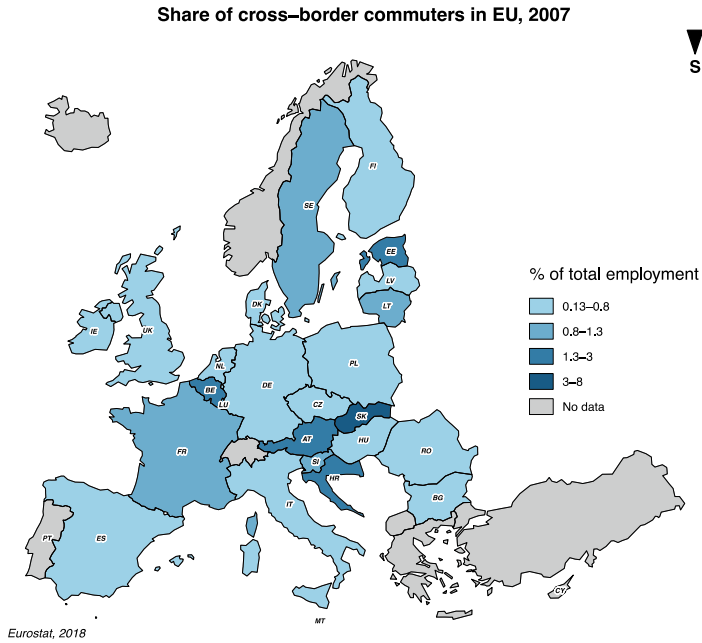


Fig. 9.6 Share of EU-28 working age cross-border commuters in Europe (2007 and 2016)

Luxembourg (9%), Austria (9%), UK (6%) and the Netherlands (6%). The majority of cross-border commuters to Switzerland travelled from France (56%), Germany (21%) and Italy (17%). Cross-border commuters working in Germany primarily resided in Poland (28%), Romania, Bulgaria and Czech Republic (each 9%), while those working in Luxembourg travelled from France (50%), Germany (26%) and Belgium (24%). Finally, of the cross-border commuters to Austria, the largest group resided in Hungary (31%), followed by Slovakia (30%) and Germany (17%).

The share of cross-border commuters on total employment in 2015 was higher for national workers (around 1.2% on average) than for immigrants (around 0.7% on average), with the exception of Finland, Luxembourg, Malta and Slovenia (with 1.2%, 9.6%, 2.1% and 3.1% of immigrant cross-border commuters, respectively). Most of the immigrants residing in Austria (0.5%), Belgium (1.4%), Luxembourg (8.7%) and Malta (2.1%) and working in another EU-28 country were EU-28 citizens, while the majority of those commuting from Finland (0.9%), Latvia (0.2%) and Slovenia (2.7%) had a non EU-28 citizenship (Fig. 9.7). From the perspective of the country of origin, Fig. 9.8 provides a direct comparison between the number of nationals who reside in their country of origin and work in another Member State or EFTA country (cross-border commuters) and the number of nationals who reside and work in another Member State or EFTA country (cross-border migrants). Across all EU-28 countries, the shares of cross-border commuters are much lower than the shares of cross-border migrants, few exceptions being Slovakia, Estonia and Hungary, where the share of cross-border commuters is higher than 2%. Slovakia makes an interesting case as it is the only EU-28 country where the share of cross-border commuters almost equals the share of cross-border migrants (approximately 6%).

9.4.3 Posted Workers

Posted workers in the EU increased in absolute terms from 1.05 million in 2010 to 2.3 million in 2016. Around 55% of the posting originated in old Member States (EU-15), of which over 80% stay within the EU-15. Conversely, postings from the new Member States (EU-13) were almost exclusively targeted at the old Member States. Posting is concentrated among few countries: Poland (22.8%), Germany (11.7%) and France (6.9%) are the largest sending countries in absolute terms, while Germany (28%), France (11.9%) and Belgium (10.5%) are the main destination countries. On the other hand, Luxembourg (24.7%) and Slovenia (14.2%) have the highest shares of sent posted workers on total domestic employment. From the receiving countries' perspective, Luxembourg (9%), Belgium (3.8%) and Austria (2.5%) have the highest shares of posted workers relative to domestic employment (Batsaikhan et al. 2018). The dominant sector for posted workers is construction, which accounts for about 42% of total postings, but there are major differences between EU countries. Non-construction industry, finance, and education and social work also account for

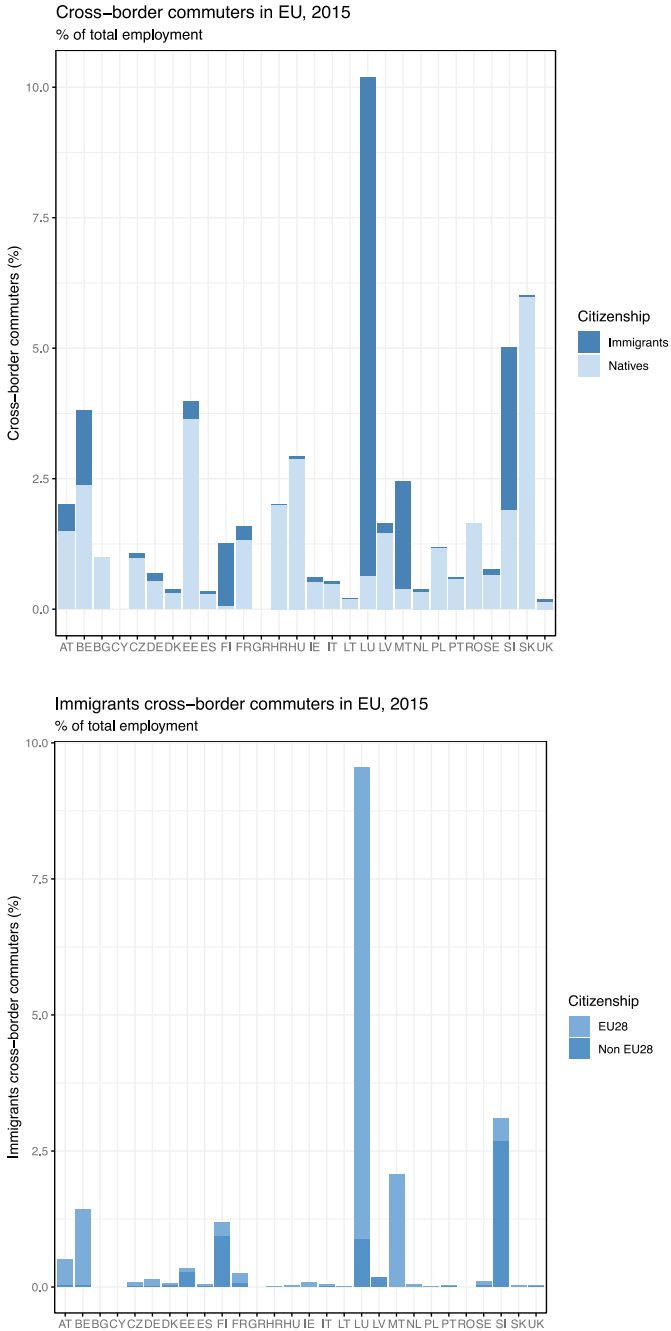


Fig. 9.7 Cross-border commuters in Europe by citizenship (Source EU-LFS 2015)

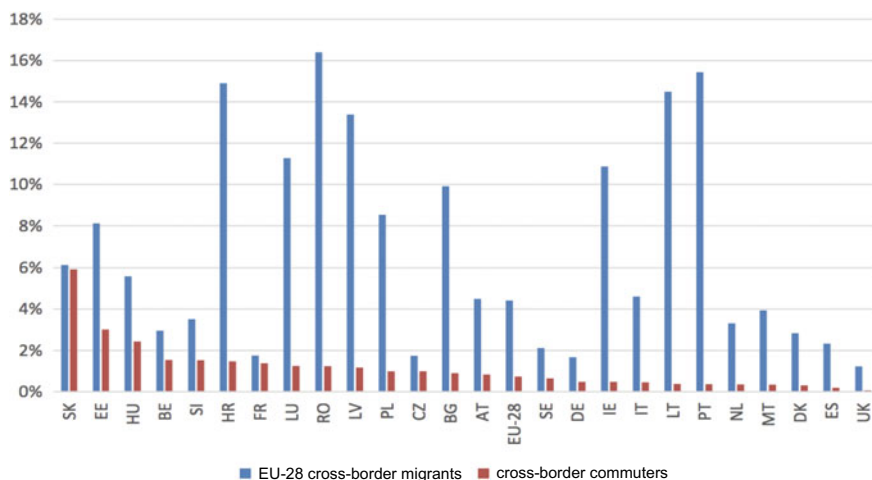


Fig. 9.8 Share of EU-28 cross-border migrants and cross-border commuters from all employed nationals of country of origin, by country of origin citizenship, age 20–64 (*Data Source* Fries-Tersch et al. 2018)

relatively large shares. The average duration of a posting is only 98 days, so in full-time-equivalent terms, the share of posted workers in total employment is only 0.4% (Darvas 2017).

9.5 Review of the Theoretical and Empirical Literature

9.5.1 Benefits and Costs of Cross-Border Labour Mobility

The emergence of cross-border labour markets has led to the surge of a number of studies on cross-border labour mobility over the past decades. Most researchers agree that the increase in the numbers of cross-border workers has to be attributed to the EU establishment (Zimmermann 2014). The implementation of the Maastricht Treaty in 1992, according to which all Member State citizens are entitled to unrestricted mobility within the EU (Mau and Verwiebe 2010) represented the real turning point for cross-border mobility. The free movement of people (see Sect. 9.2) indeed is one of the core principles of the EU and it is based on the assumption that borders are barriers to cross-border interaction and their removal is a fundamental step to increase labour mobility. Hence, for the EU-28 as a whole, cross-border labour mobility is likely to offer many advantages, by increasing the possibility of finding employment, by improving economic well-being, by raising motivation and employment satisfaction, by promoting a more efficient matching of workers' skills with job vacancies, by increasing competitiveness and stimulating the general upskilling of European

workforces. Moreover, cross-border labour mobility may also inhibit the problems associated with social exclusion due to unemployment and may increase the working age population, the demand for goods and services and raise the productivity of the average worker. Given that the mobility of capital and goods in integrated economies is not sufficient to achieve convergence of employment and real wages, the mobility of labour may work as a balancing mechanism between labour markets and lead to more equalized labour market outcomes (Bonin et al. 2008). In general, geographic mobility has the key positive effect of stimulating economic development in countries with labour shortages while increasing wealth in countries with a labour surplus. As a matter of facts, unemployment rates across EU-28 are largely unbalanced: for instance, Spain's unemployment rate is more than three times larger than the unemployment rate of Germany (Eurostat 2018, September). Hence, due to the fact that high unemployment rates are partially attributed to the lack of available jobs, cross-border labour mobility might stimulate the redistribution of jobs and workers in the EU, leading to a more balanced and integrated market. Moreover, wage differences across Member States are also very large, particularly between new Member States and the EU-15 countries (Barslund and Busse 2016). Hence, promoting cross-border mobility may lead to the creation of more efficient labour markets, with positive effects on the returns to human capital formation, thus generating more incentives to invest in education, with a significant impact on economic growth (Batsaikhan et al. 2018). From a macro perspective, cross-border labour mobility may also represent an important adjustment mechanism within European Monetary Union (EMU): as Member States in the EMU are constrained by the lack of country-specific monetary and exchange rate policies, they could use human capital mobility to re-equilibrate national labour markets in case of economic fluctuations and asymmetric shocks (Heinz and Ward-Warmedinger 2006).

Looking at the potential costs, a frequent argument in the debate about migration based on the standard neo-classical model (Borjas 1995) is that it increases competition in national labour markets, puts downward pressure on wages in the short-run, and hence reduces the well-being of the native population. However, we agree with Borjas (1999) when he noted that other forces that are usually not modelled in the regression equations could play a large role: the growth in local demand due to immigrant expenditures, the inflow of capital in response to the increase in local demand and the rise in the rate of return to capital, outward migration of natives, a local reallocation of resources across sectors, the adjustment of international trade and the real wage growth of natives due to technological change and economies of scale (Münz et al. 2006; Baas et al. 2009). In the literature, there is consensus on the lack of conclusive evidence that immigrants systematically take jobs from natives or depress their wages (Peri 2014). Nevertheless, the impact of immigration on the host country's labour market seems to largely depend on two interrelated factors: the migrant characteristics and the host country's economic and institutional factors (Devlin et al. 2014). Immigrant characteristics determine to what extent the education and skills of immigrants are substitutes for, or complements to, those of the natives (Manacorda et al. 2012; Dustmann et al. 2005a, b; Card 2009; Ottaviano and Peri 2012): the so-called labour market assimilation process. Some empirical works find evidence of

a negative impact of immigration on native wages (Borjas 2003; Dustmann et al. 2013, 2017), while others find no effect (Ottaviano and Peri 2012; Peri and Sparber 2009). There is also some evidence of increases in wages for select groups of natives due to cross-border commuting (Beerli and Peri 2015). A recent survey of the main findings points to the fact that on average the effect of immigration on wages is close to zero (Peri 2014). However, particularly among cross-border migrants, working in jobs below their formal level of qualification remains a widespread phenomenon (Kahanec 2013), known as downgrading, which has been particularly severe after the EU eastern enlargements (Kahanec and Zimmermann 2016a). The second set of features which relate to the host country's institutional and macroeconomic setting, include factors, such as the unemployment level, the strength of the unions, the wage rigidities and the size of the informal economy.

Another common widespread fear is that immigration may become a burden to the welfare state in case the labour market of the host country is not able to absorb the migrant workers, or in case of increased unemployment among the native population (Bonin et al. 2008). Specifically, migration from Eastern Europe (EU-13) can have negative effects on the economies of the receiving EU-15 countries, in a scenario in which migrants choose their destination on the basis of the generosity of welfare: in such situation the potential benefits of acquiring a more mobile labour force will be lost and the higher social expenditure costs would be unevenly distributed, adding the burden on countries where the financial pressure on welfare is already high. The 2004 and 2007 enlargements which involved countries with younger and growing populations, could have on one side lightened the financial pressure of many countries' public pension systems, however as there is evidence that migrants use the public welfare system relatively more than native citizens (Boeri and Brücker 2001), they may have also put at risk its sustainability (De Giorgi and Pellizzari 2006). However, existing evidence for the case of mobile workers originating from Eastern European countries points to the fact that the generosity of welfare provisions in receiving countries did not play a significant or systematic role as a pull factor (Giulietti et al. 2013; Giulietti 2014).

From a social perspective, while the successful integration of cross-border migrants may stimulate socio-cultural integration in the EU, and strengthen the European identity, by celebrating cultural and ethnical diversity, a difficult integration, the decline of local cultures, and the change of local neighbourhoods may lead to social tension, and this is one of the crucial social challenges the EU-28 countries need to face. From a demographic perspective, cross-border mobility within the EU-28 is not enough to mitigate the impact of ageing and population decline. Hence, trying to promote migration in order to counterbalance the low fertility rates would probably be a zero-sum game due to the rapid ageing process which is affecting all European countries (Bonin et al. 2008).

Finally, while these negative costs may arise in receiving countries, sending countries may suffer from "brain drain" in case of permanent out-migration of highly productive and highly educated individuals, the so-called positive selection of migrants, hindering long-term economic growth. The concerns related to the negative impact of brain drain are particularly relevant in circumstances in which the income

differentials between destination and origin countries are large, such as the Eastern European new Member States as well as underdeveloped regions in Southern European countries such as Spain and Italy. Moreover, while after the EU Eastern enlargement labour mobility helped sending countries reduce unemployment rates and increase wage levels especially in sectors with the highest out-migration rates (Elsner 2013), some sectors also experienced labour shortages as a result (Zaiceva 2014).

In summary, many are the positive externalities of cross-border mobility which mainly originate from positive growth effects of the free movement of labour which reduces labour market imbalances, improves skill matches in an integrated market, stimulates higher investments into education and promotes a higher level of innovation and entrepreneurship. These positive externalities at aggregate level seem to outweigh the negative externalities, with overall positive efficiency gains (Bonin et al. 2008). However, the effects of immigration are largely asymmetric across groups of individuals, with winners and losers in terms of wages, employment, housing, social benefits. If the social welfare is assessed with no regards to the distribution of income, then the gains of migration are enough to say that labour movements are socially beneficial (Dustman and Preston 2018). However, if the social welfare is sensitive to distribution, we believe that redistributive policies need to be implemented to reallocate the immigration gains across citizens from those who benefit the most to those who are penalized. This is a fundamental step to prevent the further diffusion of the anti-immigration sentiment, which may lead to the beginning of a reverse process, which may culminate with the termination of the free movement of labour in EU.

9.5.2 Determinants of Cross-Border Migration

Which are the factors that push people to migrate across countries? The main causes of migration, according to the classical literature, are economic in nature. The push-and-pull model has been for many years regarded as the theoretical framework to explain the migration phenomenon (Lee 1966). The ‘classic approach’ to migration builds on the assumption that the major reasons for migration are to be found in the economy. In the push-and-pull model, it is commonly assumed that migrants follow the principle of economic rationalism, and respond to push-and-pull factors, such as the situation in the employment market and the expected individual income, which in theory are insufficient in the migrants’ country of origin and more appealing in the countries of destination (Stark 1993; Stark and Bloom 1985; Todaro 1986). The economic gains from migration are perceived mainly as differences in wages, in working conditions or available social benefits. Much of migration to the United States, Canada, and Australia and the intra-European migration between Mediterranean countries (e.g. Italy, Greece, Turkey) and highly industrialized countries in Central Europe (e.g. Belgium, Germany, France) in the second half of the twentieth century empirically corresponds to these model representations.

Only starting from the mid-1990s, the research on migration shifted its focus towards cross-border migration, relating it to global economic processes (Faist 2000;

Goldring 1997; Levitt et al. 2003; Pries 2001; Vertovec 1999). Within this broader context, mobility decisions are not only determined by differences in employment opportunities or wages, but are also associated with the process of globalization, which embraces economic, cultural, political and social spheres (Pries 2001) and are related to other more intangible or 'soft' factors. As a matter of facts, as more recent research indicates, migration is no longer solely defined by the permanent relocation of the main residence: the beginning of the twenty-first century has witnessed a diversification of the different patterns and forms of migration. In some studies, indeed, cross-border mobility within the EU has been found to be only weakly related to regional employment rates (Heinz and Ward-Warmedinger 2006). It has also been suggested that economic differentials play only a minor role in influencing migration patterns while individual and household-related factors are the most important determinants to mobility (Bonin et al. 2008; Paci et al. 2010). Survey results also show that mobility decisions are not generally driven by the expectation of better welfare or public services in the destination country (Bonin et al. 2008; Heinz and Ward-Warmedinger 2006; Paci et al. 2010). There are many factors that affect the decision to migrate and these can be classified into micro, meso and macro levels (Friberg 2013). The micro level relates to individual characteristics such as education and skills, employment situation, income level, income security, social status and family status, which are part of the economic and social spheres that affect the mobility decision. Empirical evidence shows that young people are more mobile than older people, men are more mobile than women, unmarried people without children are more mobile than families, high-skilled people are more mobile than the low-skilled, the unemployed are more mobile than the employed, and, finally, people who have moved in the past tend to be more mobile than others (Paci et al. 2010). The meso level includes social and cultural determinants of mobility such as cross-border social and family networks, migrant community formation, labour recruitment systems, labour market duality and employment niche formation. Finally, macro level characteristics include economic and political factors, such as income differentials, economic cycles, unemployment levels, labour market regulation, welfare policy and social rights and immigration policies. Heitmueller (2005) and Dustmann et al. (2017) also consider the effects of individual risk attitudes on migration decisions, while Burda (1993, 1995) examines the effect of uncertainty and 'the option value of waiting' on the migration behaviour.

The importance of cultural relations is also at the centre of the recent literature on networks. The literature often assumes that common origins, shared communities and family ties are the bases for the creation of migrant networks and the development of path dependence. The presence of a national community in the country of destination could act as a pull factor (Carrington et al. 1996; Castles 2002) by easing the immigration of their national counterparts. Previously migrated nationals could provide information about job opportunities, social values, etc., and also they could act as a substitute to the social network in the country of origin. Several empirical studies find supporting evidence for the existence of network effects (Mayda 2010; Pedersen et al. 2008). However, it is important to keep in mind that on one side workers living in the same region are likely to share similar characteristics and restrictions affecting the

decision to migrate. Second, the migration decision of one or more family members often involves the whole household, as part of a livelihood strategy and not just individuals (White 2016). Hence, the migration decision of the households will be correlated, even without network effects (Belot and Ederveen 2012).

Nevertheless, income differences and labour market outcomes continue to be regarded as important determinants of mobility decisions for workers moving from the new to the old EU Member States. In particular, existing wage gaps remain substantial drivers of migration from the new Member States to the EU-15 countries. According to the Special Eurobarometer on geographic and labour market mobility (EC 2010), the motivations to work abroad for Europeans living in the new Member States are mostly economic, while the mobility decision of citizens of EU-15 countries is more likely to be based on lifestyle and cultural factors or amenities. In addition, unemployment remains an important factor motivating mobility for many Europeans and almost half of the EU's population would consider leaving their regions or countries if they were unemployed. However, at the same time, 28% of Europeans are not interested in working abroad no matter how high the wages offered (EC 2010; OECD 2012).

Focusing on the individual characteristics of the movers, it is imperative to cite the important contribution of Roy (1951) in explaining the self-selection of workers. The Roy model, which has been applied by Borjas (1987) and others to the context of international migration, has become quite popular to analyse the composition of workers, specifically in terms of skills, in international migration flows. In this model, migrants self-select both in terms of innate ability and measurable human capital. For instance, positive self-selection in terms of innate ability occurs among migrants who move from countries with a narrow income distribution to a wider one as well as in host countries in which investment in education secures a higher return. Stark (1996) instead stresses the importance of information asymmetry between immigrant workers and host country employers in explaining the skill levels of migrants. The empirical literature on the topic provides evidence that movers to the EU-12 countries differ in many respects from the movers to the EU-15, especially citizens from another EU-15 country. In particular, movers from the EU-12 countries to the EU-15 are mainly low-skilled, particularly among the young; in contrast, movers from another EU-15 country are on average older and more educated. Movers from EU-15 country to the EU-12 tend to be older, mostly males and inactive; in contrast, EU-12 movers in another EU-12 country are younger (50% are between 25 and 34 years old), with higher employment rates compared to the EU-15 citizens (Bonin et al. 2008; Paci et al. 2010).

9.5.3 Determinants of Cross-Border Commuting

Why do people commute across borders? In the literature on international labour mobility, commuting has been completely overlooked (Borjas 1999). While there exists a rich theoretical literature on the determinants of commuting, it is mostly

focused on commuting within country (e.g. van Ommeren 1997; Rouwendal 1994; Rouwendal and Meijer 2001), using different modelling strategies (e.g. gravity models and search models) to rationalize the commuting decision and explain the commuting patterns observed in the data. The empirical literature emphasizes the importance of economic factors for the commuting decision such as wage differences and housing costs, the amenities of the place of residence, but also household characteristics such as partnership, children and the employment situation of the partner and individual characteristics such as gender and age (van Ommeren 1997; Clark et al. 2003; Rouwendal 1999; Van Ommeren et al. 1997; Parenti and Tealdi 2019). These authors acknowledge the role of borders as potential obstacles to labour mobility, which on top of the costs arising from distance in every spatial interaction, inhibit the transfer of activities and create spatial discontinuities in economic structures (Van Houtum 1998). Several microeconomics factors such as gender, education, language skills, mental barriers, level of information, contacts have an impact on whether individuals overcome these obstacles and become cross-border commuters (Janssen 1999). Evidence shows that women tend to be less mobile because they are more frequently on part-time jobs, which increase the commuting costs per working hour and induce a reduction of the commuting distance, and because of their responsibilities within the household (Rouwendal 1999). Van Ommeren et al. (1997), Hazans (2003) and Rouwendal (1999) show empirically that commuting distances increase with the educational level of individuals. The existence of a partner and the presence of children are found to have a negative influence on cross-border commuting since individuals who are restricted by the preferences and workplace of their partner and by the commitments towards the children are less mobile (Janssen 1999). The influence of the employment sector on cross-border commuting depends on the economic structure of the involved regions (Hansen and Nahrstedt 2000). Living close to a border creates strong incentives to become cross-border workers, as commuting time is shorter and costs are lower (Clark et al. 2003; Rouwendal 1999; Van Ommeren 1998). Finally, language barriers seem to play a large role in affecting the decision to take up a job in a different country (Parenti and Tealdi 2018; Bartz and Fuchs-Schündeln 2012).

9.5.4 The Choice Between Migration and Commuting

While in the theoretical literature a few papers model the choice between commuting and migration (Zax 1994; Rouwendal 1998; Van Ommeren et al. 2000; Reitsma and Vergoossen 1988), the empirical literature on the topic is rather limited (Renkow and Hoover 2000; Clark and Withers 1999; Rouwendal 1999; Van Ommeren et al. 1999; Eliasson et al. 2003). Even the studies which consider the choice between migration and commuting focus on a single country or an urban area. There is no empirical work that studies the interaction of commuting and migration decisions in a cross-border context and only a few papers deem commuting as a possible cross-border choice (Gottholmseder and Theurl 2007; Buch et al. 2009). In the context of European

integration, however, issues of cross-border commuting and migration are becoming increasingly important from both an analytical and a policy perspective. Overman and Puga (2002) found that regional linkages in unemployment rates are equally strong across national borders as within countries. Furthermore, issues of cross-border commuting and migration have received increased attention in the debate prior to the 2004 EU enlargement round. In particular, Austrian and German policy-makers repeatedly argued that due to the vicinity of major metropolitan centres to the new Member States, cross-border commuting flows may be sizeable (Huber and Nowotny 2013). It is also found that potential cross-border commuters differ from cross-border migrants in a number of aspects. Huber and Nowotny (2013) develop a random utility model where individuals choose between being willing to commute, migrate or stay based on the utility they receive from the expected lifetime income in the region of work and the expected lifetime amenities in the region of residence, which also include the expected lifetime disutility arising from the rental price of housing. If the place of work and the place of residence in the home country do not coincide, the individual incurs pecuniary and non-pecuniary lifetime commuting costs. By estimating the model using data from regions of the new EU Member States bordering Austria, they find that variables measuring the indirect costs of mobility such as previous mobility experience, the presence of networks abroad, being single, and the presence of children in the household have a smaller impact on the probability of being willing to commute than on the willingness to migrate. Interestingly, gender differences in the willingness to commute are larger than in the willingness to migrate (although women are both significantly less willing to commute and to migrate). By contrast, variables associated with potential earnings have relatively little effect, and educational achievement is not significant: potential cross-border commuters and migrants are neither positively nor negatively self-selected on education (Huber and Nowotny 2013). The willingness to commute, on the other hand, is negatively correlated with distance to the closest workplace abroad, while distance has no effect on the willingness to migrate. Finally, social deprivation is found to have a positive impact on commuting propensities, but no effect on the willingness to migrate for highly deprived individuals.

As cross-border commuters enjoy the option to consume in their home country where the price level can be assumed to be lower than abroad, the factor that influences the decision to commute across a border is thus not the real wage but the nominal wage abroad in relation to price level differences. Moreover, unlike migration costs that are paid up front, commuting costs accrue for each period and are thus affected by the discount rate. Hence, the probability that migration will be preferred to commuting depends on the relative price levels in the home country and abroad. If the price level in both countries is the same the decision between migrating and commuting depends only on the difference between the migration costs and the discounted commuting costs (Nowotny 2014). Given mobility costs and relative price levels, a higher expected real wage abroad will increase both the willingness to migrate and the willingness to commute. However, as the price level of the home country is lower than the price level abroad, an increase in the expected real wage abroad will increase the incentives to commute by a larger margin than the incentives

to migrate because an increase in the expected real wage abroad raises the individual's purchasing power in her home country. It also implies that a higher level of risk aversion is associated with a higher willingness to migrate than to commute. While a higher risk premium decreases both the willingness to migrate and the propensity to commute, the willingness to commute decreases by a larger margin because the associated decrease in purchasing power has a larger impact on commuting outcomes than it does on migration outcomes (Nowotny 2014). Moreover, a higher rate of risk aversion decreases the propensity to both migrate and commute. In terms of individual characteristics, age has a negative effect on both types of mobility, but the effect is larger for the willingness to migrate; being in a partnership is associated with higher willingness to migrate but not necessarily to commute, while individuals who are home and car owners are significantly less incline to choose migration over commuting. Finally, knowledge of the English language has a positive effect on the propensity to migrate but a negative effect on the propensity to commute (Nowotny 2014). The limited literature which compares cross-border mobility and commuting (Huber and Nowotny 2013; Nowotny 2014) while clearly highlighting the specificities of commuting, it considers it as an alternative to migration. However, the motivation for choosing cross-border migration over commuting comprises a fundamental aspect, which is not relevant in the case of commuting/mobility within the same country: the willingness to live in a new country, which involves the large psychological cost of familiarizing with new institutions, culture, habits, in a potentially different social, cultural, religious and linguistic environment. This leads to a self-selection of workers: individuals who commute across the border share rather different features compared to individuals who move across the border (Huber and Nowotny 2013). As such, the degree of substitutability between the two mobility decisions may not be as sizeable as for the case of within country inter-regional mobility (Brown et al. 2015; Eliasson et al. 2003).

9.5.5 Obstacles to Cross-Border Mobility

The free movement of workers is guaranteed by the EU treaties and reinforced by the principle of equal treatment and non-discrimination. However, a worker taking up employment in another Member State must still overcome a number of legal, social and infrastructural barriers. The low level of cross-border labour mobility across the EU-28 which exists despite the legal provision for the free movement of labour is ascribable to six main issues. First, the existence of legal and administrative barriers: such barriers include, for example, rules which restrict the creation of a company in another Member State or restrictions on the reallocation of staff and the use of temporary and employment agency staff (European Commission 2002). Firms and employers face difficulties in recruiting workers from other Member States because of a lack of integration of unemployment services, and due to the fact that recruiting employees outside of the local labour market is costlier as a consequence of administrative and legal barriers, which severely hamper a company's enlargement

decision to foreign markets (Barslund and Busse 2016). Second, the lack of familiarity of EU individuals with other European languages has a strong negative impact on labour mobility, as only half of the EU population speaks any other EU language than their own (European Commission 2001). Bartz and Fuchs-Schündeln (2012) find that language barriers play a larger role than country borders in explaining the lack of labour market integration across borders in Europe. Third, complications in the international recognition of professional qualifications strongly affect the decision to take up a job in a different Member State. Informal competences and past experience (skills) may also be subject to recognition difficulties and therefore affect the potential remuneration of a worker in the destination labour market. In a recent study, Bloomfield et al. (2017) find that the EU initiatives to harmonize accounting and auditing standards across EU countries has led to a significant increase of cross-border labour migration in the accounting profession compared to other professions. Fourth, mobile workers' lack of knowledge of rights and opportunities in potential destination countries has also often reported as a challenge to a single labour market. This points towards the necessity to support the transparency of advertising international job vacancies in order to establish an environment able to create opportunities for mobility. Fifth, even though uncertainties with respect to the functioning of social security when moving between countries have, to some extent, been reduced by social security coordination, the imperfect knowledge on how a potential destination country's social security system operates continues to be an issue. The interaction between tax systems of different countries (Barslund and Busse 2016) and the limited portability of pension rights may also create strong disincentives to cross-border mobility.

Finally, the worker posting is a rather complex phenomenon: posted workers are not represented by national trade union, and a balance between the economic freedom to provided services and the posted workers' social rights ensuring a certain minimum level of protection is still lacking and certainly needed. While the Posting of Workers Directive (Directive 96/71/EC) has been introduced with the intention of creating the minimum social protection floor for all Member States, it has been criticized for reducing rights of posted workers and undermining the rights of workers in a home nation. Its revised version approved in 2018 aims at ensuring fair wages and a level playing field between posting and local companies in the host country while maintaining the principle of free movement of services, however it will take two years before its full implementation in the EU Member countries.

9.6 Conclusions and Policy Implications

The main challenge for the creation of a Single European Labour Market, which has been a European objective for decades is the lack of sufficient labour mobility. Even though it is quite difficult to pinpoint the optimal rate of cross-border mobility assessing all the benefits and costs, the current rate in Europe is believed to be

too low, due to the presence of potential economic benefits which are still unexploited (Zimmermann 2014). It is commonly agreed that even though cross-border labour mobility may have important asymmetric effects, in aggregate the benefits of labour mobility outweigh the costs and an enhanced intra-European labour mobility would improve the welfare of the vast majority of Europeans (Bonin et al. 2008). However, there are several challenges and risks that need to be taken into account when considering policies to promote and enhance cross-border labour mobility across EU countries.

First, there are three main (long-term) EU policy principles and aims, which are acknowledged in the EU treaties, which are crucial for understanding the role of the barriers and for identifying the challenges to labour mobility at the EU and member-state levels. First, the right to free movement of labour; second, the creation of a deeper single market integration, particularly in the service sector, and finally, the development of a competitive social market economy. While the notion of free movement of labour is clear, the social market economy implies the establishment of welfare states with high and universal social protection. A deeper single market integration requires cross-border delivery of services and cross-border labour mobility. However, in a situation of high heterogeneity between the current 28 Member States, national welfare states, deep economic integration and generous social protection cannot be simultaneously achieved. This has been labelled the 'social trilemma', where two of the three objectives can be met at the same time, but not all three. Policy-makers face the challenge of which of the two objectives to push for: their decision has severe implications both for welfare policy and the depth of the single market integration. If the efforts are placed towards the reduction of disparities between national social systems through the implementation of measures of social harmonization and redistributive policies to foster economic convergence, the EU will move towards a decentralized rather than centralized EU social policy. Alternatively, policy-makers could choose to limit the EU economic integration by prioritizing over generous social protection and fully autonomous national welfare states. Finally, by ditching the generous social protection, they may risk social dumping, which entails a downward pressure on social conditions due to the competition from countries with lower social conditions. At this stage, efforts to reduce disparities between national social systems have been undertaken through measures of social harmonization and redistributive policies to foster economic convergence. Moreover, decentralized EU social policy has been adopted, together with measures to limit the free circulation of posted workers and by accepting some degrees of 'social dumping' resulting in European Court of Justice cases. What will be the future moves of the EU in this phase of uncertainty is hard to predict, however the direction which will be chosen will surely shape the future of the EU.

Second, demographic changes are also taking place all over Europe, with critical effects on labour markets and on the structure and membership of the EU. Europe's native populations are experiencing a severe demographic stagnation. Most new EU Member States suffered natural population decline. In the EU-28, natural growth amounted to +0.07%. Over the last decade, Europe's old age dependency ratio (population 65 + divided by population 15–65) grew constantly in the EU-28 reaching

30.5% in 2017. Demographic ageing combined with high unemployment rates lead to a situation where taxpayers have to bear growing welfare and social expenditure, putting additional pressure on the social security systems. Future projections estimate that the situation will worsen further in the coming decades when the baby boom generation, born in the 1950s and 1960s, will reach retirement age. Relying exclusively on cross-border labour mobility to solve these issues is unrealistic, full control of both net migration and the age structure of in- and outflows of migrants is not conceivable, and hence urgent decisions have to be taken in order to preserve the sustainability of social protection systems and to maintain balance in the EU-28 labour markets (Gagnon 2014; Muus 2003). Moreover, with a fast ageing population and the share of young mobile individuals declining rapidly, declining mobility rates are to be expected in the near future. Hence, pro-active geographic mobility increasing individual propensities to move is crucial to offset lower cross-border mobility. Policy interventions in this direction should aim at expanding the expected utility gains of mobility and reducing mobility costs for individuals. The adoption of flexible and transparent labour markets, an environment which facilitates the reallocation of labour, improvements in terms of communication and information, harmonization of the education and qualification standards are few examples of policies which could create incentives for cross-border mobility. Moreover, a larger share of the European Social Fund should be devoted to improving the training and the skilling of mobile workers, the European job mobility portal EURES should be further developed into a true EU-wide job portal, and more investments should be allocated in infrastructure projects to allow easy and affordable cross-border mobility.

Finally, and of high importance due to the current difficulties the EU is facing the implementation of policies aiming at the labour market and social integration of movers. The effort for the removal of obstacles to mobility has been strengthened particularly after the 2008/2009 economic and financial crisis, who lead to large divergence in opportunities among workers in different Member States. As a result, EU citizens are now more mobile than at any other point in time in the history of the EU. However, the simplifying measures adopted by the European Commission and the intensified efforts at EU-level to boost cross-border mobility, cooperation, and integration have come under pressure, due to specific aspects and possible gaps in the current framework that can be improperly exploited. Policy-makers face nowadays a crucial challenge to reconcile the need for protecting the rights of mobile citizens while limiting the potentially adverse effects on natives and incumbent companies and while taking into consideration the impact of certain policies on public perceptions and opinions (Barslund and Busse 2016). Across all EU countries, the anti-immigration sentiment is growing strong. This is fuelled by politicians and leaders of populist parties taking advantage of the fears of the weakest segments of the population and use immigrants as scapegoats to increase their political consensus. EU policies aiming at increasing cross-border mobility need to be implemented in order to facilitate the integration and assimilation of movers in the host country. On one side, equal treatment between natives and immigrants needs to be guaranteed and acts of racism and discrimination need to be banned and condemned, with the aim of eliminating second class citizenship in the EU. A stronger enforcement of free

movement rights is needed, together with integration measures such as language and orientation courses for mobile workers and their family, and investments on intercultural exchange for students and youth to support mobility oriented mindsets. On the other side, more policies need to be implemented to redistribute the economic gain from migration from the individuals who benefit the most to the individuals who are negatively affected by migration. Part of the EU structural and cohesion funds should be invested in reallocating the social burden that may derive from the asymmetric geographical effects of mobility. These redistribution policies would limit social tensions, reduce income inequality among the EU-28 countries and lead towards a stronger integration of immigrants, with potential large positive effects for everyone. There is still a long way before the full development of a Single European Labour market (Krause et al. 2014), but unless these fundamental policy interventions are put in place in the near future, the ambition of a deeper integration may become even more unrealistic.

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Glossary

- EU-8: Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia, and Slovenia.
- EU-10: EU-8, Cyprus and Malta.
- EU-12: EU-10, Bulgaria and Romania.
- EU-13: EU-12 and Croatia.
- EU-15: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, United Kingdom.
- EU-28: EU-15 and EU-13.
- EFTA: Iceland, Liechtenstein, Norway, Switzerland.
- EMU: Austria, Belgium, Cyprus, Estonia, Finland, France, Germany, Greece, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Portugal, Slovakia, Slovenia, and Spain.

Chapter 10

The Role of Subjective Wellbeing in Cross-Border Migration



Arthur Grimes and Dennis Wesselbaum

10.1 Introduction

Much has been written on the economic determinants and consequences of international migration. The survey by Borjas (1994) identified that to assess the economic impacts of immigration one had to have ‘an understanding of the factors that motivate persons in the source countries to emigrate’ (p. 1668). Traditional economic factors such as income and job opportunities are clearly relevant here and much of the early economics of migration literature concentrated on these factors.¹

Since these early contributions, researchers have increasingly explored other determinants of international migration including the prospect of moving to lead a more satisfying life. Naturally, economic factors such as incomes and job opportunities affect the prospects of leading a better life. But so too do many other factors, including human rights, environmental benefits and cultural factors. The burgeoning literature on the economics of wellbeing show how these types of factors influence

¹For instance, Borjas (1994) states: “(t)he migration decision is determined by a comparison of earnings opportunities across countries, net of migration costs” (p. 1688). None of the following terms is mentioned in his survey of prior work on the economic determinants of migration: “well-being (or well-being), subjective, happiness, satisfaction, amenity (or amenities), non-monetary, non-pecuniary”.

A. Grimes (✉)

Motu Economic and Public Policy Research; and School of Government, Victoria University of Wellington, Wellington, New Zealand

e-mail: Arthur.Grimes@motu.org.nz

D. Wesselbaum

Department of Economics, University of Otago, Dunedin, New Zealand

e-mail: Dennis.Wesselbaum@otago.ac.nz

people's overall satisfaction with their life—often referred to as subjective wellbeing (SWB) (Layard 2011; Helliwell et al. 2012; Clark 2018).²

Our purpose in this chapter is to review and advance the evidence to date on the influence of subjective wellbeing in origin and destination countries on people's international migration decisions. These influences are analysed in the context that they supplement, rather than replace, the influence of labour market factors as migration determinants. Drawing on the pioneering insights of Sjaastad (1962)³ we also reference studies on the role of subjective wellbeing in determining regional migration flows.⁴

We start with a survey of studies that have used subjective wellbeing measures to help explain observed international migration flows, with discussion of studies that use SWB to explain people's stated migration intentions (that may or may not result in actual migration flows). While not being central to our focus, we also discuss studies that examine the wellbeing outcomes of people following cross-country migration. Section 10.3 outlines a simple theoretical approach to provide a framework for explaining how both the mean and inequality of subjective wellbeing in a country can influence migration choices alongside more standard economic variables. The importance of wellbeing inequality reflects the theoretical observations of Stark and Bloom (1985) that individuals' outcomes relative to a reference group may affect decisions to migrate. Section 10.4 uses the same data as used in a recent study of bilateral migration between countries to explore the relationship between migration flows and subjective wellbeing factors, with a particular focus on how inequality in SWB impacts non-linearly on bilateral migration flows. In the concluding section, we consider what the results might imply both for researchers and for policy-makers.

10.2 Literature Review

Prior to reviewing the literature on the relationship between migration flows and subjective wellbeing, we provide a brief primer on the variables most frequently used to proxy subjective wellbeing within the economics literature and in other branches of the social sciences. We then review three related sets of studies that (i) use SWB as a determinant of actual migration choices (ii) use SWB as a determinant of migration intentions and (iii) examine the ex post outcomes for SWB following migration.

²Measures of overall life satisfaction (also known as evaluative SWB) are often differentiated from measures of short-term happiness or 'positive affect'—see Sect. 10.2.1.

³After discussing monetary returns to regional migration, Sjaastad (1962) states: "In addition, there will be a non-monetary component, again positive or negative, reflecting his preference for that place as compared to his former residence" (p. 86).

⁴International migration decisions are more complex than regional migration decisions involving issues such as immigration restrictions, high travel costs and language and cultural barriers. We discuss the importance of controlling for such issues in modelling international migration flows in Sects. 10.2 and 10.4 of this chapter.

10.2.1 *Subjective Wellbeing Measures*

A wide body of literature in the social sciences now uses measures of SWB either as dependent variables to be explained by other factors or as independent variables used to explain other outcomes such as productivity (Clark 2018). Measures may be used either at the unit record (personal) level or are aggregated to regional or country aggregates.

Many studies have examined the determinants of individual-level SWB. Prominent surveys of the literature include Di Tella and MacCulloch (2006), Kahneman and Krueger (2006), Dolan et al. (2008), Layard et al. (2012) and Clark (2018). These surveys highlight a number of strengths and weaknesses of (various types of) SWB data.

First, more than one measure of SWB is available and the preferred measure may differ across applications. Building on the work of Veenhoven (2007), Delhey and Kroll (2013) discuss the relationship between three commonly used measures of SWB that are available across a broad range of countries. The first measure, used by the Gallup Poll (and elsewhere), is the Cantril ladder of life (Cantril 1965), measured through responses to the question:

Please imagine a ladder with steps numbered from zero at the bottom to ten at the top. The top of the ladder represents the best possible life for you and the bottom of the ladder represents the worst possible life for you. On which step of the ladder would you say you stand at this time? Indent this para (as occurs in the other quoted questions that follow)

This question represents a self-anchoring scale in which the respondent can define their life situation relative to the best and worst life that they can imagine. This measure is often referred to as a measure of overall life satisfaction, life contentment or satisfaction with life.

The second measure, which is also a measure of overall life satisfaction, asks people to rate their lives on a 0–10 or on a 1–10 scale. This question is included in several countries' General Social Survey and in some international surveys. The relevant World Values Survey (WVS) question is worded:

All things considered, how satisfied are you with your life as a whole these days? Please use this card to help with your answer [1 dissatisfied (...) 10 satisfied].

Each of the foregoing measures is regarded as a measure of evaluative wellbeing (i.e. an evaluation of their life as a whole). A separate group of measures refers to more momentary (hedonic) experiences. The Gallup Poll, for instance, surveys respondents as to whether they smiled yesterday and also surveys their 'positive affect' (happy emotions) and 'negative affect' (unhappy emotions) while the WVS asks about happiness, using the wording:

Taking all things together, would you say you are: very happy, quite happy, not very happy, not at all happy?

Delhey and Kroll report cross-country correlation coefficients (for OECD countries) of: 0.77 between the Cantril ladder and WVS measures of life satisfaction; 0.81

between the WVS measures of life satisfaction and happiness and 0.69 between the Cantril ladder and WVS happiness. OECD (2011) reports a cross-country correlation coefficient of 0.47 between the Cantril ladder and the ‘affect balance’ (positive affect minus negative affect, from the Gallup Poll). Based on studies using unit record data, Kahneman and Krueger (2006) report positive correlations between measures of reported SWB and neurological correlates (e.g. the left-right difference in brain activation), cortisol levels, smiling frequency, ‘unfakeable smiles’, ratings of own happiness by friends, verbal expressions of positive emotions, sociability, sleep quality, happiness of close relatives, self-reported health, high (absolute and relative) income, religious involvement and recent positive changes in circumstances. Graham and Nikolova (2015) find that capabilities such as educational attainment, employment status, household income, health, freedom and belief in hard work (Sen 1999) are positively related to both evaluative and hedonic wellbeing, though are relatively more important for the former.⁵

The various SWB measures are therefore each positively correlated with one another and with other indicators of positive life circumstances. For purposes such as ours, which deal with longer term life decisions, studies mostly concentrate on evaluative measures of life satisfaction as the most appropriate measure of SWB. Consistent with this approach, Graham and Nikolova (2018) find that a subjective wellbeing measure based on the Cantril ladder outperforms an hedonic wellbeing measure as a predictor of migration plans, although both measures indicate broadly similar relationships. For our empirical work we adopt the Gallup Poll Cantril ladder measure, using both the country mean and within-country standard deviation of responses.

A second issue relates to the intertemporal comparability of reported SWB, both at the individual level and at an aggregated level. Kahneman and Krueger (2006) survey the results of individual-level studies showing that life satisfaction of individuals is positively correlated over time.⁶ The reaction of SWB to significant life events is more complex. There is significant evidence that individuals adapt to major life events (e.g. a lottery win or physical harm) to a significant extent (and, in some circumstances, a full extent) over time. For instance, individuals who receive a lottery win may be temporarily more satisfied with life, but report no higher satisfaction with life in subsequent years. Cummins et al. (2014) use the psychological concept of individual ‘set-points’ to describe a process whereby individuals gravitate back to their own personalised SWB norm following a perturbation. Kahneman and Krueger refer to an ‘aspiration treadmill’ whereby people increase their aspirations for their own life as their circumstances improve. As discussed further in Sect. 10.2.2, this

⁵Another form of subjective wellbeing that is surveyed across countries is “purpose in life” or eudemonia. This is a somewhat different concept from evaluative or hedonic wellbeing, and Graham and Nikolova (2015) find that its relationship to capabilities is not as strong as are the relationships between capabilities and either evaluative or hedonic wellbeing. Eudemonia is intuitively less likely to be related to migration decisions so is not considered further here.

⁶For instance, one study which retested individuals two weeks apart found a correlation coefficient of 0.59 for reported life satisfaction of individuals, while another which retested individuals four weeks apart reported a correlation of 0.77.

process may be relevant to observed ex post SWB outcomes that follow migration. However it is unlikely to be an issue for the use of cross-country SWB as a predictor of migration unless people were to rationally forecast that their aspirations would change consequent on migration.

A third issue with using SWB data across countries relates to whether responses to questions on SWB are comparable across nations and cultures. Exton et al. (2015) studied this issue in depth (using Gallup World Poll data) finding that cultural factors account for only a small portion of reported life satisfaction for individuals across countries. Specifically, ‘cultural bias’ (culturally related measurement error) and ‘cultural impact’ (substantive differences in how people of different cultures experience their lives) together account for only about 20% of country-specific unexplained variance of SWB (i.e. after accounting for personal circumstances).

Layard et al. (2012) note further that as well as personal factors which affect SWB (such as income, education, age, gender) several societal factors are associated with SWB. These include social trust, community and governance, freedom of choice and political participation. These factors, plus the cultural factors considered by Exton et al. (2015), can be accounted for in regression analysis through the incorporation of country fixed effects provided that they are invariant over time (Our analysis includes both origin and destination country fixed effects to account for such unobservable factors.).

A fourth issue with the use of SWB data is that each person’s SWB may relate not only to their own absolute circumstances, but also to their circumstances relative to others around them (Easterlin 1974; Di Tella and MacCulloch 2006). These circumstances may go beyond observable relativities such as income (which lie behind the Easterlin Paradox),⁷ to also include the fit of an individual with society’s dominant values and religion. As discussed in our theory section, these broader societal factors—and an individual’s fit with them—may affect the individual’s SWB outcomes according to their country of residence. The use of country fixed effects will not account fully for these types of effects that differ across the distribution of individuals. Noting that people who are a ‘poor fit’ with their society may have idiosyncratic levels of life satisfaction, our empirical work incorporates measures of SWB inequality (together with interactions of income with the mean and inequality of SWB) in part to account for these distributional issues.

10.2.2 *Subjective Wellbeing and Migration*

Studies on the relationship between migration flows and SWB naturally fall into three categories: (i) the role of SWB as an ex ante determinant of *actual* migration flows;

⁷Easterlin (1974) observed a paradox whereby richer people tend to be happier than poorer people within a country at any point of time; however while countries have become richer over time, they have not uniformly become happier over time. In part, this may be explained by adaption and in part by individuals placing a high weight on relative rather than absolute income. The existence of the Easterlin Paradox has since been challenged, e.g. by Stevenson and Wolfers (2008).

(ii) the role of SWB as an *ex ante* determinant of stated migration *intentions* and (iii) the *ex post* SWB outcomes of migrants. Our empirical contribution lies within the first category. However, the remaining categories capture features that are relevant to the topic, hence we also discuss insights from these latter fields of study.

10.2.2.1 Actual Migration Flows and *ex ante* SWB

Three recent studies include subjective wellbeing as a predictor of international migration flows.⁸ The pioneer of these studies is Polgreen and Simpson (2011) [henceforth PS]. PS obtain happiness data, measured on a 1 to 5 scale, for 84 countries from the World Values Survey (WVS).⁹ In each case, they use the country average to represent happiness in that country. The data cover four waves of the survey from 1981 to 2004. Some countries are surveyed only once, while others are surveyed multiple times.

The study relates the country happiness data to three different aggregate migration datasets to test whether happiness affects migration, finding a consistent non-linear relationship between happiness in a source country and its migration flows. Specifically, they find a U-shaped relationship in which emigration rates are high in the least happy countries and are also high in countries with high SWB, while emigration is lower in countries with moderate SWB levels. In our subsequent analysis (Sect. 10.4) we explore non-linearity in the effects of happiness on migration flows within a panel setting.

The first PS model tests whether happiness in the source (origin) country affects the emigration rate from that country (i.e. the number of emigrants divided by the population of native-born residents of the source country). The chosen emigration year is 2000 (or nearest year to it), and the sample comprises 58 countries that have both emigration and happiness data. A simple cross-sectional equation is used with the most detailed specification including a quadratic in happiness, a quadratic in log (GDP), plus the GDP growth rate and regional dummies (for Africa, Asia, Europe, Latin America and North America). Country dummies are not possible to include given the cross-sectional nature of the data. Using this dataset, PS obtain a consistent finding (across multiple equation specifications) of a U-shaped effect of happiness in the origin country on emigration rates.

The second PS model uses panel data to test whether happiness of the source country affects the number of immigrants from that country to the U.S. The dataset comprises an unbalanced panel for 76 countries between 1981 and 2003, with 175 observations. The most detailed specification is equivalent to the first model but with the inclusion also of time (wave) fixed effects. Country fixed effects are not included,

⁸For related studies of *ex ante* determinants of regional (within-country) migration that incorporate SWB see Glaeser et al. (2016) and Grimes et al. (2017).

⁹PS state that they conduct the same analysis using life satisfaction data from the WVS and find almost identical results.

in part because some countries are observed only once in the panel. The study again finds a U-shaped effect of source country happiness on migration rates to the U.S.

The third model examines net migration for 80 countries between 1980 and 2004 using migration data sourced from the United Nations Population Division. The specification remains as for model 2 except that the happiness variable now represents the happiness of the destination rather than the source country. The model is again based on an unbalanced panel without country fixed effects (and with some countries observed only once in the panel). With this specification, PS find a hump-shaped effect of (destination country) happiness on net migration, so that very unhappy countries attract relatively few net migrants, while moderately happy countries attract the most, before the rate declines for very happy countries.

PS are unable to isolate the factors that result in the finding of a U-shaped response of migration to the mean level of happiness in a country. They hypothesise that migrants from very unhappy countries have a strong motivation to emigrate, and (as we show in Sect. 10.3) this is what we would expect theoretically. Why then does emigration again increase among people from very happy countries? PS speculate that this may be because people in such countries are inherently more optimistic than people in less happy countries and that optimism is positively correlated with an intention to migrate (Ek et al. 2008). Another suggestion is that prospect theory (Kahneman and Tversky 1979) may play a part: reference points differ between people in happy versus unhappy countries and attitudes towards risk may also differ.

Given the lack of country fixed effects in the study's three models, unobservable factors may also lie behind the non-linear result. Immigration restrictions may be less binding on migrants from richer countries (Ortega and Peri 2013), which also tend to be happier countries (Stevenson and Wolfers 2008), so that prospective emigrants from those countries are more easily able to realise their ambitions than can prospective emigrants from poorer (less happy) countries. For instance, migration between (generally happy) European countries is relatively unrestricted, as is migration between Australia and New Zealand (both happy countries). Given the inability of the study to control for unobservables through the inclusion of country fixed effects, PS's findings with regards to the non-linear SWB effects on migration must be treated with some caution. Nevertheless, the study remains important for introducing the idea that SWB affects international migration patterns.

A second study in the field, Grimes et al. (2014) [henceforth GOT], concentrates on net migration flows over five-year timespans for the period 1961–2010. Consistent with the third model of PS, the migration data is sourced from the UN Population Division. The country sample includes only developed countries, being limited to the first 24 OECD member countries. Depending on availability of covariates, the samples include from 21 to 24 countries within a balanced panel with up to 10 migration waves (i.e. 210–240 observations). In some cases (depending on covariate availability) the analysis is limited to the most recent six waves covering 30 years. Like PS, wave fixed effects plus per capita log (GDP) [or per capita log (GNI) depending on the sample length] are included in all equations; in contrast to PS, country fixed effects are included for all estimates.

One issue in modelling long-run impacts of SWB is that there is no cross-country survey of SWB that extends back to the 1960s. Consequently, GOT use a series of modelled mean life satisfaction for each country compiled by Abdallah et al. (2008). This enables the authors to model a longer time dimension than could be modelled using surveyed SWB data. For shorter term (post-1985) estimates, GOT also explore the role of a country's SWB inequality in determining net migration flows. This feature, plus the inclusion of country fixed effects in a balanced panel setting, represents the key innovations of this study relative to that of PS.

GOT find consistently positive effects of both income per capita and of average country SWB on a country's net (inward) migration flows. These effects exist even after controlling for unobservables, and hold across a variety of specifications that include a range of other country- and time-varying control variables. Given that this sample includes only developed countries, the SWB findings are, on face value, in contrast to those of PS who find a negative effect of SWB on net migration flows for upper income countries. This difference may reflect the inclusion of country fixed effects in the GOT study to control for unobservables within a balanced panel. The inclusion of country fixed effects means that GOT tests the effects of country SWB *relative to its time-series average* on net migration flows. It could still be the case that countries with a high SWB average (over time) have lower migration flows relative to mid-range countries as found by PS.

In its examination of SWB inequality, GOT use the standard deviation of life satisfaction within each country, sourced from the WVS. This approach follows Veenhoven's (1990) suggested use of SWB inequality (measured by its standard deviation) as a measure of national inequality, and its subsequent use as an inequality measure by Kalmijn and Veenhoven (2005). Goff et al. (2018) analyse whether inequality of life satisfaction can be measured appropriately by the standard deviation of life satisfaction and conclude that the measure is a reasonable empirical proxy for this concept. However, the use of the standard deviation as a measure of inequality for an ordinal variable that is bounded above and below is contested, and other measures have been mooted.¹⁰ While the use of the standard deviation is the most common measure of SWB inequality in the literature—and is the measure that we adopt in our empirical work—further research is warranted to test the effects of using different inequality measures across different applications.

For the GOT study, the SWB inequality variable from the WVS could only be used from 1985 onwards, and gaps in measurement required imputation of a number of observations, so the inequality results must be treated with caution. The authors find some evidence that an increase in SWB inequality of a country reduces net inward migration flows to that country (significant in one specification and not significant in another). However the quality of the SWB inequality data used means that this finding should be regarded as tentative. Given that the study examines net migration flows, one cannot infer from the GOT analysis whether the SWB effects (for both the mean and the standard deviation) act chiefly through emigration from, or immigration to,

¹⁰For other approaches to measuring inequality of surveyed subjective wellbeing see Delhey and Kohler (2011), Dutta and Foster (2013) and Cowell and Flachaire (2017).

each country. This analysis is left to the third study that links international migration and SWB.

Grimes and Wesselbaum (2018) [GW]¹¹ model the impacts of SWB on bilateral migration flows between country pairs. This approach entails inclusion of country average SWB for both origin and destination countries within a panel setting. GW enrich the analysis by testing the effects on migration of inequality in happiness within both origin and destination countries (using the SWB standard deviation as the inequality measure). These influences are estimated while controlling for log (GDP) per capita (in both origin and destination countries), time fixed effects, and moving costs (proxied by log (Distance), and dummies for colonial ties, a common border and a common language). All specifications include country fixed effects with some including separate effects for both origin and destination countries, and others including fixed effects for origin–destination country pairs. In addition, some specifications include origin-year fixed effects. Thus unobservables are carefully controlled for within the study.

The GW dataset comprises the flows of migrants between 14 destination countries and 102 origin countries observed over eight years: 2006 to 2013. The dataset enables each equation to be estimated with at least 7,000 observations (depending on availability of covariates). The destination countries include countries with a large stock of migrants plus countries that experience large migration inflows. Restricting destination countries to large recipients of migrants has the advantage that the study has comparatively few cases of zero bilateral migration flows in any year. SWB data is surveyed annually by the Gallup Poll and so is available on a balanced basis for all countries included in the sample.

The modelling of bilateral migration flows between each origin country and each destination country means that the influence of SWB (and of other factors) in both origin and destination countries can each be tested. In practical terms, it also means that the sample size is increased hugely relative to the PS and GOT studies. These features, plus the additional controls for unobservables and the inclusion of comprehensive data for SWB inequality, mark the key contributions of this paper relative to the prior studies.

GW find consistent evidence that bilateral migration flows respond positively to mean SWB in destination countries and negatively to SWB in origin countries. These effects are in accordance with expectations. Notably, the destination country effect is considerably stronger than is the origin country effect.¹² Similarly, GDP per capita in the destination country has a strongly positive effect while there is less evidence that origin country incomes affect the bilateral flow. The importance of both SWB and income variables for bilateral migration flows is consistent with the findings of GOT, but the GW results have the added advantage of explaining the impacts of SWB in both origin and destination countries on migration flows.

¹¹A revised version of GW is forthcoming in *International Migration*.

¹²When the sample is split into pre- and post-global financial crisis sub-samples, the origin country SWB impact increases in absolute size while that of the destination country decreases, but still remains larger than the origin country effect.

The effects of SWB inequality within the GW study are intriguing. Higher inequality in an origin country appears to increase emigration from that country, although the effect is not always significant. A much stronger effect is apparent for inequality in the destination country. The study finds a consistently positive effect of inequality in the destination country on bilateral flows to that country. Several theories exist as to why inequality in a destination country may act as an attractor for migrants. One possibility is that a high degree of inequality raises the value of the option of migrating in the same way that a higher standard deviation raises the value of a financial or a real option (Guthrie 2009). A prospective migrant might consider that they will have the option to move back to their origin country if things don't work out well in the new location. A higher standard deviation of SWB in the new country means there is a greater likelihood that they will attain some (high) threshold of SWB that makes staying worthwhile, whereas a low level of inequality may make attainment of a desired improvement in conditions difficult to achieve. A related possibility is that a heterogeneous SWB distribution might imply there will be greater opportunities to find a 'good fit' for the migrant in the new country whereas a homogeneous distribution might signify a narrower range of opportunities for the migrant. This may especially be the case for a migrant who has characteristics that are distinct from typical residents of the destination country.

Another possibility is that a selection effect operates whereby those that have the greatest optimism bias are those that do migrate (Ek et al. 2008). The presence of an optimism bias among migrants is consistent with evidence from some studies showing that migrants do not necessarily reap SWB benefits following migration to a new country (see Sect. 10.2.2.3). While it is the case that ex post outcomes do not necessarily match ex ante expectations, it is the ex ante factors that determine whether people choose to migrate, and it is these ex ante determinants of migration that is our focus.

10.2.2.2 Prospective Migration Flows and ex ante SWB

A number of studies have examined the relationship between ex ante subjective wellbeing and stated international migration aspirations of potential migrants. In this literature, the migration intention is often measured by a survey question relating to an 'expressed willingness to migrate' (Cai et al. 2014). In some studies, the intentions are split into intentions to migrate permanently or temporarily. Studies use a variety of subjective wellbeing measures, with some using Cantril Ladder data from the Gallup Poll, some using questions similar to that for life satisfaction in the WVS and some using (shorter term) happiness measures. As discussed in Sect. 10.2.1, these measures have strong positive correlations with one another.

An early contributor in this field is the study of Graham and Markowitz (2011), based on surveyed migration intentions from Latin America. They find that emigration intentions are negatively related to an individual's stated level of happiness. Intentions to migrate are also related to another subjective indicator, the satisfaction

that an individual expresses about their own financial situation. Those who are satisfied with their financial situation are less likely to express an intention to migrate. This contrasts with the raw effect of absolute wealth for which the study finds a positive relationship with the intention to migrate. Following the work of Graham and Pettinato (2002), the group of wealthy intended migrants who are unhappy with their own financial situation are termed ‘frustrated achievers’.

Subsequent studies have tended to corroborate the finding that higher levels of subjective wellbeing (for individuals or within the origin country) reduce the probability of a stated intention to migrate. Cai et al. (2014) find this result especially for richer countries, Chindarkar (2014) finds a similar relationship especially for more educated people, Otrachshenko and Popova (2014) find this relationship for people from Western, Central and Eastern Europe, while Nikolova and Graham (2015) find a similar result for residents of developing and transitional countries. Relatedly, Dustmann and Okatenko (2014) find that contentment with various dimensions of local amenities, such as public services, and security are key determinants of migration intentions.

One study that produces contrasting findings is that by Ivlevs (2015). This study, based on surveyed migration intentions for 35 European and Central Asian countries, finds a U-shaped relationship between life satisfaction and an individual’s stated intention to migrate. Thus, as with the studies above, there is a negative relationship between intended migration and life satisfaction for those in the lower portion of the subjective wellbeing distribution. However, the relationship turns positive for those in the upper part of the distribution. Given the lack of comprehensive wealth data available for the study, this latter result may be related to the positive effect of absolute wealth on migration intentions found by Graham and Markowitz (2011), noting that wealthier people, on average, tend to exhibit higher life satisfaction.

Graham and Nikolova (2018), in their analysis of Latin American migrants, extend the scope of analysis to include two measures of subjective wellbeing: hedonic (experienced wellbeing) and evaluative (overall life evaluations). Hedonic wellbeing is measured using a question on whether the respondent smiled yesterday, while the Cantril ladder is used as the measure of evaluative wellbeing. The authors examine determinants of both emigration intentions (based on whether one would ideally like to emigrate permanently) and emigration plans (where the respondent has explicit plans to move abroad permanently within the next year).¹³

Consistent with most prior results, the study finds that people with higher (hedonic and evaluative) subjective wellbeing are less likely to express an intention or plan to migrate. With respect to income, the authors find evidence to support the ‘frustrated achievers’ effect whereby those that report a worsening in their economic situation are more likely to express a positive migration intention. While the findings are consistent with other studies, a decomposition of the regression results shows that evaluative wellbeing explains only 1% of variation in migration plans, although this contribution is still greater than that for each of health, freedom or social support.

¹³The study also examines the consequences of migration for those who move; this contribution is reviewed in Sect. 10.2.2.3.

Hedonic wellbeing explains a smaller proportion of migration plans than does evaluative wellbeing. Consistent with this last result, we use the evaluative wellbeing measure (based on the Cantril ladder) in our empirical work in Sect. 10.4.

10.2.2.3 Migration Outcomes and ex post SWB

While our study focuses on subjective wellbeing as a determinant of (actual) migration flows, relevant insights can also be gained from studies of ex post outcomes for migrants following migration.

Commonly, studies find that migrants' outcomes are poorer than outcomes for natives of the destination country; for instance, see Safi (2010) with respect to Europe; Bartram (2011) with respect to migrants to the U.S.; and the survey by Hendriks (2015). However, some of these findings are carefully nuanced. As an example, Bartram (2011) finds that increased income provides a greater happiness payoff to migrants relative to natives. Thus the reason behind the migration (e.g. whether the individual sought to increase their income or not) may have differing effects on the subjective wellbeing of migrants in the destination country. Migrants also differ in terms of their migration status, so that outcomes may differ depending on the type of visa (and hence work opportunities) that a migrant holds.

Studies differ on whether subjective wellbeing outcomes for the migrants themselves improve as a result of migration. Even where SWB is a factor that affects migration decisions ex ante, the 'aspiration treadmill' that Kahneman and Krueger referred to (see Sect. 10.2.1) may result in different SWB outcomes than anticipated despite actual circumstances evolving as predicted by the individual. A number of methodologies have been utilised to address this issue, ranging from cross-sectional regressions, to matched pairs of individuals, to difference-in-difference specifications that utilise wellbeing of residents who intend to migrate as the pre-migration outcome. The consensus across this range of studies is that migrants tend to improve subjective wellbeing upon migration (Hendriks 2015; Hendriks et al. 2018; Helliwell et al. 2018). However, this result is not uniform and may depend on country-specific or migrant-specific reasons for the migration decision.

For instance, Bartram (2013) finds that migrants from Eastern Europe to Western Europe tend to display higher happiness relative to those that did not migrate—though this effect is not consistent across all origin countries (with Polish migrants a notable exception). Similarly, Nikolova (2015) and Nikolova and Graham (2015) find that migrants from transition to post-transition countries experience an increase in subjective wellbeing (as well as in other outcomes such as incomes and satisfaction with freedom). German emigrants have been found to increase their subjective wellbeing relative to those who did not migrate (Erlinghagen 2012). In a contrasting study, Bartram (2015) finds that migrants from richer to poorer European countries tend to experience a decrease in happiness upon migration.

Thus country-specific circumstances (and/or the circumstances of the self-selected individuals who choose to migrate) may have an influence on the relationship between migration and changes in an individual's subjective wellbeing. Hendriks and Bartram

(2016) conclude that changes in subjective wellbeing depend on a range of pecuniary and non-pecuniary factors including the destination country's governance and social climate. Helliwell et al. (2018) add the importance of natives' attitudes to migrants as a determinant of migrant happiness following a move.

While a number of innovative approaches have been used to estimate the effect of migration on migrants' ex post subjective wellbeing outcomes, the difficulty of tracking migrants longitudinally before and after migration makes identification of effects difficult. One exception is the study by Melzer (2011) who analyses migration from East Germany to West Germany post-unification using longitudinal data. Melzer finds that migrants' happiness increased following migration (especially for males), in part due to improved labour market outcomes.¹⁴

When migration results in substantial cultural shifts, however, the effect on subjective wellbeing may not be positive. A study by Stillman et al. (2015) finds that the wellbeing of Tongan migrants to New Zealand—where the migrants were chosen through a lottery (enabling the equivalent of a randomised control trial of migrants)—declined after migration. Ex post outcomes with respect to subjective wellbeing for migrants may therefore be sensitive to the country pair as well as individual context. Our focus is on the ex ante determinants of (actual) migration rather than the ex post wellbeing effects of migration but the potential for heterogeneity is highlighted by these ex post findings, and this heterogeneity is therefore an important aspect to consider in our ex ante work.

10.3 A Theory of SWB and Migration Choice

To place the analysis of SWB impacts on migration into an economic framework, we outline a simple theory of migration that accounts for key features of the models discussed above. The theory builds on that presented in Grimes and Wesselbaum (2018). We consider a case of two countries (i, j) in which individual k is initially situated in origin country i .¹⁵ The individual can choose to remain in country i or migrate to destination country j .

Individual k can earn income w_{ki} in country i or income w_{kj} in country j . Country i has amenities and other non-pecuniary characteristics that affect utility, A_i ; similarly, country j has corresponding features, A_j . These features may affect different individuals in different ways, hence the parameter, γ_k . In addition, each individual has an individual-specific random utility component that is country-specific. The individual knows their own parameter for the country in which they initially live (ε_{ki}), and has an expectation of that parameter (ε_{kj}^e) if they were to live in the other

¹⁴Similarly, studies base on longitudinal data of happiness payoffs to internal migration in the United Kingdom (Nowok et al. 2013) and Australia (Grimes et al. 2017; Preston and Grimes 2019) show lifts in happiness after migration relative to prior years.

¹⁵The model can be extended to include multiple periods with the potential for multiple migrations over time; the key results remain qualitatively unchanged, so here we concentrate on the single period version to keep the exposition simple.

country. We assume that ε_{ki} is distributed with mean 0 and variance σ_i^2 while ε_{kj}^e is distributed with mean 0 and variance σ_j^2 .

Given these assumptions, utility for individual k who lives initially in country i and chooses to stay there (u_{kii}) is given by (10.1). If the individual chooses to migrate to country j their utility (u_{kij}) is given by (10.2) in which a cost of moving (C_{ij}) is included in the latter expression. The migration cost may be either a financial or a psychic cost.

$$u_{kii} = \ln(w_{ki}) + \gamma_k A_i + \varepsilon_{ki} \quad (10.1)$$

$$u_{kij} = \ln(w_{kj}) + \gamma_k A_j - C_{ij} + \varepsilon_{kj}^e \quad (10.2)$$

The individual will move from the origin country (i) to the destination country (j) if and only if $u_{kij} > u_{kii}$; i.e. iff:

$$\ln(w_{kj}) + \gamma_k A_j - C_{ij} + \varepsilon_{kj}^e > \ln(w_{ki}) + \gamma_k A_i + \varepsilon_{ki} \quad (10.3)$$

Several clear predictions emerge from (10.3) for the determinants of bilateral migration flows. Denoting the bilateral migration flow from i to j as M_{ij} , and assuming that the individual's wage in each country is positively correlated with the mean wage in that country (w_i and w_j , respectively) the two income terms imply:

$$\partial M_{ij} / \partial w_j > 0 \quad \text{and} \quad \partial M_{ij} / \partial w_i < 0$$

Similarly, the two amenity terms imply:

$$\partial M_{ij} / \partial A_j > 0 \quad \text{and} \quad \partial M_{ij} / \partial A_i < 0$$

Assuming that SWB is positively related to amenities, we expect the corresponding signs on each of the two SWB terms in the bilateral migration equation. With respect to costs, (10.3) implies:

$$\partial M_{ij} / \partial C_{ij} < 0$$

These predictions are all as might be expected through intuition. The effects of inequality in SWB on bilateral migration flows are less intuitively obvious but can also be derived from (10.3). To simplify the notation, define θ_{kij} as follows:

$$\theta_{kij} \equiv \ln(w_{kj}) + \gamma_k A_j - C_{ij} - \ln(w_{ki}) - \gamma_k A_i$$

Furthermore, assume that ε_{ki} is not correlated with ε_{kj}^e . Thus we are assuming that an individual may be more or less happy than the norm in their home country but their view of prospects in the other country is unaffected by their home country

wellbeing.¹⁶ In this case (10.3) implies that people will migrate iff:

$$\varepsilon_{ki} < \theta_{kij} + \varepsilon_{kj}^e \quad (10.4)$$

Consider the effect on migration flows of a wider distribution for ε_{ki} (i.e. a higher value of σ_i) holding ε_{kj}^e and θ_{kij} constant. A rise in σ_i results in a greater number of people in the origin country falling below the level of utility at which migration is beneficial. In other words, for people who are in the lower part of the SWB distribution in country i as a result of their value of ε_{ki} , it becomes more likely that they will migrate despite the costs of doing so. Thus, from (10.4), we expect:

$$\partial M_{ij} / \partial \sigma_i > 0$$

Now consider the effect on migration flows of a wider distribution for ε_{kj}^e (i.e. a higher value of σ_j) holding ε_{ki} and θ_{kij} constant. A rise in σ_j results in a greater number of people in the origin country expecting to reach a sufficiently high level of utility in the destination country to make migration beneficial despite the costs of migrating. Thus we expect:

$$\partial M_{ij} / \partial \sigma_j > 0$$

These final two implications of the theoretical model are perhaps surprising: higher SWB inequality in *each* of the origin and the destination country is predicted to *raise* bilateral migration flows. A key reason for this result is the fixed cost of migrating which makes it less likely that people will see migration as advantageous unless there are prospects of major gains in utility (net of migration costs); therefore rising SWB inequality in either country makes the prospects of major utility gains more likely.

The predictions outlined in the model above are in accordance with the GW findings summarised in the previous section. In the next section, we extend the results from that empirical analysis in several directions that explore non-linearities in response and that emphasise the role of SWB inequality.

¹⁶This assumption abstracts from two competing hypotheses: (i) that people may suffer from an optimism bias that implies the ‘grass is expected to be greener’ in the other location (Ek et al. 2008), and (ii) that people have a wellbeing set-point that they gravitate toward no matter what circumstances they face (Cummins et al. 2014). The Cummins approach (which is an example of ‘adaptation’ to life events) suggests that we should not expect to observe prolonged SWB changes following migration. In our empirical work, we focus on ex ante determinants of migration rather than on ex post outcomes so the set-point issue is moot (unless people rationally expect this effect to occur—contrary to the Ek et al. optimism bias hypothesis).

10.4 Empirical Evidence

The limited prior work on the effects of SWB on actual migration flows has concentrated on the migration effects of the mean and standard deviation of happiness (in origin and destination countries) after controlling for incomes (e.g. GDP or GNI per capita). However, studies have not hitherto closely examined whether effects differ according to the interaction of incomes with SWB (either of its mean or standard deviation). For instance, does higher origin or destination country SWB have a greater or lesser impact on migration flows depending on whether the country is affluent or not? The Polgreen and Simpson (2011) finding of non-linearities in migration responses to SWB raises the possibility that some forms of non-linearity, including the effects of interactions, may be at play.

We explore this issue in the context of bilateral migration flows from a wide range of origin countries to a smaller group of OECD destination countries.¹⁷ We take as our starting point a comprehensive equation for bilateral migration flows reported in Grimes and Wesselbaum (2018) that included origin and destination country: GDP per capita, mean happiness (i.e. SWB), happiness inequality (measured by its within-country standard deviation), and migration costs, plus year, origin and destination country fixed effects. We then examine whether the migration effects of the mean and inequality of SWB vary according to the income level of origin and destination countries. In Sect. 10.4.1 we discuss our dataset and present results for the effects of these interactions in Sect. 10.4.2. The results indicate that the impacts of SWB inequality on migration are not linear, and suggest that further scrutiny of the mechanisms by which inequalities affect migration are in order.

10.4.1 *The Data*

Our balanced panel dataset (observed annually from 2006 to 2013) is the same as that documented in GW. This enables us to replicate and extend their results with particular focus on the role of SWB inequality. Here we provide a brief description of the variables in the GW dataset.

Our dependent variable is bilateral international migration flows (excluding illegal migrants) between 102 origin countries and 14 OECD destination countries. The derivation of the migration flow data—which draws on the 2015 Revision of the United Nations' Population Division, the OECD, and Ortega and Peri (2013)—is described in Aburn and Wesselbaum (2017). Countries are included provided: (i) they have available annual data for migration (compiled by the United Nations) over the requisite period of time, and (ii) they have the required data for GDP per capita

¹⁷Given that all our destination countries are relatively affluent (compared with the global mean), our results should be interpreted as determinants of flows towards developed countries rather than as determinants of flows to less developed countries.

and for the mean and standard deviation of SWB.¹⁸ Choice of destination countries (Australia, Austria, Belgium, Canada, Denmark, Finland, Germany, Italy, Netherlands, New Zealand, Spain, Sweden, UK and USA) is dictated by data availability and by the requirement that each destination country experiences large inflows of migrants and/or has a relatively large immigrant presence. In 2010 (in the middle of our sample) the migrant proportion (i.e. the stock of migrants as a proportion of population) in each of the 14 countries was above that of the median country globally and each country's migrant proportion was higher than the global mean.¹⁹ Each of the destination countries is also included as an origin country. The remaining 88 origin countries are included based on data availability for the key variables (migration flows, GDP per capita and subjective wellbeing).²⁰ Table 10.1 shows the destination and origin countries covered in the sample.

The country income variable is the logarithm of GDP per capita at purchasing power parity in constant 2011 U.S. Dollars, sourced from the World Bank. Migration costs are proxied by variables representing distance between each country pair, and dummy variables for a border, a common language, and colonial ties (see GW for further details).

SWB data comprise the country mean and standard deviation of life satisfaction (Happy and Happy SD) obtained from the World Database of Happiness.²¹ The data is based on the Cantril ladder responses from 0 (worst) to 10 (best) for overall life satisfaction as surveyed by the Gallup Poll for each country.

Table 10.2 presents descriptive statistics for our sample. Mean happiness in destination countries (7.15) is higher than mean happiness in origin countries (5.51), which is expected given that our sample of destination countries includes only a small set of developed countries while we have a much larger set of origin countries. Consistent with this pattern, mean GDP is higher in destination than in origin countries. In addition, the standard deviation of GDP is much smaller at destination implying a relatively homogenous set of destination countries. The standard deviation of within-country happiness is larger at origin (1.91) than at destination (1.71). This indicates a higher heterogeneity in circumstances within origin countries than in destination countries.

In Fig. 10.1, we graph the relationship between the sample mean for each of average happiness and log GDP per capita for all 102 countries in our dataset. Consistent with a wide body of findings (e.g. Stevenson and Wolfers 2008; Clark 2018) richer countries have a tendency to have higher average happiness. The relationship is close to linear at the bottom of the scale; thereafter we observe that countries with similar

¹⁸Two countries (Norway and Switzerland) were dropped from the Aburn and Wesselbaum (2017) dataset owing to a lack of SWB data.

¹⁹Source: World Bank World Development Indicators, <https://data.worldbank.org/indicator/SM.POP.TOTL.ZS?view=chart>.

²⁰The dataset contains 16 percent zero migration flow observations. In our econometric work, we add one to each observation and use the log of the resulting variable as our dependent variable.

²¹See: <https://worlddatabaseofhappiness.eur.nl/>.

Table 10.1 List of destination and origin countries

Destination countries						
Australia	Austria	Belgium	Canada	Denmark	Finland	Germany
Italy	Netherlands	New Zealand	Spain	Sweden	UK	USA
Origin countries						
Afghanistan	Cambodia	Finland	Japan	Morocco	Senegal	USA
Albania	Cameroon	France	Jordan	Nepal	Serbia	Uruguay
Angola	Canada	Georgia	Kazakhstan	Netherlands	Sierra Leone	Uzbekistan
Argentina	Chad	Germany	Kenya	New Zealand	Singapore	Venezuela
Armenia	Chile	Ghana	Kuwait	Niger	Slovakia	Zambia
Australia	China	Greece	Kyrgyzstan	Nigeria	South Africa	Zimbabwe
Austria	Colombia	Guatemala	Latvia	Pakistan	Spain	
Azerbaijan	Costa Rica	Honduras	Lebanon	Panama	Sri Lanka	
Belarus	Croatia	Hungary	Lithuania	Paraguay	Sweden	
Belgium	Czech Rep.	India	Macedonia	Peru	Tajikistan	
Bolivia	Denmark	Indonesia	Malawi	Philippines	Tanzania	
Bosnia/Herz	Dominican R	Iran	Malaysia	Poland	Thailand	
Botswana	Ecuador	Iraq	Mali	Portugal	Turkey	
Brazil	Egypt	Ireland	Mauritania	Romania	Uganda	
Bulgaria	El Salvador	Israel	Mexico	Rwanda	Ukraine	
Burkina Faso	Estonia	Italy	Moldova	Saudi Arabia	UK	

Table 10.2 Descriptive statistics

Variable	Mean	Std. Dev.	Min.	Max.
log (Migration)	5.57	2.33	0	12.51
Happy _j	7.15	0.44	5.83	8.01
Happy _i	5.51	1.12	2.99	8.01
Happy_SD _j	1.71	0.21	1.02	2.2
Happy_SD _i	1.91	0.32	0.70	3.12
ln GDP _j	10.61	0.12	10.35	10.84
ln GDP _i	9.25	1.11	6.66	11.47
log (Distance)	8.52	0.99	4.09	9.88
Border	0.02	0.14	0	1
Language	0.12	0.33	0	1
Colony	0.07	0.26	0	1

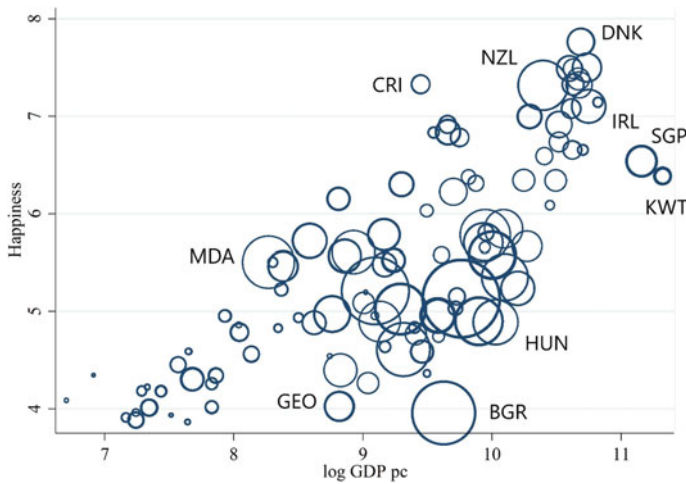


Fig. 10.1 Origin country mean happiness, log GDP per capita and emigration rate. Circle size indicates emigration rates over 2006–2013; major sources of migration and/or outliers are labelled, with country codes: BGR Bulgaria; CRI Costa Rica; DNK Denmark; GEO Georgia; HUN Hungary; IRL Ireland; KWT Kuwait; MDA Moldova; NZL New Zealand; SGP Singapore

incomes can have quite different average SWB levels. This implies that problems of multicollinearity are unlikely to cause estimation issues.

The circles in Fig. 10.1 represent emigration rates of each country. A large circle implies that the country has a high rate of emigration (i.e. the number of emigrants relative to the total population). A subset of countries is indicated with country codes to illustrate outliers and/or countries with large emigration rates. The highest emigration rates tend to occur for countries towards the middle of the GDP ranks suggesting a degree of non-linearity in emigration flows with respect to country affluence.

Another important relationship in the data is the link between the mean and standard deviation of happiness within countries. Figure 10.2 graphs this relationship (with the circle sizes in accordance with those in Fig. 10.1). Countries that are in the upper part of the mean happiness distribution (above about 6) tend to have a negative relationship between the mean and standard deviation of SWB. As noted by Goff et al. (2018), as one approaches a mean SWB level close to the bottom or top of the ladder (i.e. 0 or 10) the standard deviation of happiness arithmetically is likely to reduce because of the bounded nature of the scale. Nevertheless, even after taking account of this arithmetic relationship, Goff et al. find that the standard deviation is a meaningful measure of SWB inequality, and that more equal countries do tend to be happier. If we examine the relationship for countries with similar mean levels of happiness, we see substantive differences in the standard deviation of SWB, again implying that the two variables are measuring quite separate outcomes within and across countries.

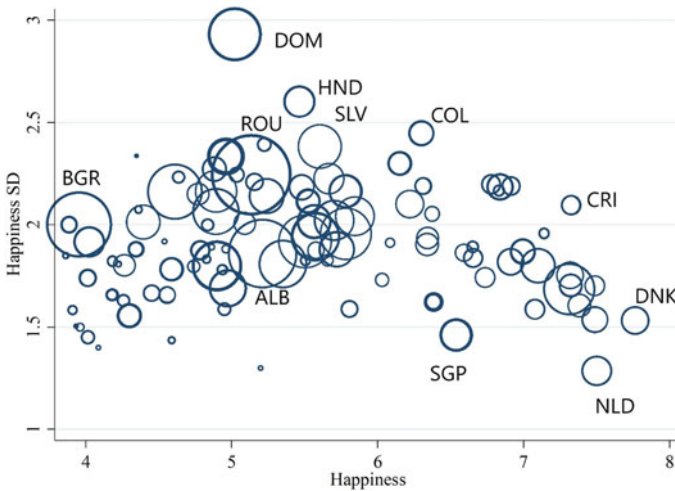


Fig. 10.2 Origin country happiness standard deviation (SD), mean happiness, and emigration rate. Circle size indicates emigration rates over 2006–2013; major sources of migration and/or outliers are labelled, with country codes: ALB Albania; BGR Bulgaria; COL Colombia; CRI Costa Rica; DOM Dominican Republic; DNK Denmark; HND Honduras; NLD Netherlands; ROU Romania; SGP Singapore; SLV El Salvador

In Fig. 10.2, countries with lower than average happiness and higher than average standard deviation of happiness tend to have higher emigration rates. However neither of these relationships appears particularly strong which is not surprising given that we have not controlled for other variables. In our econometric estimates, we control for origin and destination fixed effects; identification therefore rests on changes in each of these variables (relative to their mean) rather than on their levels. It is to these estimates that we now turn.

10.4.2 Estimated Effects of SWB on Migration

As a baseline, column (1) of Table 10.3 reproduces a specification that appeared in GW in which the log of bilateral migration flows is regressed on mean SWB in the destination and origin countries ($Happy_i$ and $Happy_j$, respectively), the standard deviation of SWB in the two countries ($Happy_SD_i$ and $Happy_SD_j$ respectively) and the logarithm of GDP per capita ($\ln GDP$) in each country. In addition, we control for four migration cost variables (\ln Distance, common border, common language, and former colonial relationship), plus origin and destination country fixed effects, and time fixed effects.²² Standardised coefficients are reported in all cases so that we can compare the effects of a one standard deviation change in each variable.

²²We note the presence of these controls in the table but, for brevity, do not report the coefficients.

Table 10.3 Results. Dependent variable: log bilateral migration flow (standardised coefficients)

Variable	1	2	3	4	5
Happy _j	0.07*** (0.02)	0.07*** (0.02)	0.05** (0.02)	0.07*** (0.02)	0.08*** (0.02)
Happy _i	-0.04* (0.03)	-0.03 (0.03)	-0.04* (0.03)	-0.05** (0.03)	-0.04* (0.03)
Happy_SD _j	0.03** (0.01)	0.03** (0.01)	0.02* (0.01)	0.02** (0.01)	0.02 (0.01)
Happy_SD _i	0.03* (0.02)	0.03* (0.02)	0.03* (0.02)	0.02 (0.02)	0.03* (0.02)
ln GDP _j	0.26*** (0.05)	0.26*** (0.05)	0.26*** (0.05)	0.26*** (0.05)	0.25*** (0.05)
ln GDP _i	0.02 (0.20)	0.008 (0.20)	0.02 (0.20)	-0.07 (0.20)	0.02 (0.20)
ln GDP _i × Happy _i		0.03 (0.03)			
ln GDP _j × Happy _j			-0.02 (0.01)		
ln GDP _i × Happy_SD _i				-0.06*** (0.02)	
ln GDP _j × Happy_SD _j					-0.02*** (0.01)
Obs.	7085	7085	7085	7085	7085
R ² _{adj}	0.79	0.79	0.79	0.79	0.79
<i>Control variables</i>					
Year fixed effects	Yes	Yes	Yes	Yes	Yes
Destination fixed effects	Yes	Yes	Yes	Yes	Yes
Origin fixed effects	Yes	Yes	Yes	Yes	Yes
Migration costs (ln Distance, border, language, colony)	Yes	Yes	Yes	Yes	Yes

Note Standard errors are clustered at the country-pair level and shown in parentheses. Constant not shown. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. For all interaction terms between any two variables (X, Y) we enter the demeaned values of each of X and Y separately, and interact the two demeaned variables

We find a strong positive effect of GDP in the destination country on bilateral migration flows. Based on the standardised coefficients, the destination country GDP effect is the strongest of the migration determinants across all our specifications. Nevertheless, destination country SWB has a clear influence on migration over and above this GDP effect. Thus both income and non-income factors act as drawcards for potential migrants. There is some evidence that higher origin country happiness

reduces migration flows although no evidence that origin country GDP affects the flows.²³ Consistent with the theory in Sect. 10.3, a higher standard deviation of happiness in each of the destination and origin countries increases migration flows.

From this starting point, we investigate more closely the nature of non-linearities that may be present in the process. This investigation follows both the cross-sectional estimates of Polgreen and Simpson (2011) and the graphs in Sect. 10.4.1 which suggest that non-linearities in bilateral migration flows may be present.

In preliminary (unreported) regressions, we examined whether adding squared SWB terms for happiness ($Happy_i^2$ and $Happy_j^2$) would replicate the same type of non-linear relationship found by Polgreen and Simpson within a panel setting with country fixed effects. The estimated squared SWB terms showed no statistical significance ($p > 0.20$ in each case). Thus, any non-linearity in effect of SWB on migration (within this panel setting) does not appear to be related to a quadratic effect of happiness per se.

As an alternative approach, we examine whether the effects on migration of the mean and inequality of happiness differ depending on whether migration is to or from a rich country. We do so by including the interaction of $\ln GDP$ in the origin country with each of the mean and standard deviation of happiness in the origin country (in two separate equations), and also by including the interaction of $\ln GDP$ in the destination country with each of the mean and standard deviation of happiness in the destination country. Columns (2) to (5) of Table 10.3 present these results.

Before analysing the interaction terms, we note that happiness in the destination country has a consistently positive and strongly significant impact on bilateral flows across every specification, while happiness in the origin country exerts a weak (and only marginally significant) effect on the flows. Destination country GDP also has a consistently positive and significant impact on bilateral flows in all equations, while there is no evidence that origin country GDP (when considered by itself) impacts on the flows. While we do not present the influence of the migration cost variables, we note that each of the colonial relationship and common language variables has significant positive impacts on flows while distance has a significant negative impact; each of these relationships is as expected (there is no significant effect of the border variable).

Columns (2) and (3), respectively interact origin and destination country mean happiness with the corresponding GDP variable. In neither case is the interaction term significant implying that any non-linearity in effect of average SWB on migration is not due to the impact varying according to country income.

In contrast to these results, we do see significant non-linear effects of the standard deviation of happiness with respect to country incomes. Column (4) presents the results in which origin country GDP is interacted with the origin country's standard deviation of happiness. The interaction effect is negative (significant at the 1% level). Thus a higher standard deviation of happiness in a poor country increases outward migration flows (relative to the average effect across all countries). Recall that the

²³Recall that we include country fixed effects so the effect of the average level of origin country GDP on migration flows will be reflected in these fixed effects.

overall effect of happiness inequality in the origin country is to increase emigration (both empirically and in the model in Sect. 10.3). The results for the interaction term imply that this effect is especially strong in poor countries, but is attenuated in richer countries.

In column (5) we present the results in which destination country GDP is interacted with the destination country's standard deviation of happiness. Again, the estimated interaction effect is negative and significant at the 1% level.²⁴ Again recall that both our theoretical and empirical results show that the overall effect of a higher standard deviation of happiness in the destination country is to increase migration inflows. The negative interaction term implies that this 'drawcard' effect of inequality is attenuated for richer destination countries but is stronger for poorer destination countries. Our theoretical structure traces the positive relationship between destination country SWB inequality and migration inflows to potential migrants' expectations about where they may find themselves in the happiness distribution in the new country. We conjecture that a potential migrant (from a poorer origin country) may understand that they are less likely to be in the high portion of the happiness distribution in a rich country (where their skills and/or culture may not be such a good fit) than they would if they were to move to a less affluent country. If this were the case, then a high degree of SWB inequality in a rich country may not prove to be as strong a drawcard as elsewhere. This (strong statistical) finding indicates an area of future study that warrants further examination.

If we were to concentrate solely on the effects of variables based on country means, we would conclude from this (and some prior analyses) that bilateral migration flows respond positively to increases in both SWB and incomes of destination countries, and respond with a weaker negative impact of origin country SWB. We would also conclude that there is no estimated effect (by itself) of changes in origin country GDP (although poorer countries could still have consistently high emigration rates reflected in the relevant origin country fixed effect). Migration costs also significantly impact on bilateral migration flows.

Our results, however, go beyond the impacts of country-average variables. Not only do the standard deviations of happiness in each of origin and destination countries have positive impacts on migration flows, they also vary according to the level of country incomes. In particular, a high standard deviation of happiness in poor origin countries increases emigration still further while a high standard deviation of happiness in a rich destination country leads to some attenuation in the impact of inequality. Thus not only is SWB inequality an important determinant of migration in its own right, but also its impact varies according to country incomes.

²⁴If we include both interaction terms in the same equation, we obtain almost identical estimates for each variable as reported in columns (4) and (5).

10.5 Research and Policy Implications

Consistent with a large body of existing literature, we confirm that international migrants are drawn to higher income destination countries. Furthermore (based on the standardised coefficients), the effect of destination country GDP per capita is stronger than the effects of the other variables that we consider. However our work, and that of a number of related studies, indicates that traditional economic variables, such as incomes, need to be supplemented by other indicators of the desirability of origin and destination countries in order to fully understand migration flows. As indicated by the broader wellbeing literature (Layard et al. 2012) country-specific factors such as human rights (freedom of choice and political participation) and ‘personal fit’ factors (such as alignment of a person’s values and religious beliefs with the dominant approaches within a country) affect an individual’s SWB over and above conventional economic forces. Thus even when an individual faces similar income and job opportunities across countries, their overall wellbeing may differ across those countries as a result of a broad range of factors. These factors, which still reflect utility maximisation, need to be taken into account in migration studies.

One way to include these factors as determinants of migration—without having to include each factor separately—is to include a measure of overall life satisfaction in the migration equation. Building on a number of prior studies we have shown that this approach yields meaningful results. Furthermore, we show that it is not just the mean of SWB across countries that counts but also SWB inequality is a factor that influences migration flows. We find that higher SWB inequality in each of origin and destination countries increases bilateral migration flows but we add to prior analyses by showing that this effect is non-linear, being attenuated as income (in either country) rises.

These findings have implications both for research and for policies in the field of migration. With respect to migration research, the importance of including non-pecuniary factors in studies of migration flows—and particularly subjective wellbeing related factors—has been established. Further work is warranted in understanding how SWB affects different groups within society. For instance, do skilled and unskilled migrants respond differently (perhaps affected by different visa restrictions), do men and women respond differently, do the young respond differently to older people and do rates of time preference affect these decisions?²⁵ In addition, further research could usefully focus on how SWB inequality affects different groups, and analyse why the effect of inequality differs according to income levels of both origin and destination countries. Future research could also analyse the sensitivity of results with respect to SWB inequality using alternative SWB inequality measures.

At a policy level, the findings have two sets of implications. If one considers migration as being a revealed preference indicator of the desirability of a country,

²⁵Grimes et al. (2017) show (theoretically) that in an intertemporal model, both young people with high rates of time preference and old people with low rates of time preference will locate in high SWB/low wage locations, while young people with low rates of time preference and old people with high rates of time preference will locate in low SWB/high wage places.

then the results show that SWB measures have real content as an indicator of the quality of life across countries. Policy-makers can therefore validly adopt SWB measures within broader measures of a country's progress as, for instance, is the case within the OECD's *How's Life* (and *Better Life Index*) approach (OECD 2011).

In terms of migration policy, the results indicate that a country's attractiveness both to its current residents and to prospective residents rests not only on traditional economic outcomes. The broader wellbeing of citizens also determines whether people choose to stay or leave a country. This insight may be particularly relevant to countries that are (undesirably) losing population to outward migration. While the cause of such emigration may in part be due to economic performance, it may also be due to broader wellbeing determinants such as the state of human rights or environmental outcomes in the country. Policy may therefore need to address these broader elements that contribute to wellbeing as well as ensuring satisfactory economic performance if the wish is to stem outward migration flows.

Acknowledgements We thank Dominic White for assistance and thank two reviewers for their comments on an earlier draft of this chapter.

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Part III
Migration Effects on Destination Areas

Chapter 11

Migration and Human Capital: The Role of Education in Interregional Migration: The Australian Case



Daniel Crown, Jonathan Corcoran, and Alessandra Faggian

11.1 Introduction

Interregional migration is a process that has been studied extensively given its capacity to influence the distribution of human capital, wage structures, and housing prices (Greenwood 1985). Workers may engage in interregional migration as a form of casting a larger occupational search (McCall 1970; Mortensen 1970). Alternatively, the human capital theory of migration presents migration as an investment in an individual's human capital (Sjaastad 1962). While much of the research on interregional migration has been devoted to estimating the return to migration, this body of scholarship arguably lacks a consensus on precisely why migrants receive higher wages post-migration. Labor market search theory predicts that migrants may receive a wage premium by finding an improved occupation match in a new destination. However, highly educated migrants may also receive a wage premium due to the higher returns to education in a destination compared to that of their origin. The goal of this chapter is to estimate which explanation is dominant in the context of interregional migration.

D. Crown (✉)

The Ohio State University, Columbus, OH, USA
e-mail: crown.17@osu.edu

J. Corcoran

The University of Queensland, Brisbane, Australia
e-mail: jj.corcoran@uq.edu.au

A. Faggian

Gran Sasso Science Institute, L'Aquila, Italy
e-mail: alessandra.faggian@gssi.it

Prior work on interregional migration has highlighted its role as a mechanism through which migrants may achieve a better skill-job match. For example, recent graduates may better utilize their education post-migration (Marinelli 2013; Iammarino and Marinelli 2015). Moreover, Hensen et al. (2009) find that interregional migrants have lower instances of over-education compared to stayers. Recent evidence from a study of inter-county migration in the United States supports this argument, finding that recent graduates who migrate have better employment prospects during periods of economic downturn compared to stayers (Waldorf and Do Yun 2016). However, few studies have tested whether the positive impact of migration on labor market outcomes is due to an improved occupation match or a higher return to education.

Perhaps the largest challenge in studying this question is that migrants differ from non-migrants in unobservable characteristics such as their ambition or motivation. If left uncontrolled for, the positive selection of migrants will bias naïve estimates of the return to migration due to unobserved ability influencing both the propensity to migrate and subsequent wages. One of the commonly used empirical strategies to overcome this potential bias is the Heckman sample selection model (Heckman 1979), and its variants. However, common to these models is the requirement of a variable that influences the propensity to migrate, but not subsequent wages. In practice, finding such an exclusion restriction is difficult. In this chapter, we use an alternative strategy that leverages the availability of individual-level longitudinal data and fixed effects models to control for unobserved individual characteristics that could influence both the propensity to migrate and wages (Scheffel and Zhang 2018).

Our chapter is focused on interregional migration within Australia. Australia is well suited for the study of interregional migration because it is characterized by relatively high rates of internal migration, with 7.9% of the population moving within Australia each year, and 21% of the population moving at least once every five years (Bell et al. 2015).¹ Australia is also characterized by high levels of repeat migration, with five in ten Australians moving at least five times between age 17 and 50 (Bernard et al. 2017). Lastly, the population of Australia is highly concentrated in urbanized areas, and the top migration flows are those that occur with a capital city as a destination or an origin (Charles-Edwards et al. 2018). However, despite the relatively small magnitude of migration flows among remote and rural regions of Australia, understanding the migration flows in regional Australia is still important, as Australia ranks third among OECD countries in the size of remote or regional areas (OECD 2016). Moreover, recent policy efforts and natural resource discoveries have driven increasing migration flows of skilled workers to remote regions of Australia. While prior work has studied the geographic location choice of migrants in Australia (e.g., Corcoran et al. 2010; Rowe et al. 2017), we seek to improve on prior work by estimating the return to migration depending on the remoteness of both the origin and destination, and decomposing this return into the return to education, occupations, or unobserved individual characteristics.

¹However, we note that consistent with observations in the United States, migration levels in Australia are falling in recent years (Bell et al. 2018).

In this chapter, we seek to answer the question: Do internal migrants receive a wage premium because of access to higher paying occupations, or do they receive a higher return to their educational attainment in the destination region? We utilize longitudinal data from the Household Income and Labour Dynamics in Australia (HILDA) dataset.² Our empirical strategy controls for selectivity in the migration decision using individual fixed effects models. Additionally, we employ a new decomposition technique introduced by Gelbach (2016) to analyze what factors contribute most to an individual's return to migration, and how these factors vary according to the characteristics of the origin–destination pair. This decomposition is based on the omitted variables formula and is an improvement to traditional decomposition techniques, as the results are invariant to the order the variables are added.

The chapter will proceed with a brief discussion of the extant internal migration literature. Next, we introduce our dataset and describe the interregional migration patterns of migrants in Australia. In Sect. 11.4, we present the empirical framework and identification strategy followed by a discussion of the results in Sect. 11.5 and present a series of conclusions in Sect. 11.6.

11.2 Background Literature

There exists a vast literature estimating the pecuniary return to interregional migration in developed countries. Glaeser and Mare (2001) reveal that migrants receive a lasting wage premium as a result of living in large cities, a finding that is attributed to human capital accumulation post-migration. Migrants may also benefit from other explanations behind the urban wage premium including knowledge spillovers from co-location with high-skilled peers (see for example, Peri 2002; Moretti 2004; De La Roca and Puga 2017), and more advantageous employee–firm matches (Venhorst and Cörvers 2018).

To better understand the sources of post-migration wage premiums, researchers have studied specific subpopulations of migrants at the end of their educational and the beginning of their professional careers. Recent college graduates pose a unique setting to examine the study-to-work transition. They are also an important subpopulation to study because of their ability to transfer skills and information across regions (Faggian et al. 2007; Eriksson 2011) and contribute to regional innovation (Faggian and McCann 2008). Moreover, studies have found that the occupation of recent graduates is a significant determinant of the degree of rurality of the destination region. In Australia, for example, workers employed in health occupations are more likely to move from an urban to a remote region (Corcoran et al. 2010).

²This dataset is comparable to the Panel Study of Income Dynamics (PSID) and other surveys include in the Cross National Equivalence File (CNEF). For more information about the dataset used in our analysis please see: <https://melbourneinstitute.unimelb.edu.au/hilda>.

While past research using cross-sectional data has yielded important insight into defining what types of individuals become interregional migrants, the rising availability of longitudinal data has provided researchers with greater opportunities to precisely measure interregional migration and its consequences. Models using cross-sectional data and variants of the Heckman (1979) selection correction models have found that migrants earn modestly higher wages post-migration (e.g., Nakosteen et al. 2008; Kazakis and Faggian 2017). However, there is significant heterogeneity in the results depending on the time period studied, analysis sample studied, and definition of interregional migration employed (Venhorst and Cörvers 2018). Studies using longitudinal data have yielded important insight into the migration flows across regions (e.g., Etzo 2011; Royuela and Ordóñez 2018), as well as more precisely studying the return to migration and the effect on occupational mismatch (Rowe et al. 2017). Interregional and international migrants have also been studied using the same dataset as this chapter, the Household Income and Labour Dynamics in Australia (HILDA) dataset (Crown et al. 2020; Wen and Maani 2018; Kortt et al. 2018; To et al. 2017).

To understand how various factors contribute to the pecuniary return to migration, it is important to understand the wage structure in different regions of Australia. When examining Sydney and its surrounding areas, for example, Mallik et al. (2014) find that postgraduate degree holders are more likely to be employed in Sydney, however their wages are higher outside Sydney. This finding is explained by the fact that wages are higher in rural areas due to the relatively low share of educated workers. The depletion of human capital in rural areas is a common phenomenon to many countries (Partridge et al. 2008a, b). The concept of “brain drain” posits that the most educated workers are also those most likely to leave due to higher paying opportunities in more urbanized regions. The selective out-migration of skilled workers further depletes rural areas of human capital, and exacerbates rural skill deficiencies. However, in recent years two forces have increased the migration flows of skilled workers to remote regions of Australia. First, policymakers have implemented incentives to help stimulate migration of domestic and foreign-born skilled professionals to remote areas.³ Such programs are a part of a broader rural development policy that seeks to fill skill deficiencies in various professional occupations in remote and rural regions that arise due to low fertility and an aging workforce. Second, the natural resource boom and large-scale extraction of iron ore and coal led to large inflows of workers in the construction and mining industries to remote regions of Western Australia, New South Wales, and Queensland. Though the flows of migrants to remote and rural regions of Australia are relatively small compared to those to urban areas, we seek

³Prominent examples include the General Practice Rural Incentives Program (GRIP), which provides incentive payments of \$4,500 to \$60,000 per year for health professionals providing primary health care services in regional and remote regions of Australia. Payments are structured to incentivize migrants to regions that struggle to attract skilled workers, and provide further incentives to remain by providing higher incentives for continued tenure in the region. Australia has also instituted various policies to attract skilled foreign-born workers to regional Australia, and skilled foreign-born workers have become an important component of the regional workforce (Argent and Tonts 2015).

to provide a better understanding of why these migrants receive wage premiums to assess the role of rural development strategies in driving migration flows to remote regions of Australia.

11.3 Description of Data and Summary Statistics

11.3.1 Data and Sample

In this chapter, we study the interregional migration decisions of individual's using the nationally representative Household Income and Labour Dynamics in Australia (HILDA) dataset. The HILDA has been used in several studies of interregional migration including that of retirees (Sander and Bell 2014). The HILDA is also a component of the cross-national equivalence file (CNEF) along with the British Household Panel Survey (BHPS), the Panel Survey of Income Dynamics (PSID), and German Socio-Economic Panel (SOEP). This makes the HILDA attractive for the purposes of cross-national analysis, such as that of interregional family migration (Vidal et al. 2017), or young adult migration (Bernard et al. 2016).

In the analysis, we use waves 1–15 of the HILDA panel, which follows approximately 17,000 individuals.⁴ The advantage of using a longitudinal dataset rather than cross-sectional is that we are able to track each individual's location, employment status, and wages over a 15 year period from 2001 to 2015. Additionally, because migrants are typically positively selected from the general population, researchers must control for self-selection in the migration decision (Borjas et al. 1992). In this chapter, we utilize the panel dimension of the data in our empirical model to control for unobservable individual characteristics such as ambition and motivation, which may introduce bias into our estimation of the effect of migration on wages (for more on the role of selection in the migration decision see Faggian et al. 2017).

We define interregional migration in two ways, first as a move from one Greater Capital Statistical Area (GCCSA) to another. There are 16 GCCSA's in Australia, each capturing the population of a capital city and its surrounding population that is likely to commute into the city for work or recreation. Second, we employ a richer definition of migration according to the degree of remoteness among the origin and destination. To this end, we classify the remoteness of origin and destination regions using the Remoteness Area (RA) definitions published by the Australian Bureau of Statistics (ABS). While the ABS Remoteness Areas are defined according to a 5 category scale, we collapse the two most remote regions to form a 4 category scale.⁵ In our empirical specification, the independent variable of interest is the interaction of the origin and destination remoteness area categorical variables and the migration indicator variable.

⁴For more information about the HILDA dataset, please see Summerfield et al. (2011). And Wooden and Watson (2007).

⁵The categories are Major city, Inner Regional, Outer Regional, and Remote/Very Remote.

11.3.2 Characteristics of Migrants and Migration Flows in Australia

To select an appropriate subpopulation to study the labor market impacts of inter-regional migration, we include only workers between the ages of 18 and 65 years old in our analysis sample. Summary statistics of the analysis sample are given in Table 11.1.

On average, interregional migrants are younger, less likely to be married, and have fewer years of work experience than non-migrants. These findings are consistent with the broader interregional migration literature that finds that younger, single workers are most likely to migrate (Faggian et al. 2017). Moreover, we find that migrants in our sample are more highly educated than their non-migrant counterparts, with migrants being more likely to hold a bachelors degree or higher.

Table 11.2 contains the transition matrix of origin–destination flows of interregional migrants. We note that interregional migration in Australia is characterized primarily by moves within the same remoteness area classification. Thus, the most likely origin–destination pairs are found along the diagonal of the transition matrix. The next largest flows are from the inner regional, outer regional, and remote/very remote locations to one of the major cities in Australia.

Table 11.5 displays the transition probabilities for interregional migrants across Greater Capital City Statistical Area (GCCSA) regions. We note that the largest flows are within the same state (e.g., from ‘Rest of NSW’ to Greater Sydney or vice

Table 11.1 Summary statistics

	Non-migrant	Migrant
Age	48.08	40.48
Married (%)	65.80	60.60
Male (%)	46.60	47.60
Years of work experience	11.03	7.14
Foreign born (%)	22.50	17.10
<i>Educational attainment</i>		
Masters/Doctorate (%)	3.66	5.02
Graduate diploma/Certificate (%)	5.23	6.47
Bachelor or honors (%)	12.37	16.20
Advanced diploma/Diploma (%)	9.19	9.13
Certificate III or IV (%)	20.23	20.73
Year 12 (%)	14.09	15.91
Year 11 and below (%)	35.24	26.55

Notes, Source Authors calculation with Household Income and Labour Dynamics (HILDA) survey data from 2001 to 2015. Migrants are defined as individuals who change GCCSA regions, and are observed for 1 year pre/post-migration in their GCCSA

Table 11.2 Transition matrix of internal migrants

	Destination remoteness area			
	Major city	Inner regional	Outer regional	Remote/Very remote
Origin remoteness area				
Major city	92.67	4.99	1.78	0.56
Inner regional	9.42	87.89	2.17	0.51
Outer regional	9.87	4.53	84.65	0.95
Remote/Very remote	11.04	5.52	5.36	78.08

Notes This table displays the transition probabilities for internal migrants in Australia using data from the Household Income and Labour Dynamics in Australia (HILDA) survey from 2001 to 2015. Each cell represents the probability of moving to a given destination remoteness area classification, given their origin remoteness area classification

versa, rather than from Greater Sydney to Greater Melbourne or Greater Brisbane). However, we note that this is not at odds with the net migration flows published by Charles-Edwards et al. (2018), as this is the conditional probability of moving to a given destination they are observed at a particular origin. Moreover, we note that consistent with the migration flows published by Charles-Edwards et al. (2018), Greater Queensland is typically a likely destination for migrants coming from most of the origin GCCSA regions.

11.4 Empirical Framework

The importance of self-selection in the decision to migrate is well documented in the literature (Borjas et al. 1992). Migrants may differ from non-migrants due to unobservable individual characteristics such as ambition, motivation, or preferences toward risk. Naïve estimates of the return to migration will thus be biased if these factors are not controlled for within the empirical framework. Prior work in the migration literature has employed a variety of selection correction techniques based on the work of Heckman (1979) to overcome this source of bias. However, common to these models is the requirement of an exclusion restriction. That is, one must include a variable that is highly correlated with the propensity to migrate, but uncorrelated with the outcome variable of interest.

This chapter takes an alternative approach that utilizes panel data and fixed effects models to control for unobserved time-invariant individual characteristics that may introduce bias in studies that use cross-sectional data.⁶ The identifying assumption is that, conditional on all control variables and individual, state, and year fixed effects, there are no time varying shocks that influence both the propensity to migrate and post-migration wages.

The goal of this chapter is to decompose the return to internal migration into components explained by education, occupations, and unobservable individual attributes. To accomplish this, we use a decomposition technique that is invariant to the order that covariates are included. This was first introduced by Gelbach (2016), and has been used with high dimensional fixed effects models to distinguish among various explanations for the gender wage gap (e.g., Card et al. 2015; Cardoso et al. 2016). As we employ an empirical specification with multiple fixed effects, we closely follow the implementation of Cardoso et al. (2016).

First, we estimate the return to migration using a baseline specification that only controls for individual-level characteristics, X_{it} , including worker experience, experience squared, marital status, age, age squared, whether a household has children, and home ownership.

$$\ln(w_{it}) = \beta_0 + \delta_0 M_{it} + \beta_1 X_{it} + \epsilon_{it} \quad (11.1)$$

In this specification, M_{it} is an indicator variable that takes the value zero if an individual is a non-migrant in year t , and equals one in all years post-migration.⁷ Thus the estimated coefficient, δ_0 , represents the return to migration.

To decompose the estimated return to migration into components attributable to occupation versus education, we employ the Gelbach (2016) decomposition technique. In the second stage, we augment Eq. (11.1) by adding an individual's educational attainment, 2-digit Australian and New Zealand Standard Classification of Occupations (ANZSCO) occupation code, and individual fixed effects. Thus, we estimate the following specification.

$$\ln(w_{it}) = \beta_0 + \delta_1 M_{it} + \beta_1 X_{it} + E_{it} + \phi_o + \phi_i + \epsilon_{it} \quad (11.2)$$

Then, as shown in Cardoso et al. (2016), the difference in estimated coefficients can be decomposed as follows:

$$\hat{\delta}_1 - \hat{\delta}_0 = \hat{E}_{it} + \hat{\phi}_o + \hat{\phi}_i \quad (11.3)$$

⁶We use fixed effects models rather than random effects models because we cannot assume that the unobserved individual heterogeneity is not correlated with explanatory variables. For example, unobserved ability is likely correlated with educational attainment.

⁷In this chapter we only consider the first migration event in the case of multiple migration spells. According to this definition the migration indicator is only equal to 1 in the first post-migration spell, and the individual is dropped from the analysis when they are observed as a multiple migrant.

Second, to estimate whether the return to migration varies depending on the origin or destination, we modify Eq. (11.1) to interact the migration indicator with the origin and destination remoteness area categories. This is given by the following equation.

$$\ln(w_{it}) = \beta_0 + \gamma_0(M_{it}) * (O_{it}) * (D_{it}) + \beta_1 X_{it} + \epsilon_{it} \quad (11.4)$$

where O_{it} and D_{it} take values 1–4 to represent the origin and destination remoteness area classification. The interaction takes a base category of 0 for non-migrants, and thus our estimated coefficients represent the return to migration for migrants from each combination of origin–destination remoteness area combinations relative to the pre-migration wages of the pooled sample of migrants. However, we note that this specification will suffer from omitted variables bias due to the selection of migrants on unobservable characteristics.

Next we estimate the full specification which includes education, occupation, and individual fixed effects (our preferred specification). We decompose the estimated impact of migration as in Eq. (11.3) to determine whether the factors that contribute to higher wages in a destination depend on origin/destination characteristics. This regression takes the following form:

$$\ln(w_{it}) = \beta_0 + \gamma_1(M_{it}) * (O_{it}) * (D_{it}) + \beta_1 X_{it} + E_{it} + \phi_o + \phi_i + \epsilon_{it} \quad (11.5)$$

As for the decomposition of the average return to migration, without specifying the remoteness of the origin or destination region, the difference in estimated coefficients can be decomposed as in Cardoso et al. (2016):

$$\hat{\gamma}_1 - \hat{\gamma}_0 = \hat{E}_{it} + \hat{\phi}_o + \hat{\phi}_i \quad (11.6)$$

where the relative contribution of education, occupation, and individual heterogeneity are specific to a given origin–destination remoteness category. Thus there are 48 estimated coefficients of interest that correspond to the 16 possible combinations of the 4 remoteness origin–destination categories for each of the three variables.

11.5 Results

11.5.1 Results for the Average Migrant

We begin by estimating the baseline return to migration from Eq. (11.1). The results from this estimation are found in specification (1) of Table 11.3. Our estimates imply that internal migration is associated with 5.12% higher wages post-migration when comparing migrants to non-migrants. However, it is important to note that this estimate is likely biased, as this specification does not control for the unobservable characteristics of migrants. In our preferred specification that includes individual fixed

Table 11.3 Gelbach decomposition of return to migration

	Baseline return to migration	Fully specified return to migration	Difference	Education	Individual FE	Occupation FE
Migrate	0.0512*** (0.0191)	0.0308** (0.0139)	0.0204	0.0092*** (0.0027)	0.0042 (0.0159)	0.0074*** (0.0026)
Sample size	42,126	41,863		41,863	41,863	41,863
Number of workers	4,530	4,288		4,288	4,288	4,288
Controls	Yes	Yes		Yes	Yes	Yes
Education	No	Yes		NA	NA	NA
Individual FE	No	Yes		NA	NA	NA
Occupation FE	No	Yes		NA	NA	NA

Notes ***, **, * denote 1%, 5%, and 10% significance, respectively. Control variables include marital status, age, age squared, whether the household has children, home ownership, experience, experience squared, and year fixed effects. Standard errors are clustered at the individual worker level

effects, and thus compares the same individual’s wages pre versus post-migration, as well as controlling for worker education, and occupation fixed effects, the estimated return to migration falls to 3.08%.

While we have established that interregional migrants in Australia receive a wage premium of 3.08%, we have not provided any evidence for why migrants receive this premium. For example, migrants may receive a higher return to their education in the new destination, or they may move into a higher paying occupation after migrating. The next step of our analysis decomposes the estimated return to migration into components attributable to worker education, occupation, and unobserved individual characteristics.

Our findings indicate that a migrant’s education contributes a positive 0.92 percentage-point increase in the return to migration. Moreover, a migrant’s occupation contributes a positive 0.74 percentage-point increase in the return to migration. Our results can be interpreted as complementary to findings of prior research (for example, Hensen et al. 2009; Waldorf and Yun 2016) on over-education and occupation matching. The finding of a positive role of occupations can be reconciled with labor market search theory, whereby migrants achieve a more advantageous occupation-skill match post-migration (Venhorst and Cörvers 2018). However, we also find a similar estimated impact of worker education on the return to migration. Thus our results for the “average” migrant, without controlling for the degree of rurality of the sending and receiving regions, do not provide insight into whether education or occupations are most important. Both explanations appear to hold merit in explaining the average return to migration.

The estimated coefficient for the individual fixed effect implies that unobserved time-invariant individual characteristics contribute an additional 0.42% points to the pecuniary return to migration, although this effect is not statistically significant. While the positive magnitude implies there may be positive sorting of high-unobserved ability migrants between cities, we are unable to reject the null hypothesis that the true coefficient is zero.

11.5.2 Results by Origin–Destination Pairs

To better understand the determinants of the return to migration and examine whether the factors that explain the pecuniary return to migration varies depending on the remoteness of the origin or destination for migrants, we estimate the specification in Eq. (11.4) that interacts the migration indicator variable with the remoteness of the origin and destination of each migrant. The primary estimates of interest are the 16 estimated coefficients that represent the return to migration for a given origin–destination pair. The full results are found in Table 11.4, and presented graphically for ease of interpretation in Fig. 11.1.

We find that the return to interregional migration in Australia varies depending on the remoteness of the origin and destination region. Migrants who move from one major city in Australia to another receive 2.4% higher wages post-migration, though this effect is not statistically significant. Additionally, workers who leave a major city in favor of an inner regional area receive a wage penalty of 5.6%. This result may be attributable to worse labor market opportunities in periphery regions. One possible explanation is that migrants may incur a wage penalty in order to consume greater natural amenities in more remote regions.

Surprisingly, we also find evidence that workers who leave less-remote regions in favor of more remote regions earn higher wages post-migration. For example, those who move from an inner regional location in favor of a remote/very remote region experience a substantial wage increase of 55% post-migration. Moreover, migrants who move from an outer remote region to a remote/very remote region receive a 28% wage premium. One possible explanation is that these workers may be highly skilled, and are incentivized to work in a remote region by a government program such as in the health profession, alternatively they may be employed in the mining and extraction sectors.⁸

⁸The top occupation for migrants from inner regional to remote/very remote Australia is: 25—Health professionals, which includes occupations such as Nurses, Medical Practitioners, Surgeons, and Pharmacists.

Table 11.4 Gelbach decomposition by origin/destination

		(1)	(2)	(3)	(4)	(5)
		Baseline ln (wage)	Full ln (wage)	Education FE	Individual FE	Occupation FE
Origin	Destination					
Major city	Major city	0.135*** (0.0476)	0.0243 (0.0303)	0.0122** (0.00501)	0.0806** (0.0407)	0.0160*** (0.00538)
Major city	Inner regional	0.0295 (0.0432)	-0.0562* (0.0340)	0.00215 (0.00490)	0.0823** (0.0355)	0.00173 (0.00599)
Major city	Outer regional	-0.0725 (0.0645)	0.0714 (0.0600)	-0.0106 (0.00658)	-0.126** (0.0541)	-0.0110 (0.00825)
Major city	Remote/Very remote	0.0185 (0.103)	-0.0734 (0.0487)	0.000687 (0.0175)	0.0997 (0.110)	-0.0107 (0.0215)
Inner regional	Major city	-0.0273 (0.0683)	0.0706 (0.0545)	-0.00986 (0.00608)	-0.0864 (0.0613)	-0.00551 (0.00905)
Inner regional	Inner regional	-0.179*** (0.0642)	-0.0858 (0.0565)	-0.0156** (0.00614)	-0.0520 (0.0643)	-0.0273*** (0.00947)
Inner regional	Outer regional	-0.00831 (0.0904)	0.0501 (0.0684)	-0.000253 (0.00895)	-0.0459 (0.0712)	-0.0175 (0.0191)
Inner regional	Remote/Very remote	0.419*** (0.0387)	0.549*** (0.0272)	-0.0256*** (0.00355)	-0.0356 (0.0320)	-0.0739*** (0.00462)
Outer regional	Major city	-0.00603 (0.0808)	-0.0137 (0.0652)	0.00435 (0.00609)	0.0117 (0.0709)	-0.0112 (0.00800)
Outer regional	Inner regional	0.0960 (0.143)	0.276* (0.159)	0.000512 (0.00732)	-0.144 (0.120)	-0.0398*** (0.00935)
Outer regional	Outer regional	-0.250** (0.106)	-0.0881 (0.0863)	-0.00273 (0.00931)	-0.123 (0.105)	-0.0406*** (0.0149)
Outer regional	Remote/Very remote	0.0396 (0.0952)	0.275** (0.120)	-0.0210*** (0.00540)	-0.219*** (0.0521)	-0.00232 (0.0300)
Remote/Very remote	Major city	0.233** (0.104)	0.118 (0.241)	0.000480 (0.0164)	0.101 (0.0901)	0.0107 (0.0114)
Remote/Very remote	Inner regional	0.291*** (0.0703)	0.283 (0.172)	-0.0269*** (0.00429)	0.0233 (0.0980)	0.00634 (0.0178)
Remote/Very remote	Outer regional	0.101 (0.101)	-0.106 (0.0756)	0.0309 (0.0211)	0.145 (0.125)	0.0294*** (0.00965)
Remote/Very remote	Remote/Very remote	0.439*** (0.0352)	0.0659 (0.0992)	0.00239 (0.00663)	0.433*** (0.0415)	-0.0622*** (0.0137)
			-			
Observations		4,636	4,613	4,613	4,613	4,613
Controls		Yes	Yes	Yes	Yes	Yes
Individual FE		No	Yes	Yes	Yes	Yes

(continued)

Table 11.4 (continued)

		(1)	(2)	(3)	(4)	(5)
		Baseline ln (wage)	Full ln (wage)	Education FE	Individual FE	Occupation FE
Origin	Destination					
Occupation FE		No	Yes	Yes	Yes	Yes
Education		No	Yes	Yes	Yes	Yes
R-squared		0.231	0.701	0.063	0.563	0.091

Notes ***, **, * denote 1%, 5%, and 10% significance respectively. Control variables include age, age squared, home ownership, presence of children, marital status, experience, experience squared, and year fixed effects. Standard errors are clustered at the individual worker level

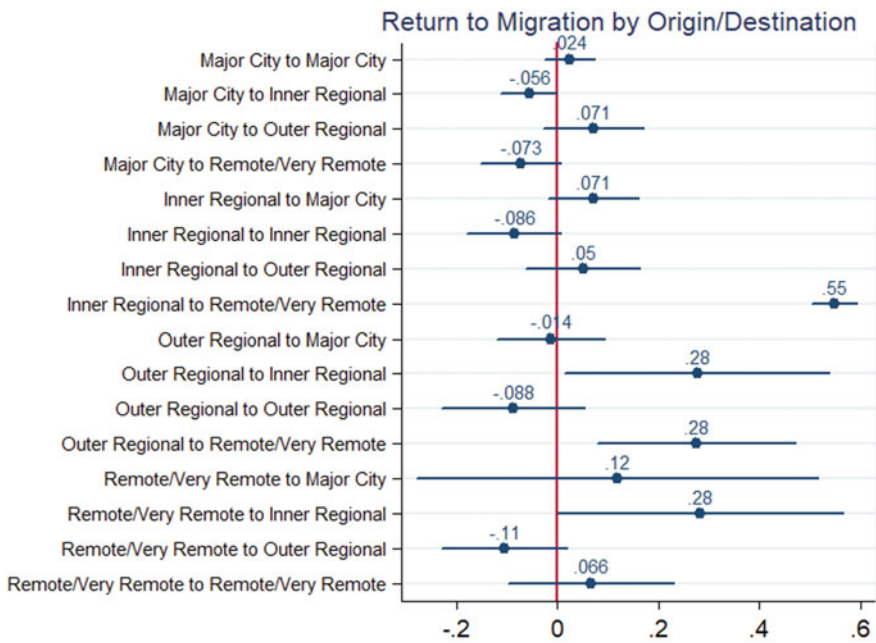


Fig. 11.1 Estimated return to migration by origin/destination pair. Notes This figure depicts the estimated coefficient and associated confidence interval from the interaction term of migration × origin × destination from Eq. (11.3). Estimation uses data from the Household Income and Labour Dynamics in Australia (HILDA) survey from 2001 to 2015. All specifications control for age, age squared, home ownership, presence of children, experience, experience squared, marital status, and year fixed effects. Standard errors are clustered at the individual level. Full regression results are shown in Table 11.4

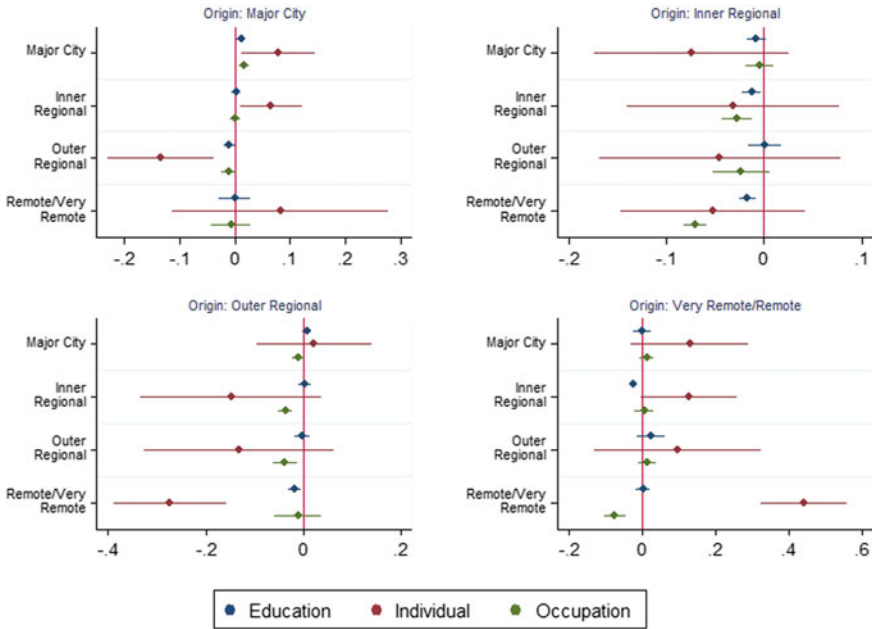


Fig. 11.2 Gelbach decomposition by origin/destination pair. *Notes* This figure portrays the results from the Gelbach (2016) decomposition of the return to migration for each origin–destination pair using Household Income and Labour Dynamics in Australia (HILDA) data from 2001 to 2015. Each panel represents a given origin remoteness area, with the destination remoteness area given by the vertical axis. All specifications control for age, age squared, experience, experience squared, marital status, home ownership, the presence of children, and year fixed effects. Standard errors are clustered at the individual level

To estimate the determinants of the pecuniary return to migration, we perform the Gelbach (2016) decomposition on the origin–destination interaction term from Eq. (11.3). The full results are shown in Specifications (3)–(5) of Table 11.4, and the estimated coefficients of interest are displayed in Fig. 11.2 for ease of interpretation.

For major city to major city migrants, we find that both occupation and education are important contributors to the return to migration, with occupations contributing 14% and education contributing 11% to the wage premium.⁹ This result is consistent with our results for the average migrant without differentiating by origin–destination remoteness. This is because major city to major city flows are likely the largest in number of migrants, and both the origin and destination have favorable labor markets for facilitating an advantageous worker–employer match. Thus, we conclude that the return to migration between major cities is due to roughly equal contributions of a higher return to education and occupations.

⁹These values are calculated as the share of the contribution of education (1.22% points) and occupations (1.6% points) to the difference in the return to migration from the baseline to full specification in Table 11.4 (11.07%). All subsequent contributions of education and occupation to the return to migration are calculated similarly.

With respect to individual sorting on unobserved characteristics, we also find that major city to major city migrants are positively selected on time-invariant characteristics such as ambition or motivation. Evidence of individual sorting is also found for migrants leaving a major city in favor of an inner regional region, with the individual fixed effects contributing 96% of the return to migration. We also find evidence of negative sorting of migrants who leave a major city in favor of an outer regional location, and migrants who leave an outer regional location in favor of a remote/very remote region. Together these findings imply that migrants who move to remote or rural locations are negatively selected based on some time-invariant unobservable determinants of wages.

For migrants who move from an inner regional to a remote/very remote region, the large wage premium of 54.9% is attributable largely to the occupation (56.8%) and education (19.7%) of an individual.¹⁰ Thus, migrants who move from an inner regional to remote/very remote are paid a premium due to working in high-paying occupations. Along with the finding of the 27.5% wage premium for outer regional to remote/very remote region migrants, this finding is consistent with the incentives to remedy skill deficiencies in remote Australia, or the natural resource boom that attracted migrants employed in the mining and extraction sector. Thus, most of the wage premium experienced by migrants to remote/very remote regions is likely due to their specialized occupation.

Overall, our results indicate that migrants in general benefit from both access to higher paying occupations and a higher return to their educational attainment. However, once we differentiate by geography of the origin and destination regions, we find evidence that the explanations for why migrants receive a pecuniary return or penalty to migration varies according to the type of origin and destination pair. We find evidence that occupations are the most important factor that explains why migrants locating in remote/very remote regions experience wage increases post-migration. Lastly, individual sorting on time-invariant unobservable characteristics is a significant explanation for the penalty received by migrants from a major city to an outer regional location, as well as from outer regional to remote/very remote regions.

11.6 Conclusion

This chapter has estimated the return to migration and examined the mechanisms that influence the return to interregional migration in Australia. Consistent with much of the existing international literature, we find modest positive effects of internal migration on the wages of native workers. Our contribution is to estimate the return to migration for specific origin–destination pairs of remoteness area classifications.

¹⁰Note that though the estimates of the relative contributions of education and occupation are negative in the graph for inner regional to remote/very remote, this is because the return to migration increased from the baseline to the full specification, leading to a negative difference in estimates.

In doing so, we estimate whether the determinants (education or occupations) of the return to interregional migration vary according to the remoteness of origin–destination region pairs.

Our findings indicate that the average migrant receives a wage premium due to roughly equal contributions of a higher return to education and access to higher paying occupations. However, when we examine separately by geography we find that migrants who move away from the more urbanized areas in favor of remote/very remote regions receive a wage premium that is attributable to their high-paying occupation. We speculate that regional development policies that seek to attract high-skilled workers to remedy skill gaps in remote Australia, and the natural resource boom which attracted large flows of workers employed in construction and extraction industries to remote Australia may be one explanation for this finding.

It is important to note that while we have estimated the short-run return to migration based on the 15-year data available to us, the occupation and education mechanisms tested in this paper may take several years to take effect. Thus our results should only be interpreted as the short term migration wage premium, and its explanations. Future work using a longer panel of workers will be able to build on our results to offer more robust estimates and assess the contribution of various covariates to the migration wage premium over longer periods.

Another important caveat to our results is that the migration flows to/from remote regions are small relative in magnitude compared to those to/from urban regions. This may be exacerbated by the fact that the estimates are derived from HILDA data rather than a larger sample, such as one from Census data. Our modeling choice represents a tradeoff between the advantages of using detailed longitudinal data of a smaller sample, and the advantage of using less detailed, large sample cross-sectional Census data. Given the focus of the chapter is to identify the explanation for the pecuniary return to migration, we opt to sacrifice some generalizability in order to precisely identify the pecuniary return and its determinants.

Appendix

See Tables 11.5, 11.6, and 11.7.

Table 11.5 Transition matrix for interregional migrants across GCCSA regions

Origin GCCSA name	Destination GCCSA name											Total		
	Greater Sydney	Rest of NSW	Greater Melbourne	Rest of Victoria	Greater Brisbane	Rest of Queensland	Greater Adelaide	Rest of South Australia	Greater Perth	Rest of Western Australia	Tasmania		Northern Territory	Australian Capital Territory
Greater Sydney	85.05	7.47	1.16	0.37	1.46	1.83	0.45	0	0.82	0.07	0.26	0.19	0.86	100
Rest of NSW	4.17	87.23	0.77	0.82	1.67	2.53	0.23	0.11	0.34	0.26	0.34	0.48	1.05	100
Greater Melbourne	1.44	0.83	86.21	6.37	0.95	1.52	0.49	0.08	0.83	0.08	0.42	0.3	0.49	100
Rest of Victoria	0.05	1.42	6.72	88.85	0.27	0.87	0.55	0.33	0.22	0.05	0.16	0.27	0.22	100
Greater Brisbane	0.93	1.53	1.25	0.12	86.44	7.71	0.24	0.12	0.56	0.2	0.2	0.28	0.4	100
Rest of Queensland	0.73	2.49	0.82	0.28	5.29	88.64	0.25	0.06	0.37	0.17	0.28	0.45	0.17	100
Greater Adelaide	0.74	0.91	1.07	0.5	0.58	1.16	87.05	5.86	0.41	0.25	0.17	0.91	0.41	100
Rest of South Australia	0	0.67	0.4	1.61	0.54	0.67	10.59	83.38	0.13	0.4	0.4	0.94	0.27	100
Greater Perth	1.54	0.85	1.69	0.69	0.54	1.08	0.08	0	86.85	5	0.62	0.46	0.62	100
Rest of Western Australia	0.29	1.32	0.44	0.15	0.59	2.06	0.15	0.15	10.59	82.65	0.74	0.88	0	100

(continued)

Table 11.5 (continued)

Origin GCCSA name	Destination GCCSA name												Total	
	Greater Sydney	Rest of NSW	Greater Melbourne	Rest of Victoria	Greater Brisbane	Rest of Queensland	Greater Adelaide	Rest of South Australia	Greater Perth	Rest of Western Australia	Tasmania	Northern Territory		Australian Capital Territory
Tasmania	1.14	1.3	2.11	0.81	1.46	1.3	0.32	0.32	0.81	0.16	89.29	0.16	0.81	100
Northern Territory	0.82	2.86	1.43	1.43	2.65	3.88	1.63	0.82	1.63	0.61	0.41	81.22	0.61	100
Australian Capital Territory	2.09	4.45	1.31	0.39	1.57	0.92	0	0	0.92	0	0	0.39	87.96	100
Total	11.42	15.73	11.5	8.4	11.17	16.01	5.35	3.19	5.84	2.94	2.75	2.18	3.5	100

Notes: Table shows the transition matrix for interregional migrants across greater capital city statistical areas (GCCSA). Source: Authors calculations with Household Income and Labour Dynamics in Australia (HILDA) data

Table 11.6 Gelbach decomposition (post-migration period limited to <5 years)

	Baseline return to migration	Fully specified return to migration	Difference	Education	Individual FE	Occupation FE
Migrate	0.0460*** (0.0183)	0.0211 (0.0134)	0.0249	0.0071*** (0.0027)	0.0143 (0.0152)	0.0056** (0.0027)
Sample size	42,312	42,055		41,540	41,540	41,540
Number of workers	4,538	4,302		4,300	4,300	4,300
Controls	Yes	Yes		Yes	Yes	Yes
Education	No	Yes		No	No	No
Individual FE	No	Yes		No	No	No
Occupation FE	No	Yes		No	No	No

Notes ***, **, * denote 1%, 5%, and 10% significance respectively. Control variables include marital status, age, age squared, whether the household has children, home ownership, experience, experience squared, and year fixed effects. Standard errors are clustered at the individual worker level

Table 11.7 Gelbach decomposition (controlling for state fixed effects)

	Baseline return to migration	Fully specified return to migration	Difference	Education	Individual FE	Occupation FE
Migrate	0.0460** (0.0189)	0.0141 (0.0128)	0.0319	0.0066** (0.0026)	0.0114 (0.0160)	0.0059** (0.0027)
Sample size	43,393	43,142		42,590	42,590	42,590
Number of workers	4,542	4,312		4,309	4,309	4,309
Controls	Yes	Yes		Yes	Yes	Yes
Education	No	Yes		No	No	No
Individual FE	No	Yes		No	No	No
Occupation FE	No	Yes		No	No	No

Notes ***, **, * denote 1%, 5%, and 10% significance respectively. Control variables include marital status, age, age squared, whether the household has children, home ownership, experience, experience squared, state, and year fixed effects. Standard errors are clustered at the individual worker level

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Chapter 12

Effects of Immigration on Local Housing Markets



William Cochrane and Jacques Poot

12.1 Introduction

We live in an age of intensive cross-border flows of information, capital, goods, services and people. One prominent way in which globalization has manifested itself is through international migration. At the time the most recent wave of globalization took off around 1980 there were about 100 million people living abroad and this number has increased greatly to about one quarter of a billion at present, representing about 3% of the current world population. However, international migration is highly selective of countries, regions and cities—leading to a percentage of foreign born in some countries and cities that is much greater than the global average. With few exceptions, the percentage of foreign born in high income countries ranges from close to one tenth of the population (Portugal, Denmark and Italy) up to one quarter or more (New Zealand, Australia, Israel, Switzerland and Luxembourg). In many of the largest cities in the developed world, immigrants account for 30–40% of the population and in some wards of these cities the foreign born are by far the majority of those who live there.

Against this background we may expect that immigration may have relatively large effects on housing markets of metropolitan cities. Additionally, effects in the

W. Cochrane (✉)

School of Social Sciences, Faculty of Arts and Social Sciences, University of Waikato, Private Bag 3105, Hamilton 3240, New Zealand
e-mail: billc@waikato.ac.nz

J. Poot

Department of Spatial Economics, Vrije Universiteit Amsterdam, De Boelelaan 1105, 1081 HV Amsterdam, The Netherlands
e-mail: h.j.poot@vu.nl; jpoot@waikato.ac.nz

National Institute of Demographic and Economic Analysis, University of Waikato, Private Bag 3105, Hamilton 3240, New Zealand

wards of such cities may vary to the extent that migrants are disproportionately represented in the local population. Historically, however, research on the economic effects of immigration has rather neglected the housing market impact and tended to focus on national macroeconomic outcomes such as effects on GDP per capita, trade and investment (see, for example, Mishan and Needleman 1966). Since the 1980s, immigration economics focused initially predominantly on the effects of immigration on the wages of the native born and on the assimilation of immigrants in local labour markets (see the review by Hatton 2014). Pioneering work on integrative analysis of immigration impacts by means of applied multi-sectoral general equilibrium models that included the housing market was already conducted in the 1980s in Australia (Norman and Meikle 1985) and New Zealand (Poot et al. 1988) but only at the national level and in a relatively stylized way (by assuming a homogenous housing stock). Research in which housing market effects of immigration became a core focus did not emerge until the twenty-first century, with the seminal study by Saiz (2003) noting that there was only a very small literature on that topic until then.

Immigrants in a country are usually a very heterogeneous group of people and their impacts on the host economy and society can be wide ranging. In recent years, the study of economic consequences of immigration has emerged as a new and expanding field in economics (for comprehensive reviews, see Chiswick and Miller (2015), Bodvarsson and Van den Berg (2013) and Nijkamp et al. (2012)). At the same time, it has been long acknowledged that the housing market is one of the most complex markets in the economy. Housing economics therefore emerged as a separate field of study in the discipline during the 1980s (Muth and Goodman 1989; Fallis 1985; McLennan 1982). Alternatively, housing economics is seen as a sub-field in urban economics (e.g. O'Sullivan 2019; DiPasquale and Wheaton 1995).

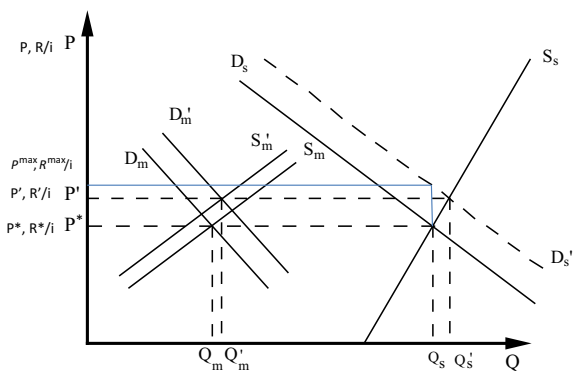
The question of how immigration affects local housing markets sits therefore at the intersection of the two complex fields of immigration economics and housing/urban economics. Since Saiz's (2003) study of the impact of a wave of Cuban migrants to Miami on housing rental prices there, the number of papers concerned with researching the effect of immigrants on local housing markets has grown relatively fast. Larkin et al. (2018) extracted from a relatively large body of literature 45 studies that quantified the impact of immigration on house prices in a comparable way. These studies permitted a meta-analysis of 474 estimates of immigration's impact on house prices in 14 destination countries. Larkin et al. (2018) find that estimates of the partial correlation between immigration and house prices vary widely but they conclude that, on average, immigration *increases* house prices. However, while this study confirms that the relationship is *statistically* significant, there is still not enough comparable evidence available at the present time to be able to state how *economically* significant the relationship is on average across studies. For example, there is no consensus yet what the expected percentage increase in house prices might be, on average, when net immigration increases the population by 1%, *ceteris paribus*. Similarly, it remains uncertain what the impact of immigration is on a range of other housing market indicators (for example rents and the proportion of dwellings that are rented, residential real estate sales and the construction of different types of housing units—varying from detached homes to apartments).

In the absence of enough evidence to provide the reader with a relatively precise estimate of how quantitatively important immigration in developed countries might be for the housing market, we aim to provide in this chapter a concise review of the available evidence to date, including the aforementioned meta-analysis and report a range of estimates the key studies have revealed under their specific study conditions. We also assess whether there are any lessons that can be drawn for public policy from the available evidence and we identify future lines of inquiry that could be potentially fruitful. However, we first provide in the next section a basic theoretical framework for the housing market and an assessment of how an “immigration shock” might impact on prices and the housing stock in that market. Section 12.3 then reviews some of the representative empirical studies and the recent meta-analysis of the literature. This is followed by a more in-depth case study, focussing on New Zealand, in Sect. 12.4. Section 12.5 sums up.

12.2 Theoretical Perspectives

Houses and apartments are long lived assets that provide shelter and other residential services to their users. Because many dwellings are owner-occupied, or rented to tenants by means of long-term agreements, the housing market has the typical feature of markets for long lived assets that only a small fraction (of the order of a few percent) of the stock changes hands in any given year. This implies that the market can be represented in a diagram by two sets of demand and supply curves: one set for the total housing stock and one for the residential real estate market. This is shown in Fig. 12.1. On the right hand side of Fig. 12.1 we see the supply curve for the stock of houses and flats, labelled S_s , and the demand curve, labelled D_s . The market is in equilibrium at market price P^* and the equivalent housing rent R^* . At that level of prices and rents, the total quantity of dwellings held by asset holders (including owner-occupiers) in their asset portfolios is exactly equal to the physical stock of dwellings that exists in the economy, Q_s . House prices P and rents R are here seen as

Fig. 12.1 The impact of an increase in net immigration on the housing market



equivalent concepts because, when housing services can be rented at rent R in a given period, the equivalent house price in a non-distorted housing market will be $P = R/i$, where i is the real interest rate.¹ At prices higher than the equilibrium level P^* , it will be profitable for clients of construction firms to increase the stock of dwellings by building new housing units. The rate at which this can happen is constrained by the limited resources available to the construction sector and the time it takes from initial design and resource consent application to get to the stage where a dwelling is ready for occupancy. This is usually between six months to a year (e.g. Poot 2000). The supply curve of the housing stock is therefore steep, i.e. price-inelastic, particularly in the short-run. In the long-run, supply can be price elastic, i.e. an increase in house prices of 1% may in the long-run lead to a housing supply increase of greater than 1%—with the actual magnitude depending on local conditions (e.g. Malpezzi and Maclennan 2001).

The demand for ownership of the stock of dwellings is more elastic because, when prices rise above the equilibrium price P^* , demand by owner-occupiers for housing services would fall, i.e. they would demand less floor space. At the same time, landlords would find that the equivalent higher rents lead to a lower quantity of housing demanded by tenants. Overall, housing demand is not very price elastic—with a classic analysis (Hanushek and Quigley 1980) suggesting a price elasticity of housing demand being between -0.3 and -1 . In any case, there will be some excess supply at high prices that would put downward pressure on prices and rents which could—in a well-functioning market—lead to a return to the original real prices and rents (while, in nominal terms, prices and rents would then increase at the rate of inflation). Nonetheless, the short-term inflexibility in the stock of dwellings is one of the major factors responsible for the considerable volatility in the price of housing in response to various demand shocks.

When the market is in equilibrium, the quantity of housing units that changes hands in any given period (Q_m in Fig. 12.1) is determined by the intersection of the housing real estate supply curve S_m and the demand curve D_m . Equilibrium implies that these houses sell at price P^* or rent at R^* (indeed, the price of the vast majority of units that are *not* offered on the market at that point in time is usually assumed, for example for tax purposes, to be equal to the observed price of the properties sold). S_m and D_m may be expected to be more price elastic than the corresponding curves S_s and D_s , given that it is relatively easy to list a property in expectation of a capital gain when prices rise (a move up S_m) or delist it from the market when prices fall. Similarly, a rise in P or R will lead to some potential buyers ceasing their search for a property while others may settle for smaller accommodation, resulting in a move up D_m . At the same time, at rising prices investors may find that yields of residential investment are declining relative to yields of other types of assets. This would lead to there being more sellers in the market. This is equivalent to a move up S_m .

¹The assumptions under which $P = R/i$ holds include: no depreciation, a perfectly competitive housing market and an absence of government intervention in the market. Clearly, in more realistic markets the relationship is mathematically more complicated but P and R remain nonetheless often strongly correlated.

What is the impact of immigration in this simple housing market model? The demand for housing triggered by the arrival of an immigrant is almost instantaneous: unless the person moves in with an existing household in a residential unit,² the demand for an additional dwelling unit has been created. This demand is likely to be met initially by temporary accommodation in a hotel, motel or short-term rental unit, but the migrant will soon start to search for more permanent accommodation. Consequently, the demand can only be met by a vacant dwelling unit (temporary or permanent accommodation) or by new construction. Hence the increase in the number of households due to immigration shifts the demand curve for the stock of dwelling units from D_s to D_s' . A new equilibrium has been established when the equilibrium price increases to P' (and rent to R') and the stock of houses has increased to Q_s' . Consequently, $Q_s' - Q_s$ is the net number of houses and flats to be built to meet the increase in demand. Given that it takes time for the additional housing supply to become available, the short-run upward effect of immigration on house prices is much greater (up to price level P^{max}) than the long-run effect (P'). However, house prices are not expected to return to the old level P in the long-run. This is due to an increasing marginal cost of construction of dwelling units and due to a fixed supply of land, which therefore also increases in value. Partially offsetting factors could be technological and institutional changes that lower building costs. Additionally, there could be spatial variation (up or down) around the average price when migrants settle in certain parts of a city and this generates spillover effects on the native born. This will be elaborated later on.

Figure 12.1 shows also that, after an increase in net immigration, the market demand and supply curves D_m and S_m both shift upwards to D_m' and S_m' , respectively. The demand curve D_m shifts up because the number of people searching for a home to buy or to rent has increased. Investors will also be wishing to purchase additional dwellings. The S_m curve shifts up because, at the current price, fewer landlords and owner-occupiers are putting their houses on the market when they know that the future equilibrium price will be greater than the current price, i.e. a capital gain can be made by postponing sale. Additionally, people who do offer a dwelling unit for sale now will increase their asking price. While the market price and rent will increase to the new equilibrium levels of P' and R' , respectively it cannot be a priori established whether the turnover of dwelling units per period increases or decreases. The case drawn in Fig. 12.1 shows an increase in the total number of dwelling units changing hands from Q_m to Q_m' , but if the anticipation of future capital gains is very strong, there will be a lot of “banking” of dwelling units (some of which may remain unoccupied) and the units offered for sale will be declining (which can be shown by shifting the S_m curve much further up). In any case, both the demand for and supply of the stock of dwellings, as well as the listings and sales in the residential real estate market, are strongly affected by expectations regarding future prices and future economic conditions.

²The case of a migrant household sharing a dwelling with a resident household (often earlier migrants), can potentially lead to a high person to floor area occupancy rate, also referred to as residential crowding (Burr et al. 2010).

The housing market which we described in simplified form in Fig. 12.1 by means of conventional demand and supply curves is, in reality, one of the most complex markets in the economy. There are many factors that determine the position and slope of the demand and supply curves (both in the real estate market and in the market for ownership of the dwelling stock). Together they determine the actual impact one may observe after an immigration shock. The size and composition of the immigration flow will clearly matter too. Table 12.1 lists the wide range of factors which influence the housing market, on the supply side and on the demand side. Various observable market outcomes are listed also. It should be noted that Fig. 12.1 and Table 12.1 have simplified the analysis to assuming just one type of dwelling unit. In reality there are many types of dwellings ranging from detached home to apartments in multistory buildings. Additionally, there is huge quality variation among housing units in terms of the physical attributes of the dwelling, the amenities at the location and the accessibility of work, shops, etc. Hence, there are many partially overlapping and interacting housing markets. The evidence provided in the following sections will show that some of these are much more affected by immigration than others. Additionally, housing markets interact spatially. For example, if a high level of skilled immigration contributes to rising apartment prices and rents in the CBD of a city, we would expect some outward migration of inner city dwellers to the suburbs, thereby raising prices and rents there. Such spatial spillover effects are often incorporated in the form of spatial lags or spatial autocorrelation in the econometric modelling.

On the supply side, the stock of dwelling units diminishes by physical depreciation, with additions and alterations providing some compensation. However, most of the increase in the stock is by means of the construction of new dwellings. This is, in turn, affected by availability and cost of land, land and infrastructure development costs, construction costs, the availability of design and building workforces; and the availability of plant & equipment and building materials.

On the demand side, demographic factors are central, given that the demand for dwellings is most fundamentally equal to the number of households, which is population divided by average household size. A change in the observed population over a given time period equals births minus deaths plus net migration (internal and international). Average household size can change due to trends in fertility and mortality; and changes in household formation (e.g. marriage, flatting) and dissolution (e.g. divorce). There may be differences between the respective impacts of different components of demographic change on the housing market; and there may be notable differences in these demographic forces between immigrants and the native born. This chapter focuses only on the housing market impact of immigration—for the impact of other demographic changes see e.g. Mankiw and Weil (1989) and Levin et al. (2009).

As is the case for most other types of consumer expenditure, per capita demand for housing services is inversely related to house price or rent and positively related to income and/or wealth. However, housing demand is also strongly affected by consumer preferences regarding housing services (such as a long-term trend of households desiring a larger floor area per person, which can be observed in many countries), and regarding the demand for various amenities. Household formation

Table 12.1 Factors influencing the housing market

Supply of residential space in a local housing market	Market outcomes	Demand for residential space in a local housing market
Price (P) and rent (R) per unit floor area	Equilibrium market price (P^*) and rent (R^*) per unit floor area	Price (P) and rent (R) per unit floor area
Expectations regarding future prices and future economic conditions		Expectations regarding future prices and future economic conditions
Stock of dwellings offered for housing services (S_s) Dwelling units offered for sale or rent in any period (S_m)	Current stock of dwellings (Q_s) Turnover of units for sale or rent (Q_m)	Stock of dwellings demanded for housing services (D_s) Dwelling units demanded for purchase or rent in any period (D_m)
Physical depreciation of the existing stock		Current population and number of households
Additions and alterations		Household formation and dissolution
Construction of new dwellings		Internal and international migration
Availability and cost of land for residential construction	Proportion of the stock that is owner-occupied	Consumer preferences regarding housing services, tenure and amenities
Land and infrastructure development costs	Proportion of households renting housing services Proportion of households owning residential real estate	Income and wealth
Construction costs		Return on other types of assets
Availability of design & building workforce, plant & equipment, building materials		
Interest rates and the availability of finance	Housing affordability	Interest rates and the availability of finance
Structure and regulations of the housing, building, real estate and financial markets		Structure and regulations of the housing, building, real estate and financial markets
Connectivity and spillovers between local housing markets	Indicators of mismatch: Unoccupied dwellings, crowding, homelessness	Connectivity and spillovers between local housing markets

Source Adapted from Cochrane and Poot (2016)

and dissolution are affected by changes in preferences (such as changes in the age at which a young person may wish to leave the parental home). Tenure choice (to own or to rent) is partly a matter of preferences and partly a matter of the return to funds invested in housing compared with the return to funds invested in other assets. Changes in preferences can also affect the type of housing demanded. An example is the increase in the demand for low maintenance apartments close to the city centre. The impact of immigration will be sensitive to differences in housing preferences between immigrants and the native born, for example with respect to tenure choice (also this may be simply due to endowment effects, see e.g. Painter et al. 2001).

A final set of factors impacts on both the demand and the supply side of the market. They include the level of the interest rate and the availability of finance. Together with after-tax income this determines housing affordability (R/Y_d or iP/Y_d ; where Y_d refers to disposable income) and, in extreme cases, homelessness. Additionally, housing demand and supply are both affected by the structure and regulations of the housing, building, real estate and financial markets. Differences in outcomes across countries in how house prices respond to similar immigration shock can be partly the result of differences in the composition of migration flows and cross-country differences in housing market behaviour and institutional factors, as the empirical results in the following sections suggest.

12.3 Empirical Evidence

12.3.1 *United States*

As is often the case, the pioneering research has been done in the United States. Below we also briefly consider evidence from Canada, France, Italy, Spain, Switzerland and the United Kingdom. In the next section we review New Zealand evidence as a separate case study. This country is of particular interest given that it has had in recent years one of the highest net migration rates in the world.

Saiz (2003) provided a first estimate of how an immigration shock impacts on the U.S. housing market. He considered the sudden and huge migration from Cuba to Miami in 1980, the so-called Mariel boatlift. This is seen as a so-called “natural experiment” in which the subsequent changes in rental prices in Miami were compared with changes in rental prices in three comparison groups. The immigration shock added an extra 9% to Miami’s renter population and an increase in rents that was 8–11% more than in comparable cities. Hence this suggests an impact elasticity of about one: a 1% increase in the number of immigrants leading to an increase in the cost of rental housing of roughly 1%.

A large proportion of migration into the U.S. has gone to six states: California, New York, Florida, Texas, New Jersey and Illinois. This led Saiz (2007) to consider the local impact of immigration inflows on the housing market in international migrant gateway cities. To account for the possible endogeneity of immigration with respect

to factors that generate rent and house price growth, Saiz used an instrumental variable approach with instruments based on: changes in the national level of immigration; changes in the characteristics of the immigrants' countries of origin and the spatial distribution of immigrants in earlier periods (Saiz 2007, p. 346). He finds that immigration pushes up the demand for housing in the destination areas, with rents increasing in the short-run and with house prices catching up with the passage of time. The magnitude of the effects is similar to that of the Muriel Boatlift case: an immigration inflow equal to 1% of the initial metropolitan area population is associated with, approximately, a 1% increase in rents and house values (Saiz 2007, p. 364).

In recent years, the literature has been increasingly emphasising that such relatively small average effects may hide larger spatial differences. Using the techniques of spatial econometrics, Mussa et al. (2017) show with U.S. data from 2002 to 2012 that a 1% increase in population in a Metropolitan Statistical Area (MSA), due to immigration, increases rents and house prices there by 0.8%, but rents in surrounding MSAs increase by 1.6% and house prices by as much as 9.6%. These spillover effects to surrounding MSAs are expected to be predominantly due to spatial sorting: native born leaving the wards with growing numbers of migrants and moving to less diverse neighbourhoods. Evidence of such spatial sorting following an immigration shock is provided by Saiz and Wachter (2011).

12.3.2 *United Kingdom*

Sá (2015) uses a model that is based on Saiz (2007) but extended to include income effects in housing consumption and the possibility that the native born population may move away from those cities that have a relatively large influx of immigrants. The elasticity of supply is expected to be crucial in determining the response of house prices to immigration. Essentially, where housing supply is less elastic the increase in demand for new housing created by new migrants will spur less construction and higher price increases than in cities with high elasticities of housing supply. Similarly, adverse demand shocks (such as net outward migration of natives) will see in cities with low elasticities of supply a relatively smaller reduction in construction and greater reductions in prices.

Sá (2015) uses in the empirical section of her paper OLS and instrumental variable techniques with official statistics for 170 local authorities in England and Wales to estimate the impact of migration on house prices. She finds that immigration has a *negative* effect on house prices: an increase in immigrant population equal to 1% of the local population *reduces* house prices by 1.7%. One explanation for this advanced by Sá is the mobility response of the native born. An increase in immigrant population equal to 1% of the local population increases the native net out-migration rate by 0.048 percentage points. The reason why this might lead to lower house prices appear to lie in the differential sorting of the native population across local authorities. Natives at the top of the wage distribution leave high immigration cities and generate

a negative income effect on housing demand which pushes down house prices in local areas where immigrants cluster. Sá notes that much of the negative effect is related to the clustering of migrants with low educational attainment in certain areas in England and Wales. This would suggest that in local areas where immigrants have higher educational attainment (such as in London) immigration will exert upward pressure on housing demand, counteracting the negative income effect from native out-migration.

A negative impact on house prices does not necessarily mean that rents will decline as well. Using, like Sá, data on local housing markets in England and Wales, Aitken (2014) finds that an inflow of immigrants equal to 1% of the initial population is associated with a 0.14–0.18% increase in average housing rent. Hence, following an immigration shock, rents do increase in the UK context, but only modestly so.

Braakmann (2016) and Zhu et al. (2018) extend Sá's work by considering the quality and location of the housing, and the skill levels or incomes of the migrants. Both papers report local house price declines due to immigration, but predominantly in poorer areas that would attract unskilled migrants. Besides the “white flight” of higher income residents from such areas, the conversion of larger properties into several flats to accommodate migrants may lower the price per housing unit as well.

12.3.3 Canada

With panel data for the period 1996–2006 at census division level, Akbari and Aydede (2012) analyse the impact of migration on house prices in Canada.³ The extent of migration to Canada is quite large, equivalent to an annual inflow rate of about 0.6% of the Canadian population (Akbari and Aydede 2012, p. 1656). Akbari and Aydede's model contains a wide variety of immigration, labour market, demographic, cost and supply side variables and is estimated using a “one-way within-fixed-effect” model. They conclude that immigration increases house prices slightly, but that the effect is close to zero and arises only from migrants who had been resident in Canada for 10 years or more (Akbari and Aydede 2012, p. 1657).

12.3.4 Spain

Spain is a particularly interesting country to assess the effect of immigration on the housing market given that growth in the foreign-born population has been huge. In the period 1998–2008, the foreign-born share in the Spanish working-age population increased from 2 to 16%. In absolute terms, the foreign-born population increased

³For census purposes Statistics Canada divides the country into 289 census divisions. These are intermediate in the spatial hierarchy between municipality (smaller) and province/territory (larger) (Akbari and Aydede 2012, p. 1649).

from barely 0.5 million to 5 million over the course of the decade. The 2000–2005 increase in the foreign-born share in the population of Spain was the largest increase in the world (Gonzalez and Ortega 2013, Fig. 12.1). Contemporaneously, housing prices appreciated rapidly, rising by 175% between 1998 and 2008, and construction of new dwellings rose from around 250,000–600,000 units per year (Gonzalez and Ortega 2013, p. 38). The mechanism Gonzalez and Ortega (2013) postulate for the link between migration and house prices/residential construction is simple: large increases in working-age immigration lead directly to increases in the demand for home ownership, given that a considerable proportion of working-age migrants in Spain are home owners (40% in 2007). The 60% of non-home owning migrants then raise demand in the rental market, encouraging higher demand for housing as an investment. Gonzalez and Ortega adopt an instrumental variables approach to guard against endogeneity bias arising from simultaneity in house prices and migration flows. They estimate two models: one for the logarithm of the price of housing (price per square meter) and the other for the logarithm of the stock of housing units.⁴ They find large effects of migration on the Spanish housing market with the migration shock being responsible for about 25% of the increase in housing prices and more than 50% of the increase in the housing stock (Gonzalez & Ortega 2013, p. 57). Over the 1998–2008 decade, immigration was in aggregate about 17% of the initial population and was responsible for a 1.2–1.5% increase in housing units annually, and an increase in housing prices of about 2% annually (Gonzalez and Ortega 2013, p. 37). We conclude that the impact elasticity is somewhat larger, but still quite comparable, than what was found for the U.S. This is reconfirmed by the study by Sanchis-Guarner (2017) who uses Spanish data for the period 2001–2012. She finds elasticities of approximately 0.8% for rents and 3.1% for house prices. Sanchis-Guarner’s contribution is to separate out the effect of the mobility of natives, which at the regional level is *inward*, i.e. natives move to regions in which migrants contribute to population growth. Consequently, native inward migration also contributes to the increasing cost of housing. The net effect, that removes this native mobility effect, is about one third lower than the overall effect.

12.3.5 Italy

Accetturo et al. (2014) develop a model that shows how an immigrant inflow in a district affects local housing prices through changes in how natives perceive the quality of their local amenities and how this influences their mobility (Accetturo et al. 2014, p. 45). This model gives rise to a number of predictions (Accetturo et al. 2014, p. 48): first, migration increases the average price of housing at the city level; second, the impact of migration at the district level, relative to the city average, is negative (positive) if migration deteriorates (improves) the perception of the quality

⁴Two instruments are used; one based on the settlement patterns of past migrants (ethnic networks) and another based on geographic accessibility (“gateways”) (Gonzalez & Ortega 2013, pp. 42–43).

of local amenities; third, migration encourages the outflow of natives; and, fourth, a lower (higher) housing supply elasticity in the area affected by immigration implies a larger (smaller) outflow of natives but without affecting the house price differentials within the city.

These predictions are then tested with reference to a group of 20 large Italian cities, with the data being available at district level, for the period 2003–2010. Estimation of a series of models, one for each of the predictions, is carried out using both OLS and instrumental variable techniques. With respect to the first of the predictions, a 10% increase in the stock of immigrants (approximately the annual average growth 2003–2010 in the cities considered) would increase average house price by 5% (the implied impact elasticity is therefore about 0.5—which is somewhat less than what was found in the U.S.). Generally, however, the results are similar to those obtained in studies for Canada (Akbari and Aydede 2012) and for the U.S. (Saiz 2007).

However, both OLS and instrumental variable estimations show that prices in areas in which migrants settle tend to grow at rates *below* the city average. Quantitatively, a 10% increase in migrant numbers in an area is found to *lower* local prices by about 2 percentage points relative to the city average (Accetturo et al. 2014, p. 53).

The instrumental variable estimates also indicate that 10 additional immigrants in a district above the city-year average induce 6 natives to relocate to other areas of the city (Accetturo et al. 2014, p. 53). Finally, there is some heterogeneity in the housing impact within cities. Areas with a low elasticity of housing supply react more strongly to migrant inflows (with 7 natives leaving for every 10 migrants there) than areas with higher elasticities of housing supply (where 4 natives leave for every 10 migrants).

12.3.6 France

d’Albis et al. (2017) provide the first French evidence on the relationship between non-EU immigration and housing by means of the panel vector autoregression (VAR) methodology applied to regional data for the period 1990–2013. The VAR methodology is a time series alternative to instrumental variables to address two-way causality, i.e. to address the fact that immigration may not only impact on house prices but also respond to changing house prices. d’Albis et al. find that immigration had no significant effect on regional property prices in France, but higher property prices significantly reduced immigration rates. The authors explain these results in terms of some special characteristics of non-EU immigration in France, namely that most of this immigration is motivated by family reasons for which a residence permit requires the availability of suitable housing. The importance of social housing, which accounts for 44% of rented housing in France, may have also impacted on the insignificant effect of non-EU migration on regional house prices.

12.3.7 Switzerland

Degen and Fischer (2017) examine the relationship between house prices and immigration flows in 85 Swiss regions over six years (2001–2006), a period during which house price inflation was relatively low. Using a regression model similar to Saiz (2007) they find that an immigration inflow equal to 1% of an area's population is coincident with an increase in prices of single-family homes of about 2.7%. The effect on higher density housing, such as multifamily homes, tends to be larger—presumably because migrants may disproportionately rent this type of housing. The Swiss results yield similar magnitudes to those found in the U.S. (Saiz 2007), Spain (Gonzales and Ortega, 2013; Sanchis-Guarner 2017) and Italy (Accetturo et al. 2014). The housing impact in Switzerland is re-estimated by Adams and Blickle (2018) by means of both Swiss Household Panel data (51,000 household-year observations) and data on 2323 municipalities across 22 years. Adams and Blickle find a house price impact elasticity of about 1.15 for immigrants from the EU and OECD, while the impact of immigration from the rest of the world is less (0.37), presumably due to the lower income of the latter migrants and their greater impact on outward migration of the native born at the local level. In fact, Adams and Blickle conclude that the displacement effect is mostly due to a dislike of growing diversity of the neighbourhood and less due to higher housing costs and greater competition on the labour market.

12.3.8 Meta-Analytic Evidence

The case studies outlined above provide by no means all of the estimates of the effect of immigration on house prices. Larkin et al. (2018) consider a much larger set of estimates. They gathered 45 econometric studies with 474 comparable estimates that spanned 14 developed countries. Each of these studies estimated regression models of house prices (by location and time period) with a measure of immigration among the right hand side variables. However, the studies are too dissimilar to calculate a weighted average of the impact elasticities (with weight determined by estimate precision). Instead, Larkin et al. (2018) use the partial correlation coefficient as the effect size and run a meta-regression model in which this partial correlation coefficient is regressed on 13 moderator variables (i.e. study characteristics), using weighted least squares with inverse variance weights. This research shows that immigration does indeed increase house prices on average, thus confirming the theoretical predictions in Sect. 12.2 above. The main driving force is expected to be the relatively inelastic supply of new dwellings and land for residential development.

A novel aspect of this meta-analysis is that the results are linked to World Values Survey (WVS) data on attitudes towards immigrants/foreign workers. Larkin et al. (2018) find that in countries where a larger percentage of WVS respondents dislike having immigrants as neighbours, the impact of immigration on house prices is

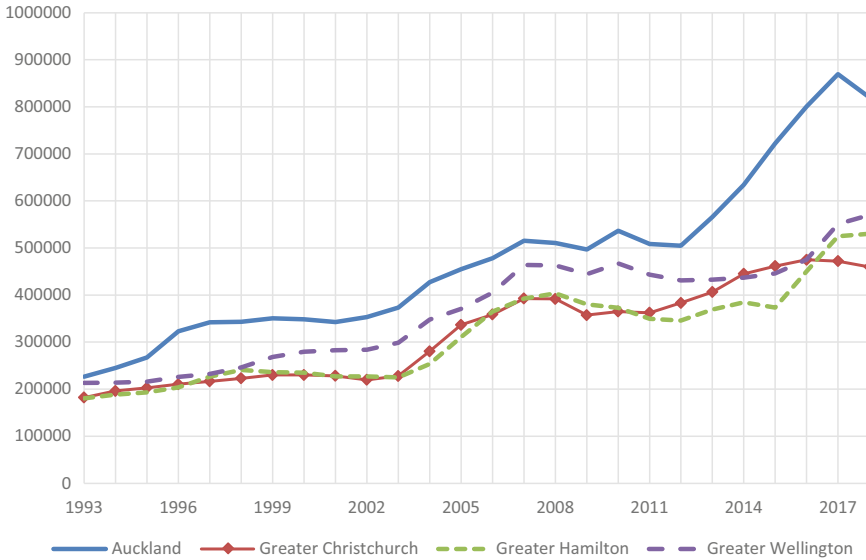


Fig. 12.2 Main centre median sale price (March 2018 New Zealand dollars). *Source* MBIE 2018 <http://urban-development-capacity.mbie.govt.nz>

mutated. This is consistent with the evidence cited above that, at least at the local level, *homophily* (i.e. the desire to live next to those of a similar background) triggers outward migration of the native born from the city wards where migrants settle and thereby reduces the house price impact or even leads to house price declines (as in the case of the U.K.).⁵

12.4 A Case Study: New Zealand

According to data published by *The Economist*, New Zealand had in 2017 the most unaffordable house prices in the world.⁶ At the same time, New Zealand had one of the highest rates of net immigration, equivalent to 1.5% of the resident population per annum. House prices are the highest in Auckland, which accounts for more than half of immigration (but only one third of population). House prices grew faster in Auckland than in other major cities in the country, particularly after 2012 (see Fig. 12.2). Not surprisingly, homeownership rates (the proportion of households

⁵The desire for homophily does not necessarily suggest that the native born are opposed to diversity. For example, the effect of greater ethnic diversity on the variety of ethnic cuisine offered in cities has been shown to be a positive amenity effect of greater immigration that may increase property prices (Bakens et al. 2018).

⁶See <https://www.economist.com/graphic-detail/2017/03/09/global-house-prices>, accessed 21/9/2018.

in owner-occupied dwellings) are lower in Auckland than in the rest of the country. While homeownership rates have been declining across New Zealand since the 1990s, the decline in Auckland has been in recent years relatively faster than elsewhere. Consequently, the impact of international migration on homeownership, house prices and rents is of considerable interest. We therefore provide in this section a review of the New Zealand evidence in somewhat greater depth.

When assessing the impact of net international migration on New Zealand's housing markets, it should be kept in mind that much of the overall change in aggregate net international migration in New Zealand is due to sharp cyclical fluctuations in the net movements of New Zealanders themselves, who have the greatest cross-border mobility rates in the developed world (Bedford and Poot 2010). The rate of net Permanent and Long-Term (PLT) migration of foreign citizens per 1000 estimated New Zealand total population is cyclical but shows a long-term upward trend, with peaks around 1996, 2003 and 2017. Net PLT migration of New Zealand citizens is also cyclical but persistently negative, depressing New Zealand's population growth by 0.5% per annum on average (see Fig. 12.3). However, net PLT migration of New Zealand citizens is even more cyclical than net migration of foreign citizens and the peaks do not always coincide. It could be argued that the “perfect storm” in the 2014–2017 period of relatively low net outward migration of NZ citizens coinciding with peak net inflows of foreign migrants is a rare occurrence.

Figure 12.4 zooms in on net migration in Auckland, again distinguishing between the net migration of New Zealand citizens and citizens of other countries, but also considering migration from/to Australia and migration from/to the rest of the world. From 1997 (the earliest date for which Auckland data are available) onwards the net

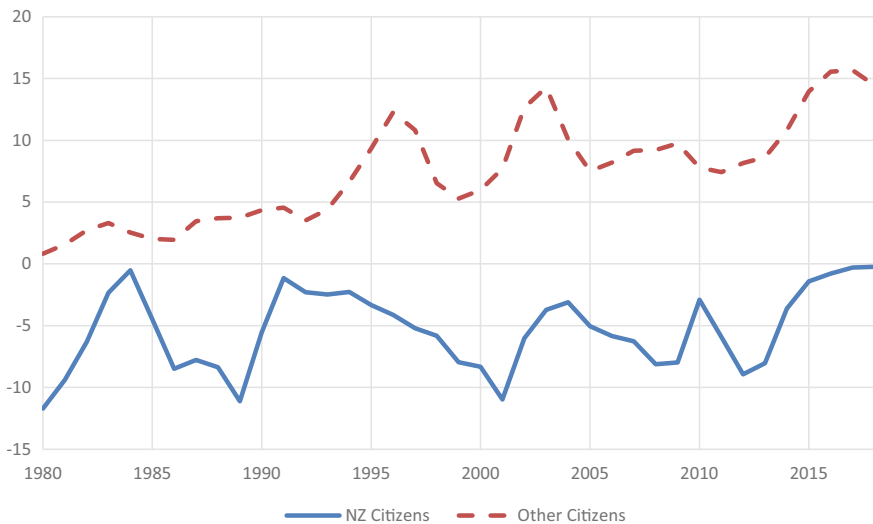


Fig. 12.3 Net Permanent and Long-Term (PLT) migration by citizenship per 1000 estimated New Zealand total population in year ending March 1980–2018. *Source* Statistics New Zealand, *Infoshare*

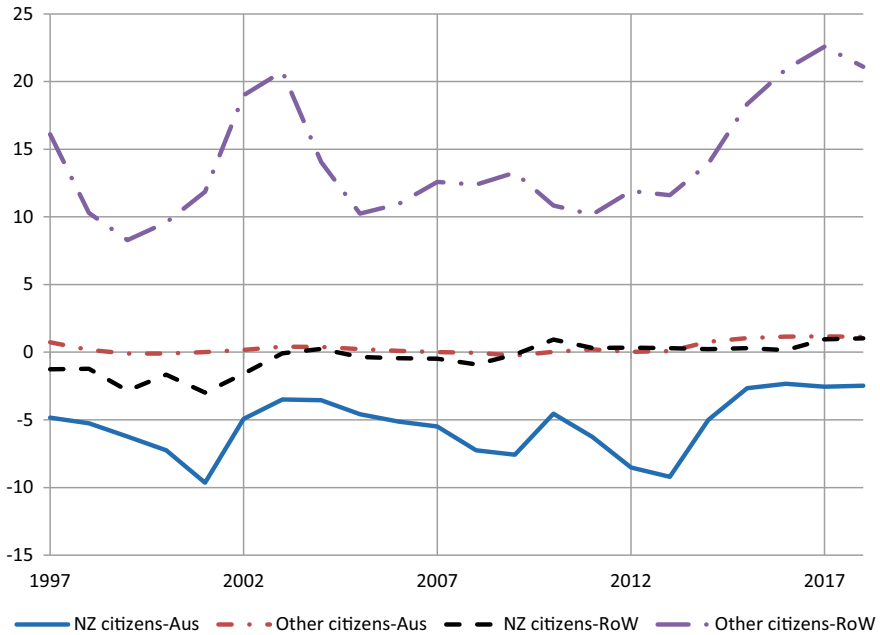


Fig. 12.4 Net PLT migration by citizenship and origin/destination (Australia and rest of the world (RoW)) per 1000 estimated auckland total population in year ending March 1997–2018. *Source* Statistics New Zealand, *Infoshare*

PLT migration rate of New Zealand citizens in Auckland follows a similar pattern of change to the national net PLT migration rate of New Zealand citizens. The volatility in net PLT migration of New Zealand citizens in Auckland is almost entirely due to changes in the propensity of New Zealanders to depart New Zealand for twelve months or more.

Figure 12.4 shows that these fluctuations in net PLT migration of New Zealand citizens in Auckland are predominantly determined by the net PLT migration between Australia and New Zealand (i.e. trans-Tasman migration). The rate of net PLT migration of New Zealand citizens from Auckland to the rest of the world has been rather small. In fact, since 2010, there has been more return PLT migration of New Zealand citizens from those destinations to Auckland than outward PLT migration, resulting in a slightly positive net PLT migration rate of New Zealand citizens. The rate of net inward PLT migration into Auckland of foreign citizens has been increasing strongly since 2011, surpassing the 2003 peak in 2017.

It is important to note that the 2017 peak in net PLT migration of foreign citizens differs from previous peaks. The growth in inward PLT migration of foreign citizens in recent years has been particularly due to a growing number of foreign citizens entering New Zealand on a temporary visa, either to work (for example as construction workers contributing to the rebuilding of Christchurch after a major earthquake

in 2011), under a working holiday visa arrangement, or for study for 12 months or more.

The trends discussed above suggests that the demographic impact of growing net inward PLT migration of non-New Zealand citizens on the Auckland population in recent years has been no more important than the sharply declining net outward PLT movement of New Zealanders. Together, this has led to rapid growth in the number of households in Auckland in recent years, which has coincided with rapid growth in house prices. There have been several econometric studies exploring the relationship between international migration and house prices in New Zealand, to which we will now turn.

Using a structural vector autoregression, Coleman and Landon-Lane (2007) analyse the relationship between migration flows, housing construction and house prices at the national level in New Zealand in the period 1962–2006. They find that a net inward migration flow equal to 1% of the population is associated with an 8–12% increase in house prices after one year; and with an even slightly larger effect after 3 years (p. 43). This elasticity is much larger than what is found in the literature cited in the previous section. Coleman and Langdon-Lane speculate that the reasons for this might be found in short-run housing supply constraints and in the future income expectations of those who are already resident in an area (p. 40).

Expectations regarding future house prices are important. Given the time it takes for additional dwellings to be built, housing supply does not respond immediately to an increase in population through migration. Hence owners and developers may expect an initial increase in house prices following a sharp increase in net immigration. However, house prices do not fall back to their original level once additional housing has been built. There are several reasons for that. Firstly, house owners may have adjusted their expectations of their properties' value to the higher price. Secondly, the additional population increases the demand for land and also its productivity (due to agglomeration effects). This translates into higher land prices and therefore property prices. Thirdly, the cost of new residential development tends to increase faster than general price inflation. Subsequent waves of migration repeat this process and create an upward ratcheting effect (Fry 2014, pp. 25–26).

Stillman and Maré (2008) obtain, using micro econometric techniques, an estimate of an increase in local housing prices between 0.2 and 0.5% following a 1% increase in an area's population (but with considerable variation in estimated impacts across time periods). Hence this local impact elasticity is smaller than found by e.g. Saiz (2007) for the U.S. However, once Stillman and Maré split population growth into its components, they do not find any evidence for foreign-born immigrants positively affecting local house prices. Instead, New Zealanders returning from abroad have a large impact on local house prices with a 1% increase in the local population, due to returning New Zealanders, being associated with a 9.1% increase in house prices (p. 14). Given that there is not much fluctuation in return migration as compared with the intentions of New Zealanders to move abroad, this evidence can be interpreted as suggesting that the sharp reduction in the number and rate of New Zealanders leaving Auckland to go abroad for twelve months will have had a bigger impact on Auckland house prices than the increase in net PLT migration of foreign citizens.

The findings of Stillman and Maré (2008) are reinforced by Hyslop et al. (2019), who included 2013 census data, as well as data on rents and building consents. Measured at the level of urban areas, Hyslop et al. (2019) find that a 1% increase in an area's population is associated with a 0.3–0.5% increase in local house prices, with the local effect on Auckland wards being even smaller. There appears to be little correlation of a population shock with house rents, nor with apartment prices and rents. However, there is a notable housing supply response to a population shock in terms of building consents, with an elasticity of close to one, i.e. little evidence of household crowding.

McDonald (2013) analyses, by means of a macro-level vector autoregression framework (with monthly data from January 1990 to October 2013), the relationship between different types of permanent and long-term migration and the New Zealand housing market. He finds that changes in net migration are associated with large housing market effects. A net migration inflow of 1% (of the existing population) leads to an 8% increase in house prices over the following three years at the national level. Hence, this is consistent with the Coleman and Landon-Lane research reviewed above. Furthermore, an additional house will be constructed for approximately every six new migrants. Given that the average household size was 2.7 at the time of the 2013 census (and unlikely to be much more for migrants), this research suggests that there is a crowding effect.

In addition, McDonald finds that the impact of arrivals and departures differs: a 1000 person increase in monthly PLT arrivals is associated with a 4% increase in house prices while a decline of a similar magnitude in the number of monthly PLT departures raises house prices by half this amount (2%). This asymmetry may be related to the difference in composition of the flows: PLT non-citizen arrivals include relatively many families with skilled (and therefore higher income) older adults, whereas New Zealand citizen departures include relatively many young and single (and therefore lower income) people. McDonald's results suggest that changes in foreign-citizen migration have a larger effect at the national level than changes in New Zealand citizen migration (but recall that Stillman and Maré (2008) found a larger effect for New Zealand citizens at the local level). The origin of the migration flow would also seem to matter: a 1000 person increase in monthly flows originating from a UK or European source appears accompanied by an 8% increase in house prices after 2 years, while for flows with Asian origins this increase is less: around 6%.

Utilizing an estimated dynamic stochastic general equilibrium (DSGE) model of a small open economy and a structural vector autoregression, Smith and Thoenissen (2018) consider the relationship between migration and business cycle dynamics. While housing markets are not their primary focus they conclude that, while migration shocks matter for residential investment and real house prices, other shocks have a greater influence on housing market volatility (p. 1), with migration shocks accounting for a modest 4% of the volatility in real house prices and 3% in residential investment (p. 23).

Hence, in conclusion, New Zealand studies tend to find much larger effects when using aggregate national level data than when running regressions with urban and

local level data. However, these differences are not necessarily contradictory. At the national level, migration and the housing market are strongly correlated over the business cycle but it is difficult to control for the endogeneity of migration. There can be omitted aggregate time series factors in macro-level studies that impact on both immigration and house prices (Hodgson and Poot 2010, p. 26). Moreover, drivers of migration can differ between the national and local levels. Conversely, studies using local or regional data may understate effects as they do not take sufficient account of how local markets interact (Fry 2014, p. 26), which may offset some of the initial effects (for example net outward migration of Auckland residents to other regions offsetting initial house price increases associated with net inward international migration). Finally, the micro level studies are based on census-based observations that are five to seven years apart and therefore generate estimates of long-run adjustments whereas time series models give more weight to short-run adjustments.

In terms of the policy debate in New Zealand, the issue of whether PLT migration has driven up house prices has become intertwined with the impact of non-resident buyers on the property market. It has been widely argued (see Ainge Roy (2018) for example) that non-resident investors' activity in the housing market, most notably in Auckland, has driven up house prices and priced native homebuyers out of the market. This has resulted in a number of policy initiatives. For example, the lack of adequate data on the scale of foreign ownership of property in New Zealand has been partially addressed through the Taxation (Land Information and Offshore Persons Information) Act 2015, which improved the availability of information on foreign buyers by requiring the collection of tax-related data when people buy, sell or transfer property. While not a register of foreign ownership of residential or other property, these data do provide information on the tax residency status of those involved in property transactions (LINZ, 2017).

More substantively, the left-of-centre Labour Party-led government elected in 2017 has followed through on promises made to curb the purchase of residential property by foreign buyers. The instrument is the Overseas Investment Amendment Act 2018. This Act restricts, since October 22, 2018, the ability of foreigners to buy residential land in New Zealand. Generally, only New Zealand citizens and the holders of residence class visa, who spend most of their time in New Zealand, are able to purchase residential land, though resident class visa holders who do not spend the required amount of time in New Zealand may still do so with the consent of the Overseas Investment Office (OIO). It should be noted that a number of special provisions apply in the case of residential property development. There are also, due to pre-existing agreements, exemptions for Australian and Singaporean citizens (LINZ, 2018; The Treasury 2018).

Of more direct relevance to migration, given the historically high levels of net PLT migration experienced post 2015, has been the response of successive governments to try to limit the inflow of migrants by adjusting the settings of the legal regime governing migration. For example, the previous right-of-centre (National Party-led) government made major changes to both the skilled migrant policy and the temporary work policy in October 2016, and again in August 2017, in an attempt improve management of labour flows into New Zealand. Most, though not all, of these changes

aimed to reduce the number of low skilled workers being approved for residency and to prevent low waged workers from extending their stay beyond three years (Bedford and Didham 2018, p. 3).

With the election of the Labour-led government in late 2017 further tightening of the regulation of migration occurred. This involved further restriction of international students to stay post-qualification, especially for lower level qualifications, as well as adjusting the requirements around work visas. The move to a more restrictive migration regime by the government has led to a number of concerns around the impact of these changes on the New Zealand labour market's ability to react to skills shortages in industries such as construction, horticulture and agriculture (notably dairying). In addition, the changes in policy towards international students may negatively affect the international educational services sector. Altogether, these policies may have contributed to the 2018 decline in Auckland house prices that can be observed in Fig. 12.2.

12.5 Conclusion

We started this chapter by emphasizing that the housing market is a very complex market that is affected by many forces of demand, supply, institutions, regulations and other forms of public intervention.⁷ It is therefore not surprising that the empirical literature, as catalogued by the meta-analysis of Larkin et al. (2018), detected a wide range of statistically significant and insignificant effects. However, a qualitative synthesis of the evidence from eight countries (Canada, France, Italy, New Zealand, Spain, Switzerland, United Kingdom and United States) reviewed in this chapter suggests that Saiz's (2003) natural experiment of the Muriel Boatlift provided evidence of the order of magnitude of the effect that has been reconfirmed by several other studies. On average, a 1% increase in immigration in a city may be expected to raise private sector rents by 0.5–1% and the effect on prices is about double that. Much of this increase would happen relatively soon after an immigration shock, given that housing supply is very price-inelastic in the short-run. However, the tendency of the native born to move out of city wards where migrants settle can lead to relative house price declines in these areas. If the native born move to other administrative areas outside the city boundaries, this redistribution effect may lead to an observed decline in house prices—as has been noted for the U.K. It is clear that the spatial level of the analysis may have a large effect on the measured impact.

In any particular case study, the observed impact will depend on the spatial unit of analysis, on the time frame over which the impact is measured, and on the demographic and economic composition of the immigrant flow. Specifically, household size and the human capital of the migrants will play important roles. Additionally, the institutional factors that influence the price elasticity of the supply of new dwellings

⁷See for example the recent study by Li and Tang (2018) on the case of immigration impacts in Singapore, in which public housing is only available to the native population.

will lead to different estimates for different countries. How the native born react to immigration also turns out to be important. Larkin et al. (2018) find that negative attitudes to immigration dampen the price effect. Estimates of the effect are also sensitive to the extent to which reverse causality has been controlled by means of techniques such as instrumental variables and vector autoregression modelling. The behaviour of migrants and the native born in housing markets will also be strongly affected by expectations of future prices and rents: neither group may be discouraged from moving to areas with high house prices if significant further capital gains are expected.

Since various meta-analyses of the labour market impact of immigration suggest that average wage effects are negligible (see e.g. Longhi et al. 2005; 2010), we can also conclude that increasing house prices after an immigration shock will lower housing affordability. However, the sharp increases in house prices and rents in many cities that are attractors of international migrants (think besides Auckland of e.g. London, Sydney, Vancouver, Los Angeles and Barcelona) have been mostly due to speculative forces that have been fuelled by low interest rates and growing foreign investment - leading to a property market bubble in some cases (see Greenaway-McGrevy and Phillips 2016, in the case of New Zealand). Hence we conclude that immigration has been only a minor contributor to the sharply rising house prices that have been observed in many fast growing cities of countries in Europe, North-America and Australasia.

Finally, it is clear that there are still many potentially fruitful avenues to explore in this area of research, particularly at a more disaggregated level that takes explicit account of the different types of migrants that make up the immigration stream and of the various interacting public and private segments of the housing market.⁸ A comparison between the effects of migration with those other demographic changes (fertility, mortality, household formation and dissolution) would also be of considerable interest. Measuring causal effects will remain challenging, particularly given that the housing market can be a push or pull factor in deciding whether to migrate and to which destination. Additional challenges in this research are the complexities of the housing market, the role of business cycles, the possibility of threshold effects, and the dynamics of the generation of—potentially non-linear—expectations and responses.

Acknowledgements This chapter builds on a report commissioned by the New Zealand Ministry of Business Innovation and Employment (MBIE) (see Cochrane and Poot 2016).

⁸We acknowledge, and incorporated, some suggestions for future research provided by two anonymous referees.

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Chapter 13

The Urban Geography of Segregation



K. Bruce Newbold

13.1 Introduction

Although rarely far from international headlines, immigration has become one of the major political issues in recent years, driven by the increasing number of immigrants at the global scale, Europe's refugee crisis, and increasing nativism and populism among immigrant receiving countries. Not surprisingly, academic interest in the economic, social, health, and cultural impacts of immigrants on receiving countries has long been a fruitful area of research, with research extending back to the Chicago School (Park 1928). Economists, for example, have studied the labor market impacts of immigration, while geographers have explored the distribution and settlement of immigrants in receiving countries. Although labor market impacts associated with immigration are modestly positive (i.e., Docquier et al. 2014; Peri 2010; Pozo 2018), the greater impact of immigration may be found in the spaces that immigrants occupy (see, for example, Borjas 2013 or Saiz and Wachter 2011), with immigrants changing the geographies of settlement of earlier arrivals as well as the native-born population. Indeed, immigration, and ultimately segregation, is primarily an urban phenomenon, with the segregated geographies of cities reflecting a history of immigration, internal migration, class and intergroup ethnic and racial relations and conflict.

Regardless of its cause, segregation is a persistent feature of cities across the globe. Segregation is not, of course, an outcome just due to immigration, illustrated by, for example, the segregation of African Americans in the US, indigenous populations in multiple countries, or through the self-segregation of more privileged members of society into exclusive gated communities. Yet, segregation remains a highly visible outcome of immigration, reflecting a range of factors including discrimination and racism, housing, labor market, and economic opportunities (i.e., Massey 2015).

K. Bruce Newbold (✉)

School of Earth, Environment & Society, McMaster University, 1280 Main St. West, Hamilton, ON L8S 4K1, Canada

e-mail: newbold@mcmaster.ca

Broadly, immigrant enclaves can be seen as either providing economic opportunities and social resources for new arrivals that aid in their integration into the broader society, or as places of isolation and segregation that have been linked to poor health outcomes, economic disadvantage, and social divisions (see, for example, Jones et al. 2014; Hiebert 2015), particularly if they are allowed to persist over time. At the same time, the discussion has also evolved and become more nuanced, with the literature questioning the concept of assimilation (including spatial assimilation) as the end outcome, and therefore exploring alternate expressions.

Referencing the varied and nuanced outcomes of segregation, the following chapter explores the urban geography of segregation, focusing on segregation from an immigrant perspective given the complexities and challenges of segregation. Following a definition of segregation, the chapter explores the methods of detecting and understanding segregation. It then examines the causes and patterns of segregation. Next, it considers the economic and demographic impacts of segregation, before offering concluding thoughts that focus on future research questions and directions.

13.2 Defining Segregation

While the concept of one group being physically separated from another appears straight-forward, it is important to define what is meant by segregation. Hiebert (2015) points out that segregation should be seen as a continuum, ranging from ghettos, characterized by extreme segregation, through enclaves (high segregation), concentration (medium levels of segregation), to complete dispersion. At one extreme, segregation is characterized by ghettos that are associated with a high concentration of a minority group where members are forced to live separately and in the least desirable neighborhoods due to exclusionary institutions or policies. An ethnic enclave is defined as an area where a specific group dominates the population, but where members of that group have some degree of choice in their settlement location (Peach 1996). Segregation also occurs across a number of different venues or “domains,” including income, housing, and the workplace. For the purposes of this chapter, we will focus on ethnic/immigrant residential segregation in an urban context.

Academic interest in segregation was first seen in work by the Chicago School in the 1920s (i.e., Park 1928). While the Chicago School believed that assimilation into the broader society would ultimately happen, they also argued that immigrants would first settle in ethnic enclaves—places that offered access to a similar community in terms of religion, socialization, language, food, and employment opportunities. Increasing duration of residence in the destination country was expected to lead to migration out of enclaves and into more dispersed settings, reflecting the process of spatial assimilation. While spatial assimilation was long been considered a defining characteristic of immigrant assimilation and further ensured “structural assimilation” into the broader society, it was generally assumed to occur only after acculturation (i.e., English language acquisition), and could take a generation or more to achieve

(Gordon 1964; Massey 1985). Ultimately, ethnic enclaves would be “filtered”—as one group left an enclave, a new arrival group would take their place.

While segregation is often a reflection of racial, class, and income differences, its causes are complex, occurring through the market, choice, racial discrimination, and policy. The result is complex and with nuanced spatial patterns. Segregation may, for example, be reinforced by policies directed against minority groups, illustrated by the policies of redlining in the US mortgage market that limited where people (typically African Americans) could purchase property, or through overt discrimination and racism. In other cases, high socioeconomic status will allow individuals to choose to live in particular areas or gated communities. Additionally, suburbanization and gentrification complicate and reinforce segregation patterns observed in cities by limiting choices or directing new arrivals to particular areas. Immigrants, for example, will often settle in areas where there is already a concentration of the same group, evidence by the enduring imprints of places such as Chinatown, Greektown, or Little Italy found in many North American cities. In part, these enclaves enabled the growth and success of immigrant communities, while also offering safety and security to newcomers.

13.3 Methodologies of Detecting and Understanding Segregation

Like any geographical phenomena, segregation can be observed across a variety of spatial scales (Krupka 2007; Iceland 2014; Lee et al. 2008). Clearly, not all immigrants will live in enclaves, and enclaves are not home to just one group (Hiebert 2015). The challenge, however, is how to measure segregation given that it occurs at multiple spatial scales, ranging from neighborhood-level segregation (“micro” segregation) to segregation across regions (“macro” segregation) (Lee et al. 2008). The measurement of residential segregation using quantitative indices has been an important strand within geography and regional science, with indices including the Index of Dissimilarity, the Index of Segregation, Location Quotients, Entropy, the Index of Isolation, and indices such as Moran’s *I* and Geary’s *C*, all of which are discussed more fully elsewhere within the literature (see, for example, Massey and Denton 1988; Iceland and Douzet 2006; Wong 2002).

Despite the number of different measures of segregation, they do not adequately capture the spatial arrangement of neighborhoods, and will reflect the geographies that are used to build the measures. Often times, measures are based on census tract level geographies to map ethnic or racial variations across cities, with census tracts serving as proxies for neighborhoods. But census tracts are statistical creations and do not speak to local, small-scale (within census tract) variations in levels of segregation, with assimilation or integration most often occurring at the micro level within cities—the immediate neighborhood or street of a resident. Not surprisingly, therefore, geographic scale is critical given that groups will be more (or less) segregated at

different spatial scales (Reardon et al. 2008). Consequently, capturing the diversity of segregation and immigrant settlement is challenging given changing settlement patterns over time as well as geography's modifiable area unit problem.

More recent work has moved beyond the census tract scale and drilled further into the residential patterns, permitting more detailed analyses at small spatial scales such as dissemination areas (DA, or about 10 city blocks) or block groups, and revealing ever more complex patterns of segregation. For example, Reardon et al. (2008) focus on the block group level in the US, and recent work by Dmowska et al. (2017) details racial segregation at a 30 m scale, with both studies highlighting the small-scale variations in diversity over space and time. In Canada, Hiebert (2015) found that the average number of distinct ethnic identities in a dissemination area (small geographic units with populations between 400 and 700 people) in both Montreal and Vancouver (Canada) was 15! Similarly, a map of London, England, projects immigrant settlement at the street level, with imagery both challenging and accommodating views of segregation and diversity (Consumer Data Research Centre 2016).

While such small-scale analysis complicates our understanding and characterization of segregation, they point to the complexity of segregation in urban areas where diversity often occurs alongside ethnic, immigrant, or racial concentration. More than likely, shifting and decentralizing employment patterns, residential preferences, housing prices, and improved transportation options work to alter settlement patterns, reinforcing the fact that segregation is not a static process.

13.4 Causes and Patterns of Segregation

Like segregation itself, the reasons why different immigrant groups experience different forms and levels of segregation is complicated and can be attributed to three broad reasons (Cutler et al. 2008a). First, segregation may occur by choice, as individuals prefer to live with members of their own group, and reflecting the desire of new immigrant arrivals to live in proximity to those that share the same language, tastes, and culture. Consequently, immigrants will out-bid others for housing in enclave neighborhoods, with this effect attenuated in cases where there is greater the cultural distance between immigrants and native-born.

Second, segregation is often associated with oppression or control of visible minority groups, groups with less political power, and discrimination. In Europe, segregation of some groups is often based on religion (Foner 2015). In Paris, for example, North Africans are segregated, while London neighborhoods are home to immigrants from Bangladesh, Pakistan, or India, with origins reflecting earlier colonial ties. In other cases, the native-born may pay more for housing in areas with greater segregation, pushing immigrants into concentrated areas. Alternatively, immigrant groups may be socio-economically marginalized, either overtly or through subtle, elusive or systemic discrimination (Beiser et al. 2001; Noh et al. 2007). In these cases, their economic situation will reduce housing options, with low income forcing them to settle in places where housing is most affordable.

Third, segregation may reflect changes in urban form, including the growth of low-density suburban housing and access to public transportation. That is, the segregation of immigrants into inner-city areas may be associated with preferences among the native-born for suburban locations, leaving older, less expensive, and less desirable inner-city housing stock for newcomers. Concurrently, immigrants may demonstrate greater preference for access to public transportation in inner-city locations.

Regardless of the cause, segregation often reflects the settlement process itself, with the economic assimilation and integration of immigrants into the destination society receiving considerable attention within the literature (see for example, Altonji and Card 1991; Bacolog and Rangel 2017; Borjas 1995, 2003, 2015; Edin et al. 2003; Reitz and Sklar 1997; Saiz and Wachter 2011). Classical assimilation theory assumed that immigrants would eventually assimilate into mainstream society by adopting the norms, values, and economic characteristics of the majority. Embedded within this model is the assumption that spatial assimilation is a barometer of assimilation, with immigrants moving in a linear fashion from an area of concentration (segregation in an ethnic enclave) to a more dispersed residential and suburban pattern as their economic conditions improved, a notion that was built on the experience of much earlier European arrivals who initially settled in inner-city enclaves but have since dispersed, with the older housing stock assumed by newer Asian or Hispanic immigrants (Waldinger 1987).

But is this indeed the case? Do immigrants transition from segregation to a more dispersed pattern, and over what time period does this occur? We know that there is a high degree of variation in the levels of segregation across different ethnic groups and across metropolitan areas, as well as a high degree of variation in terms of the likelihood of living in an enclave. For example, while segregation levels have remained relatively constant for Mexicans in the United States, newer arrival groups have generally higher levels of segregation (Cutler et al. 2008a; Hiebert 2015). For some groups, segregation will increase income and consumption by fostering group networks that aid access to employment opportunities or by supporting ethnic enterprises. Where persons of the same group are located, the social and economic integration of new arrivals may be facilitated by the broader community (Kobrin and Speare 1983). In cases where immigrants face opposition (i.e., anti-immigrant sentiments), spatial concentration provides security, along with the ability to socialize with like-minded people. For other groups, segregation will result in social isolation and decreased benefits as individuals are trapped and with limited access to employment opportunities.

In the US case, Cutler et al. (2008a) determined that the observed increase in segregation among immigrants was, in part, due to cultural differences, with new immigrant arrivals tending to have lower socioeconomic status and to be more racially dissimilar and having greater linguistic dissimilarity as compared to the broader population. Although segregation within ethnic enclaves may offer social and economic advantages, the authors also noted that discrimination along with changes in urban form also contributed to the segregation of new arrivals. In cities where public transportation offered alternatives to the personal car, immigrants were more likely to use public transportation than the native-born. Conversely, immigrants

with more experience in the US and from countries that are more linguistically similar tended to be less segregated.

Individual attributes are also important in determining whether an individual chooses to live in a segregated area or follows a more dispersed settlement pattern. In particular, educational attributes or human capital more broadly are influential in determining settlement location (Cutler et al. 2008b; Huang and Newbold 2017). Huang and Newbold (2017), for instance, found that immigrants with lower educational background were more likely to be segregated, while better educated immigrants were more likely to be dispersed.

From a theoretical perspective, the expectations and assumptions of the assimilation model have increasingly been stressed with the arrival of new, more heterogeneous origin groups (i.e., Alba and Logan 1991; Allen and Turner 1996; Mahler 1995; Zelinsky and Lee 1998). Conversely, significant barriers to spatial assimilation, including discrimination in the housing market, preferences for like-group neighbors, density zoning requirements and other effects, remain (Bishop 2009; Lichter 2013; Lichter et al. 2016; Winkler 2013). Consequently, segregation continues, in part because of its protective nature, along with its ability to aid settlement of newer arrivals.

From a practical perspective, there is mixed evidence of spatial assimilation. Although many historic immigrant enclaves have disappeared over time, including the movement of early European arrivals out of traditional inner-city settlement areas, others, such as Chinatowns, have remained as a visible reminder of immigrant segregation. In large part, whether enclaves have remained or disappeared reflects the economic success of these immigrant groups, but also skin color. In cases where skin color is more similar to the broader population, movement of individuals from enclaves into a more dispersed settlement pattern is eased.

While immigrants continue to settle in traditional and segregated enclaves in the inner-city (Zelinsky and Lee 1998) that offer less expensive housing, public transportation, and access to employment such that their transition to the destination society is eased, newer settlement patterns find some immigrant groups bypassing traditional inner-city enclaves in favor of settling in suburban areas (i.e., Alba and Logan 1991; Allen and Turner 1996; Gorrie 1991; Greene 1997; Zelinsky and Lee 1998; Singer et al. 2001; Price and Singer 2008), reflecting changing employment locations and housing opportunities, particularly in older suburban areas. These “ethnoburbs” (Li 1998, 1999), or suburban residential and business areas dominated by a non-white ethnic group have nearly similar functions as enclaves (Brown and Sharma 2010; Hall 2013; Li and Skop 2007; Murdie and Skop 2012; Skop 2012). First observed among the suburban Chinese population in Los Angeles (Li 1999) and more recently for other ethnic groups, ethnoburbs such as Monterey Park and San Gabriel, California, have emerged for a variety of reasons, including changes in world politics and economy, demographic shifts, housing, and policy changes at the national and local levels (Li 1999).

Like their ethnic enclave counterparts, ethnoburbs function as social hubs and as places where immigrants may work and do business within their own social and ethnic networks, changing the face of the local suburban landscape with stores and

businesses that cater to the immigrant population. But ethnoburbs also differ in important ways from more traditional ethnic enclaves, with residents who are highly educated and have high incomes. Moreover, while ethnoburbs appear segregated, they also have strong connections to the international community and economy, reinforcing the comparatively strong socioeconomic position of their residents.

While ethnoburbs can foster or reinforce group identity through shared languages and institutions, they have also been criticized by limiting exposure to the broader population, therefore slowing integration. Zhou et al. (2009) also attribute ethnoburb formation to a new form of white flight. However, rather than the traditional white flight which saw lower socioeconomic status blacks forcing the relocation of whites out of central cities and into suburban communities, the movement of higher socioeconomic immigrants, including immigrants from Asia into suburban areas, has forced the relocation of suburban whites. But context is important: In Canada, the presence of ethnic enclaves reflects its national multicultural policies which enable immigrants to maintain their cultural identity after their immigration. In the US, however, the melting pot concept and the on-going expectation of assimilation into American culture and economy have meant that ethnoburbs and ethnic enclaves are less favorable, while ethnic clustering in Europe has often been the outcome of religious or ethnic differences, with the swing toward right-wing, nationalistic governments in recent years potentially further isolating immigrant groups (Moraga et al. 2017).

13.5 Implications of Segregation

As already noted, segregation is associated with various costs and benefits, although such benefits typically accrue to the majority (i.e., white) population (Cutler et al. 1999). When imposed, segregation can lead to isolation, fewer economic opportunities, higher housing costs, higher transaction costs, and less favorable loan terms (Holloway 2017). Despite the potentially negative effects of segregation, the presence of ethnic enclaves on their own does not indicate discrimination or disadvantage, with new immigrant arrivals often choosing to settle in enclaves at first and benefiting from ethnic institutions, cultural amenities, the use of the same language, and economic opportunities (Holloway 2017). While there is a large literature that focuses on the social and cultural dimensions of enclaves (see, for example, Hiebert 2015), the following discussion will focus on the economic and demographic effects of segregation.

13.5.1 *Economic Effects*

The literature remains divided on the labor market and educational costs and benefits of segregation. As already noted, immigrant enclaves may provide economic opportunities and security for new arrivals. In large part, geographic concentration

allows immigrants to maximize their social capital (Alba and Nee 2003), allowing immigrants access to group-specific networks that enable employment opportunities. Klinthäll and Urban (2016), for instance, note the importance of informal contacts in the labor market are often more important for immigrants than the native-born. Immigrants regularly establish labor markets based on either prior experience or skills, enabling others from the same background to quickly enter the labor market. These employment niches provide new immigrants opportunities to learn the necessary skills, experience, and capital to secure employment in the broader economy (Waldinger 1996). Further, residential concentration may allow immigrants to form “complete” communities, creating economies of scale within the immigrant community, enabling support for local businesses and community institutions.

But the relationship between residential location and employment niching is more complicated as noted by Ellis et al. (2007). While building on the well-known assumption that immigrants concentrate in specific work areas, space has not always been explicitly recognized. Rather than a homogenous market, Ellis et al. (2007) note that employment niches occur at different levels across the Los Angeles metropolitan area. More specifically, the propensity to niche in an industry is higher when that industry is located close to a group’s residential area.

Conversely, segregation may result in fewer employment opportunities and lower incomes (van Ham and Tammaru 2016). In these cases, segregation increases isolation and restricts contact with the broader community, limiting employment opportunities and contacts (van Kempen and Özüken 1998). The lack of employment opportunities has a direct impact on income, with immigrants in enclaves having lower incomes compared to their immigrant counterparts in more diverse neighborhoods (Musterd et al. 2008). The impacts of isolation persist and grow stronger over time as immigrants become trapped in low income positions or with few employment opportunities, particularly if they are concentrated in inner-city areas. In such locations, infrastructure is also often poor and access to employment opportunities in suburban locations can be more difficult, especially if immigrants are more reliant on public transit (Cutler et al. 2008a). However, evidence suggests that immigrants become less reliant on public transit with increasing duration of residence in the destination country (Newbold et al. 2017), counter to the findings of Cutler et al. (2008a). Housing, consumption, and pricing are also affected by segregation, with segregation reducing information about potential options and reduces choice, leading to higher housing prices and less favorable loan terms (Yinger 1997).

While the literature continues to disagree on the relationship between segregation and economic opportunities for immigrants, Cutler et al. (2008b) demonstrate a significant positive relationship between ethnic concentration and earnings. In other words, segregation has a positive impact on income. However, not all groups benefit from segregation. In particular, segregated groups that are characterized by poor educational attainment, and specifically Mexicans and Central Americans, are associated with negative outcomes.

Beyond direct economic impacts, ethnic enclaves have also been linked to lower acquisition of the destination country’s language. Language acquisition is another

critical marker of assimilation into the destination country, with language acquisition linked to economic advantages in the market place and increased economic success (Chiswick 1998; Chiswick and Miller 2002). But larger immigrant communities often mean decreased migration costs and reduced language acquisition (Lazear 1999), with immigrants more reliant on networks (Waldorf 1996). Under such situations, immigrants may be slower to acquire a new language as the expected economic benefits due to language acquisition are smaller for immigrants living in enclaves as compared to those living elsewhere. However, Florax et al. (2005) found only limited support for Lazear's language acquisition model. Instead, they found language acquisition was positively influenced by interaction and assimilation within the broader community. That is, interaction with the broader society, as well as networking within the enclave is important for language acquisition.

13.5.2 Demographic Effects

At its most extreme, ethnic enclaves can result in social and economic isolation from the broader society, leading to stigmatization of immigrant groups. Segregation could also undermine social cohesion within a society, leading to social unrest. Riots by immigrants that have been experienced in Europe over the past few years illustrate the dangers of long-term isolation, along with discrimination and poor or unequal access to jobs (see, for example, Amin 2003; Haddad and Balz 2006). But, enclaves should not necessarily be associated with the incubation of violence and crime. In the Canadian context (and likely less so in Europe and the US), enclaves are places of cultural diversity rather than isolation (Hiebert 2015). Likewise, enclaves are not necessarily associated with poverty, with Hiebert (2015) consequently concluding that enclaves do not, on their own, lead to poverty.

But could immigration have larger impacts on the broader society? The “demographic balkanization” debate (see, for example, Borjas 1995; Frey 1995, 1996; Moraga et al. 2017) certainly argued that immigration resulted in the flight of native-born Americans from immigrant receiving cities, in part due to competition for employment opportunities (Frey and Liaw 1998). While demographic balkanization had its moment within the literature, its use as a metaphor, as well as its broader assumptions and consequences were quickly disputed (Ellis and Wright 1998). Further, in assuming homogenous flows of immigrants into a city and (white) migrants out of the city and recalling the notion of the high levels of diversity found at smaller spatial scales (Glaeser and Vigdor 2012; Hiebert 2015; Winkler and Johnson 2016), the concept missed the diversity of groups (age, immigrant origin, ethnicity, etc.) that are found in both the in-bound immigration flows and the out-bound flows of white migrants.

Other questions also cloud the balkanization discussion. For example, we know little about the destination choices of the native out-migrants: Do they avoid locations with large immigrant populations, or are they seeking destinations with employment opportunities? Similarly, there may be no net effect on the labor supply, employment

rates, and wages given the potentially offsetting impacts of immigration and out-migration (Ali et al. 2012). Third, it is increasingly observed that rather than driving domestic migration, native populations have the most positive attitudes toward diversity in diverse places with large immigrant populations, reflected in the so-called contact hypothesis which predicts more positive attitudes and reduced prejudice toward other ethnic and racial groups with greater intergroup exposure (Alba and Foner 2017).

13.6 Conclusion

Across the developed world, immigration is primarily an urban issue. Within urban areas, the segregation of immigrants from the broader population frequently occurs, reflecting individual choice, societal pressures, political, or economic power among other causal factors. Among those for whom segregation is voluntary, economic benefits, including access to labor and housing markets have been identified, although segregation can also convey negative economic impacts and isolation from the broader society. Importantly, recent research (i.e., Hiebert 2015) reveals the complexity of segregated spaces: certain visible minority groups are more or less likely to reside in enclaves, the socioeconomic profiles of enclaves are diverse, and enclaves are places of diversity.

Despite the long-term interest in segregation by academics, new lines of inquiry are needed, particularly in an era of greater nativism and fear of immigration and immigrants. Future research should therefore consider a number of related topics. First, research is needed to evaluate how segregation is impacted by the turn toward greater nativism. Will the election of anti-immigrant governments lead to increased segregation of immigrants and other groups, and particularly those with greater racial, religious, or linguistic differences from the destination country? Second, ongoing research regarding the economic impact of segregation is required. While there is broad consensus about the positive economic effects of immigration (i.e., Pozo 2018), could greater segregation exacerbate economic differences between groups or between immigrants and the native-born? Third, the availability of data at new and finer scales of spatial resolution opens new ways to visualize segregation within the community, adding complexity to the discussion. Rather than a single, monolithic (or mono-cultural) landscape, research by authors including Dmowska et al. (2017) and Hiebert (2015) reveals a highly detailed and diverse landscape in terms of the distribution of different ethnic and immigrant groups, with considerable variation at small spatial scales. This small-scale diversity raises interesting questions around labor market effects and employment opportunities and the relative role of immigrant communities across spatial scales.

Fourth, the “domains” approach, which accounts for the multiple domains over which segregation can occur, including residential neighborhoods, workplace, and other social locations, has gained increased attention within the literature (see, for example, Tammaru et al. 2016; van Ham and Tammaru 2016). Importantly, this line

of work recognizes that the typical focus on residential segregation only captures a portion of the space experienced by the population. Concurrently, insight into workplace segregation is important to understand the pathways that immigrants can take toward acculturation and integration.

Finally, many of the existing studies have been cross-sectional in nature only, meaning that our understanding of the dynamics and changes to settlement patterns over time is limited. Understanding how long people remain in enclaves, what enables them to leave, changing housing and income profiles, and where they subsequently settle are important questions that need additional detail.

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Chapter 14

Complementarities Between Native and Immigrant Workers in Italy by Sector



Ivan Etzo, Carla Massidda, and Romano Piras

14.1 Introduction

The effect of immigration on labor market outcomes (essentially on wages and on employment) is one of the most debated topics over the last decades in the field of immigration economics (see the recent paper of Dustmann et al. 2016 for a discussion). From the theoretical point of view, economists used to investigate this issue under the so-called “canonical model”, which assumes that immigrants and natives are perfectly homogeneous workers (Peri, 2016). The main prediction of the canonical model is that immigration, by rising labor supply, drives the wage of (both native and immigrant) workers down. Yet, this theoretical framework has found little support in the empirical investigations.

Coherently, the recent literature on migration has developed more flexible empirical frameworks, building on the labor market theories advanced, among others, by Katz and Murphy (1992) and Card and Lemieux (2001). These new analyses distinguish different types of workers by important dimensions, such as their experience and education. In this regard, the works of Ottaviano and Peri (2012) and Manacorda et al. (2012) are worth to be mentioned. In both studies, perfect substitutability

Electronic supplementary material The online version of this chapter (https://doi.org/10.1007/978-3-030-48291-6_14) contains supplementary material, which is available to authorized users.

I. Etzo (✉) · C. Massidda
Department of Economics and Business, University of Cagliari, Cagliari, Italy
e-mail: ietzo@unica.it

C. Massidda
e-mail: massidda@unica.it

R. Piras
Department of Political and Social Sciences, University of Cagliari, Cagliari, Italy
e-mail: pirasr@unica.it

between native and immigrant workers is not aprioristically assumed, not even when they hold the same education and experience level. Immigrants and natives are considered as two different labor inputs in production. Accordingly, the estimated elasticity of substitution between native and immigrant workers becomes a crucial parameter to both investigate the degree of possible complementarities between the two labor inputs and predict the wage effects of immigration.

Another important aspect refers to the level at which the elasticity of substitution between different types of workers is estimated, that can be either at aggregate or sectoral level. In this respect, it is worth pointing out that the labor market empirical frameworks proposed by Katz and Murphy (1992) and Card and Lemieux (2001) estimate the elasticity of substitution between different types of workers at aggregate level. A step forward in understanding labor market dynamics and wage determination mechanisms has been offered by Blankenau and Cassou (2009, 2011). They find substantial differences in the elasticity of substitution between skilled and unskilled labor across 13 sectors. The sectoral analysis can provide interesting results when it comes to investigate the impact of immigration as well. Etzo et al. (2017) find that a rise in the share of immigrant workers in total employment has a positive effect on total factor productivity and, most important, that this effect is heterogeneous across sectors. The latter outcome has an important implication on the labor market. In fact, more productive industries are likely to expand production and hire more people, both natives and immigrants, depending on their task specialization, and thus on the complementarity degree between the two types of workers. Moreover, understanding the impact of immigrants at sector level is very important to design effective migration policies, especially those aimed at improving the socioeconomic well-being of immigrants. However, until now, a sector-level empirical framework has not been applied to analyze the effect of immigration on the labor market outcomes.

This chapter aims at contributing to this field of research by merging the empirical framework developed by Ottaviano and Peri (2012) and the sectoral approach suggested by Blankenau and Cassou (2011). Using yearly data from the Italian Labor Force Survey (LFS) during the years 2011–2016, first we estimate the elasticity of substitution between native and immigrant workers for each of the twelve sectors considered in our analysis. Second, we extend our analysis by using the estimated elasticities and the changes in the labor supply due to immigration, to simulate the wage impact at sector level.

There are several reasons that make Italy an interesting case study. First, the number of foreign workers almost doubled in the last ten years, rising from 1.3 million in 2006 to 2.4 million in 2016, reaching 10.5% share in total employees (ISTAT). Second, the distribution of immigrant workers across sectors is quite heterogeneous compared to the distribution of native workers. The first three sectors for number of immigrant workers are, in order, *Other community, social and personal services activities; Manufacturing, mining and quarrying; electricity, gas and water supply;* and *Hotel and Restaurants*, while for native workers are, in order, *Manufacturing, mining and quarrying; electricity, gas and water supply; Education, human health and social work activities;* and *Wholesale and retail trade*. Third, the sectoral shares of immigrant workers in total employment vary markedly across sectors. Last, the

sectoral distributions of native and immigrant workers differ noticeably with each other with respect to the education level. Considering all these aspects is fundamental to assess both the complementarities existing between native and immigrant workers in each sector and the effects of immigration on wages.

We find that, at aggregate level, the elasticity of substitution between immigrant and native workers is around 16, which is similar to the value estimated by Romiti (2011) for Italy using a similar empirical approach at regional level. Moreover, this value is also close to the values previously estimated in the literature which cluster around 20 (Ottaviano and Peri 2012). However, and the most important for our study, we uncover noticeable differences in the substitutability degree among the twelve sectors investigated in the present study. The lowest substitutability degree (9.7) is found in *Wholesale and retail trade*, while the highest value is estimated for *Manufacturing, mining, and quarrying* (33.8). In addition, we find perfect substitutability between immigrant and native workers in four sectors, namely *Agriculture, forestry and fishing; Construction; Information and communication; Financial services and insurance*. When we use these elasticities to simulate the total wage impact of immigration, we find heterogeneous outcomes across sectors: in general, the impact is positive but very small for native workers, while it is negative for immigrant workers.

The rest of the chapter is organized as follows. In the next section, we discuss the relevant literature both in general (Sect. 14.2.1) and for the Italian case (Sect. 14.2.2). Section 14.3 describes the theoretical framework and the empirical equations. Section 14.4 shows the data and the way in which we compute the main variables employed in the empirical investigation. In addition, some descriptive statistics highlighting important sectoral heterogeneities existing between immigrant and native workers are discussed. Section 14.5 presents and comments the sectoral elasticities of substitution between immigrant and native workers. Section 14.6 uses the estimated elasticities to compute the total wage effect at sector level. Finally, Sect. 14.6 concludes.

14.2 Literature Review

This section brings together two main fields of literature related with the investigation proposed by this chapter. Accordingly, it comprises two sub-sections. The first reviews the main analyses that assume an imperfect substitutability between workers. The second concerns the extant Italian literature regarding the labor market effects of immigration.

14.2.1 *The Impact of Immigration on the Labor Market*

Starting from the late seventies of the last century, the traditional neoclassical labor market approach has been extended assuming worker heterogeneity, given

the pronounced upward trend of the share of the skilled population and of the wage premium for skilled workers. In order to analyze whether supply changes of one category of workers affect wages/employment of other categories, the research focus has shifted to differences across workers' experience and education/skill. With reference to the US, Welch (1979), Katz and Murphy (1992) and Card and Lemieux (2001) are notable examples in this field. Katz and Murphy (1992) consider a simple structure with only two categories of workers: young and old. On the other hand, Card and Lemieux (2001) and Welch (1979) use a symmetric CES structure with several age categories. As for substitutability across experience categories, Katz and Murphy (1992) estimate an elasticity of substitution between young and old around 3.3, whereas the works of Welch (1979) and Card and Lemieux (2001) find elasticities between 5 and 10. With respect to substitutability across alternative education/skill groups, estimates range between 1.1 and 1.6 (Katz and Murphy, 1992; Card and Lemieux, 2001).

In developing their empirical analysis, these works share the same theoretical framework and the aggregate perspective. An interesting extension of this literature has applied a disaggregate approach at sector level. Besides the aforementioned trends in the aggregate economy, the main challenge faced by the industry/sector modeling of worker substitutability is to accommodate sectoral output trends (Kongsamut et al. 2001; Ngai and Pissarides 2007; Blankenau and Cassou 2009). Building on these premises, Blankenau and Cassou (2011) focus on the issue of estimating the elasticity of substitution between skilled and unskilled workers at industry/sector level. They assume that in each industry/sector many identical firms combine capital, skilled labor, and unskilled labor with a labor augmenting Cobb–Douglas production function. In their framework, parameters are allowed to differ across industries/sectors and to change over time. The authors find noticeable differences across sectors. As a matter of fact, the estimated values for the elasticity of substitution between high- and low-skilled workers vary from 1.07 for professional, technical, administrative, and support services up to 46.9 for other personal services (Blankenau and Cassou 2011, Table 14.1).

In the wave of these recent labor market theories, the literature on migration has started to investigate the existence of imperfect substitutability between foreign and native workers (Borjas 2003; Borjas and Katz 2007; Card 2007; Raphael and Smolensky 2008; D'Amuri et al. 2010; Borjas et al. 2008; Ottaviano and Peri 2012; Manacorda et al. 2012). In some of these papers, such as Borjas (2003), Borjas and Katz (2007), immigrants and natives belonging to the same educational and/or experience level are considered perfectly homogeneous. Conversely, Ottaviano and Peri (2012) for the US and Manacorda et al. (2012) for the UK allow heterogeneity within groups and estimate the elasticity of substitution between immigrants and natives within the same education and experience groups. As a general result, the empirical evidence delivered by this strand of literature goes in favor of imperfect substitutability between immigrant and native workers. Furthermore, Ottaviano and Peri (2012) add to this general picture several interesting insights. Using a nested-CES framework, they estimate the elasticity of substitution between native and immigrant workers within education and experience groups. Moreover, they also reconsider the

Table 14.1 Natives and immigrants sectoral employment (% values)

	2011			2012			2013			2014			2015			2016		
	Nat.	Imm.	Tot.	Nat.	Imm.	Tot.	Nat.	Imm.	Tot.	Nat.	Imm.	Tot.	Nat.	Imm.	Tot.	Nat.	Imm.	Tot.
Agriculture, forestry ...	2.0	4.7	2.4	2.1	5.1	2.5	2.0	4.7	2.5	1.9	5.3	2.5	2.0	5.6	2.6	2.0	5.9	2.7
Manufacturing, mining ...	23.7	22.1	23.5	23.4	21.1	23.0	23.6	20.6	23.1	24.0	21.5	23.6	23.7	21.4	23.4	23.7	21.6	23.3
Construction	5.8	11.6	6.6	5.4	10.7	6.2	4.8	9.6	5.5	4.6	7.9	5.1	4.7	7.4	5.1	4.4	7.7	4.9
Wholesale ...	12.4	6.9	11.6	13.0	7.2	12.1	13.1	7.1	12.2	12.8	6.8	11.9	12.5	6.5	11.5	12.5	7.0	11.7
Hotel and restaurants	4.3	8.8	4.9	4.6	8.9	5.3	4.5	8.8	5.2	4.6	9.0	5.3	4.8	10.0	5.6	5.0	10.0	5.8
Transportation ...	5.6	4.8	5.5	5.5	4.7	5.4	5.5	4.8	5.4	5.6	4.8	5.4	5.5	4.7	5.4	5.6	5.0	5.5
Information ...	2.7	0.7	2.4	2.9	0.5	2.5	2.9	0.6	2.6	2.9	0.8	2.6	2.9	1.0	2.6	2.9	0.8	2.6
Financial services ...	3.6	0.6	3.2	3.6	0.5	3.1	3.6	0.5	3.2	3.6	0.5	3.1	3.7	0.6	3.2	3.6	0.5	3.1
Real estate, ...	8.3	6.7	8.1	8.0	6.6	7.8	8.4	7.1	8.2	8.4	6.6	8.2	8.6	7.2	8.4	8.7	7.7	8.6
Public administration	9.4	1.5	8.3	9.2	1.3	8.0	9.0	1.2	7.8	8.8	1.3	7.6	8.7	1.3	7.6	8.4	1.0	7.2
Education, ...	17.8	6.5	16.1	18.1	6.3	16.3	18.3	7.0	16.6	18.4	7.1	16.7	18.4	6.8	16.5	18.5	7.2	16.7
Other community, ...	4.4	25.0	7.4	4.4	27.1	7.8	4.3	28.0	8.0	4.3	28.6	8.1	4.5	27.6	8.2	4.5	25.6	7.9
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: own computation based on Istat labor force survey data (LFS)

substitutability between workers of different schooling and experience levels and, in line with previous results (Cf., inter al. Card 2007), estimate an elasticity of substitution between native and immigrant workers of about 20. It is worth highlighting that while Ottaviano and Peri (2012) and Manacorda et al. (2012) adopt a very similar approach, in that they match the labor markets literature with the migration literature, Ottaviano and Peri (2012) adopt a more flexible nested-CES production function that allows them to compare different nesting models already present in the literature.

14.2.2 *The Italian Case*

The great majority of empirical investigations regarding the labor market impacts of immigration is about the USA, UK, Germany, and few other countries¹, whereas studies regarding Italy are scant in number and fragmented with respect to methodology and research question addressed. To the best of our knowledge, the first work that investigates the impact of immigrants on the Italian labor market is Gavosto et al. (1999). In this paper, the authors look at whether immigrants exert positive or negative effects on the wage of natives and find that the impact is positive and significant only for manual workers in the Northern regions of the country and especially in small firms. In the footsteps of Gavosto et al. (1999), Venturini and Villosio (2006) analyze both the displacement risk (transition from employment to unemployment) and job search effectiveness (transition from unemployment to employment). Their findings suggest a predominantly complementary effect between migrants and native workers in the Italian labor market. Staffolani and Valentini (2010) provide evidence in favor of complementarity between migrant and native workers. In particular, the authors show that native workers' wage (skilled and unskilled) always rise with immigration.

More recently, Accetturo et al. (2012), Bettin et al. (2014), De Arcangelis et al. (2015a, b), Etzo et al. (2017), and Bettin et al. (2019) provide new investigations concerning other responses to immigrants other than the labor market ones. Accetturo et al. (2012) present a theoretical model in which workers are heterogeneous and labor markets are imperfect in order to investigate the impact of immigration on Italian firms. They concentrate on firms with at least 50 employees located in the center and North of the country during the period from 1996 to 2007. Their main finding is that investment in machinery and equipment positively responds to an increase in the relative abundance of low-skilled migrant workers and that such a relationship is stronger in skill-intensive sectors and for large firms. Bettin et al. (2014) investigate the impact of immigrants on output, skill intensity, and demand for labor of native workers of Italian manufacturing firms. During the period 2001–2003, on the basis of their results, immigrants have positively contributed to output in low-skill intensive sectors. Such an empirical evidence leads the authors to claim that the availability of immigrant workers has stimulated the adoption of less skill-intensive techniques by Italian firms. De Arcangelis et al. (2015a, b) provide two

¹See Dustmann et al. (2016) and references therein.

distinct contributions looking at two different periods of time. De Arcangelis et al. (2015a) cover the years from 2001 to 2010 and while they confirm that immigrants positively affect firms' sale performances, they also find that such an increase is not evenly distributed across sectors since low tech sectors benefit more than high tech ones. In the second paper, De Arcangelis et al. (2015b) investigate the period from 1995 to 2006 to address the effect of immigration on the productive structure and sectoral composition. Their main result is that doubling the presence of migrants with respect to total population leads to a statistically significant switch toward manufactures' value added with respect to services'. Furthermore, they claim that an increase in the weight of relatively low-skilled immigrants favors low-skill versus high-skill sectors. A sectoral approach is followed also by Etzo et al. (2017) who investigate the impact of immigrant workers during the period 2008–2011. Their results are similar to those of De Arcangelis et al. (2015a). Indeed, they find that immigrant workers have a positive effect on value added per worker and that such an effect is not evenly distributed across sectors. Furthermore, they also show that the sectors that mostly take advantage of immigrant workers are those characterized by the predominance of manual tasks. Finally, a very recent paper by Bettin et al. (2019) examines the relationship between migration and entrepreneurship. Overall, their results show a positive link between migration and new firm entry. Once more, it is confirmed that heterogeneity emerges across both sectors and firms' legal status. Indeed, Bettin et al. (2019) find that the stock of foreign-born population is positively correlated with self-employment independently from the sector of economic activity. In addition, immigrants contribute to new firms' creation particularly in low tech sectors.

None of the aforementioned works adopts the conceptual framework outlined in Sect. 14.2.1 that discusses the impact of immigration by estimating the elasticity of substitution between workers. To the best of our knowledge, the only paper applying this empirical framework is Romiti (2011). By using a two levels CES production function for the period 1995–2004, the author finds a small degree of imperfect substitution between immigrants and natives in the same area-skill cell, but strong complementarity between high- and low-skilled workers. As a general result, the finding of Venturini and Villosio (2006) that immigrants do not displace natives is, thus, confirmed.

14.3 Theoretical Framework

We adopt a structural approach similar to Ottaviano and Peri (2012), duly modified in order to account for sectoral differences. Our theoretical framework can also be viewed as an extension of the model estimated by Blankenau and Cassou (2011), with labor additionally disaggregated by experience and nationality. Accordingly, we assume that the production function of the representative firm in sector s at time t is the following Cobb–Douglas with constant returns to scale:

$$Y_{s,t} = A_{s,t} L_{s,t}^{\alpha} K_{s,t}^{1-\alpha} \quad 0 < \alpha < 1 \quad (14.1)$$

where for each in sector s and year t , $Y_{s,t}$ is the aggregate output, $A_{s,t}$ is total factor productivity, $K_{s,t}$ is physical capital, and $L_{s,t}$ is a Constant Elasticity of Substitution (CES) type labor aggregate which allows us to model different types of workers heterogeneities. The parameter α measures the labor income share. We define three workers' characteristics according to their education level, years of experience, and nationality, respectively. The first level of the nested CES is assumed to be the education level, which is grouped into three classes as follows:

$$L_{s,t} = \left[\sum_{j=1}^3 \theta_{j,s} L_{j,s,t}^{\frac{\sigma_{ED}-1}{\sigma_{ED}}} \right]^{\frac{\sigma_{ED}}{\sigma_{ED}-1}} \quad (14.2)$$

where j indicates three levels of education, namely $1 = high$, $2 = medium$, and $3 = low$. Workers holding at least a university degree are included in the group *high*. The group with a *medium* education level corresponds to workers holding a high school diploma (but not a university degree), and workers with at most the compulsory years of schooling are considered as holding a low education level (i.e., *low*). The parameter $\theta_{j,s}$ measures the productivity levels specific to each of the three types of workers. It is standardized so that $\sum_{j=1}^3 \theta_{j,s} = 1$ for each s , and it is assumed to be constant over time. The parameter σ_{ED} measures the elasticity of substitution between workers with different education levels.

Workers with the same education level are assumed to be heterogenous with respect to the work experience. In other words, we assume that a worker with education level j and some work experience (measured in terms of number of years since the first job) is not perfectly substitutable with a worker without experience. Accordingly, the second CES level is

$$L_{j,s,t} = \left[\sum_{m=1}^4 \theta_{m,j,s} L_{m,j,s,t}^{\frac{\sigma_{EX}-1}{\sigma_{EX}}} \right]^{\frac{\sigma_{EX}}{\sigma_{EX}-1}} \quad (14.3)$$

where m indicates four classes of work experience, so that $m = 1$ if workers have between zero and 10 years of experience, $m = 2$ for 11–20 years of experience, $m = 3$ for 21–30 years of experience, $m = 4$ for 31–45 years of experience. The parameters $\theta_{m,j,s}$ are time-constant education-experience specific productivity levels ($\sum_{m=1}^4 \theta_{m,j,s} = 1$ for any j). The parameter σ_{EX} measures the elasticity of substitution between workers holding the same education level j but pertaining to different experience groups. Lastly, we assume that each education-experience specific labor group is a CES combination of native (L_N) and immigrant (L_I) workers, as follows:

$$L_{m,j,s,t} = \left[\theta_{N,m,j,s} L_{N,m,j,s,t}^{\frac{\sigma_{IM}-1}{\sigma_{IM}}} + \theta_{I,m,j,s} L_{I,m,j,s,t}^{\frac{\sigma_{IM}-1}{\sigma_{IM}}} \right]^{\frac{\sigma_{IM}}{\sigma_{IM}-1}} \quad (14.4)$$

where σ_{IM} is the elasticity of substitution between native and immigrant workers with the same education level j , the same experience m and working in the same sector s . The parameters $\theta_{N,m,j,s}$ and $\theta_{I,m,j,s}$ measure time-constant specific productivity level of native and immigrant workers, respectively, and are normalized such that $\theta_{N,m,j,s} + \theta_{I,m,j,s} = 1$.

Given competitive labor markets, in each sector and for each type of worker, firms equalize wages to marginal productivity of labor. Accordingly, by applying the profit-maximizing condition we obtain the following regression model from which we can estimate σ_{IM} :

$$\ln\left(\frac{w_{m,j,s,t}^I}{w_{m,j,s,t}^N}\right) = \mu_{m,j,s} - \frac{1}{\sigma_{IM}} \ln\left(\frac{L_{I,m,j,s,t}}{L_{N,m,j,s,t}}\right) + \varepsilon_{m,j,s,t} \quad (14.5)$$

where $\mu_{m,j,s}$ captures the productivity changes across all worker types by mean of 144 education-experience-sector fixed effects and $\varepsilon_{m,j,s}$ is an error term. It is worth noticing that using ratios, any effect from other factors, such as prices, technology, and capital levels which are equal within each cell, that is by sector, education, and experience, is wiped off. Equation (14.5) is the main equation of the model, in that it allows us to estimate σ_{IM} at sectoral level by interacting $\ln\left(\frac{L_{I,m,j,s,t}}{L_{N,m,j,s,t}}\right)$ with the sector dummies.

14.3.1 Estimating the Total Effect on Wages

The proposed theoretical framework allows us to simulate the impact of immigration on both native and foreign workers' wages. At this scope, once σ_{IM} is estimated, we also need to compute the estimates of σ_{EX} and σ_{ED} . To this purpose, we estimate the following empirical model:

$$\ln \bar{w}_{m,j,s,t} = E_{s,t} + E_{j,s,t} + E_{m,j,s} - \frac{1}{\sigma_{EX}} \ln(L_{m,j,s,t}) + e_{m,j,s,t} \quad (14.6)$$

where $E_{s,t}$ is sector by time common effects, $E_{j,s,t}$ is the education by sector by time common effects, and $E_{m,j,s}$ is the education by experience by sector fixed effects. Finally, $e_{m,j,s,t}$ is an error term². The labor supply in each education-experience-sector cell is measured as total hours worked³.

²The analytical derivation of Eq. (14.6) and the detailed information regarding the common effects and the fixed effects can be found in the Appendix.

³An alternative way would be to use the CES aggregate labor supply constructed using the estimates of σ_{IM} and the productivity terms computed using the estimated fixed effects from Eq. (14.5). As shown in Ottaviano and Peri (2008) when the value of σ_{IM} is high the two approaches deliver very similar results.

A similar approach is followed to estimate the elasticity of substitution between workers with different education levels. Accordingly, the empirical model is specified as follows:

$$\ln \bar{w}_{j,s,t} = E_{s,t} + E_{j,s,t} - \frac{1}{\sigma_{ED}} \ln(L_{j,s,t}) + u_{j,s,t} \tag{14.7}$$

where $u_{j,s,t}$ is the error term. The potential endogeneity of the labor supply variable is addressed by estimating Eqs. (14.6) and (14.7) with the Two Stages Least Square Method (2SLS), using the hours worked by immigrants as instrumental variable. The inclusion of fixed effects in both equations in fact allows to consider the changes of immigrant labor supply as exogenous shocks.

Once the elasticity between different types of workers is estimated it is possible to assess the total percentage change of wage of a particular type of worker caused by a percentage change of immigrant workers. The corresponding expression for native workers is⁴

$$\begin{aligned} \frac{\Delta w_{m,j,s,t}^N}{w_{m,j,s,t}^N} &= \frac{1}{\sigma_{ED}} \sum_{ED} \sum_{EX} \left(sh_{m,j,s,t}^I \frac{\Delta L_{I,m,j,s,t}}{L_{I,m,j,s,t}} \right) \\ &+ \left(\frac{1}{\sigma_{EX}} - \frac{1}{\sigma_{ED}} \right) \sum_{EX} \left(sh_{m,j,s,t}^I \frac{\Delta L_{I,m,j,s,t}}{L_{I,m,j,s,t}} \right) + \left(\frac{1}{\sigma_{IM}} - \frac{1}{\sigma_{EX}} \right) \left(sh_{m,j,s,t}^I \frac{\Delta L_{I,m,j,s,t}}{L_{I,m,j,s,t}} \right) \end{aligned} \tag{14.8}$$

where $sh_{m,j,s,t}^I$ is the share of labor income of immigrant workers of education m , experience j , and working in sector s . Whereas, the total percentage wage change of immigrant workers is

$$\begin{aligned} \frac{\Delta w_{m,j,s,t}^I}{w_{m,j,s,t}^I} &= \frac{1}{\sigma_{ED}} \sum_{ED} \sum_{EX} \left(sh_{m,j,s,t}^I \frac{\Delta L_{I,m,j,s,t}}{L_{I,m,j,s,t}} \right) \\ &+ \left(\frac{1}{\sigma_{EX}} - \frac{1}{\sigma_{ED}} \right) \sum_{EX} \left(sh_{m,j,s,t}^I \frac{\Delta L_{I,m,j,s,t}}{L_{I,m,j,s,t}} \right) + \left(\frac{1}{\sigma_{IM}} - \frac{1}{\sigma_{EX}} \right) \left(sh_{m,j,s,t}^I \frac{\Delta L_{I,m,j,s,t}}{L_{I,m,j,s,t}} \right) - \frac{1}{\sigma_{IM}} \frac{\Delta L_{I,m,j,s,t}}{L_{I,m,j,s,t}} \end{aligned} \tag{14.9}$$

Finally, we can compute the effect of immigration on total average wage \bar{w} as a weighted mean of the wage effect on native and immigrant workers, using as weights the shares in total wage of each group of workers as follows:

$$\frac{\Delta \bar{w}}{\bar{w}} = \sum_{ED} \sum_{EX} \left(\frac{\Delta w_{m,j,s,t}^N}{w_{m,j,s,t}^N} sh_{m,j,s,t}^N - \frac{\Delta w_{m,j,s,t}^I}{w_{m,j,s,t}^I} sh_{m,j,s,t}^I \right). \tag{14.10}$$

⁴Equation (8) is obtained by total differentiating Eqs. (A.1) and equation (A.2) in the Appendix with respect to the variation of each group of workers due to immigration (until the N-1 level of the nested CES).

14.4 Data and Variable Construction

The empirical analysis is based on information on wages and employment of natives and immigrants (defined hereafter as individuals born abroad) contained in the Italian Labor Force Survey (LFS) and covering the period from 2011 to 2016. The time period is constrained by the availability of data on wages, which are available since 2008 only. Another limitation of the data regards the classification of the economic activity which is based on NACE rev.1 until 2010 and on NACE rev.2 from 2011 onward. The latter limitation affects the time span of our analysis because the aggregation of economic activities between the two NACE classifications makes the time series not comparable. We measure the labor supply of native and immigrant workers in each sector and for each education-experience group in terms of total hours worked in a year. The variable is computed using the variable ORELAV which measures the hours worked in a week. The total number of hours worked in each quarter by each worker is obtained as follows. First, we multiply ORELAV by 13 (i.e., the average number of weeks in a quarter) and by the personal weight (i.e., COEF). Next, to obtain the total number of hours worked in each year, we add up the values by sectors and education-experience groups. Immigrants are defined according to the country of birth. We had to make the following adjustments to the original dataset to create a dataset suitable for our analysis. We kept only the employed people older than 15 years and dropped the self-employed workers. Education groups have been constructed as explained in Sect. 14.3. Regarding the experience level, we used the information on the first job together with that on the year when the worker first entered the labor market (when available) and completed the missing data by computing the potential experience as done by Borjas (2003) and Ottaviano and Peri (2012). We dropped workers with more than 45 years of experience and then grouped them into four experience classes as explained in Sect. 14.3. Wages are expressed in terms of hourly wages. They have been computed using the data on monthly wage to compute the total income in a year and then divided it by total hours worked. What we get is the average hourly wage of native and immigrant workers in each education-experience group by sector and year. The latter is then deflated using the annual CPI to obtain the real wages. Our final sample comprises 12 sectors, three education groups, four experience classes, and six years (864 observations).

Table 14.1 reports employment annual shares by sector and nationality. These shares are quite stable during the period 2011–2016. Overall, Table 14.1 shows that the distribution of immigrant workers across sectors differs from that of native workers in what follows. For native employees, it emerges that the largest sector is *Manufacturing, mining and quarrying, Electricity, Gas and water supply* which absorbs about 24% of total employment, followed by *Education, human health and social work activities* (18%), and *Wholesale and retail trade* (12–13%). These three sectors all together sum up to about 55% of total employees. As regard immigrant workers, the large majority of them cluster in three sectors, namely *Other community, social and personal services activities* (25–28%); *Manufacturing, mining and quarrying, Electricity, Gas and water supply* (21–22%); and *Hotel and Restaurants*

Table 14.2 Immigrants employment shares with respect to total employment

	2011	2012	2013	2014	2015	2016
Agriculture, forestry and fishing	28.0	30.4	29.6	33.4	34.6	35.4
Manufacturing, mining and quarrying, Electricity, Gas and water supply	13.6	13.8	13.7	14.2	14.6	14.7
Construction	25.2	25.9	26.7	24.0	23.6	25.0
Wholesale and retail trade	8.7	8.9	8.9	8.9	9.0	9.5
Hotel and Restaurants	25.8	25.2	26.2	26.6	28.4	27.4
Transportation and storage	12.8	13.1	13.8	13.7	13.9	14.4
Information and communication	4.3	3.2	3.5	4.7	6.0	5.1
Financial services and insurance	2.7	2.4	2.3	2.7	3.6	2.8
Real estate, administrative and support service activities	12.0	12.7	13.4	12.6	13.7	14.3
Public Administration	2.6	2.4	2.3	2.6	2.8	2.3
Education, human health and social work activities	5.9	5.8	6.5	6.6	6.5	6.9
Other community, social and personal services activities	49.0	52.3	54.1	55.1	53.7	51.7
Total	14.4	15.0	15.4	15.6	15.9	15.9

Source: own computation based on Istat labor force survey data (LFS)

(9–10%). Less than one percent of immigrants are employed in *Information and communication*, *Financial services and insurances*, and *Public administration*.

In Table 14.2, the shares of immigrant workers in total employment by sector are reported. On average, in *Other community, social and personal services activities*⁵ more than half of total employees are immigrant workers. They are about one third in *Agriculture, forestry and fishing*, more than a quarter of total employment in *Construction* and slightly less in *Hotel and Restaurants*. Noticeable, higher than 10%, are also the employment shares in *Manufacturing, mining and quarrying; Electricity, Gas and water supply; Transportation and storage; and Real estate, administrative and support service activities*. With the exception of *Construction* and *Public administration*, from 2011 to 2016 immigrants' employment increased across all sectors, particularly in *Agriculture, forestry and fishing*.

Tables 14.3 and 14.4 describe the educational attainment characteristics of workers by sector and nationality (average 2011–2016). Looking at Table 14.3, one can see that low-skill native workers are about one third in *Manufacturing, mining and quarrying, Electricity, Gas and water supply* followed by *Wholesale and retail trade* (14.2%). Medium skill native workers are higher than 20% in *Manufacturing, mining and quarrying, Electricity, Gas and water supply*; shares higher than 10% are also those in *Wholesale and retail trade* and *Education, human health and social work* (15%) and *Public administration* (11%). As regards high-skill native workers, they

⁵This sector comprises the housekeeping and elderly care services which in Italy, as in many advanced countries, is prerogative of immigrants.

Table 14.3 Employment shares (natives, immigrants and total) by sector and skill level (Average: 2011–2016)

Skill	Natives			Immigrants			Total		
	Low	Medium	High	Low	Medium	High	Low	Medium	High
Agriculture, forestry and fishing	4.0	1.1	0.3	7.4	3.2	1.4	4.7	1.4	0.4
Manufacturing, mining and quarrying, ...	32.0	22.0	13.1	23.9	19.6	15.4	30.3	21.7	13.3
Construction	8.5	3.8	1.2	11.6	7.8	1.9	9.1	4.3	1.3
Wholesale and retail trade	14.2	15.0	6.4	6.4	7.8	6.6	12.6	14.0	6.4
Hotel and restaurants	6.5	4.9	1.3	9.1	10.4	6.7	7.0	5.6	1.8
Transportation and storage	6.4	6.3	2.9	4.9	5.2	3.5	6.1	6.1	3.0
Information and communication	0.5	3.8	5.2	0.2	0.7	3.1	0.4	3.4	5.0
Financial services and insurance	0.6	3.9	8.0	0.2	0.6	1.8	0.5	3.5	7.4
Real estate, administrative and support service activities	7.4	9.5	8.2	6.5	7.6	7.4	7.2	9.3	8.1
Public administration	4.8	11.0	11.9	0.7	1.7	2.6	4.0	9.8	11.1
Education, human health and social work activities	9.4	14.9	38.3	3.0	6.9	22.9	8.1	13.8	36.9
Other community, social and personal services activities	5.7	3.9	3.2	26.1	28.6	26.5	10.0	7.2	5.3
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Source: own computation based on Italian Labor Force Survey (LFS) data

Table 14.4 Employment shares by skill level (natives, immigrants and total) and sectors (Average: 2011–2016)

Skill	Natives			Immigrants			Total		
	Low	Medium	High	Low	Medium	High	Low	Medium	High
Agriculture, forestry and fishing	74.4	22.3	3.3	76.1	20.7	3.2	74.9	21.8	3.3
Manufacturing, mining and quarrying, ...	50.3	37.0	12.8	60.5	30.6	8.9	51.7	36.1	12.2
Construction	63.8	30.4	5.8	68.7	28.7	2.7	65.0	30.0	5.0
Wholesale and retail trade	41.6	46.8	11.7	50.4	37.7	11.9	42.4	45.9	11.7
Hotel and restaurants	52.0	41.7	6.3	53.4	37.6	9.0	52.4	40.6	7.0
Transportation and storage	43.0	44.8	12.2	54.8	36.1	9.1	44.6	43.7	11.7
Information and communication	6.2	52.0	41.8	16.3	31.7	52.0	6.6	51.1	42.2
Financial services and insurance	6.1	42.8	51.1	20.3	37.2	42.5	6.4	42.7	50.9
Real estate, administrative and support service activities	32.6	44.9	22.5	50.5	36.3	13.2	34.9	43.7	21.3
Public administration	20.1	49.0	30.9	30.0	44.2	25.8	20.3	48.9	30.8
Education, human health and social work activities	19.1	32.4	48.5	24.1	34.1	41.8	19.4	32.5	48.1
Other community, social and personal services activities	48.4	34.9	16.7	52.3	35.5	12.2	50.5	35.2	14.3
Total	37.2	39.7	23.1	54.1	33.5	12.4	39.8	38.7	21.5

peak in Education, human health and social work (38.3%) followed by *Manufacturing, mining and quarrying, Electricity, Gas and water supply* (13.1%) and *Public administration* (11.9%). As far as low-skill immigrant workers are concerned, they concentrate in *Other community, social and personal services activities* (26.1%) followed by *Manufacturing, mining and quarrying, Electricity, Gas and water supply* (23.9%). Actually, these two sectors also record the highest shares of medium skill immigrant workers: 28.6% the former, 19.6% the latter. Finally, for high-skill immigrants the largest shares are found in *Other community, social and personal services activities* (26.5%); *Education, human health and social work* (22.9%); and *Manufacturing, mining and quarrying, Electricity, Gas and water supply* (15.4%).

Table 14.4 shows intra-sector employment. As for native workers, low-skill peaks in *Agriculture, forestry and fishing* (74.4% of natives employed in this sector); *Construction* (63.8%); and *Hotel and restaurant* (52%). Medium skilled workers are more evenly distributed: the lowest share is recorded in *Agriculture, forestry and fishing* (22.3%), the highest one in *Information and communication* (52%). Finally, high-skill native workers' share reaches the top in *Financial services and insurance* (51.1%); *Education, human health and social work* (48.5%); and *Information and communication* (41.8%). Looking at immigrant workers' shares, low-skill immigrants are 76.1% in *Agriculture, forestry and fishing* and 68.7% in *Construction*. Moreover, shares higher than 50% are, on average, found in *Manufacturing, mining and quarrying, Electricity, Gas and water supply* (60.5%); *Transportation and storage* (54.8%); *Hotel and restaurant* (53.4%); *Other community, social and personal services activities* (52.3%); *Real estate, administrative and support service activities* (50.5%); and *Wholesale and retail trade* (50.4%). Analogously to native workers, also medium skill immigrant workers are more evenly distributed across sectors: with the exception of *Agriculture, forestry and fishing* (20.7%) and *Public administration* (44.2%), about one-third of them are employed in the various sectors. To conclude, high-skill immigrants employed in *Information and communication* are, on average, more than a half of total immigrant workers in that sector, 42.5% of total immigrants employed in *Financial services and insurance* and 41.8% of those employed in *Education, human health and social work activities*.

Overall, from the above discussion emerges a high degree of heterogeneity across sectors, both between and within native and immigrant workers with respect to the distribution across sector and with respect to the skill level. This heterogeneity is likely to affect the substitutability degree between native and immigrant workers, hence the impact on wage at sectoral level.

14.5 Elasticity of Substitution Between Native and Immigrant Workers

This section provides estimates of the elasticity of substitution between immigrant and native workers, σ_{IM} , based on the model specified in Eq. (14.5). As previously

discussed, the main novelty of this investigation is its focus on sectoral data. However, to compare our results with those provided by the relevant literature, we first perform our empirical analysis at aggregate level. In this regard, given the availability of aggregate data on wages, we compare the results obtained for two periods, 2011–2016 and 2008–2016. Results are reported in Table 14.5. As we can see, Eq. (14.5) is estimated under three different models that differ from each other in the way the common effects are specified. For the 2008–2016 time span, estimates of $-1/\sigma_{IM}$ range between -0.047 and -0.067 , these values are in line with the estimates delivered by Ottaviano and Peri (2012) which are around -0.05 . Moreover, the parameters are very close to the value of 0.06 obtained by Romiti (2011) for Italy. After restricting the sample period to 2011–2016, the estimates cluster around -0.07 , suggesting a lower substitutability degree in the recent period. The period 2008–2016 includes the years of the global crisis, thus it is possible that the higher substitutability degree found for this period is driven by firms substituting native with immigrant workers in order to cut costs. The latter is more likely to occur in those sectors which have been particularly hit by the crisis and where occupations have high manual content. Overall, these estimates turn into an elasticity of substitution ranging between 13.7 and 21. We interpret all estimates in Table 14.5 as a clear signal of imperfect substitutability between workers with different nationalities. However, as shown in Sect. 14.4, immigrant workers allocation across sectors differs from that of native workers, and new immigrants clearly follow past immigrant workers. Therefore, an immigrant induced increase in employment is likely to exert heterogenous effects across sectors.

Thus, we now estimate the elasticity of substitution between immigrant and native workers for each of the 12 sectors by interacting the relative labor supply of immigrant workers with the sector dummies and then testing the statistical significance of the linear combination between the coefficient of the interaction term and the one of the labor supply variables. Accordingly, the estimated model specification is as follows:

$$\ln\left(\frac{w_{m,j,s,t}^I}{w_{m,j,s,t}^N}\right) = \mu_m + \gamma_j + \varphi_s + \delta_t \sum_{s=1}^{12} \frac{1}{\sigma_{IM_s}} \ln\left(\frac{L_{m,j,s,t}^I}{L_{m,j,s,t}^N}\right) \varphi_s + \varepsilon_{m,j,s,t} \quad (14.11)$$

The first row of Table 14.6 shows the estimated coefficient for the whole economy, while the other rows report the estimates for each sector. Column two reports the corresponding value of the elasticity of substitution (i.e., σ_{IM}). The first outcome worth to note regards the average parameter obtained for the whole economy. As we can see, the absolute value of $1/\sigma_{IM}$ is lower than the estimates reported in Table 14.3. Therefore, controlling for sectoral heterogeneity brings to a higher elasticity. This is not surprising, as it implies that workers with the same education and experience levels, but different nationalities, are more easily substitutable if they work in the same sectors than they are if they work in a different sectors. Noteworthy, it is still confirmed that immigrant and native workers are not perfect substitutes even when they hold the same education and experience levels and when they work in the same sector.

Table 14.5 Estimate of $(-1/\sigma_{IM})$, aggregate sample (no sectors)

	2011–2016			2008–2016		
	I	II	III	I	II	III
$-1/\sigma_{IM}$	-0.071	-0.073	-0.069	-0.063	-0.047	-0.067
s.e.	(0.011)	(0.020)	(0.015)	(0.010)	(0.015)	(0.014)
Year effects	yes	yes	yes	yes	yes	yes
Education effects	yes			yes		
Experience effects	yes			yes		
Education by experience effects		yes			yes	
Year by education effects			yes			yes
Year by experience effects			yes			yes
Adjusted R-squared	0.96	0.97	0.96	0.95	0.96	0.93
Observations	72	72	72	108	108	108

Note The dependent variable is the logarithm of the relative immigrant-Italians average wage in each education-experience cell. The method is least square, with each observation weighted by its employment. Heteroskedasticity robust standard errors, clustered over 12 education-experience groups are in brackets. Constant term included but not reported. ***significant 1%, **significant 5%, *significant 10%

Table 14.6 Estimate of $-(1/\sigma_{IM})$ by sector

Sector	$1/\sigma_{IM}$		σ_{IM}
Overall	-0.038	***	26.1
	(-0.011)		
Agriculture, forestry and fishing	0.014		∞
	(-0.024)		
Manufacturing, mining and quarrying, Electricity, Gas and water supply	-0.030	**	33.8
	(-0.015)		
Construction	-0.014		∞
	(-0.016)		
Wholesale and retail trade	-0.103	***	9.7
	(-0.022)		
Hotel and restaurants	-0.089	***	11.3
	(-0.020)		
Transportation and storage	-0.040	**	25.3
	(-0.019)		
Information and communication	0.028		∞
	(-0.031)		
Financial services and insurance	-0.034		∞
	(-0.059)		
Real estate, administrative and support service activities	-0.041	***	24.2
	(-0.015)		
Public administration	-0.090	***	11.2
	(-0.031)		
Education, human health and social work activities	-0.039	**	25.8
	(-0.018)		
Other community, social and personal services activities	-0.045	**	22.5
	(-0.019)		
Adjusted R-squared	0.45		
Observations	864		

Note the dependent variable is the logarithm of the relative immigrant-Italians average wage in each education-experience cell. The method is least square, with each observation weighted by its employment. Heteroskedasticity robust standard errors, clustered over 144 sector-education-experience groups are in brackets. Constant term included but not reported. ***significant 1%, **significant 5%, *significant 10%

As for sectoral results, it emerges that the estimated coefficients are not statistically different from zero in four sectors, namely *Agriculture, forestry and fishing*; *Construction*; *Information and communication*; *Financial services and insurance*. In these cases, the elasticity of substitution goes to infinity, implying perfect substitutability between immigrant and native workers belonging to the same education-experience cell. Perfect substitutability is not surprising in sectors where manual skills are more relevant than language skills and where a low education level is prevalent (see also Table 14.4), such as in *Agriculture, forestry and fishing* and in *Construction*. By contrast, it might appear more unexpected a perfect substitutability in sectors like *Information and communication* and *Financial services and insurance*. Though the share of immigrant workers in these two sectors is very low, both with respect to total immigrant workers and total employees in each sector, it is important to note that more than 80% of immigrant workers are medium/high skilled (See Table 14.4). Most of them come from developed countries (the majority from other EU countries) are successful language learners and are likely to be perfect substitute with respect to natives holding the same education and experience level.

On the contrary, all the remaining nine sectors show imperfect substitutability between native and immigrant workers. However, the estimated parameter values differ considerably across sectors, ranging between -0.030 (*Manufacturing, mining and quarrying, Electricity, Gas and water supply*) and -0.103 (*Wholesale and retail trade*). In terms of elasticity, the range is between 33.8 in *Manufacturing* and 9.7 in *Wholesale and retail trade*, while the other sectors, except *Hotel and Restaurant* ($\sigma_{IM} = 11.3$) and *Public Administration* ($\sigma_{IM} = 11.2$), cluster around a value slightly above 20. It is worth to note that the values of $1/\sigma_{IM}$ found for *Wholesale and retail trade* (9.7) and for *Hotel and Restaurants* (11.3) are well below the aggregate value estimated at national level, which is around 14 (see Table 14.4). The latter are both service sectors, which together absorb 17% of total immigrant workers in 2016, while *Hotel and Restaurant* is the third sector in terms of immigrant workers relative distribution (see Table 14.1). The intuition behind these results is that, especially in these two sectors, immigrant workers are likely to be assigned to tasks requiring skills which are country-specific, some examples may be cooks in international restaurants, occupation in import-export firms where the immigrant native language is a prerequisite, and so on. With regard to the largest sector in terms of total employment, that is *Manufacturing, mining and quarrying, Electricity, Gas and water supply*, the estimated elasticity of substitution between native and immigrant workers is 33.8 which is the highest, still indicating imperfect substitutability. A possible explanation is related to the high concentration of low-skilled workers in this sector (51.7% on average for the total employees and 60.5% for immigrant employees, (see Table 14.4) combined with the prevalence of manual tasks not requiring country-specific skills. The sector *Other community, social and personal services activities* shows an elasticity of 22.5 which is below the average value (26.1), thus indicating that there is no perfect substitutability in the sector where the majority of workers are immigrants (51.7%, see Table 14.2). The last two sectors which are worth to discuss are *Transportation and storage* and *Real estate, administrative and support service activities*, with an estimated elasticity equals to 25.3 and 24.2, respectively. The majority of

immigrant workers employed in these two sectors are low skilled (54.8% and 50.5%, respectively, see Table 14.4), while native workers' education level is clearly higher (see Table 14.4). In these two sectors, immigrants are assigned to tasks requiring manual skills (e.g., drivers, store-men, cleaners), while native workers with low education levels can be assigned to tasks requiring language skills and which are better remunerated. To conclude, the sectors showing an imperfect substitutability degree between native and immigrant workers represent, all together, more than 86% of total employment. Overall, these outcomes suggest that the substitutability of skills possessed by native and immigrants differs substantially among sectors.

14.6 The Impact of Immigration on Wages

As showed in Sect. 14.3, we can use Eqs. (14.8) and (14.9) to simulate, for each sector, the total wage effects of immigration on both native and foreign workers.

At this scope, we first estimate Eqs. (14.6) and (14.7) to obtain the parameters $-1/\sigma_{ED}$ and $-1/\sigma_{EX}$. For the sake of simplicity, these estimates are carried out only at aggregate level, which means assuming common σ_{ED} and σ_{EX} across sectors. The estimated parameters are $\sigma_{ED} = 2.1$ ($-1/\sigma_{ED} = -0.47$) and $\sigma_{EX} = 2.5$ ($-1/\sigma_{EX} = -0.39$) which imply imperfect substitutability between pairs of education and experience groups, respectively. The value of σ_{ED} is very close to the value 0.6 estimated by Romiti (2011) for Italy at regional level for the period 1995–2004. Notwithstanding the different periods, the (small) difference might also due to the fact that Romiti (2011) uses only two education levels (i.e., skilled and unskilled) and that her model does not control for sector heterogeneity. As with regard to the values of σ_{ED} estimated for other countries, our value is within the range of values suggested by the relevant literature, which are around 2 (see Ottaviano and Peri, 2012, for a detailed discussion). As for σ_{EX} , to the best of our knowledge, there are no other estimates available for Italy. Considering the values found by the most influential studies, our estimate is close to the value of 2.9 estimated by Katz and Murphy (1992) using only two experience groups. Conversely, our value is lower than the values estimated in the literature using a higher number of experience groups, which range between 5 and 9 (see for example Card and Lemieux 2001 and Ottaviano and Peri 2012). A reasonable explanation is that the higher the number of experience groups considered by the analysis, the higher should be the substitutability degree between workers with the same education level, but different experience levels. As it is known, immigration is a recent phenomenon for Italy and immigrants are mostly young. As a consequence, the age distribution of foreign workers (and their years of work experience) in Italy is skewed to the right, which makes it difficult to create a high number of work experience groups.

We can now use Eqs. (14.8) and (14.9) to simulate the wage effect, on both native and immigrant workers, caused by an increase in employment due to immigration during the period 2011–2016. To account for the variability of our estimated parameters (i.e., σ_{ED} , σ_{EX} , and σ_{IM}), for each of them we generate 1000 normally distributed

Table 14.7 Simulation of % wage effects due to immigration by sector during the period 2011–2016

	Natives	Immigrants	Overall
Agriculture, forestry and fishing	0.9	1.0	1.0
	(0.2)	(0.2)	(0.2)
Manufacturing, mining and quarrying, Electricity, Gas, Water	0.1	−0.3	0.0
	(0.0)	(0.0)	(0.0)
Construction	−0.3	0.0	−0.2
	(0.1)	(0.1)	(0.1)
Wholesale and retail trade	0.1	−1.5	0.0
	(0.0)	(0.1)	(0.0)
Hotel and restaurants	0.7	−2.2	0.0
	(0.1)	(0.1)	(0.1)
Transportation and storage	0.1	−0.9	0.0
	(0.1)	(0.1)	(0.1)
Information and communication	0.3	−0.9	0.2
	(0.1)	(0.1)	(0.1)
Financial services and insurance	0.1	−0.1	0.0
	(0.0)	(0.0)	(0.0)
Real estate, administrative and support service activities	0.3	−1.5	0.0
	(0.0)	(0.1)	(0.0)
Public administration	0.0	1.5	0.0
	(0.0)	(0.0)	(0.0)
Education, human health and social work activities	0.1	−1.1	0.0
	(0.0)	(0.0)	(0.0)
Other community, social and personal services activities	0.8	−0.6	0.2
	(0.1)	(0.2)	(0.1)

random variables with mean equal to the point estimates and the standard deviation computed from the corresponding standard error. We then take the average over the 1000 extractions and use them to calculate the wage change.

The results for each sector are reported in Table 14.7, where the three columns show the percentage wage change for native workers, immigrant workers, and all workers, respectively. As for the latter, the outcomes go in favor of the long-run independence of average wages from the migration induced labor supply change, as assumed by the traditional growth models. In this regard, the only exception is *Agriculture, forestry and fishing*, which is probably due to the relative short-term period taken for our simulation, that is only 6 years⁶. Overall, because of imperfect

⁶According to the Solow (1956) growth model, in the long run the real interest rate and the capital output ratio are both constant while the capital labor ratio grows at a constant rate. Accordingly, a labor supply shock caused by immigration is likely to exert only short-run effects on the average

substitutability between immigrant and native workers, the impact on wages is quite different between the two groups of workers and across sectors. As for the impact on natives' wage, two main features seem to emerge: first, the percentage variation, although very small, is positive for all sectors but for *Construction* (-0.3%) and, second, their sizes are generally lower than those obtained for immigrant workers. The sectors where the percentage change of natives' wage is both positive and sufficiently high are *Agriculture, forestry and fishing* (0.9%); *Hotel and Restaurants* (0.7%); and *Other community, social and personal services activities* (0.8%). A common characteristic pertaining to these sectors is that the shares of immigrant workers (relative to total workers) are among the highest across sectors (see Table 14.2). As for the negative impact found for *Construction* (-0.3%), though it is very low, it is probably because this sector has suffered a severe economic downturn during the crisis. Thus, it is possible that immigrant workers were competing with native workers in the *Construction* sector during this period. This explanation is also supported by the neutral effect on wages found for immigrant workers, by the perfect elasticity of substitution estimated for this sector (Table 14.5) and by the fact that *Construction* is a low-skill sector where manual abilities are more important than language skills (Table 14.4). Turning the attention to immigrant workers, the picture changes considerably since the negative sign dominates across sectors. The highest percentage changes, that is those above 1% , concern *Wholesale and retail trade* (-1.5%); *Hotel and Restaurants* (-2.2%); *Real estate, administrative and support service activities* (-1.5%); *Education, human health and social work activities* (-1.1%). The wage change is positive and above 1% only in two sectors, namely *Agriculture, forestry and fishing* (1%) and *Public Administration* (1.5%). It is interesting to note that in all these sectors, the impact on natives' wage is either positive or nil.

Taking all results together, the general conclusion that can be drawn from Table 14.7 is that an increase in foreign employment due to immigration is likely to exert opposite effects on the wage of native and immigrant workers. Moreover, the wage effects are different across sectors for both types of workers. These differences are the results of three forces. First, the percentage changes in foreign employment are not homogeneous across sectors. Second, the shares of foreign workers in total employment are also quite heterogeneous across sectors. Third, the sectoral distribution of both native and immigrant workers differs with respect to their education and experience level. These three forces act by means of direct (i.e., within experience-education cell) and indirect effects (i.e., the effect on other skill groups) of immigrants in each sector. In this regard, it is worth to conclude by discussing the total effect on the main sector, that is *Manufacturing, mining and quarrying, Electricity, Gas, Water*. The elasticity of substitution between immigrant and native workers estimated for this sector was the highest among all sectors (see Table 14.6), which goes in the

wage by means of changes in the marginal productivity of labor and capital. An increase in labor supply due to immigration decreases the marginal productivity of labor and increase the one of capital. A higher real interest rate attracts investments, thereby the capital labor ratio adjusts to its balanced growth path.

direction of a possible negative effect on natives' wage. However, the latter accounts only for the partial effect, that is, it considers only immigrant and native workers pertaining to the same education-experience cell. After considering the impact on the other skill groups, the overall effect on wage turns to be nil for native workers and negative, but quite small, for immigrant workers (0.3%).

14.7 Concluding Remarks

This chapter has analyzed the impacts of immigration on labor market outcomes under the new framework that considers immigration as a change in the supply of heterogeneous workers, thus overcoming the assumption of perfect homogeneity that characterizes the so-called "canonical model". Accordingly, we have used a nested-CES function for total labor supply that differentiates workers according to their education level, years of work experience, and nationality. We have first performed the analysis at aggregate level and then extended the same empirical approach to the sector level. The sectoral analysis is the main contribution of this work. First, we have provided estimates of the elasticity of substitution between immigrant and native workers for 12 sectors in Italy during the period 2011–2016. Second, we have used these elasticities to assess the impact of immigration on wages of both native and immigrant workers at sector level.

As for the elasticities of substitution, our estimates at aggregate level confirm the previous results found by Romiti (2011) for Italy, by Ottaviano and Peri (2012) for USA and by Manacorda et al. (2012) for UK, that is a finite value for the elasticity of substitution between immigrant and native workers. However, the most interesting outcomes emerge from the sectoral analysis, which unfolds noticeable differences across sectors with respect to the estimated elasticity values. A perfect substitutability is found for the two sectors with the highest shares of low-skilled workers, namely *Agriculture, forestry and fishing* and *Construction*. Most jobs in the latter sectors require ability in performing manual tasks, while language skills are not essential. The lowest substitutability degree is estimated for *Wholesale and retail trade* (9.67) and for *Hotel and Restaurants* (11.3), two sectors where skills specific to the country of origin of immigrant workers (e.g., knowledge of language, culture, market structure, and so on) can be better exploited by firms. Contrarily, the sector with the highest elasticity of substitution is *Manufacturing, mining and quarrying, Electricity, Gas and water supply* (33.8), which is a sector where the majority of workers hold a low education level and they are assigned to common manual tasks (i.e., not related to the country of origin). Overall, heterogeneity in the complementarity between immigrant and native workers arising across sectors seems to reflect differences in the possibility for firms to take advantage of the cultural diversity of workers.

The degree of substitutability between native and immigrant workers is certainly an important factor when it comes to assess the impact of immigration on wages, though it is not the only one to be considered. First of all, the changes in labor supply due to immigration differ across sectors as well as across both education and

experience groups. Moreover, the impact on wages in each sector depends also on the share of immigrant to total employment, which is also quite heterogeneous across sectors. The simulation carried out in our analysis accounts for all these factors, thus providing the total wage effect of immigration on wages. Noticeable differences arise between the two groups of workers and across sectors. Overall, the effect on the wage of native workers is very small but positive, while the effect on the wage of immigrant workers is negative and bigger.

To conclude, our analysis provides some interesting insights related to the common concern that low-skilled immigrants are likely to have a negative impact on native workers. Indeed, our results seem to tell a different story. Firstly, immigrant and native workers are imperfect substitutes in production in eight sectors (representing more than the 86% of total employment). Secondly, immigrant workers exert either a positive or a nil impact on the wages of native workers. On the contrary, the effect on the wages of immigrant workers is often negative. From a normative point of view, this outcome is puzzling. Indeed, on one hand, firms seem to take advantage of the culture-specific abilities of immigrant workers and, accordingly, they consider immigrant and native workers as different inputs in production. This is particularly true in sectors like *Wholesale and retail trade* and *Hotel and Restaurants*. On the other hand, the negative effect on immigrant workers' wages appears to be high in some sectors (e.g., *Wholesale and retail trade* and *Hotel and Restaurants*) while is almost negligible in others (e.g., *Manufacturing, mining and quarrying*; *Electricity, Gas and water supply*; and *Construction*). Further research is needed in order to investigate if, and to what extent, these negative effects on wages are driven by the well-known vulnerability of immigrant workers (i.e., in terms of bargaining power) and not only the result of the demand-supply equilibrium in the labor market. Policymakers should take into consideration these issues, as well as the sector heterogeneities which emerged in this analysis, when it comes to design migration policies aimed at improving the economic welfare of immigrants, and possibly achieving socioeconomic benefits for all workers.

Appendix

A. Intermediate Formulae to Get Eq. (14.5)

In the competitive equilibrium, in each sector and for each type of workers, firms equalize wages to the marginal productivity of labor. Accordingly, we compute the marginal product of a native worker for the specific education-experience group from Eq. (14.1), then we take the natural logarithm such that

$$\begin{aligned} \ln(w_{m,j,s,t}^N) = & \ln(\alpha A_{s,t} k_{s,t}^{1-\alpha}) + \frac{1}{\sigma_{ED}} \ln L_{s,t} + \ln \theta_{j,s} \\ & - \left(\frac{1}{\sigma_{ED}} - \frac{1}{\sigma_{EX}} \right) \ln L_{j,s,t} + \ln \theta_{m,s} - \left(\frac{1}{\sigma_{EX}} - \frac{1}{\sigma_{IM}} \right) \ln L_{m,j,s,t} \end{aligned}$$

$$+ \ln \theta_{N,m,j,s} - \frac{1}{\sigma_{IM}} \ln L_{N,m,j,s,t} \quad (\text{A.1})$$

where $k_{s,t} = K_{s,t}/L_{s,t}$. Similarly, for immigrant workers we obtain

$$\begin{aligned} \ln(w_{j,m,s,t}^I) &= \ln(\alpha A_{s,t} k_{s,t}^{1-\alpha}) \\ &+ \frac{1}{\sigma_{ED}} \ln L_{t,s} + \ln \theta_{j,s} - \left(\frac{1}{\sigma_{ED}} - \frac{1}{\sigma_{EX}} \right) \ln L_{j,s,t} + \ln \theta_{m,s} - \left(\frac{1}{\sigma_{EX}} - \frac{1}{\sigma_{IM}} \right) \ln L_{m,j,s,t} \\ &+ \ln \theta_{I,m,j,s} - \frac{1}{\sigma_{IM}} \ln L_{I,m,j,s,t} \end{aligned} \quad (\text{A.2})$$

Subtracting Eq. (A.2) from Eq. (A.1) brings to the following equation:

$$\ln \left(\frac{w_{m,j,s,t}^I}{w_{m,j,s,t}^N} \right) = \ln \left(\frac{\theta_{I,m,j,s}}{\theta_{N,m,j,s}} \right) - \frac{1}{\sigma_{IM}} \ln \left(\frac{L_{I,m,j,s,t}}{L_{N,m,j,s,t}} \right) \quad (\text{A.3})$$

Therefore, we can estimate σ_{IM} from the following regression model:

$$\ln \left(\frac{w_{m,j,s,t}^I}{w_{m,j,s,t}^N} \right) = \mu_{m,j,s} - \frac{1}{\sigma_{IM}} \ln \left(\frac{L_{I,m,j,s,t}}{L_{N,m,j,s,t}} \right) + \varepsilon_{m,j,s,t} \quad (\text{A.4})$$

B. Analytical Derivation of Eqs. (14.6) and (14.7)

By aggregating the profit-maximizing conditions of Eqs. (A.1) and (A.2), it is possible to obtain the following optimal condition for the labor supply of workers with the same education and experience at sector level:

$$\begin{aligned} \ln \bar{w}_{m,j,s,t} &= \ln \left(\alpha A_{t,s}^{\frac{1}{\alpha}} k_{t,s}^{\frac{1-\alpha}{\alpha}} \right) + \frac{1}{\sigma_{ED}} \ln(L_{s,t}) \\ &+ \ln \theta_{j,s,t} - \left(\frac{1}{\sigma_{ED}} - \frac{1}{\sigma_{EX}} \right) \ln(L_{j,s,t}) + \ln \theta_{m,j,s} \\ &- \frac{1}{\sigma_{EX}} \ln(L_{m,j,s,t}) \end{aligned} \quad (\text{B.1})$$

The elasticity of substitution between workers with identical education and different experience levels, that is σ_{EX} , can be estimated using Eq. (14.6). In this regard, $\bar{w}_{m,j,s,t}$ equals to the average weighted wage paid to immigrant and native workers with same education and experience, where the weights are the share of hours worked by each group of workers. The related empirical model can be specified as follows:

$$\ln \bar{w}_{m,j,s,t} = E_{s,t} + E_{j,s,t} + E_{m,j,s} - \frac{1}{\sigma_{EX}} \ln(L_{m,j,s,t}) + e_{m,j,s,t} \quad (\text{B.2})$$

A similar approach is followed to estimate the elasticity of substitution between workers with different education levels. Accordingly, the optimizing relationship is

$$\ln \bar{w}_{j,s,t} = \ln \left(\alpha A_{s,t}^{\frac{1}{\alpha}} k_{s,t}^{\frac{1-\alpha}{\alpha}} \right) + \frac{1}{\sigma_{ED}} \ln(L_{s,t}) + \ln \theta_{j,s,t} - \frac{1}{\sigma_{ED}} \ln(L_{j,s,t}) \quad (\text{B.3})$$

And the corresponding empirical model is specified as follows:

$$\ln \bar{w}_{j,s,t} = E_{s,t} + E_{j,s,t} - \frac{1}{\sigma_{ED}} \ln(L_{j,s,t}) + u_{j,s,t} \quad (\text{B.4})$$

where the sector by time common effects ($E_{s,t}$) control for the variation of $\ln \left(\alpha A_{t,s}^{\frac{1}{\alpha}} k_{t,s}^{\frac{1-\alpha}{\alpha}} \right) + \frac{1}{\sigma_{ED}} \ln(L_{s,t})$, the education by sector by time effects ($E_{j,s,t}$) control for the variation of $\ln \theta_{j,s,t} - \left(\frac{1}{\sigma_{ED}} - \frac{1}{\sigma_{EX}} \right) \ln(L_{j,s,t})$, and the education by experience by sector fixed effects ($E_{m,j,s}$) control for the variation of $\ln \theta_{m,j,s}$.

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Chapter 15

A New Focus on Migration Health



Bernadette N. Kumar and Allan Krasnik

15.1 Introduction

The twenty-first century has witnessed rapid globalization that brings with it diversification of societies worldwide. Among the drivers of diversity, migration has gained growing attention by taking centre stage in influencing public opinion that in turn shapes world events and national policies. Health has been, is and will always be fundamental to human existence.

This chapter will bring together these two important defining issues by first tracing the evolution of migrant health as a discipline in its own right. This will be followed by the main migrant health concepts and examples of the theories and hypotheses that have dominated the field so far. Thereafter we introduce the existing evidence on the health effects of migration with a special focus on the life course perspective. This is followed by a discussion of the implications of migration on health and health services in receiving countries emphasizing the challenges. Finally, the chapter explores recent international policy developments and recommendations for improving migrant health. The need for closing the gap between existing evidence and policies is discussed, but also the demand for further evidence on determinants to better the health of migrants and for development of most effective practices and interventions.

NOTE TERMINOLOGY: We have developed a Glossary for MIGRATION HEALTH (MERH 2018) and it will form the basis; “cross border” means “International Migrants”.

B. N. Kumar (✉)
Norwegian Institute of Public Health, Oslo, Norway
e-mail: BernadetteNirmal.Kumar@fhi.no

A. Krasnik
Department of Public Health, University of Copenhagen, Research Centre for Migration,
Ethnicity and Health, Copenhagen, Denmark
e-mail: alk@sund.ku.dk

Despite the global nature of migration and health, the growth in the evidence base has been notable only over the last two decades (Sweileh et al. 2018). However, this evidence is neither evenly distributed geographically nor in terms of subject and topics. The cited literature and examples to some extent are dominated by European and North America compared to the Global South (Sweileh et al. 2018). While the theoretical frameworks, concepts, and empirical evidence presented do reflect the dominant international developments and challenges within the new discipline of migrant health, it is beyond the scope of this chapter to cover all aspects and all regions. Given the expertise of the authors and their special insights and research experience particularly in the European context, the chapter does to some extent reflect this special focus.

Cross-border migration, a global phenomenon, is a major contributing factor to the changing demographics that impacts the health of individuals, groups and nations (Harari 2014). The ‘Migration Period’ of the Middle Ages (300–700 AD) resulted in dramatic changes in the architecture of populations in Europe (Kumar et al. 2017) and many would argue that we are in the midst of a similar ‘Migration Period’ of our times. Current migration affects and touches all nations and individuals and all aspects as it intertwines with geopolitics, trade, economic, social and security aspects affecting our daily lives, but as ever before also with clear health consequences for the migrants and for the populations at large (Kumar and Diaz 2019).

The ‘ecological space’ travelled by migrants in all phases of the migration cycle; pre-, peri- and post-migration will in one way or another affect health (Kumar and Diaz 2019). It is, therefore, imperative for countries, health care providers and health professionals to respond to the emerging realities of diverse populations, recognizing the need for better planning and management of these health dimensions. The consequences of failing to do so will impact not only migrants and their offspring but also society at large.

15.2 Evolution of Migration Health as a Discipline

The study of migration has evolved over the years with demographers and social scientists leading the way. Health research has over the last century broken ground as never before. Migration researchers explored the socio-demographic aspects of migration often excluding health, whereas health researchers prioritized disease and disorders often not considering migration as a determinant of health. Until a few decades ago, Migration and Health had not gained the attention of these groups of researchers and professionals but there has been a surge of publications in the last 10 years (Sweileh et al. 2018).

Health researchers, in Europe, paid sporadic attention to the health of migrants in the last century and when they did it was the traditional focus on risks related to the spread of infectious diseases (Kumar and Diaz 2019). Table 15.1 indicates that the interest in the health of immigrants has gradually evolved and demonstrates how the focus has changed from infectious diseases and biological/genetic differences

Table 15.1 Phases in the development of interest in the health in immigrants; Mark RD Johnson (1984)

Phases	Focus	Example
1. Exotic disease phase	Early interest in the unusual or seldom occurring diseases of minority ethnic groups	Infections, especially STDs, leprosy
2. Biological difference	The study of biological differences, with a focus on genetically inheritable diseases	Hemoglobinopathies
3. Population differences	Population patterns of disease; Group comparisons with White as majority	Somatic diseases/Mental health
4. Adapting health care to diversity	Adapting health care policy, research and services to meet the needs of ethnic minority groups. Challenge: Trying to ensure that the health care system as a whole is primed to meet the challenges of multicultural health care	Access to health systems Discrimination Intervention studies

into a focus on broader health issues including chronic and mental diseases and the need for adapting health care to diversity. These phases and their focus have in turn influenced the evolution of migration health theories and vice versa.

Historically, the policy approach to migrant health has some extent focused on addressing the immediate health and humanitarian needs of refugees and asylum seekers. Medical assessments of migrants in order to limit the risk of spreading infectious diseases have always been prioritized, in order to ensure compliance with the administrative health requirements of the immigration process (Kumar and Diaz 2019). With regard to provision of health services to migrants, the primary focus has been treatment (Bollini and Siem 1995). However, only focusing on treating migrants when they become ill may limit efforts for protecting their health: As Michael Marmot put it, ‘why treat people then send them back to the conditions that made them sick?’ (Ingleby et al. 2018).

The growth, diversity and extent of migration warrant more modern approaches to migrant health and these are still evolving. The need to focus on ‘endemic’ diseases that may be inherited such as haemoglobinopathies (a genetic defect that results in abnormal haemoglobin molecules causing disorders such as sickle cell disease most common in populations from Africa, the Mediterranean basin and Southeast Asia might still exist (Weatherall and Clegg 2001). Notwithstanding this need, due attention must be paid to the role of gene-environmental interactions involving exposures and health care access throughout the migration cycle. These factors might play an important role for the risk of developing common disorders like cardio-vascular diseases, diabetes and cancer (Bhopal 2014) In addition, other considerations should include health issues related to migrant communities and their

descendants, including travel patterns, i.e. journeys to countries of origin, posing travel-related health risks and possibly involving different treatments (Kumar and Diaz 2019). Thus, migrant-related programs and policies to prevent and manage these risks are increasingly gaining attention in host nations (Leder et al. 2006).

Newer approaches build upon broader global health architecture and development strategies that aim to reduce disparities and sustain health equity (WHO Regional Office for Europe 2016). Newer approaches reflect the understanding that migration is an independent determinant of health. Migrants have largely been excluded from most studies or routinely collected data, or at least, remain undescribed and uncounted as a category (Bradby et al. 2015). This is particularly the case for undocumented migrants with little or no contact with the established health services. Asylum seekers are to a large extent excluded from the regular health systems in many countries and rarely the subject for health studies. As information about migrant background and ethnicity is often lacking in health studies, even the legally residing migrants and their descendants are often quite invisible in the research evidence on health determinants as well as on access, quality and outcomes of health service provision (Sweileh et al. 2018).

15.3 Migration Health Conceptual Framework and Theories

In order to delve into the basic concepts and theories, it is essential to review the terminology, definitions, the use and registration of migration-relevant variables. This is critical not only for science but also for inclusion/exclusion, as based on these definitions policies will vary such as national health policies and access to health care. The implications and consequences of non-uniform terminology complicate the international collection and analysis of comparable information for migrant populations (Kumar and Diaz 2019; World Health Organization 2018). Interestingly there is considerable symmetry in the terminologies for refugees as these are often governed by covenants and guidelines. We will in this chapter use existing definitions from the Glossary of MERH 2018 (the entire list can be found at (Kumar and Diaz 2019; Johnson et al. 2019).

Neither migration nor health is static, but by nature cyclical and they are in many ways interrelated. The migration cycle is best described in the following phases: pre-departure (in the country of origin), transit (the journey—the interim country of destination), post-arrival (in the country of destination), return (to country of origin) (Zimmerman et al. 2011; Abubakar et al. 2018). These phases and their relationship to health issues are summarized in Fig. 15.1 (Kumar and Diaz 2019). While the phases are not a newly found concept, what is new is the time between the phases that varies depending on the wave and type of migration, the push and pull factors. In recent years, it has been observed that the transit period can take several years and become a semi-permanent situation and planned return may not take place at

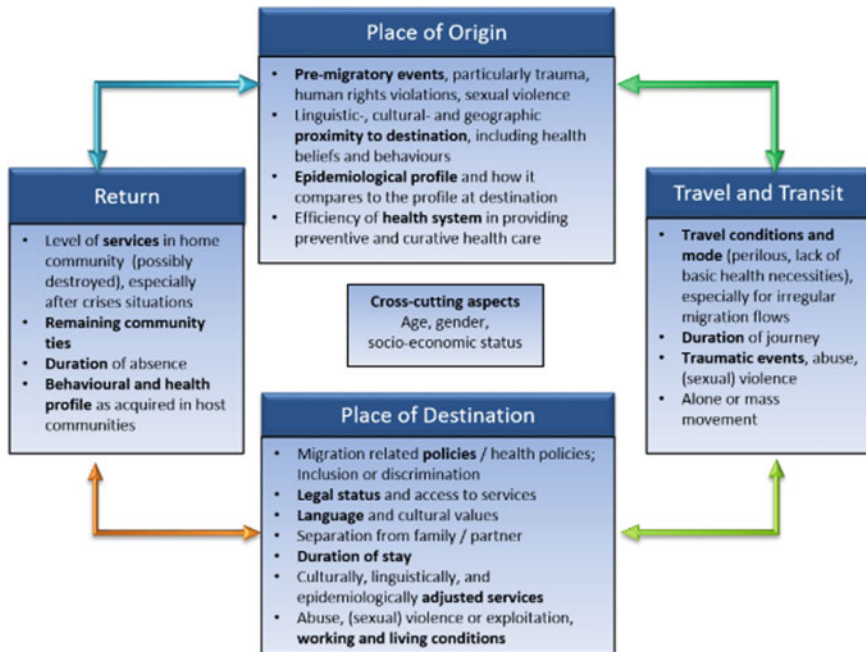


Fig. 15.1 Phases of migration (Kumar and Diaz 2019)

all, in the later years of life. With regard to health, the life course perspective has recently become a well-established concept when trying to understand determinants and developments of health issues over the life span. As shown in Fig. 15.1, the place of origin may contribute to the health of migrants as environmental factors, social structures, cultural norms and behaviours, patterns of disease, violence and discrimination, health service provision, etc. might play out before migration or after possible return (temporarily or permanent) (Kumar and Diaz 2019). The transit process poses a series of health-threatening conditions like uncertainty, abuse and violence, dangerous travels, lack of basic health necessities and limited or no health care available, in particular for undocumented migrants without basic rights and entitlements. The country of destination may offer entitlements and honour rights for legally residing migrants, whereas this may not extend to asylum seekers and undocumented migrants. However, all categories of migrant groups may experience health hazards in the form of separation from family, difficult working and housing conditions, discrimination and marginalization, language issues and limited or suboptimal access and quality of health care (Kumar and Diaz 2019).

As seen in Fig. 15.2, the causal processes behind ill-health of migrants living in their country of destination are complex and direction of change in health is not constant, but depends on the disease, group studied and other modifying/mediating factors (Kumar and Diaz 2019; Ingleby et al. 2018). Migrant health research attempts to disentangle the interaction between these factors and to some extent there are

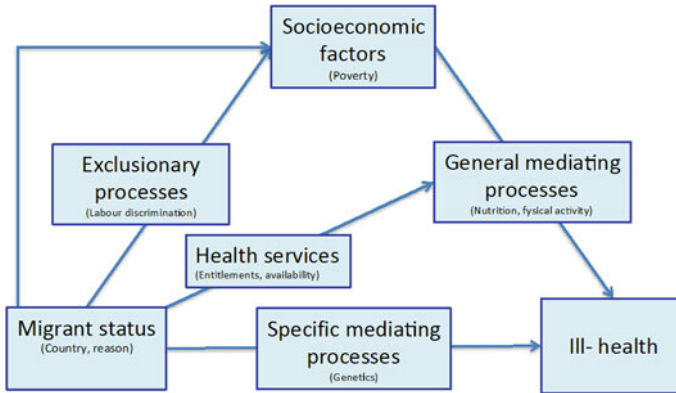


Fig. 15.2 General model for effects of migrant status on health (Kumar and Diaz 2019)

similarities with the general population. However, these modifying/mediating factors might play out differently among migrants due to the migration process. Known determinants and mediators of health such as age, gender, social-economic status, education, employment, physical environment, and access to health care may very well explain patterns of ill-health among the migrants as they do for non-migrants. Nonetheless, migrant health studies need to take into account the complex ways these known determinants interact with specific genetic factors, migration status, ethnicity and minority status, other exclusionary processes as well as the effect of being a newcomer or experiencing acculturation over time (Ingleby et al. 2018).

Migrant status refers not just to the fact of being a migrant, but also to particular characteristics such as the type of migrant (e.g. regular, asylum seeker or irregular), the country of origin and ethnicity (Kumar and Diaz 2019; Ingleby et al. 2018). Adding a life course stage perspective and a gender lens further increases and diversifies the complexity of these social determinants on the health impact (Kumar and Diaz 2019; Devillé et al. 2011). The exclusionary processes such as discrimination mediating between migrant status and socio-economic position are the barriers that prevent migrants from realizing their full potential in the new country and thereby also their health (Kumar and Diaz 2019).

General mediating processes are the well-known links between low socio-economic position and ill-health, such as poor living conditions or nutrition. Poverty is largely responsible for these, whether one is a migrant or not (Kumar and Diaz 2019; Ingleby et al. 2018). However, these mediating processes may themselves be influenced by migrant status, as indicated in the figure: while some migrants may have enough money for decent housing, discrimination by landlords or house agents may further deny them access to it. Migrants may not be eligible for the same social benefits that protect national citizens in precarious employment who lose their jobs or when retiring because of age (Ingleby et al. 2018).

Specific mediating processes also exist that do not involve socio-economic position. For example, migrants at any level of socio-economic position may experience

direct, individual hostility—so-called ‘race hate’—leading to stress and physical or mental ill-health (Kumar and Diaz 2019; Ingleby et al. 2018). Both negative and positive influences on health may be linked to genes or cultural traditions. Migration policies themselves may undermine health, not only by limiting access to health services but also by increasing the difficulties migrants’ experience (Kumar and Diaz 2019; Ingleby et al. 2018). Of the social determinants of health that are most likely to affect migrants the fundamental exclusionary processes that impede migrants’ successful integration are often found on the top of the list.

There are several theories that attempt to explain this complex relationship but these theories have many limitations including, the heterogeneity of migrant populations, ethnocentric assumptions and the lack of focus on the underlying processes. Notwithstanding these limitations, a few of the most important theories will be outlined here.

15.4 Examples of Theories and Hypotheses

Over the past few decades several hypotheses attempting to explain the differences in health between immigrants and non-immigrants, between minorities and the majority population have been launched.

Healthy Migrant Effect: Often migrant groups tend to comprise individuals in a particularly good state of physical and mental health, perhaps reflecting a selection bias. The similarity with the ‘healthy worker effect’ (Li and Sung 1999), due to the exclusion of unhealthy workers from employment, has given rise to the term ‘healthy migrant effect’ (Newbold 2005). The selective migration theory is based on a selection process that determines the type of person that migrates. Often younger people migrate and they are as a rule healthier, therefore age bias can be one source of the healthy migrant effect. Younger people are usually healthy people willing to take risk and are able to deal better with hazards of immigration. Younger migrants might be healthier than the non-immigrant population of the area they migrate to and also compared to those left behind in the country of origin. This indicates that often when immigrants arrive in the country of destination, their health status is better than that of hosts (Chen and Wilkins 1996).

Theories of ill-health among migrants: The intersection of health and migration is very specific because populations differ greatly, especially considering the vulnerability of certain migrants. Migration might adversely affect health, starting with perilous migrant journeys (Kumar and Diaz 2019). Later on, cultural dislocation and stress might add to the disease burden and eventually the next generation as seen with immigrant women with adverse pregnancy outcomes (Bakken et al. 2015; Bakken et al. 2015). The health status of some migrants deteriorates in the country of destination due to several factors. As is widely known, health depends on a combination of interrelated factors that are usually divided into specific groups: constitutional factors, individual lifestyles, social and community networks, living and working conditions, and general socio-economic, cultural and environmental

conditions. These may all play out and interact differently according to the characteristics of the particular group of migrant and ethnic minority. Additionally, some gene-environment interactions result in higher risk for certain diseases and conditions among immigrants such as cardio-vascular diseases and diabetes among immigrants in Europe from India and Pakistan (Kumar 2011). The **theory of the negative effect of migration** states that a new environment adds new set of health risks; it increases morbidity and mortality by movement from low-risk to high-risk areas (Kumar and Diaz 2019; Kumar and Viken 2010). An example could be in the case of cancer; many migrants from low-income countries will have a lower risk for certain types of cancer that are more common in high-income countries. But the migration process is stressful and discrimination, acculturation and adjustments to the new environment (see below) may alter the risk profiles moving towards that of the majority population and contribute to higher prevalence of ill-health and disease—such as mental health illustrated by high levels of depression (World Health Organization 2018). **Theories of allostatic load** are referring to the price the organism has to pay for its efforts to maintain stability through change. This goes to the core of immigrants' need for adjusting to a new environment. Factors that can ease this process of adjustment are, for example, well-functioning coping strategies, physical activity and adequate nutrition (McEwen 1998).

Cultural theories/acculturation: Cultural differences impact environmental factors such as lifestyle—diet, exercise, smoking to name a few. The beliefs of migrants may be very different from the beliefs of health care professionals leading to difficulties in understanding one another and impeding health promotion and effective clinical management (Kumar and Diaz 2019). The behaviour of health care professionals towards migrants can lead to feelings of discrimination and lack of sympathy, so that a gulf develops (Mbanya et al. 2019). The acculturation theory implies taking on cultural values and practices of the host population and there are several models for how this might play out (Kumar and Diaz 2019; Kumar and Viken 2010; Abraído-Lanza 2005). Research on acculturation and health shows that given the diverse patterns of adaptation, different exposures/behaviours may shift morbidity and mortality (Kumar and Viken 2010). Acculturation is thereby not only context-specific but also ethnic group-specific. Acculturation can be both a risk factor as well as a protective factor. The complexities of these issues lead researchers to suggest that the use of these measures of acculturation should perhaps be abandoned or they may inadvertently fuel weak explanations of health disparities by focusing only on culture. It is, therefore, important also to focus on structural constraints that are as important to examine the societal contexts that promote or inhibit health.

Differences in Socio-Economic Position (SEP): This has been one of the most debated and discussed theories. In 1990 Navarro claimed that ethnic inequalities were predominately dominated by socio-economic inequalities, whereas Smaje (Kumar and Diaz 2019; Smaje 1994) argued that SEP might have a role to play alongside cultural and genetic elements (Kumar and Diaz 2019; Macbeth and Shetty 2001). It has been proposed that differences in health of immigrants and ethnic minorities are just a proxy for the SEP differences as immigrants and ethnic minorities often represent the lower socio-economic strata. This explanation is fraught with

several methodological challenges; the indicators of SEP available in most studies do not adequately account for ethnic differences in SEP. While controlling for socio-economic factors might suggest that these do not contribute to ethnic inequalities in health, the process for standardizing SEP when making comparisons across groups is not straightforward. Limitations include traditional class groupings (not internally homogenous), unemployment and most indicators do not give us a lifetime risk estimate. Interactive effects and advantage and disadvantage throughout life must be considered as in the case of migrants where socio-economic disadvantage accumulates, also called **the weathering hypothesis** by Geronimus (Kumar and Diaz 2019; Macbeth and Shetty 2001). Controlling for SEP may also hide the health effect of migration as low SEP is often both caused by being a migrant and at the same time it may lead to the low health status, thereby working as a main mediator between migration and health (Kumar and Diaz 2019; Ingleby et al. 2018). Another phenomenon is the downward social mobility of migrants post-migration, those with a higher social class in their home countries find themselves suddenly classified into a lower class (Syrian doctor working in a restaurant), this poses a great challenge in classification (Kumar and Diaz 2019; Ingleby et al. 2018). As described above in the acculturation theories, it is not unusual that migrants or ethnic minorities live in areas that are deprived with worse of environmental conditions or poorer services that impact health. This effect called 'area effect' further adds to the individual socio-economic disadvantage (Kumar and Diaz 2019; Kumar and Viken 2010).

Genetic or biological differences: Neither cultural practices nor biology is static. It is also important to consider that biological differences are often a consequence of both genetic and environmental determinants over time (Kumar and Diaz 2019; Kumar and Viken 2010). Genetic or biological differences in risk impact disease outcomes and in particular this might be intergenerational with the risk being transmitted from parents to child. Some health issues, like sickle cell anaemia can be directly linked to well-known genetic factors (Harari 2014), whereas others such as type 2 diabetes, reflect a combined effect of genetics and environmental determinants playing out either in the country of origin before migration or after arrival in the destination country.

Racism and Discrimination: A growing body of robust evidence shows that racism, stigma, prejudice and discrimination are bad for health (Kumar and Diaz 2019; Abubakar et al. 2018). Racial discrimination occurs on three levels: (1) interpersonal (interactions between individuals), (2) systemic (production, control and access to labour, material and symbolic resources within a society) and (3) internalized (i.e. the incorporation of racist attitudes, beliefs or ideologies into one's worldview) (Paradies et al. 2015). Laboratory and community-based studies show the harmful health effects of all forms of discrimination, including both acute and chronic stressors, across a range of physical and mental health outcomes such as depression, psychological distress, anxiety and well-being (Paradies et al. 2015; Khan et al. 2017). As a result of racism and discrimination, poorer access to health care influences health-seeking behaviour and often results in poorer health.

Transmission of Disease: Are migrants carriers of disease? Although there are historical examples of the introduction of disease into new settings through human

mobility (e.g. the spread of infection from European colonial settlers), the risk of transmission from migrating populations to host populations is generally low. Studies on tuberculosis, for example, suggest that the risk of transmission is elevated within migrant households and migrant communities, but not in host populations (Kumar and Diaz 2019; Abubakar et al. 2018); nonetheless, several countries screen migrants for tuberculosis as part of pre-migration visa application checks. Migrant populations may come from countries with a high burden of disease or as a result of socio-economic disadvantage, co-morbidity and malnutrition, poor health access and low immunization coverage (Kumar and Diaz 2019; Abubakar et al. 2018). It is not uncommon for disease outbreaks to correspond to the drivers or circumstances of migration, especially in situations of conflict that dismantle already weak public health systems. Economically disadvantaged migrants often live in overcrowded conditions, suffer from poor nutritional who can lower their immunity, have poor access to clean water and sanitation, inhibiting personal hygiene (Kumar and Diaz 2019; Abubakar et al. 2018). Illness and infections may also be acquired or spread via transit routes and transport means. For example, air travel can facilitate rapid geographic spread of infections. However, even risk of air travel-related outbreaks is low to modest if the destination setting has strong surveillance and inclusive public health services, which are also crucial to prevent pandemics—whether associated with population movement or not (Kumar and Diaz 2019; Abubakar et al. 2018). Epidemiological patterns and related risks are readily addressed by assessing the infectious disease burden among populations and using data to design targeted interventions to contain outbreaks, prevent new infections through immunization and promote early presentation and treatment through well-conducted awareness activities.

15.5 Effects of Migration on Health

Migration brings about a huge gamut of changes; may it be from low middle-income countries to high-income countries, from rural to urban areas, sometimes occurring in the course of a few hours or days (Kumar and Diaz 2019; Kumar and Viken 2010). The most apparent and tangible change is often in the physical environment and includes also climate (generally warm–cold). The health status and determinants of health will differ from country to country depending on which phase of the demographic, epidemiological and nutritional transition they find themselves in (Kumar and Viken 2010). Immigrants from low-income countries are likely to find themselves caught between phases of the above-mentioned transitions when moving from their home countries to their high-income host countries. In some ways, their move accelerates these transitions that may have already started in the home countries and are close to completion in the host countries. A key contributor is urbanization. This is a phenomenon often associated with adverse lifestyle changes, including energy-rich diets far exceeding caloric requirements coupled with physical inactivity, increased levels of smoking and alcohol (Kumar and Viken 2010). In addition, adult populations

of rapidly developing countries have dietary and activity patterns vastly different from those of their youth. Many of these adults also faced foetal and early childhood deficiencies related to inadequate nutrition (Kumar and Viken 2010).

There is increasing evidence that chronic disease risks begin in foetal life and continue into old age (Forsdahl 1977; Barker 1999). Adult chronic disease, therefore, reflects cumulative differential lifetime exposures to damaging physical and social environments (Figs. 15.1 and 15.2). The known risk factors are recognized as being amenable to alleviation throughout life, even into old age. The well-known risk factors for Non-Communicable Diseases (NCDs), such as diet, smoking, alcohol, physical activity will change with migration; however, the direction of change positive or negative will vary with gender, ethnic group and countries of origin and destination. Ethnic differences in susceptibility to risk factors require understanding of the gene-environmental interactions. In addition, the gene-environment interactions play a role in the development of chronic disease. Examples of this are association between low growth in early infancy (low weight at 1 year) and increased risk of coronary heart disease (Chen and Wilkins 1996), blood pressure highest in those with retarded foetal growth and greater weight gain in infancy, short stature associated with increased risk of Coronary Heart Disease (CHD) and stroke, and to some extent, diabetes (Kumar and Viken 2010).

The life course perspective emphasizes that there is an accumulation of risk either positive or negative (Kuh and Ben-Shlomo 2004). Migration will impact these risk factors depending on where in the life course migration happens. As indicated by the theories above each phase of the migration process itself may have harmful effects for health. Poverty, violence and torture in the country of origin may cause lifelong physical and mental disorders, and the transit phase can involve experiences of stressful life events and insecurity as well as living in crowded camps with additional health risks (Bradby et al. 2015). Arriving in the destination country is sometimes related to the feeling of relief and hopes for a new future (**'honeymoon phase'** for some refugees) (Polcher and Calloway 2016), but is also a challenge as an effect of newness, loss of previous social networks and possible discrimination which has clear consequences for quality of life, health status and access and utilization of health services. Physical changes are usually accompanied by psychosocial changes that might be harder to visualize and subtler in nature, however, with a strong impact on health. These are related to a loss of cultural identity and professional status, inability to comprehend societal norms, loss of kin as well as of local milieu—all contributing to an increased stress level (Kumar and Diaz 2019; Kumar and Viken 2010). However most subtle, hard to visualize and measure are the loss of family, friends, social network and the difficulty of establishing new relationships in places where the societal norms/rules are different.

Descendants of migrants may experience a critical period of growth and development in the lifecycle during childhood and adolescence establishing behavioural patterns that might predict future lifestyles. The real concern about early manifestations of chronic diseases is that once developed they tend to remain with that individual throughout life (Kumar and Diaz 2019). On the other hand, this group is more likely to be responsive to changes in lifestyle if they are targeted early in life

and considering that their differences with the host population are not as great as with the first generation migrants.

15.6 The Implications of Migration on Health and Health Services in Countries of Destination

Migrant health is clearly determined by many factors thereby making the role of health care essential, not only for the treatment and management of disease, but also for prevention and health promotion. The way health services deal with different groups of the population hence plays a major role for equity in health care which in turn has direct consequences for these groups, as well as society at large. Health plays a significant role in the life of migrants including quality, social functions, integration and well-being. For society the positive economic effects of migration in both short and long term perspectives may be undermined by insufficient health care. The economic argument is often presented as a clear motivation for ensuring timely and effective health services for migrants (Trummer and Krasnik 2017).

Health services and health care constitute an essential element of all societies—in many different forms based on the historical and social developments of the particular country and the different health care needs of the particular populations served by the health services. The right to health care, however, is acknowledged in many international declarations, but mostly without clear definitions of the population (Kumar and Diaz 2019) groups that should actually be provided with this right and the extent of services that should be included. Equity in health care requires that resource allocation and access to health care are determined by health needs, irrespective of factors such as ethnicity and migration status (Nørredam and Krasnik 2011). In practice, many countries do not fulfil this principle for migrants are concerned due to formal restrictions and informal barriers.

Whereas legally residing migrants are often entitled to health care on the same level as non-migrants, this is rarely the case for asylum seekers—and almost never for undocumented migrants. Asylum seekers are often only offered selected services and special providers—in some countries requiring special permission—and in most countries undocumented migrants are without any rights or entitlements to health at all besides restricted emergency/acute care or care by a few NGO related clinics (Abubakar et al. 2018). Thus, the right to health care in reality has become a citizens' right rather than a human right—as defined by the WHO charter (World Health Organization 2006). Additionally, user fees can be seen as a general formal barrier for migrants often attributed to their lower socio-economic status compared to non-migrants or as a special economic barrier for migrants who are not yet entitled to subsidies.

Even in the case of legally residing migrants, health care provided may not be equitable. Equity means offering different care in order to ensure full responsiveness of services according to the needs of all population groups, and health systems are

rarely tailored to fully meet the needs of newcomers with characteristics and health issues which may differ from those of the majority population (Polcher and Calloway 2016). A major barrier for newcomers is language (Bischoff 2012). This includes lack of comprehensible information about rights, entitlements and available services as well as difficulties in making appointments. Use of professional interpreters is often limited and sometimes requires patient payment, unaffordable for migrants with low incomes. Using interpreters is also a challenge to many health professionals who have limited skills and experiences in communication via interpreters. This may create many problems due to poor communication, or psychosocial stress when family members (especially children) are used instead of professional interpreters (Bischoff 2012).

Communication goes beyond language and many health professionals lack sufficient competences in serving diverse populations. Stereotypes, stigmatization and differences in norms and values, concepts of health and disease may create serious barriers and lower quality of care (Bischoff 2012). Different expectations by patients due to their newness and experiences with very different kinds of services in their country of origin may also influence optimal utilization of services as well as acceptance of professional advice and treatment. This may lead to dissatisfaction, thereby leading some migrants to seek alternative health care; either traditional medicine care or from health professionals from their country of origin who meet their expectations better (Şekercan et al. 2015). This might also be seen as an effect of the experiences of discrimination based on the behaviour of individual professionals or institutional discrimination due to unfair rules and cultural organizational patterns that cater largely to the majority population. This gulf can be bridged if simple measures are adopted: training in communication, culturally sensitive health-promotion programs, specific programs relevant for those of defined ethnic groups and, as a basic means to increase confidence and trust, elementary skills in the language of the migrants. Thereby becoming more inclusive and adjusting to serving the new population groups.

Training of health professionals in diversity sensitivity and cultural competence is one important tool that needs attention—both in basic training programs of the different health professionals and in postgraduate in-service courses (Sorensen et al. 2019). Use of intercultural mediators, is another way forward, such as demonstrated in the Belgian program for Intercultural Mediation (Intercultural Mediation and Policy Support Unit, FPS Health, Safety of the Food Chain and Environment 2015). Trained special mediators are employed within the regular structure of hospitals in order to improve the quality of communication between the professionals and the migrant patients. In an Italian region, an even more comprehensive approach in the development of migrant-friendly health care is seen; involving special health care centres for migrant family health, language and mediation support, health information and promotion interventions, training of health professionals as well as partnerships and networks aiming at promoting intersectoral action and community participation (World Health Organization 2018). The issue of special versus inclusive health services for migrants remains debatable. In some instances, special clinics for migrants have been established such as the migrant health clinics in Danish hospitals

established in order to provide qualified services for particularly vulnerable migrant patients at the same level as the assessment and treatment for other patients within the ordinary system (World Health Organization 2018). Special clinics by NGOs for undocumented migrants are also a way to compensate for the insufficient access to the general health system.

Special health care challenges are related to the migration and arrival phase in the country of destination. When migrants are on the move it is difficult to ensure sufficient health care for acute conditions, as well as chronic diseases like diabetes, as the access to necessary assessments and medication is limited with potential harmful health consequences (World Health Organization 2018). Refugee camps often lack qualified health personnel and equipment. A special concern—not least in case of chronic illness—across borders is the lack of access to health data from the previous health care destination. Transferal of health data is a difficult technical challenge and the issue of confidentiality is often very sensitive issue for migrants. Upon arrival to the destination country migrants are sometimes met by unfounded fear of spread of infectious diseases leading to compulsory health examinations (like compulsory screening for tuberculosis of all refugees in Norway), whereas general health reception programs with a focus on the actual health needs of the migrants are limited (World Health Organization 2018). Thereby, health challenges like chronic diseases and mental health problems caused by traumatic experiences are not taken care of and the potential benefits of early inclusion within the health system of the destination country are not attained. This may negatively affect the future health status of migrants, education and employment and their integration.

15.7 Implications for Migration Health Policy and Priorities

Over the last century, multilateral agencies and nation states have moved the migration and health agenda and policies forward to address the entire gamut of upstream and downstream interventions (Ingleby et al. 2018). Notable initiatives and events have led to a series of documents from International Governmental Organizations (IGOs) addressing migrants' health over the last 12 years, and there is a high degree of consensus about the interventions needed to protect migrants' health (Ingleby et al. 2018). However, much remains to be done to attain 'health for all' including migrants (Kumar and Diaz 2019). Migrant health efforts should not merely constitute the maintenance of a state of absence of disease but should be proactive striving for social justice and equity with human rights at its core, and health as the main intended outcome (Kumar and Diaz 2019). Collective action for sustaining good migrant health includes a multi-pronged drive for health development and security that includes many sectors other than health, including the political process. This provides engagement and the power to go after the root causes of the problems.

This is critical for building the foundation for good health for large populations in a long-lasting way. It also means moving from a curative to a preventive approach.

15.8 Recent International Policy Developments; Challenges and Opportunities

Policies and priorities over time increasingly reflect principles in support of global human rights and global development goals (Mladovsky et al. 2012). The Sustainable Development Goals saw confirmation from the international community that the attainment of the highest possible level of health is a basic right and that attainment must include migrants (Ingleby et al. 2018). As migrants represent significant proportions of the global population, supporting and improving migrant health is necessary to ensure that migrants can fully contribute to the health of their communities at origin, transit and destination. Differing processes and population flows reflect historical patterns of differences in national legislation and policies regarding nationality, citizenship and residency. Hence, the development of policies and programs focused on or directed towards the health of refugee and migrant populations is not always coordinated or symmetrical. Until the last decade of the twentieth century migrant health policies, where they existed, tended to primarily reflect issues of national importance and history.

Much of the focus, at the first international conference on what was then called Migration Medicine in 1990 was access to and the provision of health services for refugees and other migrants (International Organization for Migration, World Health Organization 1990). In Europe, a series of international declarations and standards include the Tampere Summit—an agreement for a common EU immigration policy including standards for procedures related to granting refugee status (European Parliament 1999), and standards for the emergency care, essential treatment and necessary medical care of asylum seekers were developed by the Council of Europe in 2003 (Council of the EU 2003). A resolution (1509) was adopted by the Council of Europe in 2006 dealing with the Human Rights of irregular migrants defined in Article 13. The growing evidence base indicates an increase in research articles and reviews on migrant health (Sweileh et al. 2018) that must be reflected in developing strategies and policies and guide priorities.

In 2015, the European countries experienced an unexpected rise in the number of migrants entering the region trying to escape the violence of the Syrian war, the poverty and lack of work opportunities in many African countries (the so-called ‘European Migration Crisis’). As a result the European Union and WHO-Europe developed a number of programmes, projects and policy papers in order to meet the health challenges. In particular, the reception of newcomers is focusing on the need for assessment of health problems among the migrants (not least the pregnant women, children and those with chronic diseases) (World Health Organization 2018). The special health problems of the many undocumented migrants, however, was not given much attention, including the serious hazards from poor work conditions

related to the health of these groups and the lack of access to health care. Several initiatives, however, were launched by the EU and WHO for the improvement of cultural competences among health professionals in order to better meet the needs of the increasing number of residents with a migrant and ethnic minority background (ASPHER 2019).

In spite of the presence of existing and developing protocols and directives, the process of ensuring health of migrants at national, regional or global level is neither easy nor simple. Pre-existing national legislative and administrative frameworks, often based on historical patterns of regular, organized migration can influence and determine nationality, citizenship, right of residence and access to or availability of services. Migration today is frequently more diverse than previous patterns and health needs may be more complex and/or differ from the past experiences. These variations, both historical and current have influenced the direction of national policies and development across countries and regions of the world (Kumar and Diaz 2019). Policies should be directed at developing standardized and equally accessible health systems designed and supported to meet the acute, medium and longer term health needs of migrants.

The Global Compact for Safe and Orderly Migration (2018) was a landmark addressing migration globally. A global agreement and consensus on what needs to be done to meet the health needs of migrants is slowly developing, each contribution building on the ones that have gone before. Since 2007, importance has been placed on coordinated, structural, sustainable and evidence-based measures, rather than the ad hoc efforts that had traditionally characterized the field of migrant health. Most of these are based on extensive reviews of research evidence, as well as consultations seeking the views of various stakeholders. The main recommendations to be found in many of these documents are summarized by Ingleby & Kumar briefly below in Table 15.2. Recommendations 1, 2 and 3 concern ‘upstream’ measures; it is with regard to these that the recent policy documents depart from received wisdom prior to 2007, which was almost entirely concerned with health services (Ingleby et al. 2018).

Some recent documents recognize that migration does not always affect health negatively, and that migration does not make a person ‘vulnerable’ in the individual sense. An ‘intersectional’ approach (not to be confused with ‘intersectoral’) is recommended, focusing not only on the main effects of migrant status but also on its interactions with other variables. Recognizing the enormous diversity among migrants makes it possible to focus on the migrants who are most ‘left behind’ or likely to be excluded and most in need of supportive policies. Instead of recycling static notions about who is or is not vulnerable, the selection of groups should be evidence-based (Ingleby et al. 2018).

Reflecting individual national history and migrant health experience, national, regional and local migrant health policies like the Scottish and Norwegian national policy statements, or the Italian and Spanish regional policies vary in focus and areas of interest (Constance et al. 2017; WHO Regional Office for Europe, Ministry of Health of Italy, Regional Health Authority of Sicily 2017; IPHS 2016). Some are illness or disease-focused where concerns are directed towards the presence of

Table 15.2 Summary of main recommendations in recent international policy documents (6)

<p>1. Data and Research Improve data-collection and research on migrants' health, including health status, health services and background information on the migrant population and its situation in the receiving society.</p> <p>2. Governance Strengthen the leadership of efforts to improve health protection for migrants in each country; ensure coordination between stakeholders (including NGOs and CSOs), as well as regional and international collaboration. Raise the awareness of policymakers, managers and professional bodies concerning migrant health. Promote the involvement of migrants in all activities concerned with protection of their health.</p> <p>3. Intersectoral action on SDH Apply an intersectoral, 'whole-of-government' approach to protecting migrants' health, including health impact analyses of policies outside the health sector.</p> <p>4. Access to health services Facilitate migrants' access to health services by improving entitlements and tackling both supply-side and demand-side access barriers (e.g. through better information for migrants about their entitlements, the health system and how to use it; removal of practical and linguistic barriers to access; and ensuring that migrants need not fear being reported to immigration authorities by health services).</p> <p>5. Quality of services Improve the appropriateness, acceptability and effectiveness of health services for migrants by adapting treatments and service delivery to their needs, paying particular attention to language or communication barriers and 'cultural competence' or 'diversity sensitivity'. Target preventive activities where necessary to ensure they reach, and are effective for, all migrants.</p> <p>6. Attention for 'vulnerable groups' The term 'vulnerable' can refer either to the properties of individuals or of the situation, they are in. In the 'road map', these two meanings are often not distinguished. It is recommended to pay special attention to both kinds of groups, including women, children, elderly, and refugees, victims of trafficking and undocumented migrants. In addition, special attention is often recommended health conditions (e.g. infectious and non-communicable diseases or mental health problems).</p>

Acronyms: NGOs = Non-Governmental Organizations, CSO = Civil Society Organization, SDH = Social Determinants of Health

conditions on or around the time of arrival. Historical public health or communicable disease control policies provide the policy basis for some migration health programs as seen by the Italian approach. In some nations with large migrant or migrant-origin communities and population, health policy directions may take on an ethnic, cultural or minority focus that is broader in scope than approaches used in other states (Migrant Integration Policy Index. 2015). The direction of the policies will from time to time change and be determined by the political climate. Regardless of other determinants, if policies do not provide opportunities for migrants to become directly involved in the processes and systems that affect their lives and of their families they are unlikely to realize their health potential.

15.9 Conclusions

Until recently, there has been little focus on health in policies and research related to the general issues of migration. At the same time, there has been a lack of a migration focus in health policies and health-related research (Abubakar et al. 2018). This has seriously delayed the development of evidence and policies to meet the challenges of migrant health. However, during recent decades a new focus on the health of migrants has evolved (Wickramage et al. 2018) based on a multidisciplinary approach leading to rapidly growing research, the accumulation of new insights propelling the development of national and international policies and programs (Sweileh et al. 2018; World Health Organization 2018). The health consequences related to the different phases of cross-border migration and the effect of health for successful integration of migrants has become clearer thanks to the rapidly growing evidence base. A series of theoretical and conceptual developments have helped explain the complex pattern of health and disease across different migrant groups.

Migrant health studies have furthered the understanding of the determinants of health. Exploring determinants of good health among some migrant groups has deepened our health promotion and disease prevention insights. New interventions for ensuring access to health care and for better preventive initiatives among migrants have inspired general programmes in reducing health inequalities. However, there is still a need to further understand the causal processes leading to the complex patterns of health and disease among different groups of migrants. Besides, how to create effective interventions taking into account the structural and cultural issues remains work in progress. This requires a much more refined categorization of migrants into meaningful subgroups according to their formal status and different characteristics. In order to ensure cross-country comparisons and learning, it is essential that this takes place in international settings and collaborations. At the same time, it is crucial that the migrants are included in data collection and new interventions nationally and locally and have an active role as partners in the processes.

Existing evidence should direct international, national and local policies on migrant health. In recent years a series of policy papers, declarations and standards have in fact been produced internationally and in some countries also on the national level, but health issues are still often given lower priority than other migration-related issues. Migrant policies in many countries are increasingly focusing on reducing migration rather than supporting and improving the societal benefits of cross-country migration. As good health is one of the important preconditions for successful integration of migrants, the argument for a stronger focus on health interventions in all phases of the migration process is well established. The new discipline of migrant health can help developing and providing the necessary evidence base for better policies and practices for the benefit of the migrants, but also for the societies that are looking for better ways of integrating the increasing number of cross-border migrants worldwide.

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Chapter 16

The General and the Task-Specific Human Capital of Migrants: Host Country Perspective



Maryna Tverdostup and Tiiu Paas

16.1 Introduction

Human capital is one of the factors, which determines the effects of immigration on the host country economy and society. The concept of human capital covers individual skills and competencies (Becker 1962), which, in broad terms, shape the individual productivity and qualification. Apparently, the quality of human capital can be viewed as a factor of economic growth, development and innovation (Mincer 1984; Becker et al. 1990; Savvides and Stengos 2008; Bartel et al. 2014; Backman 2014). The cross-border migration, consequently, brings in the new human capital resources, which, dependent on the exact characteristics and on the extent of application of those at work, yield certain externalities on the individual and national levels.

The large body of literature documents that immigrants and natives are substantially different in their formal qualifications and abilities (Chiswick 1978; Duleep and Regets 1999; Chiswick and Miller 2003). The result is rather natural, given that the individual human capital is strongly dependent on the country of origin (Coulombe et al. 2014). Differences in the education standards, curricula, educational objectives and assessment methods reflect on the actual competencies (Bonikowska et al. 2008; Green and Worswick 2012). Lack of the host country labour market experience is another factor behind observed immigrant-native human capital gap. Since human capital develops and multiplies through the on-job training, work experience in the host state yields an improvement of skills demanded on the local labour market. These disparities trigger a low skill transferability of immigrants (Chiswick and Miller 2009) and underline the gap in immigrant-native human capital.

M. Tverdostup (✉)

University of Innsbruck, Universitätsstraße 15, 6020 Innsbruck, Austria

e-mail: maryna.tverdostup@uibk.ac.at

T. Paas

University of Tartu, Narva Maantee 18, 51009 Tartu, Estonia

e-mail: tiiu.paas@ut.ee

This chapter aims at the comparative analysis of immigrant-native human capital disparities across fifteen European countries. Following Gibbons and Waldman (2004), we focus on two dimensions of the individual human capital: general and specific human capital, which jointly constitute a so-called effective human capital. General human capital corresponds to the inner ability, as a combination of skills, knowledge and competences. Specific human capital refers to the abilities and skills accumulated and developed through performing certain job tasks, thus, it is also referred to as a task-specific human capital (Gathmann and Schönberg 2010). These two dimensions of the human capital are tightly interrelated. The task-specific human capital is a crucial factor of the inner ability improvement and an important determinant of the labour market success. Therefore, analysis of the task-specific human capital is particularly relevant in the context of the migration studies, as the immigrants are facing a number of labour market disadvantages, which may deter their effective human capital improvements.

In this chapter, we conduct an empirical assessment of both, general- and task-specific human capital of immigrants and natives. We contribute to the earlier literature by incorporating actual literacy and numeracy skills, rather than a mere formal education, to evaluate the general human capital. Namely, we use actual test scores in literacy and numeracy cognitive skill domains, provided by Programme of International Assessment of Adult Competencies (PIAAC), conducted within a Survey of Adult Skills (OECD 2013). Using cognitive competencies allows to more precisely measure the inner ability, since formally same educational degrees held by natives and immigrants could yield different types or levels of skills.

To evaluate the task-specific human capital, we derive the measures of an intensity of skill use at work, measured as a frequency of the certain skill application by an employee. We believe that skill use intensity is a valid measure of the task-specific human capital, as it directly reflects to which extent a respondent apply his/her skills to handle the job tasks. Therefore, higher intensity of the skill use at work translates into advancement of this specific skill, which, by definition, is a task-specific human capital. The analysis incorporates three skill use domains: literacy, numeracy and Information and Communication Technology (ICT) skill use at work. We additionally explore the same skill use dimensions in the non-work context, as they provide a valuable insight on the individual willingness to use certain skills and may help to better explain the immigrant-native skill use at work gaps.

The chapter will address the following research questions.

RQ 1. How different are the general human capital profiles, measured by the cognitive skill, across immigrants and natives? Which factors contribute to these differences?

RQ 2. Does the specific human capital, approximated by the actual use of skills at work, differs across otherwise similar immigrants and natives?

Therefore, the contribution of our analysis is twofold. First, we tackle the inner abilities and identify immigrant-native disparities in cognitive skills, along with other observable characteristics, which reflect human capital (formal education, age). Second, we evaluate the immigrant-native disparity in the task-specific dimension of the human capital, namely, the frequency of skills application at work. Our results

yield an input for the policy discussion on the difficulties of immigrants' labour market integration and persistent gaps in wages, employment and career progression, relative to native population.

16.2 Literature Review

The concept of human capital was developed by Becker (1962, 1994) and, loosely speaking, relates to knowledge, skills or characteristics possessed by worker, which contributed to his or her productivity. A number of alternative theories address the composition of human capital. They stress that individual human capital is multi-dimensional, comprising both physical and mental abilities, or including specific, unmeasurable characteristics, like capability to adapt to the changing environment (Schultz 1961; Nelson and Phelps 1966).

However, the common line of all theories is a direct relation of the human capital and productivity. The classical theory of Becker (1962) views human capital as an individual asset, which is directly useful in the production process and, thus, contributes to the firm and, consequently, national wealth. An alternative signalling theory by Spence (1974) characterizes the observable capabilities not as a set of characteristics directly contributing to the production process, but rather a signal of individual productivity. Nevertheless, numerous theoretical and empirical studies analyzed the positive relation between human capital and firm-level productivity (Black and Lynch 1996; Blundell et al. 1999; Haltiwanger et al. 1999; Ballot et al. 2001; Bartel et al. 2014; Backman 2014), innovation and R&D (Engelbrecht 1997; Faggian and McCann 2008; Simonen and McCann 2008), national-level economic growth and development (Mincer 1984; Benhabib and Spiegel 1994; Lee and Lee 1995; Barro 2001; Tamura 2006; Savvides and Stengos 2008).

The recent theory by Gibbons and Waldman (2004) suggests that individual human capital can be addressed a combination of a general and specific human capital. The general human capital relates to all inner skills and abilities, which are universal and can be easily transmitted across occupations and industries. The specific human capital, in contrast to the general, is accumulated in an occupation, thus has lower transferability which is the most productive in similar occupations. Up until now, there is little empirical literature addressing the specific human capital. Gathmann and Schönberg (2010) provide the most comprehensive assessment of the specific human capital and report that, unlike the initial expectation, specific skills are relatively portable and, as expected, strongly associate with the wage growth in Germany.

The composition and role of the general and specific human capital of immigrants have not been explicitly addressed yet. This appears to be a significant research gap, since immigration is one of the sources of population growth and, thus, the factor which reflects on the composition and characteristics of the host country human capital. While majority of studies stress that immigration has (at least short-term) negative effects on output growth in the host country (Ethier 1986; Friedberg and Hunt

1995), the literature suggests that these negative externalities become less significant the higher the immigrants' human capital is (Dolado et al. 1994). Another strand of literature analyses the negative externalities for the host country labour market (Borjas 2001, 2008; Docquier et al. 2014), reporting that quality of immigrants' human capital is one of the major factors, which determines the labour market response to the inflow of immigrants. Similarly, Borjas (2015) stresses that impact of migration on host countries is determined by skills composition of immigrant population.

Highly educated immigrants are likely to contribute to an economic growth in a host country, increase overall labour productivity and have a positive impact on GDP per capita (Boubtane et al. 2016; De Haas et al. 2019). Furthermore, immigration may lead to labour market distortions. Substitution of workers is viewed as a major consequence of immigration for native population; however, the recent findings on substitution effects of immigration are not necessarily negative. A number of empirical studies documents that low-skilled immigrants have an effect on low-skilled natives by overtaking elementary jobs and facilitating natives' employment improvement and wage growth (Foged and Peri 2016). Peri and Sparber (2011) found that highly educated immigrants specialize in occupations demanding quantitative and analytical skills, while natives specialize in occupations requiring interactive and communication abilities. As a result, natives reallocate to jobs with higher communication skills demand, while immigrants allocate to the jobs requiring analytical competences.

Multiple studies focused on the analysis of human capital of immigrants in the moment of host country entry and post-migration development of immigrants' skills. The conventional approaches to assess the quality of immigrants' human capital is to compare the profiles of movers to the characteristics of their peers, who decided not to move from the home country, and to the profiles to the natives in the host country.

The first approach is referred to as *self-selection* in the literature. The self-selection pattern identifies the average profile of immigrants, relative to their peers in the country of origin (Borjas 1991). The literature distinguishes between favourably and unfavourably selected immigrants. Economic immigrants, i.e. those who move to another place to work due to own economic opportunities, are generally found to be positively selected and, thus, more able and ambitious (Borjas 1987; Chiswick 1999). The reverse is generally held for the other types of movers, including refugees or tied movers. The reallocation reason for the latter was different from the economic opportunities; therefore, they are not necessarily more able or productive relative to their peers in the home country.

However, Cortes (2004) finds that, despite initially lower earnings and work hours of refugees, relative to economic immigrants, the refugees tend to improve their labour market outcomes at the higher rate, than economic immigrants. This result corresponds to a large body of literature, documenting that low human capital endowments motivate immigrants to invest in own skills and competencies, eventually leading to the improvement of the labour market returns (Borjas 1992; Beenstock et al. 2001; Duleep 2007; Beyer 2016).

The second approach focuses on the observable differences in human capital endowments across foreign- and native-born population. Earlier studies document that immigrants are often lacking qualifications and skills, demanded and valued on the host labour market (Zibrowius 2012; Sarvimäki and Hämäläinen 2016). One reason of the immigrant-native skills disparity arises from the differences in content and quality of educational programs in sending and receiving countries. Differences in educational standards, study curriculum and formal requirements yield objective disparities in acquired competencies. Hence, an extent of human capital acquired while studying may differ drastically across natives with host country diploma and immigrants with formally similar foreign-acquired education (Bonikowska et al. 2008; Green and Worswick 2012). Foreign-acquired qualification may be not entirely equivalent to host country degree (Sweetman 2004; Reitz et al. 2014). Furthermore, individual skill profile of immigrants may not entirely match a host country needs (Bonikowska et al. 2008).

Eventually, this induces low transferability of immigrants' skills (Chiswick 1978) and lowers employers' trust towards true competence of foreign-born employee, potentially resulting in statistical discrimination towards immigrants (Quillian 2006). Employers' statistical discrimination is one of the factors, which deter immigrants' employment possibilities and reduces potential on-job skill development and human capital accumulation. The difficulties of labour market entry and non-familiarity of the host labour markets are among other reasons affecting immigrants' skills development and accumulation. Furthermore, Behtoui (2008) reports the lack of social networks and non-accessibility of informal job search channels for immigrants as one of the important factors behind their worse job opportunities, compared to natives. These facts infer that immigrants have lower access to challenging and demanding jobs. These restrictions may enforce their selection into smaller and less profitable firms, which yields their lower wage returns (Sun and Kim 2014). Hence, even when having relatively high human capital, the aforementioned disadvantages may deter immigrants' on-job human capital use and development.

Important feature of the human capital concept is a tight relation to the labour market, since the competencies and skills are developed and multiplied through the labour market experience (Friedberg 2000; Basilio et al. 2017). Thus, when evaluating the individual human capital, it is important to account for two dimensions: (i) inner abilities, or general human capital, which is represented by the stock of skills and abilities, and (ii) specific human capital, since it captures to which extent an individual accumulates and develops his inner ability in the context of his/her specific occupation tasks. Hence, this chapter will focus on the aforementioned two components of the individual human capital profile and empirically investigate the immigrant-native disparities in the general and specific human capital profiles.

16.3 Data and Analytical Approach

16.3.1 Empirical Data

This research relies on the data from the Programme of International Assessment of Adult Competencies (PIAAC), conducted in 2011–2012 and 2014–2015 (OECD 2013). We focus on the European countries' samples, which fulfil the following criteria: (1) availability of major variables used in analysis, namely, literacy and numeracy skill scores; (2) share of immigrants in total country sample is sufficiently large (more than 4%¹). The selected set of countries includes Belgium, Czech Republic, Denmark, Estonia, Finland, France, Great Britain, Greece, Ireland, Italy, Netherlands, Norway, Slovenia, Spain and Sweden.^{2,3} For each country, PIAAC database provides a rich set of variables on socio-demographic background, employment history and self-assessed employment characteristics, as well as test scores in three skill domains (literacy, numeracy and problem-solving in technology-rich environment) and intensity of skill use at work and in everyday life.

To answer the research questions, this research will rely on two cognitive skill domains (literacy and numeracy) and three skill use domains (literacy, numeracy and ICT). Following the definition used in PIAAC dataset, literacy skill is defined as “understanding, evaluating, using, and engaging with written text to participate in society, to achieve one’s goals, and to develop one’s knowledge and potential” (OECD 2013, p. 3). Numeracy ability is viewed as “the ability to access, use, interpret and communicate mathematical information and ideas, in order to engage in and manage the mathematical demands of a range of situations in adult life” (Ibid.). Both cognitive skill domains are represented by 10 plausible values, each scaled from 0 to 500 points.⁴

To measure the task-specific human capital, we rely on the intensity of skill use when performing job-related tasks. We believe that intensity of skill use at work is a valid measure of the task-specific human capital, as the latter is linked to the competencies and abilities developed and utilized at work. Therefore, while the literacy and numeracy skills approximate the general human capital, use of skills at work stand for the specific human capital profile. We derive a skill use scale, following Allen et al. (2013). Each of the three skill use domains is derived as an average of the

¹Threshold was chosen arbitrary, as there is a considerable variation of share of immigrants across countries and the lowest shares are under 4%.

²All countries, except Greece and Slovenia, were surveyed in the first round (2011–2012). The latter countries were surveyed in 2014–2015. Survey wave is controlled for in the regression analysis.

³Different compositions of immigrant population across analyzed countries have to be acknowledged. Economic and social assimilation may be easier for certain immigration groups, for instance, for Slovaks in Czech Republic. Unfortunately, PIAAC data does not specify a country of immigrant’s origin, therefore, we cannot precisely evaluate an origin-related assimilation heterogeneity.

⁴For detailed technical description of PIAAC dataset see: OECD (2013). ‘Technical Report on the Survey of Adult Skills (PIAAC)’, *OECD Publishing*. http://www.oecd.org/site/piaac/_Technical%20Report_17OCT13.pdf.

Table 16.1 Components (PIAAC background questions) used to construct literacy, numeracy, ICT use at work and in everyday life variables

	Literacy use	Numeracy use	ICT skills use
At work	<p>A. Reading components: reading (1) directions or instructions; (2) letters, memos or mails; (3) newspapers or magazines; (4) professional journals or publications; (5) books; (6) manuals or reference materials; (7) financial statements; (8) diagrams, maps or schemes</p> <p>B. Writing components: writing (1) letters, memos or mails; (2) articles; (3) reports; (4) filling in forms</p>	Tasks demanding numeracy skill include (1) calculating costs or budgets; (2) using or calculating fractions or percentages; (3) using a calculator; (4) preparing charts graphs or tables; (5) using simple algebra or formulas; (6) using advanced math or statistics	Computer-based or internet use related tasks include (1) experience with computer at work; (2) using Internet for mail; (3) using Internet for work related information; (4) using Internet to conduct transactions; (5) using computer for spreadsheets; (6) using computer for Word; (7) using computer for programming language; (8) use computer for real-time discussions
In everyday life	Components identical to literacy use at work, but related to non-work activities	Components identical to numeracy use at work, but related to non-work activities	Computer-based or internet use related tasks include (1) experience with computer in everyday life; remaining seven components are identical to ICT use at work, but related to non-work activities

set of the background questions, enclosed in Table 16.1. The literacy use is defined as an average of eight reading components and four writing components. The scale for numeracy skill use at work is approximated with six numeracy components, while the scale of ICT use relies on eight computer and Internet use components. Each component refers to a self-reported frequency of conducting certain activity, requiring reading, writing or numeracy ability and ranges from 1 (never) to 5 (every day).⁵ Frequency of skill use does not need to reflect employees' productivity and does not need to tell about the actual efficiency of skill use. Thus, they reflect solely the complexity and skill-intensity of respondents' jobs, as well as a degree of individual effort.

Similarly to the skill use at work, we derive the skill use in everyday life measures. The estimates of the skill use in everyday life gaps provide a valuable evidence, which could better explain the on-job skill use differences. While the classical measure

⁵All background questions used to derive skill use measures provide ordinal responses as follows: 1—'never use'; 2—'use less than once a month'; 3—'use less than once a week, but at least once a month'; 4—'use at least once a week, but not every day'; 5—'use every day'.

of the task-specific human capital accounts for the on-job skill accumulation and improvement, the off-job skill use could complement the on-job accumulation and strengthen the task-specific skills by utilizing them beyond the work, as well as at work. Therefore, the lack of task-specific human capital improvement possibilities at the work place could be to some extent compensated by performing the specific skill-demanding task in everyday life.

We acknowledge a number of limitations associated with the aforementioned skill use measuring approach. Firstly, there may be a measurement issue in the questions related to the intensity of skill use. The respondents may misreport their true skill use. Since each question appeals to both nature (complexity and skill-intensity) of job and individual effort exerted at work, we can expect response bias to go both ways. Generally, respondents should have higher propensity to overstate their true effort at work, rather than understate it. However, certain group of workers may tend to report lower skill use frequencies, especially if they are employing different types of skills simultaneously and, hence, may put less emphasis on certain domain. Furthermore, since background questions and ordinal answers are quite broad, respondents may reply with less precision, resulting in higher standard errors. Since both highlighted issues do not imply correlated deviations, they should not bias our estimates.

16.3.2 Methodology

The estimation procedure starts with the simple descriptive analysis, which tackles the average differences in the background characteristics of and natives, as well as their cognitive and task-based human capital. Next, we apply a number of analytical techniques to answer our research questions. Firstly, we conduct a multivariate regression analysis, following Ordinary Least Squares Approach (OLS) to estimate the immigrant-native skill gaps (RQ1). Namely, we estimate a number of regressions with the step-wise inclusion of controls to elicit the effects of the following groups of factors: socio-demographic characteristics, education and employment characteristics. The functional form of the regression is presented in Eq. (16.1).

$$CS_i = \alpha + \beta I_i + \gamma' X'_i + \delta' Y'_i + \mu' Z'_i + \varepsilon_i, \quad (16.1)$$

where dependent variable CS_i corresponds to either the literacy or numeracy test score, dummy variable I_i takes value 1 if the respondent is foreign-born, vector X'_i includes all socio-demographic characteristics, while vectors Y'_i and Z'_i capture education and employment-related variables, respectively. Thus, the main effect of interest is captured by coefficient β , which stands for the immigrant-native skill gap, keeping other controls fixed. Vectors of coefficients γ' , δ' and μ' capture the effects associated with the corresponding socio-demographic, educational or employment characteristics. To separate the effects of each group of factors, we first estimate the raw skill gaps, by running the model controlling only for the immigrant dummy.

Next, we will include the sets of variables X'_i , Y'_i and Z'_i in a step-wise way, to infer how each set of controls associates with the skill disparity.

Both, the literacy and numeracy skill domains, are represented by 10 plausible values. Following the methodology suggested by OECD, we rely on the complete respective set of plausible values when looking at the cognitive skill. To account for sampling error and correctly estimating mean population values, we incorporate a final population weight. Skill measurement errors are ruled out using 80 replication weights under the Jackknife replication methodology. Hence, each regression output of the functional form (16.1) is a result of 810 replications.⁶

The second research questions are addressed applying a multivariate regression analysis of literacy, numeracy and ICT use at work in everyday life. The function form of the regression is as follows:

$$SU_i = \alpha + \beta I_i + \gamma' X'_i + \delta' Y'_i + \mu' Z'_i + \varepsilon_i, \quad (16.2)$$

where SU_i stands for a certain skill use domain in work or in everyday life. We simultaneously control for socio-demographic (X'_i), education (Y'_i) and occupation (Z'_i) characteristics, as it is important to ensure that immigrants are opposed to comparable natives. Especially occupation and industry, included in vector Z'_i , are expected to largely determine the intensity of skill use, and, therefore, need to be accounted for.

16.4 Empirical Results

16.4.1 Descriptive Evidence: Socio-Demographic and Employment Profiles

This section presents the descriptive evidence on main demographic and employment characteristics of immigrants and natives. The summary of demographic characteristics is enclosed in Table 16.2. The results suggest that gender representation is comparable across natives and immigrants, similarly to the age structure of the samples and marital status. The native speaker characteristic implies that the language used to conduct the test corresponds to the language used at home. As expected, in the majority of analyzed countries the shares of native speakers are considerably higher among natives. However, in Estonia, Greece, Ireland and Spain, the shares of native speakers are 88.2%, 40.6%, 45.9% and 56.6% correspondingly. Estonia is a clear outlier due to the technical features of the PIAAC survey, as it allowed to conduct the test either in Estonian, or in Russian, due to historically large Russian minority (OECD 2013). Since the public use files do not disclose the detail language

⁶Number of Jackknife replications is determined by 80 replication weights multiplied by 10 plausible values, and additionally weighted by a single population weight per one plausible value ($80 \times 10 + 1 \times 10$).

Table 16.2 Average demographic characteristics of immigrants and natives (weighted by the final population weight)

Country	Immigrants							N
	Male (%)	Average age	Cohabiting (%)	Native speaker (%)	Education (%)			
					Basic	Medium	High	
Belgium	48.0	40.1 (0.476)	77.3	33.7	64.6	19.4	16.0	790
Czech Republic	46.3	41.9 (0.873)	76.4	22.7	70.4	2.5	27.2	420
Denmark	48.2	37.6 (0.265)	75.4	9.7	59.9	13.7	26.5	3022
Estonia	42.8	50.9 (0.381)	81.7	88.2	48.6	25.8	25.6	919
Finland	48.3	37.8 (0.824)	83.7	19.4	63.6	8.9	27.4	231
France	50.0	44.0 (0.464)	78.1	26.5	75.4	5.7	18.9	795
UK	49.3	37.4 (0.540)	69.6	29.6	51.3	12.0	36.7	948
Greece	45.7	37.1 (0.751)	68.1	40.6	69.4	14.8	15.7	427
Ireland	48.8	36.0 (0.395)	66.0	45.9	40.6	35.0	24.4	1191
Italy	46.2	37.0 (0.644)	66.5	13.6	90.0	2.5	7.5	425
Netherlands	47.4	41.6 (0.584)	75.7	18.9	70.6	1.7	27.6	462
Norway	53.8	37.6 (0.477)	75.1	5.4	49.3	14.0	36.7	635
Slovenia	52.2	45.1 (0.543)	83.0	9.1	88.2	5.2	6.7	534
Spain	46.9	37.7 (0.431)	68.5	56.6	76.1	7.5	16.4	786
Sweden	47.4	40.3 (0.545)	74.3	9.0	63.5	13.3	23.3	740
Country	Natives							N
	Male (%)	Average age	Cohabiting (%)	Native speaker (%)	Education (%)			
					Basic	Medium	High	
Belgium	50.8	42.0 (0.148)	75.4	95.5	60.9	24.3	14.7	9168
Czech Republic	50.6	40.5 (0.210)	68.7	99.5	80.3	4.1	15.6	11742
Denmark	50.6	41.5 (0.140)	76.5	98.4	64.8	20.3	14.9	11548
Estonia	48.6	38.4 (0.168)	69.3	99.8	59.1	19.7	21.2	6660
Finland	50.4	41.6 (0.207)	81.1	99.5	59.7	18.5	21.8	5228
France	48.7	40.3 (0.188)	70.9	96.1	72.9	10.1	17.0	6105
UK	49.9	40.5 (0.251)	64.6	97.3	65.9	12.7	21.4	7858
Greece	49.5	41.5 (0.262)	67.1	99.0	66.7	16.2	17.1	4489
Ireland	49.0	39.6 (0.245)	63.4	98.2	53.5	28.7	17.7	4771
Italy	50.4	41.6 (0.269)	63.9	96.8	86.8	0.8	12.4	4161
Netherlands	50.6	40.9 (0.217)	75.3	94.8	69.2	3.5	27.3	4620
Norway	50.7	40.5 (0.226)	75.6	98.2	56.5	14.1	29.4	4310
Slovenia	51.2	41.0 (0.207)	67.5	97.3	75.3	10.4	14.3	4758
Spain	50.7	41.8 (0.196)	68.9	99.6	68.0	10.0	22.1	5183
Sweden	51.4	40.7 (0.251)	76.1	96.3	63.9	16.9	19.1	3727

command variables, the data does not allow to test whether the test language is the major factor.

In terms of the educational characteristics, there are systematic differences across countries. We find that in majority of analyzed countries immigrants are more often holding higher education degree. Among others, in Czech Republic, 27.2% of immigrants hold bachelor degree or higher, while only 15.6% of natives. Similarly, in the UK, 36.7% of immigrants are highly educated, whereas only 21.4% of natives hold the same degree. Spain, Slovenia and Italy are the only countries where the share of highly educated immigrants is lower than the share of highly educated natives. However, due to the data limitations, we cannot distinguish the country where the degree was obtained.

Table 16.3 shows the average employment characteristics across immigrants and natives. The average employment rate varies considerably across countries, however, immigrant-native differences are not substantial in majority of analyzed countries. The only exceptions are Denmark and Sweden, which have higher employment rate of natives, and Italy, where more immigrants, than natives are employed (63.6% relative to 55.4%). Occupation profiles vary significantly, with higher proportions of respondents holding high (skilled) positions among natives. The largest immigrant-native gap is observed in Italy, while the only country where immigrants have slightly larger share of high-level positions than natives is Czech Republic (36.4% relative to 34.2%).

16.4.2 Immigrant-Native Gaps in the General (Cognitive) Human Capital

This subsection addressed the first research question. We analyze the differences in the general human capital profiles of immigrants and natives following the Eq. (16.1). The literacy and numeracy cognitive skill gaps are enclosed in Tables 16.4a and 16.4b, respectively. This section will tackle not the skill levels of natives and immigrants per se, but rather shed a light on the difference (similarity) of those, and the heterogeneity (homogeneity) of the host country human capital potential, as a result of immigration.

To analyze how much the socio-demographic, educational and employment differences of immigrants and natives contribute to their cognitive skill gaps, we will incorporate those sets of factors in the analysis step-by-step. Thus, we estimate four multivariate regressions models for each cognitive skill disparity, namely: M1 controls only for the immigrant dummy, i.e. provides a measure of a raw skill gap; M2 adds socio-demographic characteristics, such as gender, age, marital status, language used at home; M3 additionally introduces the formal education level; M4 adds to all aforementioned controls the occupation level and presence of paid job in the last 12 months. We believe that all these factors relate to the cognitive skills and, thus, can explain the difference in cognitive competencies across immigrants and natives.

Table 16.3 Average employment characteristics of immigrants and natives (weighted by the final population weight)

Country	Immigrants				Natives					
	Employed (%)	Occupation (%)			Training at work (%)	Employed (%)	Occupation (%)			Training at work (%)
		High	Medium	Low			High	Medium	Low	
Belgium	67.4	33.3	25.6	17.2	19.0	70.3	47.1	25.9	18.8	28.6
Czech Republic	65.7	36.4	13.1	38.6	31.2	65.6	34.2	25.2	32.0	37.4
Denmark	62.9	34.1	26.8	16.6	25.4	74.8	43.6	27.8	18.0	38.8
Estonia	65.7	33.7	16.8	33.8	24.2	72.9	42.6	20.1	27.7	37.1
Finland	64.6	26.8	31.4	25.5	31.6	70.4	38.9	28.7	23.6	43.8
France	58.3	27.1	26.7	26.7	9.4	64.7	40.3	26.1	22.9	17.8
UK	68.1	36.7	34.9	13.8	30.9	71.2	37.6	35.8	16.5	37.7
Greece	51.2	15.1	33.8	28.4	7.1	48.9	30.7	37.0	23.5	8.2
Ireland	60.3	33.8	32.6	20.4	26.2	61.4	35.4	34.1	22.3	30.0
Italy	63.6	12.7	29.3	38.7	9.6	55.4	32.1	29.4	27.3	13.5
Netherlands	62.7	39.3	29.2	15.3	31.2	78.1	51.6	29.3	11.0	42.6
Norway	76.4	37.5	33.4	15.9	33.3	79.2	45.5	34.2	16.2	33.1
Slovenia	57.9	25.2	16.5	40.9	17.2	57.8	44.8	21.6	28.5	24.8
Spain	56.6	19.0	32.3	20.1	17.7	58.7	31.6	33.1	21.9	26.4
Sweden	65.4	31.4	34.2	21.4	21.1	75.4	44.8	29.3	20.8	34.6

Note: Occupation level shares are not summing up to 100% due to population weights

Table 16.4a The estimates of immigrant-native literacy skill gaps

	M1 ^a		M2 ^b		M3 ^c		M4 ^d	
	β	SE	β	SE	β	SE	β	SE
<i>Dependent variable: literacy skill (0–500 points)</i>								
Belgium	–36.6	3.46***	–29.5	3.49***	–27.5	3.10***	–24.6	3.59***
Czech Republic	–6.2	5.49	–7.0	5.94	–7.7	5.89	–6.9	7.19
Denmark	–37.6	2.08***	–28.0	2.58***	–30.0	2.49***	–25.3	2.23***
Estonia	–22.8	1.61***	–15.1	1.68***	–16.3	1.64***	–14.4	1.77***
Finland	–51.1	4.15***	–29.6	4.90***	–27.3	5.32***	–27.3	5.51***
France	–37.4	1.83***	–23.4	1.97***	–23.1	1.86***	–19.9	2.13***
UK	–20.7	3.49***	–8.3	3.22**	–12.9	3.01***	–11.9	3.30***
Greece	–6.1	3.91	–3.3	3.90	–2.8	3.74	0.7	4.58
Ireland	–4.7	2.04**	2.2	2.23	–1.3	2.07	–2.1	2.2
Italy	–24.5	3.62***	–20.0	3.44***	–18.2	3.44***	–20.6	3.76***
Netherlands	–42.7	3.11***	–35.3	3.52***	–34.3	3.29***	–30.2	3.10***
Norway	–38.2	2.68***	–29.7	3.65***	–30.8	3.38***	–23.1	3.74***
Slovenia	–27.5	2.72***	–14.8	3.02***	–11.1	2.89***	–7.3	3.34**
Spain	–22.6	2.66***	–25.5	2.51***	–21.0	2.29***	–18.4	2.34***
Sweden	–53.7	2.10***	–34.7	2.84***	–34.7	2.60***	–30.4	2.78***

Table 16.4a reveals significant negative raw literacy gaps (M1) across the majority of analyzed countries, with an exception of Czech Republic, Greece and Ireland (significant at 5%). The raw numeracy skill gap is insignificant in Greece and Ireland, and weakly significant in Czech Republic. Thus, immigrants and natives are, on average, significantly different in their literacy and numeracy skills in the majority of analyzed countries. However, this difference is rather expected, since foreign-born are predominantly non-native speakers. To partial out this effect, as well as other demographic factors, we estimate M2. The results prove that socio-demographic background largely explains the skill disparity across immigrants and natives. The most pronounced effects are reported for Denmark (a decrease from 37.6 points gap to 28 points), Finland (a decrease from 51.1 to 29.6 points), France (from 37.4 to 32.4 points), UK (from 20.7 to 8.3 points), Norway (from 38.2 to 29.7 points), Slovenia (from 27.5 to 14.8 points) and Sweden (from 53.7 to 34.7). In these countries, the population of immigrants have substantially different gender and age composition, as well as significantly lower usage of the test (host country) in their families.

The results for the numeracy skill gap (Table 16.4b) suggest similar pattern, which is largely explained by the high correlation of literacy and numeracy skills. Importantly, we document a cross-country variation, but within-country similarity of literacy and numeracy gaps. It implies that the countries with the most drastic immigrant-native literacy gaps (51.1 points in Finland; 42.7 points in Netherlands;

Table 16.4b The estimates of immigrant-native numeracy skill gaps

	M1		M2		M3		M4	
	β	SE	β	SE	β	SE	β	SE
<i>Dependent variable: numeracy skill (0–500 points)</i>								
Belgium	−34.3	3.53***	−27.3	3.70***	−25.5	3.31***	−22.5	3.67***
Czech Republic	−11.9	6.62*	−15.7	7.00**	−16.7	6.34***	−13.1	7.77*
Denmark	−37.3	2.32***	−26.9	2.75***	−28.9	2.67***	−24.2	2.50***
Estonia	−15.4	1.68***	−8.6	1.72***	−10.1	1.60***	−7.8	1.70***
Finland	−51.8	3.97***	−28.4	5.05***	−25.7	5.49***	−25.5	5.79***
France	−44.4	2.48***	−30.0	2.56***	−29.6	2.36***	−25.5	2.87***
UK	−27.5	3.50***	−14.4	3.25***	−20.0	3.05***	−18.0	3.22***
Greece	−3.0	3.65	−2.2	3.87	−1.5	3.66	2.4	4.40
Ireland	0.9	2.36	6.6	2.51***	2.6	2.38	1.9	2.32
Italy	−17.2	3.91***	−14.1	4.24***	−12.1	4.30***	−15.6	4.49***
Netherlands	−47.0	3.21***	−38.5	3.72***	−37.5	3.46***	−32.4	3.41***
Norway	−46.5	3.25***	−36.0	3.70***	−37.3	3.33***	−27.1	3.79***
Slovenia	−36.6	3.18***	−20.1	3.73***	−15.9	3.59***	−10.8	4.00***
Spain	−21.5	2.69***	−25.2	2.64***	−20.2	2.42***	−17.5	2.46***
Sweden	−56.2	2.14***	−35.6	3.12***	−35.6	2.82***	−31.4	3.00***

Note Numeracy test score is measured using 10 plausible values and weighted by the final population weight. Standard errors are estimated using 80 replication weights and Jackknife replication methodology. *, **, *** correspond to 1%, 5% and 10% significance levels, respectively

^aM1 controls for immigrant dummy only

^bM2 additionally controls for socio-demographic characteristics (gender, age, marital status, language used at home)

^cM3 additionally controls for education level

^dM4 additionally controls for occupation and paid job in 12 months preceding the survey

53.7 points in Sweden) are also those with the highest numeracy gaps (51.8 points in Finland; 47 points in Netherlands; 56.2 points in Sweden).

Adding the education degree to the models (M3) does not affect the estimates of literacy and numeracy gaps dramatically. This result appears intuitive for the literacy gap, since the test language is, most likely, the native language for the native-born respondents, while foreign for the immigrants. Therefore, the literacy skill gap has weak correlation with the formal degree. Table 16.4b reports the similar pattern for the numeracy skill. Unlike the literacy skill gap, separating the effect of education on the numeracy gap was expected to reduce the gap; the numeracy skill is more universal and less dependent on the language of completed education. Thus, the non-significant change in the magnitude of the numeracy skill gap can be explained by different levels of numeracy skill, associated with formally same degrees held by immigrants and natives. As we cannot control the country where the education was obtained, we cannot separate the effect of different contents of formally same educational

programs and different degrees of competencies. Furthermore, non-availability of the field of degree restricts the analysis of the actual role of formal education.

The final model (M4) incorporates two employment characteristics (occupation and paid job in the past 12 months). The results in Table 16.4a reveal different effects of employment characteristics on the estimates literacy skill gap across countries. Controlling for employment profile significantly reduces literacy gap in Denmark (from 30 to 25.3 points), Norway (from 30.8 to 23.1 points) and Sweden (from 34.7 to 30.4 points). Similarly, the numeracy gap is significantly reduced by controlling for employment variables in the aforementioned three countries, as well as Slovenia.

Consistency of literacy and numeracy gaps within countries further supports the earlier evidence on the high correlation between literacy and numeracy skills. The results suggest a significant variation in the immigrant-native general human capital gaps (i.e. the literacy and the numeracy skill gaps) across countries. This suggests differential selection of immigrants relative to native population in across countries, which results in more heterogeneous human capital profile of the host countries with the higher cognitive skills gaps.

16.4.3 Immigrant-Native Gaps in the Specific (Task-Based) Human Capital

In this section, we provide an empirical assessment of the specific human capital across immigrants and natives and tackle the RQ2. In our analysis, we follow the standard definition of the specific human capital, as a stock of skills and competencies accumulated at work, and thus building up an individual competence in performing certain job (on-job task-specific human capital). To measure this human capital, we refer to three dimensions of the skill use at work, namely, literacy, numeracy and ICT skills use. However, we recognize that an accumulation and improvement of specific task-based human capital may occur beyond the workplace. Therefore, we additionally explore the specific human capital in the everyday context (off-job task-specific human capital).

Table 16.5 reports cross-country estimates of the immigrant-native gaps in skill use intensity (i.e. task-specific human capital) at work and in everyday life. The measures enclosed in the table represent the pure gap in the task-specific human capital across foreign- and native-born respondents having similar socio-demographic profile, education level, working in the same industry and being on the same occupation level.⁷

Unlike the disparity in the general human capital, the specific human capital is more homogeneous across the immigrants and natives. Namely, we document statistically and economically insignificant gaps in on-job task-specific human capital in all three types of tasks in Finland, UK, Ireland, Slovenia and Sweden. Importantly,

⁷As a robustness checks, we estimated the identical model with literacy or numeracy skill controlled for. The results were robust.

Table 16.5 The estimates of immigrant-native skill use gaps

	Skill use at work						Skill use in everyday life					
	Literacy		Numeracy		ICT		Literacy		Numeracy		ICT	
	β (%)	SE	β (%)	SE	β (%)	SE	β (%)	SE	β (%)	SE	β (%)	SE
Belgium	-1.3	0.02	-5.5	0.02***	-4.5	0.02**	2.0	0.01	-2.1	0.01	3.2	0.02*
Czech Republic	-11.1	0.04**	-1.5	0.05	-9.5	0.04**	3.1	0.02	-3.3	0.03	-2.6	0.03
Denmark	-6.7	0.01***	-8.7	0.02***	-5.0	0.01***	1.1	0.01	-1.0	0.01	-2.2	0.01
Estonia	-1.8	0.01	0.5	0.02	-5.8	0.02***	-0.9	0.01	1.1	0.01	6.0	0.02***
Finland	-3.2	0.03	-3.1	0.04	-6.0	0.04	1.3	0.02	0.3	0.02	1.7	0.03
France	-7.6	0.02***	-12.9	0.02***	-3.7	0.03	-0.5	0.02	-4.1	0.02***	-2.7	0.02
UK	-0.9	0.02	-3.9	0.03	-0.9	0.02	4.0	0.02**	1.2	0.02	1.6	0.02
Greece	-6.1	0.04*	-9.9	0.05**	-1.8	0.06	-0.7	0.04	1.2	0.03	3.9	0.04
Ireland	-3.2	0.02*	-2.8	0.02	3.4	0.02*	8.7	0.01***	3.1	0.01**	2.5	0.02
Italy	-8.2	0.03***	-7.6	0.04**	-8.3	0.05*	-0.4	0.04	-1.8	0.03	4.2	0.03
Netherlands	-3.5	0.02*	-7.1	0.03**	-2.9	0.03	-1.6	0.02	-2.5	0.02	-4.1	0.02*
Norway	-3.8	0.02**	-0.8	0.03	1.4	0.02	2.9	0.02*	-1.2	0.01	0.7	0.03
Slovenia	-4.9	0.03*	-5.0	0.03	-0.8	0.03	2.4	0.02	-0.9	0.02	2.1	0.03
Spain	-4.5	0.02**	-6.6	0.03**	2.0	0.03	4.7	0.02**	0.8	0.02	4.6	0.02*
Sweden	-2.2	0.02	-5.2	0.03*	1.9	0.02	1.2	0.02	-0.4	0.01	0.7	0.02

Note OLS regression results. Dependent variable is a log of the respective skill use measure (continuous on the interval from 1 to 5). The table reports the coefficients of the immigrant dummy. The model additionally controls for the socio-demographic characteristics (gender, age, marital status, language used at home), education, occupation and paid job in 12 months preceding the survey. The estimates are weighted by the final population weight. *, **, *** correspond to 1%, 5% and 10% significance levels, respectively

there is substantial variation across the types of tasks. Immigrants are more likely to underuse their literacy skill, and, consequently, underperform in the on-job accumulation of the literacy skill. The highest gaps in literacy use are reported in Denmark (6.7%), Czech Republic (11.1%), France (7.6%) and Italy (8.2%). Numeracy skill use gaps are the highest in Denmark (8.7%), France (12.9%), Greece (9.9%), Italy (7.6%) and Spain (6.6%). The immigrants' underuse of ICT skills is, generally, lower, compared to literacy and numeracy, in majority of the analyzed countries. The only states with the pronounced gaps are Czech Republic (9.5%) and Estonia (5.8%).

Analysis of the task-based human capital in everyday life provides a number of important insights. Firstly, we document less statistically significant immigrant-native differences in the off-job skill use, compared to the on-job. Secondly, the significant off-job skill use gaps are, mostly, in favour of immigrants. This implies that immigrants, with characteristics similar to natives, tend to use their skills and acquire task-specific human capital at work less intensively than natives, however, beyond work they use and develop these skills more intensively. For instance, in Spain, immigrants have 4.5% lower rate of literacy skills use at work, but 4.7% higher rate of literacy use in everyday life. Similarly, in Ireland, immigrant-native literacy use at work gap is 3.2% and in everyday life 8.7%. In Estonia, immigrants use their ICT skills in everyday life by 6% more intensively than natives, but at the workplace they underuse ICT competences by 5.8%.

Therefore, our second research question revealed less significant immigrant-native disparities in the task-specific human capital, compared to the inner ability. However, in a several of analyzed countries immigrants, despite having similar background, educational and employment profile, underuse their skills and, consequently, underuse the possibility to acquire the task-specific human capital. Positive gap in the off-job skill use, coupled with the negative gap in on-job skill use, indicate that foreign-born respondents have the potential to employ their inner competence and, thus, improve own effective ability. However, due to a number of labour market, employer- and individual-level disadvantages, immigrants are restricted in improving own task-specific competences at their workplaces.

16.5 Discussion and Conclusion

This chapter contributes to analysis of immigrant-native human capital gap and factors behind it in fifteen European countries. Earlier literature discusses differences in human capital attainments across immigrants and natives are substantial and appear to be one of the major drivers of the immigrants' labour market disadvantages. However, previous studies relied on formal education or, at best, host country language proficiency as measures of individual human capital. In this chapter, we go beyond the classical measure of the individual human capital and focus on the effective ability. Namely, we distinguish between the general human capital, measured by the inner literacy and numeracy ability, and the specific human capital, which refers to the task-specific abilities accumulated and develop through performing certain job

tasks. We apply the novel measure of the task-specific human capital, as a combination of the self-reported frequencies of literacy, numeracy and ICT skills use at work.

To investigate the immigrant-native disparities in the effective ability, we set up two research questions. Firstly, we ask whether immigrants' inner abilities, measured by the literacy and numeracy skills, are different from the natives'. Secondly, we tackle the immigrant-native gaps in the task-specific human capital. Exploring both dimensions of the human capital is particularly relevant in the context of immigrants and natives. While the inner ability is an important individual attribute per se, the task-specific human capital accumulates through labour market experience and constitutes the effective, applicable skills. Those skills largely determine the job performance, further career progression and labour market success. A number of labour market disadvantages and individual factors may deter immigrants' task-specific human capital accumulation and, thus, trigger the labour market disadvantages.

Relying on the PIAAC data for fifteen European countries, we empirically investigate both research questions. The analysis of the inner ability gap documented a significant difference in the immigrants' and natives' literacy and numeracy skills, even once socio-demographic background, education level and employment profile are taken into account. This finding goes in line with the literature suggesting significant human capital disparity of immigrants and natives. However, the results of this chapter provide a novel insight on the disparity the actual inner ability, rather than formal education and language command only. We also document the variation in the inner ability gaps across analyzed countries, with the most homogeneous immigrant-native human capital in Greece and Ireland, while the most heterogeneous in Denmark, Finland, Netherlands, Norway and Sweden.

The analysis of the second research questions revealed that, in the number of analyzed countries, immigrants are outperformed by natives when it comes to the task-specific human capital. Our findings on the general human capital suggest that, in most of the analyzed counties, immigrants possess lower inner ability, relative to natives. However, lower stock of cognitive skills should not be, by itself, the reason to prevent the accumulation of these skills through carrying out the tasks of various levels of complexity, corresponding to the actual skill level.

Therefore, the results suggest that immigrants face a number of disadvantages that may persist independently of their inner ability. Among the institutional factors, the immigrants may have more restricted job access due to non-familiarity with the host country labour market; unawareness about the job possibilities and specific features of the host country labour market operation; lack of the job search channels. From the employer level factors, the career progression and access to the challenging, skill-demanding positions, which involve sizable learning and skill-improvement components, may be more restricted for immigrants, compared to natives. The latter could be attributed to the statistical or taste discrimination from the employer's side. Lastly, from the individual level, immigrants may be less motivated to exert maximum effort and invest into improvement of own effective human capital, due to the realized labour market difficulties and low expectancy of further career development, or due

to low social and cultural assimilation, feeling of isolation from society and other psychological factors.

These findings bring us to the conclusion that immigrants' general human capital is indeed substantially different from the natives in the majority of analyzed countries. However, different compositions and qualities of the general human capital of immigrants are not yet a reason to limit an accumulation and development of their task-specific human capital, by utilizing the inner abilities at the workplace. Furthermore, an accumulation of the task-specific human capital leads to an improvement of the inner abilities, eventually reducing the immigrant-native skill disparity. However, our results suggest that, in some countries, the skill use gap persists. As a result, the existing inner abilities gaps are further expanded.

This finding yields that immigrants are not sufficiently well assimilated in the European labour markets. Therefore, an underuse of immigrants' skills and competencies is an important dimension of the immigrants' integration issue. Implementation and development of policy measures should take into account that investments into immigrants' inner abilities are not yet enough to ensure that effective human capital will be generated. Development of educational programs, personalization of the training and focusing on filling up the gaps in cognitive skills should be coupled with the policy actions fostering further improvement of the task-specific human capital. Those are the policy activities, aiming to support immigrants' on-job skill use, including developing the institutional framework and improving an access of the qualified immigrants to more challenging and skill-demanding jobs; improving the information system allowing immigrants to get familiar with local labour markets and stay informed about the possibilities available on the host country labour market; avoiding possible reasons for labour and housing markets segregation; supporting socio-cultural integration of people with different ethnical backgrounds.

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Chapter 17

Entrepreneurial Journeys of Syrian Refugees in Groningen, A Liminal Story?



Christian de Kraker, Alexander Grit, and Sander Vroom

17.1 Introduction and Research Positioning

Bhachu and Light (2004), Portes, Haller and Guarnizo (2002) and Wang and Liu (2016) argue that entrepreneurship is a great chance for cross-border mobility. In this paper, a more nuanced view is presented and applied to refugee entrepreneurs in their interactions with their surroundings. Through a grounded approach (Glaser and Straus 1976), the nature of the interactions of Syrian refugee entrepreneurs is addressed focusing on processes of interaction, rather than structures.

This research is relevant since educational institutes in the Netherlands are dealing with high expectations and ambitions from local governments and non-governmental organizations (NGOs) to integrate and empower refugees through entrepreneurial programs in an entrepreneurial position. Often this discussion is blurred by altruism and political correctness, while limited information is available as to how entrepreneurial programs for refugee entrepreneurs contribute to integration.

Bizri et al. (2019) highlights the interactions between local governments, education, and entrepreneurs. He identifies an optimism of the cooperation between local governments, education, and entrepreneurs with refugees. But optimism seems to be contagious and, in many instances, policymakers are enthusiastic and positive about future outcomes of the refugee entrepreneurs. From the literature, three main concepts appear to be important regarding the relationship between refugees and

C. de Kraker (✉)

Economic Geography, University of Groningen and Alfa-college, Groningen, The Netherlands

e-mail: c.c.de.kraker@rug.nl

A. Grit · S. Vroom

Hanze University of Applied Sciences & Alfa-college, Groningen, The Netherlands

e-mail: ag.grit@alfa-college.nl

S. Vroom

e-mail: s.vroom@pl.hanze.nl

education, government, entrepreneurship, and refugees. These concepts are refugees, integration, and vital ecosystem.

17.1.1 Research Positioning

This paper will discuss the following question to contribute to a discussion for a vital ecosystem for Syrian refugees and entrepreneurship. Therefore, this study aimed to answer the following research question:

What is the nature of the interactions of the refugee entrepreneurs in Groningen as input for discussion for creating a vital ecosystem for Syrian refugee entrepreneurs?

To answer this question, we first draw on the main topic of identifying the nature of interactions from the perspective of refugees toward the natural environment, government, and education. The first part of the research focuses on the question of which concepts are relevant for studying the interactions. The second part focuses on the question of what the refugee entrepreneur's experiences are. These experiences result in stories and perceptions of interactions with the natural environment. The third part focuses on the question of the analysis of the stories of refugees related to the environment. This analysis takes place by looking at processes of becoming which is essential for a vitalistic approach (Pløger 2006). Within the vitalistic approach, there is the attention given to processes of becoming lonely, becoming disconnected, disintegrated, and disbelonging and vice versa. Toward the end of the paper, a discussion is started on how educational institutions and local governments facilitate a vital ecosystem for refugee entrepreneurs. Finally, findings and related conclusions are presented, which can help policymakers, industries, and educators discuss present approaches for refugee entrepreneurs.

17.2 Literature Review About Creating a Vital Ecosystem

Although the importance and relevance of studying the subject of refugee entrepreneurship are known in the Netherlands, little research has paid focused attention to refugee entrepreneurial journeys. Given the rise of studies showing links between integration, entrepreneurship, and ecosystems within refugee journeys (Bizri 2017; Bizri et al. 2019; Kloosterman and Van der Leun 1999; Refai et al. 2018; Wauters and Lambrecht 2008; Werker 2007), there is a need to better understand entrepreneurial journeys in which refugees are embedded locally when they start an enterprise.

In order to highlight the embeddedness of refugee entrepreneurs, this literature review discusses the following concepts: Refugee entrepreneurship, integration, entrepreneurial attitude, vital ecosystem, and entrepreneurial journey. These

concepts are operationalized in the following questions: what is refugee entrepreneurship and which barriers are experienced and known from the literature? What are the dynamics of networking related to refugee entrepreneurship? What are the dynamics of the triple, quadruple, and quintuple helix paradigms related to the ecosystem of the newcomers, and how is it related to the quintuple helix model? What are entrepreneurial journeys?

17.2.1 Refugee Entrepreneurship

At first, refugee entrepreneurship is often confused with migrant entrepreneurship. Bernard (1966) draws a distinction by highlighting forced immigration as the main characteristic that distinguishes refugees from immigrants (Refai et al. 2018, p. 250). Today, an unprecedented 70.8 million people are forcibly displaced globally, among which are 25.9 million refugees (UNHCR 2013). Refai et al. (2018, p. 250.) state that the growing number of refugees and their distinct needs, challenges, and characteristics require “a greater focus on refugee entrepreneurship as a distinct entity in its own right states.” This is particularly necessary when it comes to refugee integration into a host country, which can be challenging for both refugees and host communities. Integration and refugee entrepreneurship can be understood in many ways. There is no consensus on the definition of refugee integration in the context of developed countries, and there is no formal definition of refugees in international refugee law (Crisp 2004). A broad understanding of integration as being processual, individual and two-way underpins many government and academic attempts to define what integration or an integrated society looks like. “Defining integration is made more complex because it is not only something that happens to a passive individual over time, but is a process in which an individual may actively and selectively control certain aspects. Nonetheless, governments require newcomers to engage with certain aspects of integration in order to ensure a functioning cohesive society in which all members contribute and benefit. The range of ways in which governments do this varies from facilitation and enablement, to encouragement, to coercion. Put simplistically, the goal of integration is equality, inclusion and achievement, however disparity may intervene as governments may view integration one way, while newcomers live it another way.” (UNHCR 2013)

Refugee entrepreneurship is increasingly understood as an entrepreneurial and social activity which plays a significant role in how refugees rebuild their lives (Barragan et al. 2018; Rindova et al. 2009) across international borders (Bhachu and Light 2004; Portes et al. 2002). Rindova et al. (2009) define entrepreneuring as “efforts to bring about new economic, social, institutional and cultural environments through the actions of an individual or group. Thus, she views entrepreneurship as an emancipatory process with broad change potential seeking autonomy” (Rindova et al. 2009, p. 488). Kloosterman and Van der Leun (1999) indicate that “engaging refugees in entrepreneurial activities can be a useful way of supporting

their embeddedness within society.” Carree and Thurik (2003) add to this statement, noting that entrepreneurship is an “engine for economic and social development” (p. 3). On the one hand, “higher rates of entrepreneurs may indicate increased entrepreneurial activity reducing unemployment in subsequent periods, [known as] the so-called ‘entrepreneurial’ effect” (Thurik et al. 2008, p. 1). On the other hand, unemployment rates may lead to the start-up activity of self-employed individuals known as the “refugee” effect. Watson (2009) discusses the manifestation of the refugee effect alongside feelings of responsibility and commitment that emerge when refugees are coming into a new host country. He elaborates that the need for a new identity in a journey becomes more evident to refugee entrepreneurs in particular, who are the main focus of this paper.

There is a need to better understand the relationships in which refugees are embedded locally when they start an enterprise. From the literature, different challenges are experienced in the relationship between education, local government, and entrepreneurship for refugees. The next paragraph will shed light on a vital ecosystem that allows challenges and new networks.

17.2.2 Barriers of Refugee Entrepreneurs

Refai et al. (2018, p. 2) summarize the study of Wauters and Lambrecht (2008) with three main challenges for refugee entrepreneurs: “(i) market opportunities and access to entrepreneurship, (ii) human capital and social networks and (iii) the institutional and societal environment.” These challenges underlie three barriers that the Social Cultural Bureau (SCP 2018) has researched in 2018 for the 56.900 Syrian refugees who arrived in 2015. Many of these refugees in the Netherlands experience a deficit of knowledge of the Dutch language, a deficit of social contacts, and a deficit of experience with work. Though Syrian refugees are actively learning the Dutch language and 80% followed language lessons in 2018, many give themselves an insufficient mark for their current knowledge of Dutch, namely a 4.6 on a scale from 1 to 10 (SCP 2018). Language skills are a clear barrier to speak of, but the majority of Syrian refugees who came to the Netherlands in 2015 (61%) have at least one weekly contact with Dutch friends or acquaintances (SCP 2018). Only a small number of Syrians (11%) have paid work, consisting mainly of flexible and part-time jobs. According to SCP (2018), the low labor market participation of Syrian refugees pairs with a very high dependency on social benefits (89%). Hardly anyone has any money left and a third is very dissatisfied with the financial situation. Among many refugees, social contacts, finances, and language skills are experienced as insufficient.

17.2.3 *Networking*

Schein (1985) elaborates that an entrepreneurial attitude enables a migrant to connect with others more easily and on the basis of equity and mutual respect. He defines an entrepreneurial attitude as “a pattern of basic assumptions invented, discovered or developed by an individual as it learns to see and grab chances and coping with problems of external adaptation and internal integration at the same time” (Schein 1985, p. 9). The entrepreneurial attitude grows, often unconsciously, in an informal setting that influences behavior, feelings, perception, and thought patterns (Schein 2000a, b; Triandis 1989). The development of an entrepreneurial attitude is hence a continuous and dynamic process that is fed by interaction and mutual behavior to which people continuously and individually assign meanings (Tyler 2007).

The set of meanings is produced, reproduced, and negotiated by social interaction. In this set of meanings and interactions, the intercultural experiences about entrepreneurship and communication can differ for every refugee, but they can share three characteristics of entrepreneurship that underly those meanings. The three characteristics of innovativeness, risk-taking, and networking derive from Gibb (2005). Innovativeness is seen as the development of new or improved products or services, where there is far-reaching and deviant change, improvement and redevelopment of existing products or processes (Barret, Balloun and Weinstein 2000; Covin and Slevin 1989; Miller 1983). Risk-taking is measuring and taking actions like entering new markets or new projects with an uncertain outcome (Lumpkin and Dess 1996). In the context of refugee entrepreneurship, the third characteristic is highlighted as networking is developing (personal) relationships that take into account the wishes of the other and the person themselves. Networks of refugees include all transnational, internal, and external networks, as well as formal and informal contacts, which share information, experiences, and resources, and provide social and emotional support. These networks represent a means of acquiring concrete and financial resources and advice, as well as facilitating information and support (Barret, Balloun and Weinstein 2000; Barnett 2018). This characteristic elaborates a unique transnational point for a suitable way of identifying and bridging gaps with possible transnational links with other entrepreneurs (Reuber and Fischer 1994).

To offer refugee entrepreneurs a chance to start up in a playful and interactive way, networking and new partnerships need to be used. With the help of ‘crossing the boundaries’ (Engeström et al. 1995) between municipalities, schools, and refugee entrepreneurs, boundary-crossing can lead to new knowledge and new partnerships through the use of integrating multiple areas of expertise. Wenger (1998) complements the theory of Engeström by emphasizing the importance of maintaining contact with other institutions to facilitate external ideas. This allows an entrepreneur to discard routines that no longer fit in with the problems being considered (Akkerman and Bakker 2012). The Triple Helix paradigm (Etzkowitz and Ranga 2010) might be useful to understand the role of the vital ecosystem in the rise of refugee businesses.

17.2.4 Support System of the Triple Helix/Quadruple and Quintuple Helix Model

According to Etzkowitz and Leydesdorff (1995), the main supporting institutions of the economy are the government, universities, and industry. These three main institutions are better known as the Triple Helix model (TH). The TH model challenges interaction between industry, government, and universities by linear and conventional modeling (Kaghan and Barnett 1997). Moreover, Ranga and Etzkowitz (2013) indicate that from the perspective of the TH the non-linear interactions and the consolidation of the interactions can generate non-existing resources and knowledge that can contribute to the progress of innovation, practice, and theory at a regional level. Etzkowitz and Ranga (2010) mention that the TH contributes to the evolution of less developed regions. Furthermore, Etzkowitz and Leydesdorff (2000) explain that in small and medium enterprises, innovation and development are matured by the collaboration between the university, industry, and government. Lundberg (2013) and Todeva (2013) agree that support from the government for small and medium refugee entrepreneurship enterprises is important for maintaining a sustainable vital ecosystem for start-ups.

However, it is not only the support of the government that is important but also that of educational institutions. Etzkowitz and Ranga (2010) mention that, regarding the knowledge economy, the influence of education is now greater than before. Papiannidis (as cited in Armando et al. 2017, p. 45) writes that it “is because universities become progressively more engaged in entrepreneurial activities in addition to their existing research and teaching role, they have become resource providers to businesses.”

Carayannis and Campbell (2012) do recognize the importance of the TH model regarding its contribution toward innovation, development, and entrepreneurship. However, they present a model that extends the TH to a Quadruple, including culture-based and civil society; later the Quintuple Helix model, including the dimension of the natural environment. “The Quintuple Helix stresses the socio-ecological perspective of the natural environments of society. Social ecology focuses on the interaction, ecodevelopment and coevolution of society and nature” (Carayannis and Campbell 2010, p. 59) “The natural environments of society identify the opportunities of broadening the sustainable development concerning the coevolution of knowledge of society, economy and democracy, which influence the way we perceive and organize [refugee] entrepreneurship” (Carayannis and Campbell 2010, p. 59).

Academics have been attempting to answer the question of who becomes part of a useful ecosystem of an entrepreneur for many years (Baron 1998; Boyd and Vozikis 1994; Gartner 2010; Gartner, Bird and Starr 1992). In the process of becoming aware that they exist within a network, an individual may find storytelling of entrepreneurial journeys helpful. The concept of storytelling is related to the people an individual meets and the interactions they may have on an entrepreneurial journey (Shane and Venkataraman 2000).

17.2.5 Dynamics of Entrepreneurial Journeys

While the subject of cross-border migration in combination with entrepreneurship is discussed by several authors as an act (Anokhin 2013; Storti 2014), entrepreneurship with a process approach through mapping the entrepreneurial journeys of migrants has had limited attention (Crainer 2013; McMullen and Dimov 2013). Such a process approach is relevant, however, since it addresses aspects as mechanisms, institutions, networks, and cultures in context. Mapping the journey of a refugee contributes to a discussion about vital ecosystems for refugee entrepreneurs. It creates impressions about experienced ecosystems and gives an impression of the interactions of the entrepreneur and how he gets connected or disconnected from education, government, and the industry.

Mapping and writing down the entrepreneurial journey has captured the interest of researchers for many years (Grit et al. 2015). In this research, entrepreneurial journeys are presented in narrative ways of becoming. This is consistent with the process approaches of Shane and Venkataraman (2000) who describe the journey as a rocky and bumpy process, and Crainer (2013) describes the journey as stages that individuals take to achieve and maintain a network for entrepreneurship. In addition to this process approach, McMullen and Dimov (2013) summarize the entrepreneurial journeys as a “discovery of dynamics of dialogues about the nature of the entrepreneurial journey, when a journey has begun and ended, whether it will be productively subdivided into variables or events or not” (p. 1481). This literature about journeys helps to think differently about alternative arrangements of social life. Therefore, it is useful to link the vital ecosystem to an entrepreneurial environment, and personal development to social inclusion from the perspective of the entrepreneurs. In addition, Larty and Hamilton (2011) recognize narrative journeys as a credible source of knowledge for scholars engaged in theory building in entrepreneurship, because using notions of emergence give rich insights in life story research with a basis for understanding the temporal nature of the entrepreneurial life story (Boutaiba 2004).

The entrepreneurial process might represent a relational and dialogic process involving tension and creativity (Fletcher and Watson 2007). Furthermore, there may be value in extending the concept of a ‘network bricolage,’ defined as the use of pre-existing contact networks (Baker et al. 2003), to include the complex web of social relationships (Baker and Pollock 2007). Moreover, studies of entrepreneurship as an enacted performance could broaden the focus from an individual storytelling entrepreneur to the very process of storytelling (Steyaert 2007). The narrative provides a basis for examining the span of practice and processes across cultures and contexts; for example, entrepreneurial strategies and the challenges of running an entrepreneurial business are embedded in cultural contexts (de Montoya 2004).

17.3 Methodology

The methodological approach adopted is described in this paragraph. The choice of methods and research strategies used in this study have contributed to answering the following main research question: *What is the nature of the interactions of the refugee entrepreneurs in Groningen as input for discussion for creating a vital ecosystem for refugee entrepreneurs?* To answer this question, we draw on the work of Glaser and Strauss (1967, 1976), Glaser (1978, 1992) with the grounded approach with vitalistic forces to explore the becomings of refugee entrepreneurs in a new vital ecosystem.

17.3.1 Theory of Vital and Grounded Approach

The research uses a qualitative approach with a combination of desk research and primary research, with a grounded approach serving as the main method that ultimately leads to new insights and theories. The primary data are conducted by means of semi-structured interviews with eight Syrian refugees who shared personal narratives of their entrepreneurial journey and reflected on their interactions with their ecosystem related to the Triple Helix model. Interactions are shared from the perspective of the refugee. Through these personal narratives, an insider's knowledge was able to be acquired by getting close to the experiences of Syrian refugee entrepreneurs. The grounded approach permits the researcher to get close to the data, thus to know all the individuals involved, and observe and record what they do and say (Mintzberg 1979). With the grounded approach there is a possibility to create new theories and provide new insights into the dynamics of the vital ecosystem for refugee entrepreneurs in Groningen. An interpretative grounded process starts with the data and finds patterns and theory. For this research, the collection of data, discovery of literature, and analysis of the data were congruent responsive interactional processes. This interpretative process relates to "grounded theory" as referred by Charmaz (2005) as both a method of inquiry and the concept of inquiry. This type of theory uses rigorous procedures when it comes to data coding, contributing to the increase in validity of data interpretation (Glaser and Strauss 1967). Moreover, Grounded Theory is based on a concept-indicator model, which contributes and helps to guide the conceptual coding of a number of empirical indicators. This model ensures that there is a constant comparing of indicator to indicator and in turn is compared to the emerging concept. In this way, the researcher has to confront similarities, differences, and degrees of consistency of meaning between indicators, which eventually results in a coded category. By continuing to compare indicators to conceptual codes, these codes will eventually get the right fit until the code is verified and saturated. The grounded theory "will be an abstraction from time, place and people that frees the researcher from trying to get an accurate description to solve the question. Abstraction frees the researcher from data, worry and data doubts, and puts the focus on concepts that fit and are relevant" (Glaser 2002, p. 3).

17.3.2 *Context Alfa-College*

Dutch organization Alfa-college involves refugees with refugee entrepreneurship. Refugees, depending on social benefits grabbed the chance to enroll in an entrepreneurial academy. The entrepreneurial academy gave access to the research population. The Entrepreneurial Academy for Refugees in Groningen (EARG) was founded by educational institutions (Alfa-college, Noorderpoort and Hanze University) in cooperation with the local municipality and the network of OTP (meeting point of entrepreneurs, government, and education). This research includes the eight Syrian male refugee entrepreneurs that wanted to cooperate with this research. They hold temporary residence permits from 2015. They have a refugee background and have a 5-year residence permit until 2019 or 2020. The eight Syrian refugees have been resettled within the Dutch city of Groningen from 2015, signaling the start of their integration process in the city (Bakker et al. 2016). The age of the participants varied between 23 and 44 years old. None of the Syrian participants held a degree in higher education. Three of them had their own enterprise in Syria. The (starting) enterprises of the eight entrepreneurs include businesses in the technology industry for three participants, the catering industry for three participants, one in the hairdressing sector, and one in the retail industry. At the start of the Entrepreneurial Academy in 2018, participants were dependent on social benefits and followed obligatory integration courses at different institutes to learn the Dutch language. At the end of the research, two of the eight were independent of social benefits through incomes of entrepreneurship.

Reflections on the meetings between refugees and the ecosystem are shared with a spoken-diary of the refugee entrepreneur. After hearing the voice-recording of the spoken diary, the in-depth interviews and storytelling were used for retrospection on the interactions with the ecosystems of the refugee entrepreneurs. The voice-recordings and reflections in retrospection were conducted in 2018 and 2019. The principal author met the participants of the entrepreneurial academy in a public space. Since this research focuses on capturing experiences and perceptions, open questions were formulated to encourage respondents to share their stories in detail (Richards 2015). To give structure, a topic guide was used during the conversation to relate to statements made during the voice

It is important to note that cross-cultural research demands a sensitive approach due to power relations, language and translation biases, and cultural similarities and differences (Huijzinga and Van Hoven 2018, p. 313; Smith 2010). All conversations were recorded with consent. Recordings were transcribed and translated (from Dutch to English) by the same researcher before the second round of proof translations were carried out by a second researcher in order to allow rich data analysis, support rigor, and minimize bias (Mason 2002; Silverman 2000). To maintain confidentiality, the names used in this paper are fictional.

17.3.3 Coding

In order to focus on concepts and construct new theory, a three-step coding process was used to analyze the data obtained from the interviews. In the first step, open coding, the data were broken down analytically and was ordered into several categories or themes. Several concepts and other criteria were written down that appeared in the interview transcripts and voice recordings. In the second step, axial coding, the categories constructed in the first step were interconnected. These codes were compared and merged together into an overarching code. In the last step, selective coding, categories, or central phenomenon(s) established in the axial coding were used. These codes must be related directly or indirectly to the core code. By classifying the context, conditions, actions, outcomes, and interactions, a theoretical framework was constructed showing the different relationships between the central concept of the vital ecosystem of refugee entrepreneurs and thus was used to create and formulate new theories (Strauss and Corbin 1990).

17.4 Stories of Entrepreneurial Journeys

The eight Syrian entrepreneurs cooperated with this research by sharing their life stories with practical, cultural, social, and language challenges. The participants were asked about experiences (data) related to the Triple Helix, Quadruple Helix, and Quintuple Helix to provide an impression of their ecosystem within the entrepreneurial journey in Groningen, the Netherlands. Moreover, their journey is written with quotes with storytelling as part of the journey. The stories open up new possible identities and (local) worlds by shifting emphasis from outsider knowledge to insider's knowledge. By means of the vital approach, the Syrian entrepreneurs who participate in the study provided insights into a possible vital ecosystem. With regards to the main research question, the nature of the interactions of the eight Syrian refugee entrepreneurs focused on processes of interaction, rather than structures.

17.4.1 Storytelling Participant Amjad (31, Technical Engineer)

I was called up for the army, but I do not want any blood on my hands. I do not want to kill Syrian people. I did not understand what was happening in Syria. I had to leave the country as quickly as possible. I did not want anything to do with the war and then I went to Libya. And then the situation got worse in Libya. As a result of many mafia and many military people on the streets, we knew that we were not welcome as Syrians in Libya. They had weapons and some of my friends had been killed or wounded by the enemy. I went to the Benghazi embassy. 'You are a Palestinian from Syria,' they said. 'You can only go by boat.' I could not go back to Syria or stay in Libya anymore and then I came with a small boat with

too many people to Greece. I survived it and then I went by car. They dropped me off on the border of the Netherlands and Germany in Ter Apel. I knew nothing about the Netherlands, but I did know that there are very beautiful flowers, tasty cheese and windmills.

17.4.1.1 Perception of ecosystem

We had to do the integration as quickly as possible. The teachers at integration are very professional and they have linked me to entrepreneurship and education. I got my new contacts from Vluchtelingenwerk and they supported me to start as a volunteer and I already have my own not paid enterprise at the farm. When I wanted to get paid I ended up in a complicated world of entrepreneurship, municipality, education and social benefits.

I think it is a shame how the municipality controls the processes of refugee entrepreneurs. To start a business and have good transparent contact with the municipality about income is very difficult. For example, I called the municipality. I got a part-time assignment as an entrepreneur in mechanics. Someone asked me to do renovations in his own house and he wants to pay me money every day. You have to pass the money on to the municipality. The municipality is going to deduct the money. I want to give my free time to earn money and learn how to do business, but they encourage me to sit at home and wait. If I would do it next time as a part-time entrepreneur who also studies part-time, I have to hand in all the money. They do not have a clear system. I am going to do business temporarily besides my study, which is financially impossible. The municipality wants me to work, but they do not give me the time and rewardings. I cannot combine both.

If I stop my studies and work for my own company I receive a lot of work one month and receive nothing the next. I have asked myself the question: How should I put bread on the table for my daughters? Then I leave the benefits and in two months I have almost nothing at all. And once again I am in the process of payments and I have too much stress. They have made it difficult for me to earn money and I have many questions for the system about entrepreneurship. It feels like Groningen is a very high-developed bureaucratic system, they have so many procedures that they forget to see and talk to the people for themselves, there is more customization. It is difficult for them to look outside the bureaucracy.

17.4.2 *Storytelling Kazem (26, Tech-Consultancy)*

I was twenty years old. Following education, having family, friends, car, work and just started to make my own business. Everything I need to put my stamp in the world. But in 2011 the civil war came. And in 2014, after three years of living in a war, nothing changed. I saw people dying for no reason every day. Daily I saw friends of mine joining the army or travelling to keep themselves safe. From that point I asked myself: Who is going to be next? I stopped my business and I said goodbye to my close friends and family and went from Syria to Lebanon and from Lebanon to Libya. I had a plan, but when you are in the middle of the sea, it is different. When you do not have anything that can give you any hope. People had new hope around me and we are going to stay alive. Indeed, an army, a big ship has come and they rescued us. In that moment I realized that this was not the end and I have something to give to this world.

My possibilities as a person, as a millennial and as an entrepreneur, came alive again. I am taking English lessons. I am able to do something. Where are the countries that I am able

to do something of value? The Netherlands was one of these countries and I was so stoked about it. I remember that I took the train from Italy to Amsterdam. When I introduced myself and talked to people they liked me as a person. But that moment when they started asking: where do you come from? The moment of truth. Proudly I would say I am Syrian. But they go like: 'keep a distance.'

And I asked myself: Will I stay in a society that is generalizing me or rejecting me? I am able to show the value that I am able to add something to the country. Because I am thankful for the second chance I have. Now I am building my own business, my tech-consultancy. I am going to show that I can contribute to this nation with my entrepreneurial passion. I am looking forward.

17.4.2.1 Perception of Ecosystem

I did not get any support from the local government. I don't even know if they knew that I started my enterprise in January 2018. They never kept in contact with me and as far as I know they did not have any information about me or my income. So there was no provided support of them at all. Even in my direct surroundings there was not much help. Also, I got no support from the educational institutions. For example, we attended workshops and training at the entrepreneurial academy, but it is not especially given for us, but for other people who do not know how to start their own businesses.

The information that I got was from my own experiences and from my own study. Other entrepreneurs in my network with a successful refugee entrepreneurship background. They helped me. They helped me with several questions but other than that I did not get any help from institutions.

17.4.3 *Storytelling Mohammed (25, Catering Industry)*

I have finished high school in my own country and later studied marketing. I had no choice but to leave my country due to the unsafe situation in Syria. I came to Egypt and that's where I started my first venture with my brother. I started a successful cigarette business. But I could not stay and I went to Libya. Eventually I managed to travel to Sicily by crossing the sea on an overcrowded boat with 250 others, and later I traveled from Italy to the Netherlands and I ended up in Ter Apel in the asylum centre. I could not speak Dutch at the start of my arrival. My glasses broke. My sight is -17 and nobody could help me. I wanted to hide myself and I became depressed. But I maintained the vision that I should never stop looking at my future. Whether I die here or die in Libya or on the sea or dying inside myself in Europe. I want to be successful.

17.4.3.1 Perception of Ecosystem

After the Asylum refugee centres I started working on the Dutch language and I dare to ask questions again. I dare to make mistakes and by learning I dare to explain my ideas for my enterprise again. Without knowing the language you have nothing. You are nothing without the language. With the language you can communicate and share information with other people. I am going to be famous through my entrepreneurship. My wife also says you will

be famous and I found networks that are so kind to me. While being in the Netherlands I got the opportunity to study the Dutch language and be part of a new program for starting entrepreneurs called the entrepreneurial academy. I started working with the Dutch language and I have gained more confidence in myself since I started doing business. I am not afraid to go outside and have open conversations.

I would like to stop the benefits that I receive from the government. The government helped me to stand on my own feet. They provided me with a loan for a study and social benefits. But I do not feel comfortable relying on the government for too long. Regarding the entrepreneurship project, I am very positive and have only had positive experiences. Education gave me books and workshops and papers. That is interesting. They also gave me a new network that allowed me to get to know other entrepreneurs during workshops. I was also given a coach at the entrepreneurial academy, someone who told me immediately what I had to do or should not do. The coach is going to fix it for me. He has given me information about how things work, how to sell things, the customer needs. The information my coach has given me made me strong and feel well. I listen to my advisors.

In addition to the entrepreneurship project, I also followed a study. There was little support from this education to help me with my entrepreneurship and school challenges. About my mentor I can say he brought me down, a mentor is very important but he was not supportive when I made mistakes. I have the feeling that they did not help me. The municipality wanted me to start a study, but I want to be my own boss. I want to work independently. I work hard to get out of the benefits. The PTO trajectory (part-time entrepreneurship, part of the municipality) gave me explanations about the municipality and income, and lots of information about finances, being a freelancer, advisor, explaining problems that entrepreneurs encounter. At the moment I am doing volunteer work, something that the municipality is forcing me to do I do not feel good, because my ideas enterprise is not accepted after years.

17.4.4 Storytelling Adib (42, Mechanical Engineer)

I was an entrepreneur in Syria as an engineer in mechanics. We decided to leave in the middle of the war in 2015. We left everything behind us, the culture, the house, everything. You leave what you have built up in your life and you start again from zero with a new house, work and people. In Syria I sent a letter to 20 embassies and many churches and told them about my family and our situation and the war in Damascus. Replies were like, if you come to us we can give you a place to stay, but we cannot give you a visa. I decided to make the crossing to Turkey with my family. But my wife and my two youngest children went back to Syria, back to the war, because the boat trip was not okay for them. That was very painful for me. The most dangerous place was waiting at the sea between Turkey and Greece. But luckily me and my son survived and eventually arrived in the Netherlands. After staying in the AZC we got a house and our family was reunited. When we were at the asylum refugee centre in the Netherlands I got an idea of a new invention for windows and combining this invention with a patent and a new venture.

17.4.4.1 Perception of Ecosystem

There were 4 people from the municipality of Groningen who saw my presentation, one woman came to me and asked me what I was waiting for. I made a prototype for my invention and a man from the municipality came to my house to make a business plan. I have applied

for a loan of 20,000 euros. The municipality was very enthusiastic about my idea and sent it for approval to their partners from the entrepreneurship department, who were also very enthusiastic. But finally I was rejected for the large loan and received a message of feedback with 23 pages. I did not understand how to handle this feedback, but the entrepreneurial academy has helped me further, I got a coach and together we made a plan. I later came in contact with part-time entrepreneurship. Without the entrepreneurial academy I would not have known that part-time entrepreneurship trajectories existed. Education has linked me with the entrepreneurial academy. You can see my environment as stones in a wild river connected to each other with the help of others. I also got support from my family. My son makes a website, my friends give me advice on patents and translate formal letters into correct Dutch. My friend also wrote business letters. That is how my network has helped me further. But I am not content with the reaction of my own municipality. The municipality should collaborate more with other municipalities so every refugee in the Netherlands will get the same treatment of a municipality.

17.4.5 Storytelling Nazim (25, Catering Industry)

Building a network is difficult. When I was in Syria I could very easily start an enterprise. Of course my network was there, but also with the law there was only one autograph needed. In Syria I knew almost everyone in my neighbourhood. It was easy for me to network.

Dealing with doubt and uncertainties is what I learned in the Netherlands. You must be able to guide yourself well. You cannot master everything, but before you start you have to think carefully.

17.4.5.1 Perception of Ecosystem

Writing a business plan was very hard for me. Eventually my coach helped me with this entrepreneurial plan. I am both positive and negative about the role of the municipality, education and other entrepreneurs. First I got the benefit and I got a bigger network because I shared my plans. I didn't get much help from the municipality. They promised me a coach, but he didn't do anything for me. And after that I received extra education, this was half and half. I then met an entrepreneur and I met him twice, but we did not understand each other. Now I don't get in touch with the dutch entrepreneurs.

I was out of benefits by now and worked a lot. I have accumulated debts with the entrepreneurship department of the municipality. I started positively and saw that there were many options. But in the end I am worse off. I now get married and focus on work and then I hope to make time for my dream of being a successful entrepreneur again.

17.4.6 Storytelling Nour (32, Hairdresser)

I was self-employed in my own country. They could hire me as a violinist or pianist and I gave concerts. In addition, I was hired as a sound technician. When the war started, I lost family and I started to walk away from my country. I walked for 18 nights to Turkey. I was 21 years old, alone and disappointed in life. I had no choice, but I had to continue. That was

very stressful. I wanted to stay in Turkey, but Turkey was not a good place for Kurds. I had no plans to come to the Netherlands, it did not matter where I was as long as I was safe.

17.4.6.1 Perception of Ecosystem

In the Netherlands I thought life would be better. But I did not feel well. I also did not learn to speak the language in the asylum center. It is a small place and I was just sleeping and eating. I was eager to work and I started with a non-profit barbershop and after a few months I had a lot of work and friends and became the barber of the refugee centre.

I got to know the rules in the Netherlands. First I just wanted to do a study. I still needed a conservatory entrance exam. Then I want to go back to the municipality to ask permission for an enterprise. Unfortunately, the municipality did not give permission to study. This was disappointing. Then I immediately searched for a job as a barber. After one year I went to the KVK, Chamber of Commerce to start my own barbershop. I have poor contact with other entrepreneurs in my industry. I find it difficult that so many other entrepreneurs are trying to keep you small. People threatened me when I started my barbershop in Groningen.

17.4.7 Storytelling Anas (25, Retail Industry)

I come from the city Damascus. I was a serious young man and people advised me to start for myself, because I am well organized and a good communicator. I have a huge network, but not much experience. I witnessed some big deals and started my first partnership with influential people from Turkey, China, Syria and Jordan. But then the war came.

17.4.7.1 Perception of Ecosystem

When I could not go further into Europe, I started my business in Turkey. I saw how they negotiated with big businesses. I witnessed some big deals. Seeing deals in real life is like a university on the street. I longed for freedom when I came to the Netherlands. Through the problems I experienced in Syria I had a lot of stress. Also, I had a lack of knowledge of the Dutch language. By learning the language I started to speak about my dreams, dreaming of a better future. However, I have already worked with many great entrepreneurs all over the world. I maintained my contacts and wanted to go further with entrepreneurship in the Netherlands. In Entrepreneurship I experience freedom, joy and a way of life.

I spent three months doing an entrepreneurship trajectory at the municipality. My experience with hundreds of wise people was educational and useful. Although I didn't immediately get the opportunity to start the company. Education mainly consisted of workshops and providing extra information. The entrepreneurs I met were able to help me and shared their experiences with me.

17.4.8 *Storytelling Ayoub (25, Catering Industry)*

The war in Syria broke my heart and my dreams. I was already in my fourth year of economics. I also had a business in my own country selling smartphones. Three and a half years ago I arrived in the Netherlands. I experienced that there were not many job opportunities. So I started with my own enterprise with the dream of a successful enterprise so that I can take care of my family and ask for the whole family to reunite so that they can also come here and work in my new enterprise.

Not all people can be entrepreneurs. You have to be strategic and responsible. I am a risk taker and it brought me where I want to be. I have already set up a consultancy company for coaching and a catering company with parties. I try to fully commit myself.

17.4.8.1 Perception of Ecosystem

I was one of the first refugees from the civil war in Syria who took refugee training at the municipality to follow a training to start a new company. I have followed workshops and trainings, all from the municipality. I also gained knowledge in the entrepreneurship processes by just starting an enterprise and experienced different challenges. In the beginning my Dutch was not good and I could not understand the workshops and the rules. When my Dutch got better, I understood a lot about the permits and how to negotiate and to whom I can go to ask my questions.

I started cooperating with the government and other entrepreneurs when I started my catering enterprise. I find it especially difficult to understand the communication between government, education and entrepreneurs. I do not know exactly how things are now, but in the last few years every organization (government, entrepreneurs, education) have provided its training and guidance. There was hardly any communication between these organizations. I find that really difficult. At the moment I do not know if I do have good contacts with these organizations.

17.5 Becomings (Discussion)

This article started with the following research question: *What is the nature of the interactions of the refugee entrepreneurs in Groningen as input for discussion for creating a vital ecosystem for Syrian refugee entrepreneurs?* While listening to and coding the journeys of the refugees, a main interaction with the triple helix seems to end up in a kind of liminality (Turner 1974). The data often speaks of words like ‘no support,’ ‘difficult,’ ‘almost no contacts,’ ‘no help,’ ‘rejected,’ ‘not accepted,’ ‘depicted as a refugee,’ ‘not belonging,’ and ‘dependent.’ During the interviews, often the term *waiting* came to the fore. This became apparent in different contexts. Being in a liminal position and waiting seems to be two sides of the same coin.

In the context of interaction with the Triple Helix, Quadruple Helix, and Quintuple Helix, the concept of liminality a leading theme. The concept of liminality has been addressed by Turner (1974) and more recently by Bigger (2015). Turner (1974)

Table 17.1 Coding of Subthemes

Subthemes	Controversy
Great expectations	Political goals versus daily practices of bureaucracy
Entrepreneurship as the Holy Grail	Entrepreneurship is fun versus daily practice
We are experienced	Using knowledge of (un) successful refugee entrepreneurs versus one size fits all approach
Old networks and the development of new networks	Where is success versus where do I start?

states that thresholds are breaking points between disintegration and integration, between disbelonging or belonging and between processes of disconnectedness, re-connectedness, and connectedness. The outcomes of this research agree with the research findings of Bigger (2015). Bigger (2015) also found processes of liminality regarding the local municipality stimulating entrepreneurship for migrants. Through selective coding, the following four subthemes are formulated (Table 17.1).

17.5.1 *Great Expectations*

The name of the first complex theme is borrowed from the novel *Great Expectations* by Charles Dickens (1860). The work can be seen as a critique of Victorian society. Likewise, the stories present here reflect a similar vein. Throughout the stories it appears that the local government has “high expectations” from the group of refugees; however, there remains a question as to whether this is fair and realistic. The welfare system has intrinsic intents to steer, control and foster contradictory forces. Amjad indicates in his story that “it is a shame how the municipality controls the processes of refugee entrepreneurs.” He adds to this that he lives in “a very high-developed bureaucratic system.” While the politics and policymakers are still exploring how to support refugees and refugee entrepreneurship, it seems perceptions of support (or lack thereof) are already at play.

17.5.2 *Entrepreneurship as the Holy Grail*

Current forces in society praise entrepreneurship as if it is the Holy Grail. Entrepreneurship for refugees becomes easily associated with fun, urban culture, hip neighborhoods, festivals, so-called “hackertons” and competitions. However, entrepreneurship is a highly complex endeavor that involves skills, timing, knowledge, and contacts. The Social–Cultural Plan (2018) has researched in 2018, social contacts, finances, and language skills from Syrian refugees which are experienced

as insufficient from the refugees' perspectives. Mohammed states in his story that he wants to be famous by saying "I am going to be famous through my enterprise. My wife loves me, everyone loves me." His strong ties state that he is already famous by starting this enterprise. While being in the Netherlands he got the opportunity to study and to do voluntary work, but all he wants to do is start an enterprise: "At the moment I am doing volunteer work, something that the municipality is forcing me to do. I do not feel good doing voluntary work, because I do not have time for my businessplan and my business ideas are not accepted by municipality, I want to prove myself." A discussion is elaborated in great expectations of himself as an entrepreneur in combination with a governmental and educational process of searching that puts him in a rather liminal position.

17.5.3 We Are Experienced

Politicians and others involved in refugee policy can use experiences and knowledge from successful and not successful refugee entrepreneurs to develop policies and practices for new ecosystems. The stories from this chapter reflect particular experiences from refugee entrepreneurs. These stories are intrinsically different than other starting entrepreneurs such as student starters. In the interaction Quintuple Helix, old (Arabic) networks, Dutch language, lack of tacit knowledge, and uncertainty are experienced by the Syrian refugee entrepreneurs. Regarding policies for enhancing entrepreneurship among refugees, a "one size fits all" approach seems inappropriate.

17.5.4 Old Networks and the Development of New Networks

Vital ecosystems are made up of open functional networks (Feld 2012). Stories of the refugees show that refugees often function within not so efficient networks. Refugees easily end up in dysfunctional networks and spend time and energy on these networks. While the intentions of the networks are often good, the use of the entrepreneurial refugee is debatable. These obstacles include the interactions with governmental institutions and the administration of income and tax-reports. This research concerning the perception of Syrian refugee entrepreneurs to the surroundings has confirmed the findings of the research of SCP (2018), according to which there is a context of refugees integrating with components such as the disconnectness of the individual with their social network, struggling to speak the language, and personal and social emergence to become independent of social benefits (Rae 2004).

Concluding the chapter, the data show that refugee entrepreneurs easily end up in a liminal position. The ecosystem conceptualized through a Quintuple Helix should facilitate the process to integrate refugee entrepreneurs into the local society. New methods are needed to make this happen; the method used here might be

well fueled by ‘untidiness’ and ‘hospitality’ in order to envision strategic partnerships and arrangements of social life (Veijola et al. 2014). In addressing the call for refugee entrepreneurship theorizing in cross-border migration research, we utilized a grounded approach to better understand the subjective experiences of Syrian entrepreneurs. Through narrative perspectives, it is indicated that a grounded approach with the interaction between refugee entrepreneurs and local governments, educational institutions, civil society, and the natural environment is a viable and complementary way to address contextual challenges and the discussion for a vital ecosystem for refugee entrepreneurs.

Acknowledgements In addressing the call for refugee entrepreneurship theorizing in cross-border migration research, we brought together a grounded approach into the subjective experiences of Syrian entrepreneurs. Through storytelling and interviews about interactions between refugee entrepreneurs and local governments, educational institutions, civil society and the natural environment, the research shows that it is a useful and complementary way to address contextual challenges. We want to thank Alfa-college for granting time to do this research and gaining access to the Entrepreneurial Academy for Refugees. Our deepest gratitude goes to the Syrian participants who have addressed the issue of social embodiment of refugee entrepreneurship in the interviews and storytelling. It is an issue of growing importance. Our contribution illustrates that refugee entrepreneurs’ multi-layered identity manifests in a relational manner via efforts to strategically construct opportunity by means of engaging in discursive relationships.

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Part IV
Migration Effects on Sending Areas

Chapter 18

The Importance of Political and Economic Institutions to the Decisions of International Migrants to Return to Their Home Countries



Ngoc Thi Minh Tran, Michael P. Cameron, and Jacques Poot

18.1 Introduction

The global prevalence of international migration has generated a wide range of impacts, positively and negatively, on the development of every pair of recipient and source countries. These impacts have demographic, cultural, social, economic and political features. Therefore, encouraging and conducting research to understand thoroughly what shapes international migration decisions has been a key objective of researchers, policymakers and politicians in the effort to govern migration flows to meet specific development concerns of both receiving and sending countries. Economists have suggested a wide range of determinants of migration, including economic, demographic and institutional factors. Especially the importance of political and economic institutions has been recently underscored not only as being fundamental to economic growth and development prospects but also as a rigorous driver of the spatial movement decisions of people.

N. T. M. Tran (✉)

School of Accounting, Finance and Economics (SAFE), University of Waikato, Hamilton, New Zealand

e-mail: ngoctm@uel.edu.vn

Faculty of Economics, University of Economics and Law, Viet Nam National University, Ho Chi Minh City, Viet Nam

M. P. Cameron · J. Poot

School of Accounting, Finance and Economics (SAFE), National Institute of Demographic and Economic Analysis (NIDEA), University of Waikato, Hamilton, New Zealand

e-mail: michael.cameron@waikato.ac.nz

J. Poot

e-mail: jacques.poot@waikato.ac.nz

J. Poot

Department of Spatial Economics, Vrije Universiteit Amsterdam, Amsterdam, The Netherlands

The attention paid to the quality of institutions as a factor that matters for decisions regarding migration was already rooted in the push–pull theory of Lee (1966). However, it was not until the 2000s that the interplay between institutional quality and migration became a separate research agenda, attracting the interest of academia. In recent years, researchers have empirically shown that countries with good institutional quality may be more attractive to immigrants, i.e. the pull mechanism is at play in those countries. On the other hand, countries with bad institutions are more likely to generate incentives for emigration, i.e. the push mechanism is at play in those countries. The lesson learnt from these findings is that favourable economic institutions and sound political institutions are essential for building and sustaining human resources for economic growth and development. This is important to both developed and developing countries. For developing countries, institutional reforms are clearly essential to stem brain drain and encourage return migration for development.

Although interest in this research area has been growing and the extant contributions of researchers are already helpful to formulate migration-assisted development policies, our understanding of the role of institutions in migration decisions is still limited. In the current chapter, we review the extant literature on institutions as determinants of migration decisions of international migrants and suggest some areas for future research to widen and deepen our knowledge in this research area. We also illustrate further key aspects of this body of literature by means of a novel case study conducted by Tran et al. (2019), which investigates the role of institutions at the local level to the locational choices of Vietnamese return migrants. Given that the current state of our knowledge of the influence of institutions on onward migration remains limited, this study enriches the literature by providing empirical evidence that institutional quality in the home country also matters for the most important type of onward migration, i.e. return migration. The combination of the comprehensive literature review and the case study makes the current book chapter a self-contained and complete resource for research and teaching purposes. The remainder of this chapter is organized as follows. Section 18.2 assembles important definitions and typologies of institutions and describes different measures of institutional quality conventionally used in studies of international migration. Section 18.3 reviews the theoretical and empirical literature on the importance of political and economic institutions to international migration decisions. Section 18.4 then elaborates on these findings by means of the novel case study. Section 18.5 concludes.

18.2 Institutions—Definition, Classification, and Measurement

Economists are among scholars of a wide array of social sciences, including geography, philosophy, politics and sociology, who integrate institutional analysis into their academic disciplines. Veblen (1919, p. 239), a founder of institutional

economics, defined institutions as “*settled habits of thought common to the generality of men*”. According to North (1990, p. 3), the most influential author of the new institutional approach to economics, “*Institutions are the rules of the game in a society or, more formally, are the humanly devised constraints that shape human interaction*”. He also emphasized that the implications of institutions encompass political, economic and social interactions.

North (1991) classified institutions into formal rules and informal constraints. The former type includes constitutions, laws and property rights; the latter comprises sanctions, taboos, customs, traditions and codes of conduct. Subsequent discussions on institutions have offered distinctions between agent-sensitive and agent-insensitive institutions (Hodgson 2006), or between coordinating devices and regulating conflict institutions (Vatn 2006). Rodrik and Subramanian (2003) suggested, in a study on institutional quality as a ‘deep determinant’ of income, four types of institutions called market-creating, market-regulating, market-stabilizing and market-legitimizing institutions. When studying the relationship between institutions and long-run economic growth, Acemoglu et al. (2005) distinguished between economic and political institutions. Economic institutions refer to property rights and market structure, which are of significant importance to the economic performance of, and resource distribution, within an economy. Political institutions are made up of political constraints and political incentives, such as the form of government and the extent of constraints on politicians. Political institutions, by means of generating institutional political power, determine economic institutions. Baudassé et al. (2018) synthesized a two-level typology of institutions. The first level extends the typology of Acemoglu et al. (2005) to also include social institutions, which at the second level can be either formal or informal. The additional social institutions in this typology resemble the market-legitimizing institutions proposed by Rodrik and Subramanian (2003), namely those that provide social protection, insurance and redistribution.

Although the concept of institutions is of pivotal importance to the institutional approach, institutions are in essence ambiguous with respect to definition and classification, and only observable indirectly. Hence, numerous measures, either as a single index or as a set of indicators, have been developed to quantify the quality of the various types of institutions. In this section, we describe some conventional measures employed by authors who have investigated the interconnection between institutions and migration.

The quality of political institutions may be captured by the conditions of political and civil rights, political regimes, political stability, governance quality and corruption prevalence. The conditions of political and civil rights have been assessed and reported by Freedom House in the Freedom in the World report,¹ where a country or territory is rated on two dimensions—political rights and civil liberties—by a rating running from one (the most free) to seven (the least free). Based on the average ratings of the two dimensions, Freedom House classifies each country or territory into three categories of freedom status: Free; Partly Free; or Not Free. The Polity IV

¹<https://freedomhouse.org/report-types/freedom-world>.

Project² provides a database of cross-country indicators of democratic and autocratic patterns of authority and regime changes. The most commonly used variable in the database is the Revised Combined Polity Score that ranges from +10 (strongly democratic) to -10 (strongly autocratic). The Database of Political Institutions (Keefer and Stasavage 2003) is a source of indicators that has been widely used in comparative studies on political economy and political institutions. This database covers institutional and electoral results data for roughly 180 countries. Political stability is gauged by the political risk rating available in the International Country Risk Guide (ICRG) database.³ The ICRG assesses political stability across countries and produces a political risk rating. Risk points and weights assigned to political risk components are such that higher points representing lower risk, namely better conditions. The political risk components include government stability, socio-economic conditions, investment profile, internal conflict, external conflict, corruption, military influence in politics, religious tensions, law and order, ethnic tensions, democratic accountability and bureaucracy quality. Governance quality is quantified by the Worldwide Governance Indicators (WGI), which were developed by Kaufmann et al. (1999) to reflect six broad dimensions of governance at the country level, namely: Voice and Accountability; Political Stability and Absence of Violence/Terrorism; Government Effectiveness; Regulatory Quality; Rule of Law; and Control of Corruption. Each indicator is measured in units of a standard normal distribution running from approximately -2.5 to 2.5, and in percentile rank terms ranging from 0 to 100, with higher values corresponding to better governance. Corruption is also a proxy for the quality of political institutions and governance (see e.g. Ahmed 2013; Rowlands 1999). Corruption indices are available in the WGI dataset, the ICRG database and the Corruption Perceptions Index (CPI) reports. The CPI reported by Transparency International⁴ has been widely credited as a measure that reflects the views of people in a country on its level of public sector corruption. While the ICRG corruption index ranges from a scale of 0 (high corruption) to 6 (low corruption), the CPI runs from a scale of 0 (highly corrupt) to 100 (very clean).

Economic freedom has been a conventional proxy for economic institutions. The Economic Freedom of the World index (EFW) compiled by the Fraser Institute⁵ is one of the most influential and widely used measures of economic freedom. The EFW quantifies the consistency of a country's institutions and policies with economic freedom in five major areas, including size of government, legal system and security of property rights, sound money, freedom to trade internationally and regulation. This index is placed on a scale from 0 to 10, with higher scores representing a higher degree of freedom. The Index of Economic Freedom (IEF) by the Heritage Foundation⁶ has been recognized as an innovative barometer of economic freedom in 186 countries. The IEF covers 12 constituent areas, which are grouped into four broad pillars: rule of

²<http://www.systemicpeace.org/inscrdata.html>.

³<http://www.prsgroup.com/about-us/our-two-methodologies/icrg>.

⁴<https://www.transparency.org/cpi>.

⁵<https://www.fraserinstitute.org/>.

⁶<https://www.heritage.org/index/>.

law (property rights, government integrity, judicial effectiveness); government size (government spending, tax burden, fiscal health); regulatory efficiency (business freedom, labour freedom, monetary freedom); and open markets (trade freedom, investment freedom, financial freedom). Each component is graded on a scale from 0 to 100, with higher scores also corresponding to a higher degree of freedom.

From the preceding, we conclude that the quality of political and economic institutions is a complex concept and that there have been many initiatives to capture the quality of institutions by means of a range of, sometimes partially overlapping, indicators. In the following section, we review why and how institutions matter for migration decisions. We also discuss the indicators of institutional quality that have been used to empirically verify the relationship between migration and institutions.

18.3 The Importance of Institutions to Migration Decisions of International Migrants

18.3.1 Theories of Institutions as Determinants of International Migration

Economic analyses of the motivations for international (and internal) migration have been mostly developed within the framework of migration as human capital investment instituted by Sjaastad (1962). Decision-makers in the classic model of Sjaastad are rational in that they act to maximize utility and, given that more income yields greater utility, are driven by spatial differences in wages. Although the model remains fundamental to modern economic theories of migration, it oversimplifies the migration process by focusing narrowly on pecuniary factors related to the labour market as the sole determinants of migration. Hence, researchers have been refining and extending this early basic model, by incorporating *inter alia* the quality of political institutions as a predictor of migration decisions in the static human capital model of international migration. The idea of accounting for contextual factors pertaining to pairs of origin and destination countries in explaining migration flows stems from the push–pull theory of Lee (1966). In terms of economic modelling of international migration, the role of institutions was first documented in the study of Borjas (1989), who attributed the non-random selection of immigrants to economic and political conditions.

Migration in the static human capital model is determined by exogenous wages and other factors, such as the economic costs of migration, immigration policy, self-selection, income inequality, credit and poverty constraints, unemployment, taxes and social insurance and political institutions (see Bodvarsson et al. 2015 for a survey). To capture the effect of institutions, Hatton and Williamson (2011) included compensating differentials or non-economic costs of migration, representing the non-economic preference of a potential migrant for the origin country. If institutional

quality in the origin country is worse than that in the destination country, the compensating differential in the destination country could be negative, thereby increasing the utility of migration. Isolating the influence of wages, economic costs and institutions, migration decisions depend on the utility gained from the after-tax wage increase (purchasing power corrected) in the destination country compared with the origin country, net of economic costs of migration and preference for non-pecuniary attributes that include amenities and the quality of institutions.

In the static human capital model, potential migrants are assumed to make only one permanent migration decision. However, migration is a process, rather than a single decision, and has a temporal dimension. More specifically, migrants may repeatedly engage in re-emigration to another country or return migration to their home country. Therefore, migration is more appropriately analysed in a dynamic framework. Within the dynamic framework, researchers have suggested various individualistic motivations for return migration, which can be distinguished into four main views: (i) return as a failure, i.e. a corrective move after outcomes were not as anticipated; (ii) preference for consumption in the home country, that can be satisfied by post-migration accumulated wealth; (iii) achieving savings goals in the host country and returning home to invest; and (iv) human capital accumulation in the host country (see e.g. Cassarino 2004; OECD 2008 for surveys). However, return migration decisions are unlikely to be exclusively driven by these individualistic motivations, independent of the contextual conditions, i.e. the social, economic and institutional factors in the host and home countries. The structural approach to return migration emphasizes the contextual forces that act as pull and/or push factors influencing return decisions. As argued by Cerase (1974), economic forces that push migrants to return, as well as the problems they face re-adapting to the home country, are crucial in explaining repatriation. Gmelch (1980) underscored the stronger effect of pull factors in the home country relative to push factors in the host country on return decisions. Contextual factors in the home country provide signals that allow prospective returnees to predict their post-repatriation future and such factors will, therefore, guide return decisions. Dustmann and Görlach (2016) accentuated the importance of home country circumstances in the economic modelling of temporary migration. They suggested that home country circumstances shape return plans, and thereby alter the behaviours of migrants in the host country. Thus, the quality of economic and political institutions, along with other circumstances in the host and home countries, can be expected to affect the migration decisions of return migrants.

18.3.2 Empirical Review on Institutions as Determinants of International Migration

18.3.2.1 Political Institutions

As discussed previously, various measures can be used as proxies for *political* institutions. This abundance provides flexibility to researchers in choosing the measures that best fit their research objectives and conceptual framework. Bergh et al. (2015) and Ariu et al. (2016) employed various indicators of governance to capture the quality of political institutions. Bergh et al. (2015) argued that institutional quality, rather than income level, is the appropriate proxy for push and pull factors influencing migration. To support their argument, they fitted a gravity model where the dependent variable was the bilateral migration flows between 192 country pairs for the period 1990–2010, and the independent variables of interest were the six governance indicators from the WGI dataset. Their analysis revealed that institutional quality in the home country, conditional on poverty levels, affects migration as a push factor. Notably, for most of the WGI dimensions, the push effect of bad institutions in the home country is greater than the pull effect of good institutions in the host country.

Ariu et al. (2016) studied the effect of governance in both the home and host countries on the net and gross flows of migrants by education levels, in 195 countries observed between 1999 and 2000. In their study, governance was indexed by the six individual WGI dimensions and by the standardized first principal component generated from Principal Component Analysis of the six dimensions. The net flows of migrants were simply the differences between inflows and outflows. Their random utility model analysis showed that better governance had a significant positive influence on the net flows of high-skilled migrants. To identify the push and/or pull effects, the authors examined the impact of governance in the sending and receiving countries on the gross flows of migrants separately, and found that the push and pull effects were simultaneously at play. High-skilled migrants were more likely to be steered away from countries with worse governance and pulled towards those with better governance. However, with respect to low-skilled migrants, the push effect still matters for them but the pull effect was statistically insignificant. This finding is consistent with the main findings of Bergh et al. (2015).

Instead of looking at all the dimensions of governance, some researchers have been specifically interested in corruption as a strong signal of defective governance, or more generally of bad political institutions in home countries. Although researchers have provided different insights into the link between corruption and migration, they have generally agreed that corruption is a push factor that lowers the net present value of living in the home country relative to the host country. Rowlands (1999) argued that governance affects migration directly by facilitating or restricting the ability to emigrate through administrative formalities, and indirectly by altering the incentives to leave. His 1990 cross-sectional analysis examined the emigration rate from 58 low- and middle-income countries to a range of wealthier countries. He employed the corruption index that originated from the ICRG database as a narrow

measure of governance, and the civil rights index by Freedom House to represent a wider concept of governance. These indices were included in the cross-sectional regressions, separately and simultaneously. The estimations using the ordinary least squares (OLS) estimator suggested that corruption had a significantly negative influence on emigration. This may seem surprising, but the estimated net effect is dependent on the relative strength of the direct and indirect effects. When corruption is a prevalent problem, the direct effect that restricts emigration outweighs the indirect effect that encourages exit. As a result, the emigration rate increases in association with improvement in governance. This result was robust to the inclusion of the civil rights index. However, in both cases, the relationship between the emigration rate and institutional quality was nonlinear.

Dimant et al. (2013) argued that corruption tends to erode the returns to education by decelerating economic growth, aggravating unemployment, deepening inequality and hindering social advancement. They hypothesized that corruption is a strong push factor that particularly matters for skilled migrants. They tested their hypothesis by examining the impact of corruption, measured by the corruption index from the ICRG database, on the migration rate for 111 countries between 1985 and 2000. They found that corruption had a significantly positive effect on skilled migration, and the effect was robust to the choice between the pooled OLS and fixed-effects estimators. According to Poprawe (2015), corruption is a push factor of migration because it is associated with worsening economic conditions, spreading insecurity and lowering the quality of life. Their results, estimated from a gravity equation using a dataset of bilateral migration stocks for 230 countries in 2000, suggested that corruption, primarily measured by the CPI, encouraged emigration and discouraged immigration. These results remained robust to alternative measures of corruption. Cooray and Schneider (2016) investigated a dataset on emigration rates covering 20 OECD host countries by 115 home countries between 1995 and 2000. Their panel analysis established that corruption, measured by the CPI or the indices from the WGI dataset and the ICRG database, was associated with higher levels of emigration. While the effect was linear for highly educated migrants, the emigration rate of individuals with medium and low levels of education increased when corruption was less of a problem and started to decrease beyond a threshold.

Other papers underline the importance of political and civil rights, political regimes and political stability in migration decisions. Solimano (2005) regressed the net migration rate of Argentina for the whole twentieth century on the democratic and autocratic patterns of authority in receiving countries. The regression results provide evidence that migrants are not attracted to host countries with totalitarian regimes. Bertocchi and Strozzi (2008) studied the determinants of the immigration rate in 14 developed countries for the 1870–1910 period, with special attention paid to the role of the political environment, i.e. political institutions and migration policies. To gauge the quality of political institutions, they used two indicators, including the index of democracy from the Polity IV database and the index of suffrage, measured as the fraction of registered voters in the total population. The coefficients associated with these indices were both significantly positive, revealing that better quality of political institutions acts as a pull factor.

Hatton and Williamson (2011) estimated the impact of political institutions in the source country on the emigration rate to the United States from 62 source countries in the 1970s. They employed the indicators by Freedom House, and the authoritarian index and years of political transition from the Polity IV database, to capture the quality of political institutions and political stability. Two out of these three proxies had statistically significant effects. Countries with a higher degree of freedom in terms of civil rights had less emigration. Political transitions, i.e. less political stability, encouraged emigration. Dutta and Roy (2011) asked whether political stability, indexed by different political risk indicators from the ICRG database, matters for migration. Using the dataset on the emigration rate for skilled workers from 118 home countries to six OECD countries between 1895 and 2003, they found that political instability exerted a push effect on the skilled labour force. More specifically, greater political risk, reflected by worsening government stability, socio-economic conditions, investment profile, democratic accountability, internal conflict and ethnic tensions, increases emigration.

Finally, Karemera et al. (2000) and Vogler and Rotte (2000) are two studies that used the political rights and the civil liberties indices by Freedom House as their preferred measures of political institutions. The former studied the role of domestic political, economic and social factors on the propensity to migrate to Canada and the United States from 70 home countries during the period from 1976 to 1986. The latter investigated migration to Germany from 86 Asian and African countries from 1981 to 1995. Both studies concluded that restricted freedom in the home country hinders migration or, putting it differently, more freedom facilitates migration.

18.3.2.2 Economic Institutions

A smaller number of papers have focused on the role that *economic* institutions play in guiding migration. Melkumian (2009) developed a gravity model to include contextual characteristics of pairs of source and destination countries, with special focus given to economic freedom in the source country. The IEF was used to gauge the degree of economic freedom. The empirical results, based on a balanced panel of data on stocks of the foreign-born in the United States from 101 source countries from 1996 to 2000, showed that the lower the degree of economic freedom in the source country, the higher the migration to the United States. Accordingly, Melkumian concluded that bad economic institutions in the source country play a role as push factors for international migration.

Ashby (2010) and Nejad and Young (2016) considered both economic and political institutions. These authors used the EFW index to measure economic institutions. In the former study, political institutions were indexed by the average of the political rights and civil rights scores from Freedom House, whereas the latter employed the index from the Polity IV database and the checks and balances from the Database of Political Institutions. Both studies concluded that increases in relative economic freedom were appealing to migrants, with relative economic freedom defined as a ratio of economic freedom in each pair of source and destination countries. While

the effect of economic institutions was robust, the effect of political institutions was more mixed. Using migration stocks across 58 countries in 2005, Ashby (2010) found that political freedom was only significantly positive when economic freedom and income were excluded from the specification. Surprisingly, the effect of political freedom became significantly negative when he analysed the panel data of migration flows to OECD countries from 58 countries of origin between 2001 and 2006. Based on a larger sample of net migration flows to OECD and non-OECD countries over the 1990–2000 period, Nejad and Young (2016) also found that the significant impact of political freedom was not robust once economic freedom was controlled for.

18.4 Institutions as Determinants of Return Migration: A Case Study of Vietnam

Return migration occurs when migrants move back to their home countries. Two types of return migrants can be distinguished: forced and voluntary. Forced returnees include migrants who have been denied further stay in the intended destination country; voluntary returnees, by contrast, encompass migrants who have a valid right to remain in the destination country, but choose to repatriate by their own volition (World Bank 2017). Whereas forced return migration can be challenging for both home and host countries, voluntary return migrants are often seen as development agents who bring their leveraged human, economic and social capital, and import new norms and practices from institutionally developed countries when they repatriate (Pérez-Armendáriz and Crow 2010; Wahba 2014, 2015a, b; Hausmann and Nedelkoska 2018). For many developing countries, voluntary return migration of their diasporas from developed countries has been recognized as a powerful external development factor. For that reason, extending the literature on what shapes voluntary return migration to promote repatriation for development is important, especially to developing countries characterized by large diasporas.

Empirical evidence for the role of institutions in return migration is limited. The unavailability of a comprehensive dataset on international return migration has hampered researchers from testing whether institutions are influential in return migration decisions at the cross-country level. To date, the effort to extend the role of institutions to the area of return migration is reflected in just a few documented case studies. Researchers who have stressed the importance of institutions in migration decisions by means of case studies have generally examined institutions at the sub-national level. Empirically, both economic and political institutions at the local level have been shown to have significant impacts on migrants' choices (see e.g. Ashby 2007; Ketterer and Rodríguez-Pose 2015). In this section, we briefly summarize a recent study by Tran et al. (2019) on the link between local institutional quality and the return migration decisions of Vietnamese migrants. This study provides a novel contribution to the extant literature by not only showing that local institutional quality in the home country has a positive and statistically significant role in the locational

choices of return migrants but also by illustrating the norm diffusion effect in the locational choices, i.e. variation in institutional quality across host countries impacts on return migrants' locational choices in their home countries.

Tran et al. (2019) fitted binary and multinomial regression models to identify the impacts of individual-specific attributes and local- or region-specific characteristics of destinations within Vietnam on the locational choices of Vietnamese return migrants. The dependent variable was the locational choice at the provincial or regional level of 628 Vietnamese migrants who returned to the south-central and the south regions of Vietnam in 2014. This unique sample was extracted from the database of Vietnamese return migrants assembled by the Overseas Vietnamese Committee of Ho Chi Minh City. The independent variable of interest was the local institutional quality in the destinations within Vietnam to which the returnees in the sample migrated on their return. They employed two different indices to measure different types of local institutional quality. The Provincial Competitiveness Index (PCI),⁷ published by the Vietnam Chamber of Commerce and Industry (VCCI) with the support of the United States Agency for International Development (USAID), was used to measure the quality of local economic institutions. The PCI covers ten areas, including (1) entry costs; (2) land access and security of tenure; (3) transparency and access to information; (4) time costs and regulatory compliance; (5) informal charges; (6) policy bias; (7) proactivity of provincial leadership; (8) business support services; (9) labour and training; and (10) legal institutions. The Vietnam Provincial Governance and Public Administration Performance Index (PAPI)⁸ was used to capture the quality of provincial governance, an aspect of political institutions. The PAPI is a joint product of the Centre for Community Support Development Studies (CECODES) under the Vietnam Union of Science and Technology Associations (VUSTA) and the United Nations Development Programme (UNDP). This index has six dimensions, including (1) participation; (2) transparency; (3) vertical accountability; (4) control of corruption; (5) public administrative procedures; and (6) public services. PCI and PAPI, are measured on scales such that higher scores represent better local institutional quality.

Tran et al. (2019) adopted a three-step research strategy. First, they examined the influence of Vietnamese return migrants' individual-specific characteristics on locational choice at two levels of destinations. At the provincial level, a logistic regression model was fitted to estimate the odds ratio in favour of choosing a province other than Ho Chi Minh City (HCMC—the largest city in Vietnam) by age, gender and institutional quality in the host country that the migrant left to return to Vietnam. Institutional quality in the host country was measured alternatively by the Economic Freedom of the World Index by the Fraser Institute, the combined polity score from the Polity IV database, and the three indicators by Freedom House—the political rights index, the civil liberties index and freedom status. Among these five measures, freedom status entered the empirical models as a dummy variable (“free” = 1, otherwise = 0), whereas the other measures were continuous, representing the scores of

⁷<http://eng.pcivietnam.org/>.

⁸<http://papi.org.vn/eng/>.

Table 18.1 Estimates for logit model and multinomial logit model

	(1)	(2)	(3)	(4)	(5)
	Logit model	Multinomial logit model			
		South Central Coast	Central Highlands	South East Region	Mekong River Delta
Age	2.1108** (0.6199)	4.0327*** (2.1537)	18.3213** (21.7318)	1.6396 (0.8680)	1.6769 (0.5539)
Gender	1.5728*** (0.2635)	1.7621* (0.5156)	1.9010 (1.0918)	1.9764** (0.6147)	1.4259* (0.2692)
Freedom status	0.2543* (0.2007)	0.1946 (0.1979)	5.6E+04 (4.9E+07)	0.0941*** (0.0834)	0.4774 (0.4389)
Log Likelihood	-421.5439	791.4577			

Notes Factor change in odds of Non-HCMC versus HCMC. Coefficients are exponentiated. Standard errors are reported in parentheses. $N = 628$. Age is in natural logarithm. Gender takes the value of 1 if a return migrant is male, and 0 otherwise. Freedom status takes the value of 1 if a host country’s freedom status is “free”, and 0 otherwise

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

host country institutional quality. Since most of the Vietnamese returnees in their sample were from developed host countries with relatively high institutional quality, there was little variation in terms of the scores of institutional quality across the host countries. Consequently, the results obtained when institutional quality in the host country was measured as a continuous variable were less robust.

In this review, we summarize only the most robust results that were obtained when institutional quality in the host country was measured as a dummy variable of freedom status. Column (1) of Table 18.1 reports the results of the logistic regression model. The statistically significant coefficients associated with all the individual-specific variables suggest that the locational choices of Vietnamese return migrants differ by age, gender and the freedom status in the host country. Older or male migrants are more likely to prefer non-HCMC provinces to HCMC. Notably, migrants from “free” host countries are attracted to the largest metropolitan centre of Vietnam, i.e. HCMC.

At the regional level, a Multinomial Logit Model (MLM) was then estimated to investigate whether there was spatial heterogeneity in the influence of the individual-specific variables. The dependent variable in the MLM is categorical, consisting of four provincial destinations (see Table 18.1) and HCMC (the base category). Columns (2)–(5) of Table 18.1 show that the impact of the individual-specific variables in explaining the locational choices of Vietnamese return migrants was spatially specific.

Consequently, this warrants an investigation of how region-specific characteristics influence the locational choice, an issue investigated by Tran et al. (2019) by means of a Conditional Logit Model (CLM). The results of this model can be found in Table 18.2. The CLM was specified by means of replacing the set of individual-

Table 18.2 Estimates for conditional logit models and mixed logit model

	(1)	(2)	(3)	(4)	(5)	(6)
	Conditional logit model		Conditional logit model with interactions		Mixed logit model	
Alternative measures of regional institutional quality	PCI	PAPI	PCI	PAPI	PCI	PAPI
Regional institutional quality	1.2878*** (0.1232)	1.6018*** (0.2482)	5.2278*** (3.0369)	4.4544 (5.3201)	6.0562*** (3.7543)	5.5962 (6.8939)
Population	2.6670*** (0.7544)	7.4120*** (1.2635)	2.4282*** (0.6972)	7.4010*** (1.2615)	2.8523** (1.4411)	9.0126*** (2.7768)
Distance	0.8469*** (0.0450)	0.7748*** (0.0180)	0.8662*** (0.0472)	0.7750*** (0.0180)	0.8146** (0.0783)	0.7381*** (0.0294)
[Age] × [Regional institutional quality]			0.6652*** (0.0881)	0.6987 (0.1852)	0.6408*** (0.0877)	0.6731 (0.1802)
[Freedom status] × [Regional institutional quality]			1.3737* (0.2416)	1.5556 (0.8703)	1.4031* (0.2464)	1.5968 (0.8958)
[Gender] × [South Central Coast]					1.9868** (0.5462)	1.6201* (0.4657)
[Gender] × [Central Highlands]					2.2834 (1.3506)	1.6681 (0.7887)
[Gender] × [South East Region]					1.5465* (0.3600)	1.8754** (0.4744)
[Gender] × [Mekong River Delta]					1.3828* (0.2591)	1.4257* (0.2692)
Log likelihood	-807.0541	-806.4509	-801.0016	-805.2675	-796.7043	-801.0330

Notes Factor change in odds of region *j* versus region *k*. Coefficients are exponentiated. Standard errors are reported in parentheses. *N* = 628. Age, population, and distance are in natural logarithm. Gender takes the value of 1 if a return migrant is male, and 0 otherwise. Freedom status takes the value of 1 if a host country's freedom status is "free", and 0 otherwise

* *p* < 0.10, ** *p* < 0.05, *** *p* < 0.01

specific independent variables used in the MLM with a set of region-specific variables, including regional institutional quality, population size and physical distance to HCMC while retaining the categorical dependent variable, i.e. regional choices, used in the MLM. Regional institutional quality was measured as the population-weighted average of either PCI or PAPI.⁹ Regional distance to HCMC was measured as the natural logarithm of the population-weighted average of the distance measured in kilometres of road travel from each region to HCMC. The regional population was measured as the natural logarithm of the total population in a region. As reported in Columns (1) and (2) of Table 18.2, the odds ratio associated with the variable of interest exhibits a positive relationship between the locational choices and regional institutional quality, irrespective of whether it was measured by PCI or PAPI. Increases in the institutional quality in any of the regions would induce more return migrants to choose that region to reside upon their return to Vietnam. In other words, local institutional quality is acting as a pull factor that matters for return migration decisions.

To provide more insights into this effect, regional institutional quality can be interacted with age and with institutional quality in the host country (measured as a dummy variable of freedom status). These two interaction terms have been added to the CLM in Column (3) of Table 18.2, with local institutional quality measured by PCI. With this specification, the significantly positive effect of the variable of interest still holds. Moreover, the significant coefficients of the interaction terms imply that the preference for better institutional quality varies by the age of the return migrants and by the institutional quality in their host countries. More specifically, younger return migrants or migrants who returned from a host country with a higher degree of freedom display greater preference for better local institutional quality in the home country. Putting it another way, regions with better institutions may be more attractive to return migrants, especially those who are younger and those returning from higher institutional quality host countries. These findings are important not only for demonstrating the norm diffusion effect of migrants from a developing country transferring their absorbed norms back home through the return channel but also suggesting that improving institutional quality in the home country is important for promoting return migration for development. Column (4) of Table 18.2 also reports the estimates for the CLM with interaction terms, but now with local institutional quality measured by PAPI. Interestingly, although the results reported in Columns (3) and (4) look similar, shifting from using PCI to PAPI results in insignificance of the variable of interest and the interaction terms, although the direction of the effects remains the same.

Population size and physical distance were included in the models to control for the agglomeration that might affect migration decisions. The significant influence of these control variables are consistent with the predictions from the gravity model in migration and are robust across specifications. Regions with larger population size attract relatively more return migrants, while remote regions attract relatively less.

⁹Population weights were obtained for each of the provinces that make up a region.

Lastly, and as an additional robustness check, Tran et al. (2019) re-examined the effects of the individual-specific and region-specific variables simultaneously, by fitting both sets of variables in a single Mixed Logit Model (MXL). As reported in Columns (5) and (6) of Table 18.2, the effects of the individual-specific variable (gender) are consistent with those found in the MLM (see Columns (2)–(5) of Table 18.1). In addition, the influence of the region-specific variables and the two interaction terms are similar to those obtained from the CLM. It is also notable from Column (6) of Table 18.2 that local institutional quality measured by PAPI and its interaction terms are again insignificant (as in Column (4)), and again the direction of the effects is consistent. Consequently, the results obtained by means of using PAPI, a measure of political institutions, are less robust than those using PCI, a measure of economic institutions. This piece of evidence is consistent with the conclusions of Ashby (2010) and Nejad and Young (2016) on the relatively more robust influence of economic institutions on migration compared to that of political institutions.

18.5 Conclusions

The gap in institutional quality between countries is substantial and persistent. It channels migration flows from countries with weak institutions towards countries with favourable economic institutions and stable political institutions. In other words, economic and political institutions are significant push and pull factors that shape the migration decisions of international migrants. Principally, good institutions are attractive to immigrants; bad institutions, especially corruption, increase the incentives to emigrate when allowed to do so. Contributions of scholars in this area suggest an important policy implication that an institutional improvement is an effective tool for the governance of migration flows to assist economic growth and development. Enhancing institutional quality is particularly important in developing countries, where institutions are presently still inadequate, because it may prevent further brain drain and encourage return migration for development. In Sect. 18.4 of this chapter, we focused on the experience of Vietnam. The significant findings based on return migration in Vietnam emphasize the indispensability of institutional reforms at the national and local levels to attract external development factors and nurture a favourable context for the contribution of these factors.

To date, the literature that empirically identifies the causal effect of institutions on emigration is abundant, whereas little attention has been paid to the effects on return migration. Therefore, empirical evidence on the importance of institutions in return migration decisions is mostly limited to case studies only. Case studies provide interesting insights into the country level; however, their external validity can always be questioned in an international setting. Consequently, more efforts should be devoted in future research to provide more rigorous empirical evidence, especially panel analysis at the international level, to attest to the role of institutions in return migration decisions.

Moreover, conclusions on the role of institutions in migration decisions have to date mostly been drawn from investigating legal migration. Therefore, it is not surprising that the significant effect of political institutions is empirically less robust than that of economic institutions when simultaneously accounting for the two types of institutions. We expect that the role of political institutions might be underestimated when irregular migrants and asylum seekers are ignored. Future work should account for undocumented migration to unfold further the potentially important role of political institutions.

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Chapter 19

The Impact of Emigration on Source Countries



Sucharita Ghosh and Amanda Weinstein

19.1 Introduction

The number of immigrants has increased dramatically worldwide over the past 50 years from about 84 million in 1970 to 244 million in 2015, and as of 2017, the number of international emigrants worldwide was almost 258 million (Migration Policy Institute 2017). Specifically, the number of immigrants coming into the U.S. has increased from approximately 9.6 million in 1970 to over 43.7 million in 2016, an increase of over 350% (Migration Policy Institute 2017). Consequently, policy-makers in the U.S. and Europe have increasingly turned their attention to immigration in recent years, largely in response to growing concerns over how migration affects their countries as receiving countries. This has resulted in a vast number of migration studies focusing on immigration and its impact on the host countries with less attention paid to emigration and its resulting impact on the source countries. Yet, every immigrant is an emigrant and the various direct and indirect impacts of emigration on sending countries may encourage or discourage emigration, which, in turn, affects the receiving countries (Docquier et al. 2013; Katselli et al. 2006).

While migrants originate from countries across the globe, some source countries for emigrants make up a far greater share than others (see Fig. 19.1). Historically, Mexico has experienced the largest outflow of emigrants, most of them moving across the border to the U.S. In 2013, however, the flow of emigrants from China and India to the U.S. surpassed Mexico (U.S. Census Bureau). In 2015, India, Mexico, and China were the top three sending countries with 15 million, 12 million, and 10 million emigrants worldwide, respectively (see Table 19.1). Moreover, as a region, Asia sends the largest number of emigrants across the globe. As these numbers grow and

S. Ghosh · A. Weinstein (✉)
Department of Economics, The University of Akron, Akron, OH 44325, USA
e-mail: aweinstein@uakron.edu

S. Ghosh
e-mail: sghosh@uakron.edu



Fig. 19.1 Number of emigrants by country of origin, 2015. *Source* Data from Migration Policy Institute (2015) and the United Nations

Table 19.1 Top 10 sending countries, 2015

Rank	Country of origin	Emigrants from country
1	India	15,576,000
2	Mexico	12,339,000
3	Russian Federation	10,577,000
4	China	9,546,000
5	Bangladesh	7,205,000
6	Pakistan	5,935,000
7	Ukraine	5,826,000
8	Philippines	5,316,000
9	Syria	5,012,000
10	United Kingdom	4,917,000

Source Data from Migration Policy Institute (2015) and the United Nations

as the world becomes more globalized and interconnected, so does the importance of understanding the impact of emigration, especially for the source countries that send the largest number of emigrants worldwide.

The magnitude of the impact of emigration depends not only on the number of total emigrants but also on the share of a source country's population that is leaving versus staying. Although the number of emigrants has risen dramatically since 1970, the share of the world's population, that are emigrants, has had a less dramatic increase because of the world's growing population. Emigrants' share of the world's population has increased from 2.3% in 1970 to 3.4% in 2017 (United Nations 2017a,

b). Although India has the largest number of emigrants in the world, as a share of its own population, it is dwarfed by smaller countries that have high emigration numbers. For example, within Asia, 22% of the people born in Kazakhstan are now living in other countries. Thus, emigration may have a larger impact on countries like these where nearly one-quarter of the population leaves. Overall, Asia has an emigration rate of about 0.9%, which is well below countries like Kazakhstan, and emigration rates between 2010 and 2011 for its two largest sending countries, India and China, were each at about 0.4% (UN DESA and OECD 2013). Although the emigrations rates of countries like India and China are much lower than smaller countries like Kazakhstan (and lower than Asia as a whole), regional differences within these countries may magnify or further dampen the effects of emigration across space.

In this chapter, we examine the impact of emigration on the source country or region with particular attention to Asia where, in 2017, 41% of international migrants worldwide were born. Within Asia, we focus on China, which sent 10 million emigrants worldwide in 2017 (United Nations 2017a, b). Beyond their role as a large sending country, China proves to be an interesting region and country case study since for decades China restricted emigration with few exceptions and only opened up its borders to citizens traveling abroad in the 1980s. Moreover, while China is the source of high numbers of emigrants in the world it is comparatively understudied. In particular, from the U.S. perspective, it is noteworthy to investigate whether the benefits that the U.S. gets from Chinese immigration have differing effects on China as the sending country. In fact, the impact of emigration flows on China as the sending country could possibly increase immigration to the U.S.

The rest of this chapter is organized as follows. Section 19.2 provides an overview of the push and pull factors that play a role in people emigrating while Sect. 19.3 describes the economic impact of emigration with particular attention to the migrant's country of origin. We then review emigration from Asia in Sect. 19.4 with a specific focus on emigration from China and the spatial heterogeneity in international migration across provinces in China. Section 19.5 concludes.

19.2 Determinants of Emigration

The mobility of people, especially labor or the absence of that labor, can change the outcomes of the country and the region that migrants leave behind. Although we know comparatively less about the impact of emigration on the source countries, what we do know about migration's impact on the receiving countries provides some insight. The impacts of immigration and emigration are often two sides of the same coin. For example, while migrants may act as a complement increasing the wages of less educated native-born workers in receiving countries, the absence of these migrants from their countries of origin may lower the wages of the less educated native workers left behind, increasing inequality (Docquier et al. 2013). The impact

of emigration in many cases has the opposite effect of immigration and like the impact of immigration, depends on a number of different factors.

The rules and laws of destination countries clearly play a significant role in determining how many people emigrate. Ortega and Peri (2009) were among the first to create a dataset of immigration laws in 14 OECD countries between 1980 and 2005 by distinguishing between laws regulating entry, stay, and asylum.¹ They create three indexes that take into account laws based on whether they tighten the requirements to enter or stay in the country, as well as by separating laws that concern asylum seekers from laws dealing with other types of immigrants. Their empirical results reveal that bilateral migration flows decrease when destination countries adopt stricter immigration laws, and each immigration reform that introduced less restrictive immigration laws caused immigration flows to increase, on average, by 5–9%.

The impact of migrants leaving a country depends on the underlying reasons why they left and what they are seeking (Lee 1966). The impact of emigration depends on the factors that *pushed* a migrant to leave such as poor economic and non-economic factors either in the source country or in the migrants themselves. The push factors that induced the outmigration may in turn prevent return migration and the benefits associated with return migration (Rosenzweig 2005). Poor economic and non-economic conditions can also vary within a country. Regional conflicts such as the recent conflicts in Syria have pushed many migrants to leave Syria as refugees, though refugees represent only 10% of total international migrants (UN DESA 2017). Low-skilled migrants with poor prospects could face unemployment in their native country, which may push them to find economic opportunities elsewhere. The movement of these migrants could ease unemployment and underemployment concerns for labor in their native country. Moreover, proximity to comparatively prosperous countries decreases the cost to move away from a country as seen, for example, in the movement of many low-skilled migrants from Mexico to the U.S. We can see this in Fig. 19.2 which shows that the highest number of Mexican emigrants move to the U.S. As a result, many U.S. natives, similar to natives of other receiving countries, view immigrants as low-skilled workers. However, emigrants from OECD countries (which include Mexico) tend to be positively selected into migration and are more skilled than non-migrants who remain in their country of origin (Grogger and Hanson 2011). Since educational attainment in Mexico, for example, is lower than in the U.S., even high-skilled migrants from Mexico, on average, are less skilled than U.S. born adults. In 2016, the educational attainment of foreign-born adults (in terms of the share of adults with a college degree) was slightly lower than that of the U.S.-born citizens at 30% versus 32% (Migration Policy Institute 2018a). However, approximately 47% of recent immigrants to the U.S. are college-educated. This is likely due to the increase in immigration from countries such as India and China,

¹A later study by Mayda (2010) also incorporates destination countries' immigration policies into the theoretical model and finds empirical results that are consistent with the theoretical predictions. Specifically, positive pull factors for migrants are bigger than average for a destination country when its migration policy becomes less restrictive while push factors turn negative and significant once migration restrictions are relaxed.



Fig. 19.2 Number of emigrants from Mexico, 2015. *Source* Data from Migration Policy Institute (2015) and the United Nations

where 78% and 49% of immigrants to the U.S. have a college degree, respectively (Migration Policy Institute 2018a).

The impact of emigration may depend on the factors that *pulled* a migrant to another country such as positive economic and non-economic characteristics of the receiving country or of the migrants themselves (Zimmerman 1996). For example, high-skilled migrants may seek higher wages in comparatively more prosperous receiving countries bringing down the average skill level of labor in their native countries. Income-maximizing workers will positively sort into countries where the rewards for their skill are highest. Most immigrants (about two-thirds) live in high-income countries and most emigrants (about two-thirds) are from middle-income countries (UN DESA 2016). Higher income countries tend to be net receivers of migrants whereas lower income countries tend to be net senders of migrants. Figure 19.3 depicts this relationship by showing the association between GDP per capita and net migrants (the inflow of immigrants minus the outflow of emigrants). Using net migrants allows us to clearly see which countries are net sending countries (more migrants leaving the country than coming into the country) versus net receiving countries (more migrants entering the country than leaving the country). While emigrants tend to move to countries that are physically close we find, increasingly, that Chinese emigrants are leaving China *less* to go to a country in close proximity (such as Korea) where the costs of moving are lower, and are instead going to the U.S. where the benefits of moving are higher (see Fig. 19.4). In fact, for the U.S., while migration from Mexico has declined, migration from China increased and surpassed Mexico.

High-skilled emigrants from middle- and low-income countries that migrate to high-income countries are more likely to afford the cost of migration and to reap

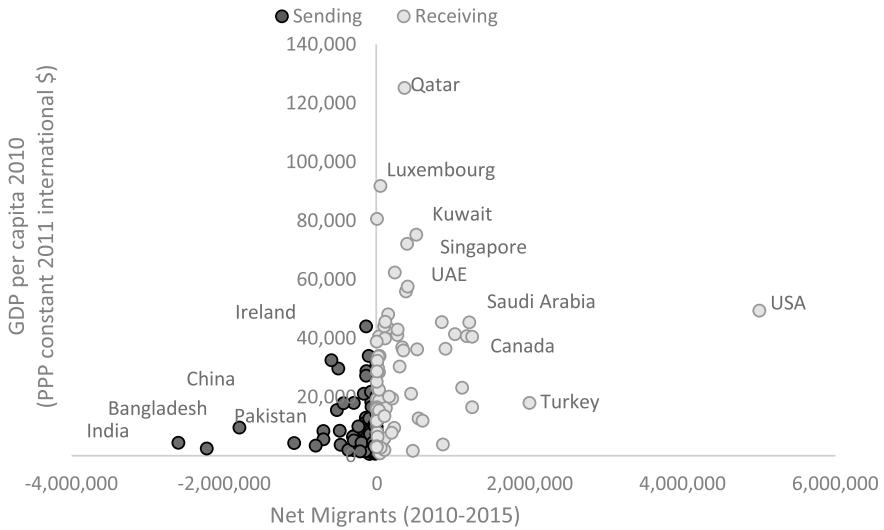


Fig. 19.3 Low income-sending countries versus high income-receiving countries. *Source* Data from Migration Policy Institute (2015), the United Nations, and World Bank

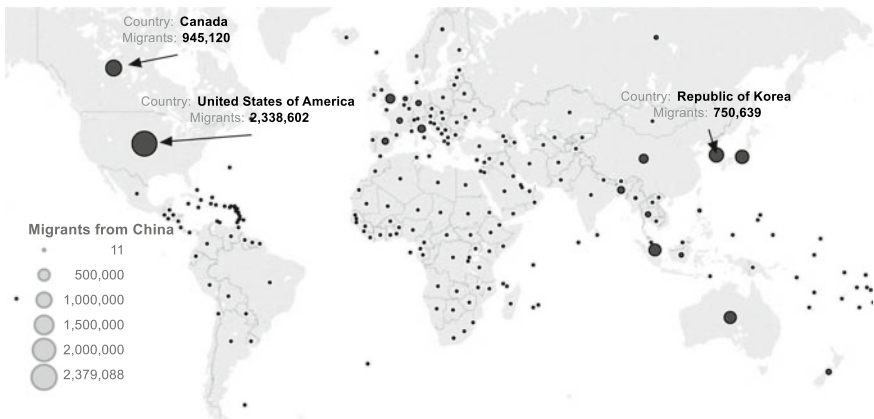


Fig. 19.4 Number of emigrants from China, 2015. *Source* Data from Migration Policy Institute (2015) and the United Nations

higher benefits from migration. Skilled emigration tends to be highest in middle-income countries and relatively lower in richer countries because of the higher wage differential between middle-income countries and potential destinations (Mountfort and Rappaport 2011). In 2000, emigration rates were 3 times higher than average for the highly educated and skilled, and 12 times higher among emigrants from

low-income countries (Docquier and Marfouk 2006).² Specifically, when examining emigration to OECD countries, in 2000, the top 4 developing countries, the Philippines, India, Mexico, and China, contributed almost 29% of the total skilled emigration among the top 30 countries most affected by high-skilled emigrants leaving causing a “brain drain” (Docquier et al. 2009). The literature argues that the increase in brain drain migration around the world is due to a combination of demand and supply-side factors (Grogger and Hanson 2011; Belot and Hatton 2012; Beine et al. 2011). On the demand side, it is selective immigration policies (e.g. the points system of immigration into Australia and Canada) and on the supply side, it is an increased tendency for workers to positively self-select with respect to education. Research that focuses on skilled emigration from high-income countries to other high-income countries has highlighted the importance of high-quality public goods and services in attracting migrants and preventing outmigration (Van Dalen and Henkens 2007). The impact of an increase in high-skilled migration is less concerning for receiving countries but is more concerning for the sending countries stock of human capital sans these migrants, which can vary by region within a country.

Emigration of skilled labor may not necessarily be negative for the sending country. Skilled labor emigration can serve as an incentive to others in the sending country to acquire more education which can increase human capital over time (Commander et al. 2004). Moreover, emigrants that return to their sending country transfer both financial capital and human capital that has been accumulated abroad (Wahba 2015a, b). The financial capital built up by individuals due to emigration allows them to set up businesses once they return back to their native country (Mesnard 2004; Wahba and Zenou 2012), while the human capital built up abroad leads to a “brain gain” or “brain drain reversal” with the return of emigrated skilled labor to the sending country.

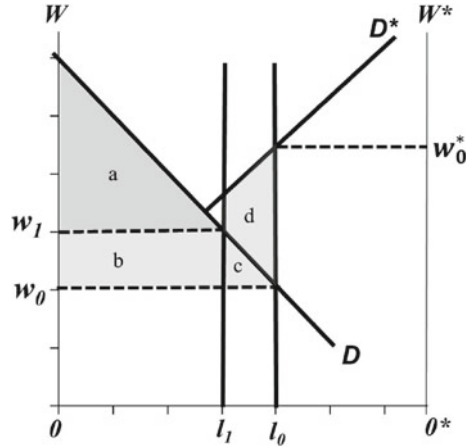
19.3 The Economic Impact of Emigration

The diaspora of skilled emigration has led to the literature recognizing the impact this can have on the sending country’s economic development either through the direct loss of high-skilled labor (“brain drain”) or via remittances, foreign direct investment, trade, knowledge transfers, and return migration after obtaining additional skills (“brain gain”). The magnitude of the indirect effects is related to the strength of connection that remains between the migrant and their native country.

Concerns over emigration, particularly skilled emigration, tend to focus on the direct loss of labor and the subsequent impact on the people that remain. Higher equilibrium wages in host countries (w_0^*) decrease the supply of labor in source countries (l_0 to l_1) as depicted in Fig. 19.5. This negative shock to the labor supply increases wages (w_0 to w_1) for non-emigrant stayers that can be substituted for the

²Docquier and Marfouk (2006) define a skilled emigrant as a foreign-born individual, aged 25 or more, holding an academic or professional degree beyond high school.

Fig. 19.5 High-skilled labor market in source and host* countries



skilled emigrants (Elsner 2015).³ High-skilled workers in source countries gain area *b* because of the higher wages that resulted from the supply shock. Firms (owners of capital, land, and other factors) in source countries lose areas *b* and *c* as the total benefit of hiring labor shrinks from area *a-b-c* to area *a*. Low-skilled non-emigrant stayers whose labor complements skilled emigrants experience a wage loss (Elsner 2015). The direct effect of emigration is likely negative for source countries.

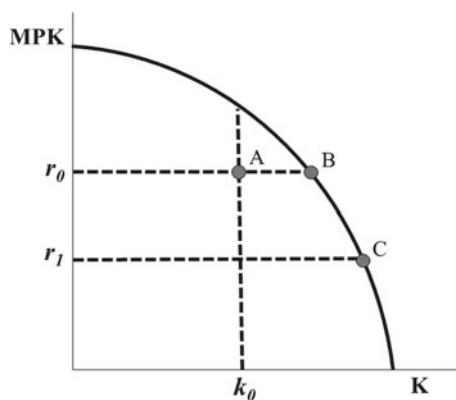
19.3.1 Emigration and Remittances

However, the indirect effects of emigration offer benefits to non-migrant stayers in source countries that may offset the costs. The loss of high-skilled labor from source countries to the host countries such as the U.S., for example, may still benefit sending countries when some portion of the benefits emigrants receive (area *d*) is returned in the form of remittances offsetting the loss of *c* and the loss from lower wages for low-skill workers. Emigrants may send income (or remittances) back to family members that remain in the native country. Emigrants remit between 20 and 50% of their incomes back to their country of origin reducing rural poverty (World Bank 1997). The additional income provided by remittances can reduce poverty and increase investment in human capital and physical capital (Adams and Cuecuecha 2013).

Remittances from emigrants are also used to invest in entrepreneurial activities. Woodruff and Zenteno (2007) find microenterprises in areas with established migration networks have more investment (high capital to output ratio) and higher profits. Increasing the migration rate by one standard deviation increases the level of capital invested in the enterprise by over 35% and an increase in profit of over \$60 per month. Woodruff and Zenteno (and Giuliano and Ruiz-Arranz 2009) suggest that

³Figure 19.5 follows Bhagwati (1984), Clemens (2011), and others.

Fig. 19.6 Migration networks increase capital in source countries



areas with stronger migration links have more access to capital, for example, through remittances. This can alleviate capital constraints (moving an enterprise from *A* to *B* in Fig. 19.6) and/or lower the cost of capital (moving a firm from *B* to *C* for an unconstrained firm or from *A* to *C* for a constrained firm). Javorcik et al. (2011) find migration networks can also increase the productivity of capital (shifting the marginal product of capital curve outward) by reducing communications costs and information asymmetries thereby attracting capital investments through foreign direct investments (FDI). The lower cost of capital associated with migration networks may cause firms to switch from more labor-intensive activities to more capital-intensive activities. Conversely, the increase in capital investment may increase the demand for labor as new firms are established, and when labor and capital are complements.

19.3.2 Emigration, Trade, and Foreign Direct Investment

Emigration can have an impact on the international trade of both the country they settle in and the sending country. Since emigrants prefer goods, especially differentiated goods that they consumed in their native country, they have a direct impact on the sending country's exports (Head and Ries 1998). Additionally, emigrants bring their knowledge of their home country's opportunities, contacts, customs, law, language, and business practices which when combined with their personal contacts or business liaisons can lower transaction costs of trade in both exports and imports (Artal-Tur et al. 2012). Thus, emigrants convey knowledge spillovers in the receiving country that can reduce information costs to economic agents who do not migrate (Gould 1994). The effect of emigration on international trade has been investigated both theoretically and empirically in the literature (Gould 1994; Head and Ries 1998; Wagner et al. 2002; White 2007) since it affects both the sending country and the host country of the emigrant. Specifically, a meta-analysis of 50 studies by Genc et al. (2011) and Lin (2011) show that an increase in the number of emigrants in the

receiving country by 10% increases the receiving country's volume of exports and imports by about 1–2%.

The network effects of emigrants are investigated by Rauch and Trindade (2002) which looks at the impact that overseas Chinese have on international trade via “coethnic networks” which are the formal or informal associations created with members from both the host country and the sending country. These ethnic Chinese networks can increase trade primarily through two mechanisms. First, via formal and informal contacts, ethnic Chinese networks enable information to be shared in a manner that helps match buyers and sellers in the international market. Second, ethnic Chinese groups help deter opportunistic behavior such as contract violation through enforcement of community sanctions (Gao 2003). Their study shows that ethnic Chinese networks increase bilateral trade. Similarly, Co et al. (2004) find that an additional emigrant from China can generate between \$83 (in New Mexico) to \$28,775 (in Washington) of additional exports in 1993. Furthermore, states such as Vermont and Wyoming, with relatively low numbers of immigrants have lower trade effects. This is in line with Rauch and Trindade (2002) which suggests that only a critical mass of immigrants creates the network required for an impact on bilateral trade between the emigrant's sending country and receiving country.

The sending countries of emigrants will often tap into their diaspora to promote foreign direct investment (FDI) back into their native countries. For example, Indian emigrants in the United Arab Emirates are encouraged to invest in India, with \$1 billion invested by 100 emigrants in 2018 alone (Alkhalisi and Iyengar 2018). This tacitly recognizes the network effects of emigrants who can provide valuable information to assess the future profitability of an investment project as well as create ethnic networks that can help enforce contracts across national boundaries by creating trust in a weak international legal environment (Javorcik et al. 2011). In fact, Javorcik's study shows that the movement of emigrants to the U.S. leads to an increase in the volume of U.S. FDI in their country of origin. Specifically, a 1% increase in the immigrant stock in the U.S. causes a 0.35–0.42% increase in the FDI stock of the sending country. The effect is even stronger amongst immigrants with a college education; a 1% increase in the number of immigrants with tertiary education increases U.S. FDI in their respective sending country by 0.41–0.52%.

19.3.3 Emigration and Human Capital

While the literature has argued that skilled emigration leads to brain drain in the sending country due to the loss of human capital accumulation, recent research has focused on the idea that skilled immigration may lead to brain gain as human capital accumulation increases. Biene et al. (2001, 2008) make the argument that before emigration even occurs, the prospects of doing so fosters investment in human capital and education in the sending country (the ex ante effect). Some educated individuals intending to emigrate will leave, while others remain (the ex post effect), and so the net impact on human capital accumulation is ambiguous. If the ex ante effect is

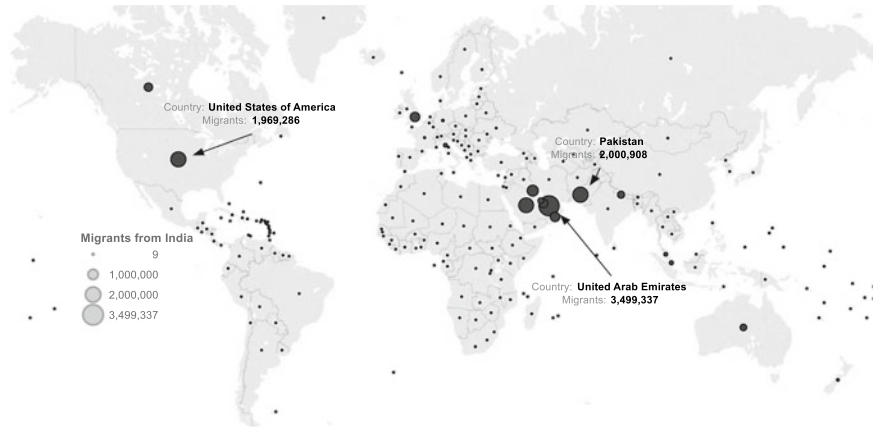


Fig. 19.7 Number of emigrants from India, 2015. *Source* Data from Migration Policy Institute (2015) and the United Nations

stronger than the ex post effect, then the sending country could see an increase in human capital accumulation. When both factors are taken together, Mayr and Peri (2008) and Beine et al. (2008) find the incentive effect of future emigration on human capital accumulation and the return migration channel reverses the brain drain into significant brain gain for the sending country. However, McKenzie and Rapoport (2011) find that migration in rural Mexico reduced educational attainment.

Furthermore, when emigrants return to their home country, they bring with them the income and skills they gained from their time in the host country, but this impact of emigration may depend on the degree to which the emigration is permanent or transitory. Wahba (2015a, b) finds that overseas migration may result in a wage premium for return migrants. India is, arguably, the most interesting country to examine with regard to the impact of emigration. Not only does it have the largest number of emigrants but also their emigrants represent a broad swath of factors that push or pull emigrants from their home countries (Naujoks 2009). For example, there are large numbers of both permanent and transitory emigrants to countries such as the U.S. and the United Arab Emirates, a country that is relatively close to India and experiencing impressive growth. Figure 19.7 shows that countries that are in close proximity to India see the highest number of emigrants from India, for example, neighboring Pakistan. Temporary emigration has been an important source of remittances for India, whereas permanent emigration and return migration has been an important source of Indian subcontract work and the establishment of new IT companies (Naujoks 2009).⁴

Economic theory suggests there are both positive and negative effects stemming from the direct and indirect impacts of emigration (see Fig. 19.8). Determining the net

⁴In 2016, remittance inflows to India amounted to \$62.7 billion, the largest in the world. In fact, South Asia is one of the largest recipients of remittances in the world with countries such as Pakistan, Sri Lanka, and Bangladesh having remittances exceeded 5% of GDP in 2016 (World Bank 2017).

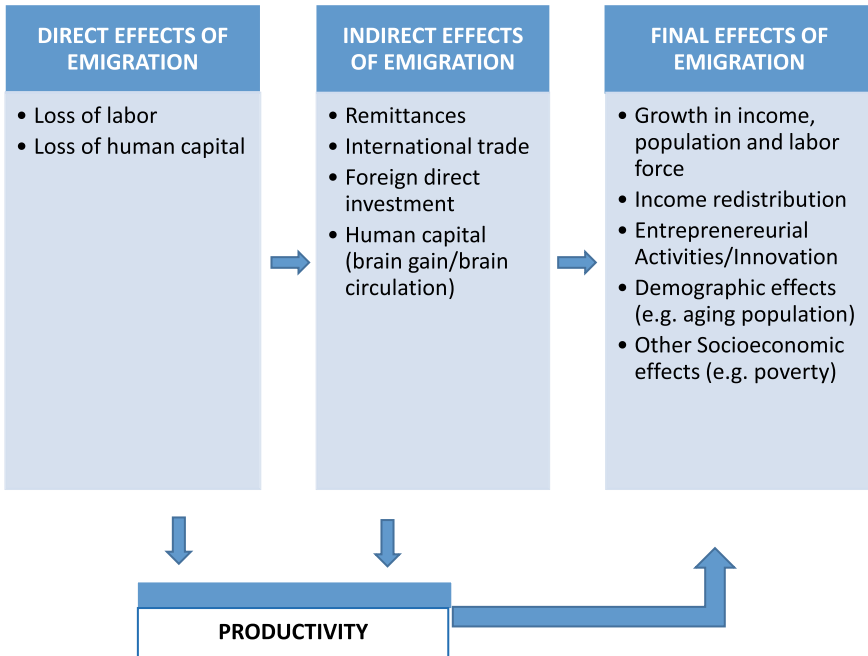


Fig. 19.8 Direct and indirect effects of emigration

effects of emigration requires an empirical investigation. However, emigration data, especially compared to immigration data, can be hard to find since government survey data tend to be structurally set up to sample existing residents and not emigrants that have left the country (Van Dalen and Henkens 2007). Also, with emigration data that is available, data limitations include the lack of individual-level factors which make it difficult to account for selection issues. On the other hand, many studies that focus on small micro-level samples that include some of these factors are not nationally representative (Van Dalen and Henkens 2007). This is especially problematic for examining the regional disparities in the impact of emigration within a country. For example, many countries, such as India, track internal migration across states but not international emigration by state. Few countries, such as Mexico, conduct surveys that capture emigrant characteristics including the region within their country of origin. Batalova et al. (2018) provide an overview of many publicly available international migration datasets.⁵

Furthermore, identifying the causal impact of emigration on sending countries also places stronger requirements on the data. Aside from the trends in emigration, middle- and low-income countries (typically, the sending countries) are on different economic paths than high-income countries (typically, the receiving country; see Fig. 19.3).

⁵Additionally, Guy Abel has developed a methodology to estimate international migration flows based on migrant population stock data and provides data on his website: <https://guyabel.com/>.

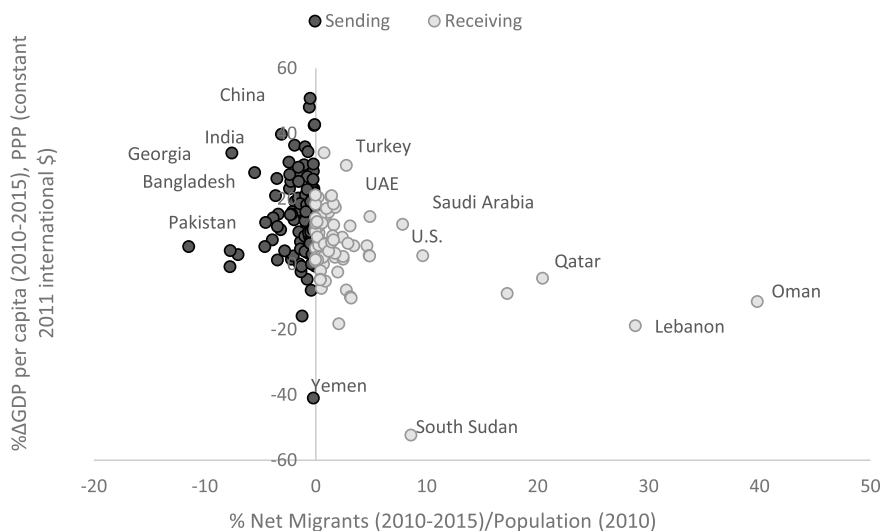


Fig. 19.9 Net migrant growth shows little relationship to GDP per capita growth. *Source* Data from Migration Policy Institute (2015), the United Nations, and (2015) World Bank

In aggregate, other factors and trends in low- and middle-income countries may dominate the effects of emigration, which may be comparatively small, especially when emigration rates are low. Figure 19.9 shows very little relationship between the share of net migrants and growth in national GDP per capita, especially for sending countries (with a 0.036 correlation between the net migrant share and growth in real GDP).

Disentangling the causes of emigration from the impacts of emigration can be especially challenging. Many studies rely on simulations or identification strategies such as natural experiments from sudden policy changes or other events or utilizing instrumental variables that affect emigration while not directly associated with economic outcomes in the source country. Some instrumental variables include wage changes in the host country, passport costs, historical migration, etc. For example, Čekanavičius and Kasnauskienė (2009) use Lithuania’s entrance into the European Union in 2004 and the subsequent increase in migration as a natural experiment to estimate the overall impact of emigration taking into account all of the benefits and costs associated with emigration. They find evidence that the long-term positive effects of out-migration may offset and even outweigh the negative effects associated with the loss of labor. Furthermore, Čekanavičius and Kasnauskienė suggest that both receiving and sending countries may benefit from the efficiency gains associated with the higher mobility of labor. Conversely, Mishra (2007) finds that although emigration has a positive impact on wages in Mexico, there is a small aggregate welfare loss associated with outmigration. Beine et al. (2008) use a counterfactual simulation finding that the net impact of skilled out-migration is negative, especially for small countries though they find the net impact may be positive for “globalizer”

countries such as India and China. Hanson (2005) uses historical migration patterns across regions within Mexico to show that higher migration rates are associated with higher wages for those regions. The impacts at the aggregate level may also fail to capture differences in the impact of emigration across regions within a country.

19.4 Emigration from Asia

Asia plays a huge role in world immigration patterns in terms of representing both the receiving and sending countries. Asia had the largest increase in the number of emigrants (40.7 million) between 2000 and 2017 (UN 2017a). With nearly 41% of international migrants in 2017 born in Asia, it is increasingly important to focus on Asia when examining the impacts of emigration on origin countries (UN 2017a). Moreover, in 2017, Asia was the region of origin for 41% (or 106 million emigrants) of the world's international migrants as well as being the region of origin of the largest number of persons living outside their region of birth. Specifically, in 2017, there were 42 million international migrants born in Asia but living elsewhere. Asia was also hosted to the largest number of international migrants at 80 million in 2017 (UN 2017b).

In 2017, the top three source countries in Asia for world emigration were India, China, and Bangladesh, while Saudi Arabia, the United Arab Emirates, and India were the top three destination countries in Asia. In fact, Saudi Arabia became the second largest destination country in the world in 2017 for migrants, after the United States; a rapid change for a country that was only the eighth largest destination country in the world in 1990 (IOM 2018). In 2017, the top four sending countries to Saudi Arabia were India (2,266,216 immigrants), Indonesia (1,548,032 immigrants), Pakistan (1,343,737 immigrants), and Bangladesh (1,157,072 immigrants) (United Nations 2017a, b). Many of these immigrants come to Saudi Arabia in search of economic opportunities as the economies of Persian Gulf countries have continued to grow between 2005 and 2015, despite the recent drop in oil prices and the financial crisis of 2008 and 2009. In the 1990s, migrants came primarily to do construction work as these countries went through a construction boom with many immigrants in Saudi Arabia and the United Arab Emirates arriving as manual laborers on 1–2-year renewable work visas (Pew Research Center 2016).

While popular belief may be that the top migration corridors globally are Mexico–U.S., China–U.S., or India–U.S., the top three migration corridors are, in fact, in Asia and are, ranked in order: India–UAE, Bangladesh–India, and Kazakhstan–Russian Federation. The China–U.S. and India–U.S. migration corridors rank 6th and 9th, respectively (IOM 2018). Asia is also a particularly interesting region to examine the impacts of emigration as these migration corridors and the types of migration, in general, run the gamut from temporary migration to permanent migration, both within and outside Asia. For example, much of the migration in the India–UAE corridor is more temporary migration from low-skilled workers (Naujoks 2009). However, much of the migration in the India–U.S. and China–U.S. corridors is relatively more

permanent migration of high-skilled workers such as students attending universities in the U.S. and remaining in the U.S. after graduation (Naujoks 2009). For decades, migration within Asia has been increasing, as has emigration from Asia to other regions in the world. More than half of Asian migrants remain in Asia though there has been considerable growth in the number of Asian migrants to North America and Europe (IOM 2018).

Why does Asia have such high emigration numbers? Hatton and Williamson (2005) observe that there is a hump-shaped relationship between economic development at home and emigration so poorer countries will have lower emigration rates than moderately poor countries. This could be due to structural and demographic changes that induce greater migration in the early stages of industrialization as well as the fact that very poor countries do not have the money needed to finance emigration. Thus, many of the Asian economies which have been “catching up” in their income levels over the past two decades have seen the poverty constraint on emigration reduced, which may be resulting in their high levels of emigration.⁶ Moreover, Asia sends the highest number of students abroad to study in countries such as the U.S., Canada, and the UK. For example, during the academic year 2015–2016, seven of the top ten places of origin of international students in the U.S. were Asian countries making up 65% of the total international students in the U.S. (Institute of International Education 2016). The six Gulf Cooperation Council countries in Asia (i.e. Saudi Arabia, Kuwait, the United Arab Emirates, Qatar, Bahrain, and Oman) also play a huge role in Asia’s immigration numbers. These countries attract large numbers of migrant labor since they offer higher wages and employment opportunities stemming from the huge economic development they have gone through due to their oil wealth. In fact, 88% of the population in the United Arab Emirates, 76% in Qatar, and 74% in Kuwait are migrants (IOM 2018). Another factor that plays a role in explaining Asia’s high migration rates is the demographic changes in countries such as South Korea and Japan where low fertility rates and an aging population have made their governments institute more welcoming policies, such as temporary foreign labor immigration. Thus, both push and pull factors have played a role in determining emigration in Asia.

The two largest countries to have contributed lifetime migrant flows to developing countries are India and China (White and Subedi 2008). Migrant flows from these two countries are also highly skilled with 74.6% and 44.6% of Indian and Chinese immigrants to the U.S., respectively, having tertiary education (White and Subedi 2008). We specifically focus on China in the following section since it provides us a unique opportunity to investigate the economic impact of emigration. Chinese census data and survey data provides information on Chinese emigrant’s province of origin.

⁶While the catching up in income narrows the income gap between the sending country and destination country, which can lower emigration, the positive impact on emigration rates due to poverty alleviation may dominate the negative effect associated with the narrowing of the income gap between home and abroad.

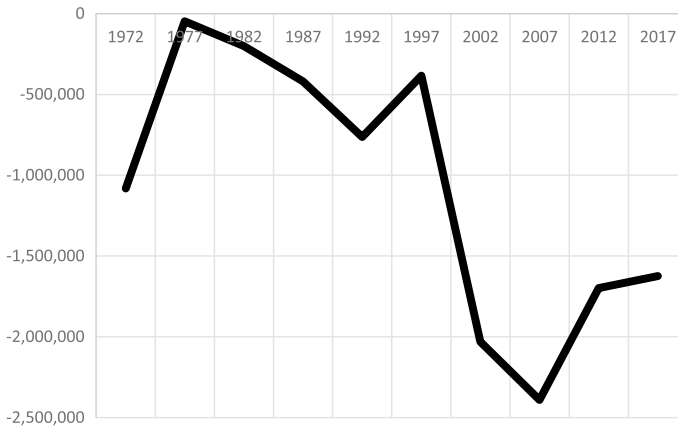


Fig. 19.10 Net migration in China shows the reaction to relaxing emigration restrictions. *Source* The World Bank (2017)

19.4.1 Emigration from China

For decades, China sought to restrict emigration with few exceptions. In the 1980s, these policies were relaxed as China first formalized a process for students to go abroad and then for individuals to reunite with family members living abroad. Policy changes in China as well as policy changes in the U.S. led to dramatic increases in international migration. In the U.S., the Immigration and Naturalization Act of 1965 removed national origins quotas allowing immigrant numbers from China (as well as Mexico) to increase dramatically. The number of emigrants leaving China more than tripled from 56,930 in 1982 to 234,800 in 1990 (Liang 2001, using Census data from China). Despite this dramatic increase, the share of emigrants in 1990 as a percentage of China's population was just 0.02%. Figure 19.10 shows the net migration figures for China. It depicts this tightening of migration in the 1970s and the loosening of restrictions in the 1980s, which led to its rank as 4th among the top ten sending countries in the world.

Changes in China's household registration system, *hukou*, which reduced restrictions on the mobility of its population, along with China's transition to a market-oriented economy have increased China's internal labor mobility as well as its international mobility.⁷ The number of rural–urban migrants doubled from the 1980s to the 1990s leading to significant increases in urbanization (Sicular and Zhao 2002). China's internal migration numbers at over 50 million in the 1990s overshadow international migration (Sicular and Zhao 2002). In a country as large as China, other

⁷The *hukou* system is a family registration program, established in 1958, where each individual is categorized by the state as either rural or urban and are required to stay and work within their designated geographic areas. Access to education, healthcare, public services, housing, and food is also determined by this designated geographical area. Since its initial launch, the *hukou* system has gone through several reforms but has yet to be abolished.

forces such as internal migration may easily mask the impact of emigration on China as a sending country. Thus, it is important to examine emigration across different regions in China.

Emigration rates for the most educated Chinese citizens are about five times higher than for the rest of the country (Xiang 2016). Attracted by the internationally ranked universities in the U.S., Chinese students are now the largest population of international students in the U.S. (Zong and Batalova 2017). Looking specifically at emigration from China to the U.S., we find that the number of international students coming to study at U.S. universities from China has dominated other countries since 2008–2009, and constitutes about 32% of the total number of international students in the U.S. as of 2015–16 (see Table 19.2).

The inflow of foreign students to the U.S. results in significant brain gain. The stock of foreign students can be an important predictor of subsequent migration as seen in Dreher and Poutvaara (2011) who finds that a 10% increase in the number of foreign students from 81 countries of origin increased immigration to the U.S. by a maximum of 0.94% over 1971–2011. However, the U.S. is not the only country to attract international students as evidenced by the number of foreign students enrolled in tertiary education programs worldwide which has increased from 2 million in 1999 to 5 million in 2016 and at an average annual increase of 5.1% among OECD countries and 6.4% among non-OECD countries (OECD 2018). What is unique about this group of emigrants is that only 15–30% of the foreign students actually decide to stay in their host country (OECD 2018). Developing countries will often have special programs to incentivize foreign students to return to their home sending country, thus creating a “brain drain reversal.” Examples include China’s “1000 Talents Program” introduced in 2008 and South Korea’s “Brain Return 500” Program and Brazil’s Science Without Borders “Young Talent Program”.

As mentioned earlier, China’s high emigration numbers masks emigration flows at the regional level. The dramatic change in the number of emigrants leaving China was matched by dramatic shifts in the regions where these emigrants were coming from, as depicted in Fig. 19.11. In 1982, most migrants originated from the Beijing province (22%) which is home to many universities and is representative of the response of citizens to policy changes in students going abroad (Liang 2001). Beijing is followed by Shanghai province at 10% of the migrants in 1982 (Liang 2001). International migrants from China are typically more educated and more likely to be from urban areas than that of non-migrant stayers. Thus, with the largest city in China being Shanghai, we would expect Shanghai province to send a relatively large number of migrants. By contrast, in 1995, most migrants originated from the province of Fujian (28%) in the southeastern coastal region of China followed by Shanghai at 15% and Beijing at 9%. Fujian’s share of the total number of migrants increased from less than 2% with 997 migrants in 1982 to over 66,000 migrants at 28% of the total emigrants from China in 1995 (Liang 2001). Before China placed strict restrictions limiting international migration from China, the provinces of Fujian, Guangdong, and Zhejiang supplied the largest number of emigrants (Lu et al. 2013). Thus, the rise in the number of emigrants from Fujian represents a return to the emigration trends that existed before these restrictions were put in place and subsequently removed.

Table 19.2 Brain gain in the U.S. university system

Academic year	Place of origin of international students						Percentage of total international students					
	Total (World)	China	India	Saudi Arabia	South Korea	Canada	China	India	Saudi Arabia	South Korea	Canada	
2006–2007	582,984	67,723	83,833	7,886	62,392	28,280	11.6	14.4	1.4	10.7	4.9	
2007–2008	623,805	81,127	94,563	9,873	69,124	29,051	13	15.2	1.6	11.1	4.7	
2008–2009	671,616	98,235	103,260	12,661	75,065	29,697	14.6	15.4	1.9	11.2	4.4	
2009–2010	690,923	127,822	104,897	15,810	72,153	28,145	18.5	15.2	2.3	10.4	4.1	
2010–2011	723,277	157,558	103,895	22,704	73,351	27,546	21.8	14.4	3.1	10.1	3.8	
2011–2012	764,495	194,029	100,270	34,139	72,295	26,821	25.4	13.1	4.5	9.5	3.5	
2012–2013	819,644	235,597	96,754	44,566	70,627	27,357	28.7	11.8	5.4	8.6	3.3	
2013–2014	886,052	274,439	102,673	53,919	68,047	28,304	31	11.6	6.1	7.7	3.2	
2014–2015	974,926	304,040	132,888	59,945	63,710	27,240	31.2	13.6	6.1	6.5	2.8	
2015–2016	1,043,839	328,547	165,918	61,287	61,007	26,973	31.5	15.9	5.9	5.8	2.6	

Source: Institute of International Education (2016)

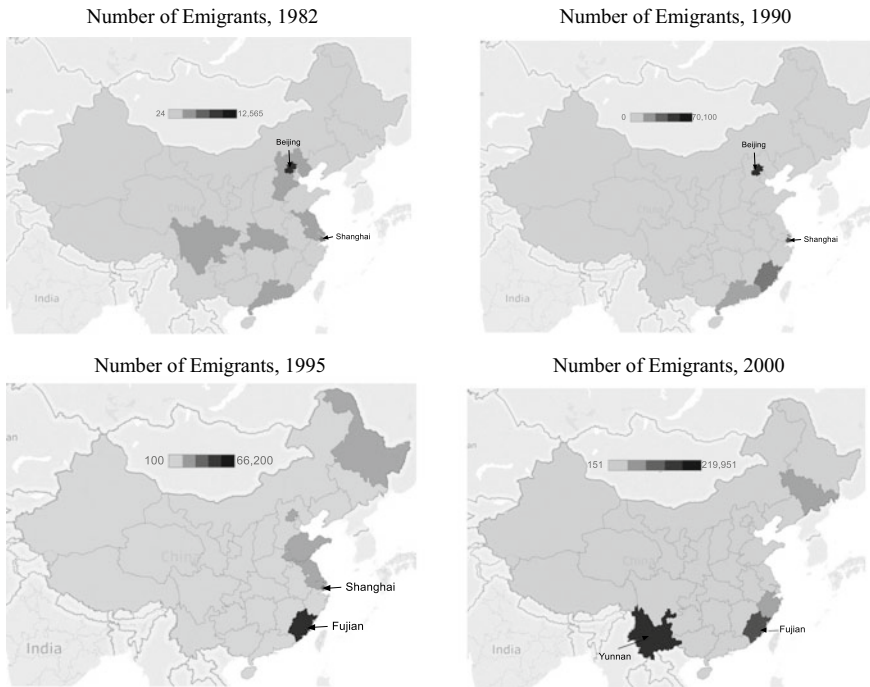


Fig. 19.11 Changing emigration patterns across Chinese Provinces. *Source* Maps created using China census of population data from Liang (2001) and Liang and Morooka (2004)

Guangdong's status as a sender of emigrants has not made this same comeback. In 2000, the province of Yunnan became the largest sender of emigrants at 29% followed by Fujian at 18% of emigrants (Liang and Morooka 2004). The increase in the number of emigrants from Yunnan is likely due to its proximity to Myanmar and Bangladesh (Liang and Morooka 2004). Figures 19.11, 19.12, 19.13 and 19.14 show how emigration in the provinces has evolved since the 1980s.

In China, emigration is characterized by positive selection when comparing the attributes of the emigrant population to non-emigrants. The emigrant population from China is more educated than the non-emigrant population. In 1995, more than 37% of the emigrant population from China had some college education compared to less than 3% of the non-emigrant populace (Liang 2001). Chinese immigrants in the U.S. tend to be more educated than both the native-born population and the overall immigrant population in the U.S. (Zong and Batalova 2017). Migrants are also more likely to emigrate from urban areas than rural areas. In Beijing, which historically surpassed other provinces in terms of the number of emigrants, those emigrants tend to be even more educated than the typical Chinese emigrants are (nearly 77% of Beijing emigrants have some college education). In stark contrast, only 5% of emigrants from Fujian have some college education with most emigrating from rural areas at about 65% (Liang 2001). The emigration of unskilled labor from China has

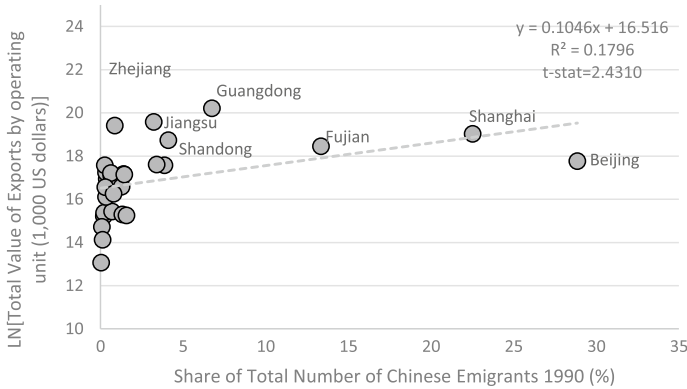


Fig. 19.12 Historical emigration trends associated with higher total export values. *Source* Data from Liang and Morooka (2004) and the National Bureau of Statistics of China

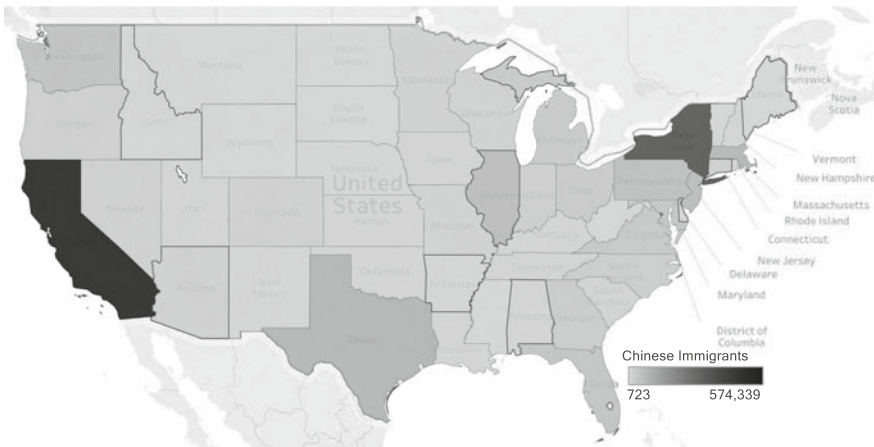


Fig. 19.13 Number of Chinese immigrants in the United States. *Source* IPUMS ACS 2016 5-year estimate

steadily increased from 1989 to 2013 (Xiang 2016). As migration from China has continued, the forces encouraging positive selection have weakened giving rise to the importance of other factors. Approximately 70% of unskilled emigrants from China migrate to East and Southeast Asia such as the more recent migration from the Yunnan province in China (Xiang 2016). This trend, lowering the importance of socioeconomic status in determining emigration over time and across space, mirrors the migration trends observed in the Mexico–U.S. corridor, though less attention has been paid to the China–U.S. corridor (Massey et al. 1994; McKenzie and Rapoport 2010). Still, Liang and Morooka (2004) find that education increases the likelihood of international emigration from the Fujian province suggesting that there is still

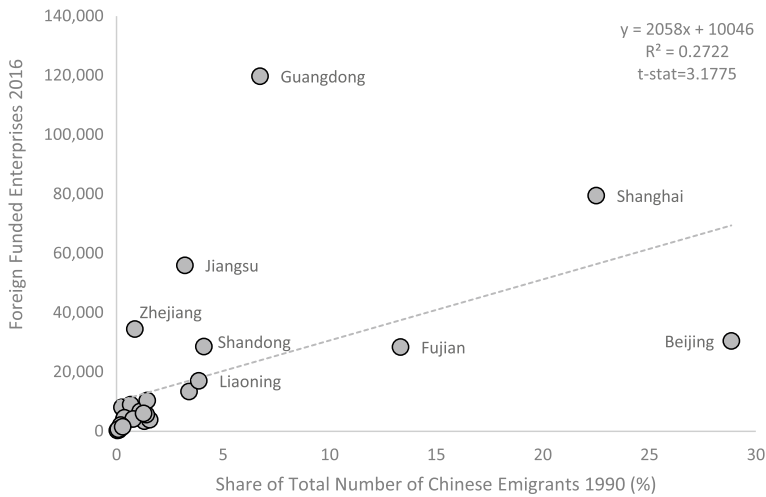


Fig. 19.14 Historical emigration trends associated with more foreign-funded enterprises. *Source* Data from Liang and Morooka (2004) and the National Bureau of Statistics of China

predominantly a positive selection of emigrants leaving China and, specifically, the province of Fujian.

19.4.2 The Economic Impact of Emigration from China

As the number of students and wealthy citizens leaving China for the U.S. increased, China’s concern over brain drain and the outflow of labor and human capital grew. In the 1980s, instead of discouraging students from leaving, China created a number of policies and programs to strengthen the ties between China and the Chinese diaspora in the U.S. and encourage emigrants to either return (reverse brain drain) or invest in China (brain circulation). Subsequently, although the number of students leaving China has continued to increase, the number of return migrants has also increased (Xiang 2016). Even when migrants do not return, there are still advantages associated with stronger ties to these migrants. The impact of these migration ties varies by the province in China.

As migration from China to the U.S. continues, the number of social ties between the two countries increases. More established migration networks reduce the cost of migration for many Chinese citizens and open up migration opportunities to lower skilled and less wealthy Chinese citizens. In particular, emigrants of Fujian tend to migrate to New York, specifically the New York metropolitan area, where many have relatives or other social ties (Liang and Morooka 2004; Zong and Batalova 2017). Approximately 27% of Chinese immigrants in New York have a college degree, which is well below the educational attainment level of Chinese immigrants

across the U.S.⁸ The state of New York has the second largest population of Chinese immigrants in the U.S. at over 380,000 immigrants, but the New York metropolitan statistical area, which includes parts of nearby Newark, New Jersey, and other areas, has the largest population of Chinese immigrants at over 400,000.⁹ Within New York, the Manhattan Chinatown has the largest population of Chinese outside of Asia and is known for its supply of goods from China. Figure 19.12 shows that historical emigration is associated with a higher total value of exports from Chinese provinces. We use 1990 emigrant data in line with previous research that uses historical emigration data to identify its impact (Hanson 2005) and to account for the lag between emigration and the time needed to establish ethnic networks in order to trade and invest. The correlation coefficient between historical emigration and the subsequent total value of exports is 0.42. As China opened up to a market economy and opened up to international trade, this globalization increased both internal migration with the Fujian province and international migration from Fujian (Liang and Chunyu 2013). As a coastal province, Fujian has experienced some of the fastest growth since the 1980s. This has increased the demand for rural labor increasing urbanization in the province and the number of migrants that leave the country (Liang and Morooka 2004). The economic growth in these coastal provinces and in China's largest cities has also increased the incentives for migrants to return to China or return their wealth to China as they invest in their country of origin.

The largest population of Chinese immigrants in any state is in California at nearly 575,000 with nearly equal populations in Los Angeles and San Francisco at about 205,000 in each city calculated based on the IPUMS 2016 ACS 5-year average (see Fig. 19.13). In California, compared to New York, the percentage of Chinese migrants with a college degree is much higher at approximately 46%.¹⁰ With higher levels of education, these migrants are more likely to originate from provinces such as Beijing and Shanghai. Within California, the percentage of Chinese migrants with a college degree varies from approximately 77% in San Jose (Silicon Valley) to 44% in Los Angeles, and 36% in San Francisco (compared to just 31% in the greater New York MSA).

The destination of Chinese migrants suggests that migrants are positively sorting into the U.S. It also suggests that the social ties China has created in places like San Francisco, particularly Silicon Valley, maybe especially beneficial for economic growth back in China (Saxenian 2005). Migrants returning from areas like Silicon Valley bring back with them enhanced skills through education and experience as well as their established business connections (Saxenian 2005). Whether migrants return to China or remain in Silicon Valley, their connection to urban coastal areas like Beijing, Shanghai, and Shenzhen has spurred economic growth by either utilizing lower cost labor or creating cross-regional startups (Saxenian 2005). Figure 19.14 shows the relationship between emigrants and foreign-funded enterprises in China by province (with a correlation coefficient of 0.52). Guangdong and Zhejiang each

⁸Calculated using IPUMS ACS 2016 5 year average for migrants between the age of 28 and 65.

⁹Calculated using IPUMS ACS 2016 5 year average for migrants of any age.

¹⁰Ibid.

seem to be benefiting from its early history in sending emigrants to the U.S. combined with its comparatively lower cost of labor (average wages in urban Guangdong and in Zhejiang in 2016 were just over 70,000 yuan compared to nearly 120,000 in Beijing and Shanghai according to the National Bureau of Statistics of China). Companies such as Silicon Valley-based Cisco and San Diego-based Qualcomm are just some of the most recent tech companies to create formal U.S.–China tech partnerships (Reuters 2015; Miller 2018).

Early linkages between Chinese markets and the U.S. have created high-tech clusters in coastal provinces such as Shanghai, Beijing, Guangdong, and Fujian (see Fig. 19.14). Foreign firms experience agglomeration economies from locating near each other in these existing tech clusters where knowledge of working in the host country is more likely to spillover from one foreign firm to another. American foreign direct investment, in particular, tends to be clustered near industrial centers such as Shanghai and Beijing where previous investments were made (He 2003). Local firms may also benefit from interactions with foreign firms or multinational corporations. Although large innovative multinational corporations in a tech cluster may crowd out activity from local firms, these large foreign firms are also more likely to rely on local firms to conduct their business. Through this connection with multinational corporations, local firms may increase innovative activity as they learn from foreign firms (Zhou and Xin 2003). These agglomeration spillovers encourage economic growth and prosperity in the provinces in China with more direct links to international markets especially the U.S.¹¹

As the coastal regions of China have prospered experiencing impressive economic growth, the gap between the coastal provinces and the inland provinces has widened. Internal and international migration as well as the foreign direct investment has only reinforced the growing gap between these regions (Fu 2004; Xiang 2016). These disparities have further encouraged young and educated people from inland regions to migrate to the coastal areas further decreasing education levels in inland provinces (Fu 2004). With lower education levels in inland provinces and higher education levels in coastal provinces, economic theory (see Fig. 19.5) suggests that wages are likely to decrease in inland provinces and increase in coastal provinces. Accordingly, Fu estimates the impact of higher emigration rates on various regional outcomes, specifically finding that higher emigration rates have increased the gap between inland and coastal provinces. Fu suggests that there is two-way causality whereby a widening income gap also increases emigration. The difficulty in estimating the impact of emigration on the sending region (or country) lies with differentiating the factors that are increasing emigration from those that result from higher emigration rates. Using a panel data estimation, Fu (2004) finds that a 1% increase in the share of emigrants in an inland province increases the per capita income gap

¹¹Tingvall and Ljungwall (2012) conduct a meta-analysis of 67 studies on the linkages between FDI and economic growth in order to understand whether China differs from other countries in FDI's impact on productivity. They find that the impact of FDI on growth has been significantly higher for China than for other countries. Furthermore, in studies that use aggregate data, China is even stronger suggesting that policies that promote linkages between foreign and domestic firms have been successful.

between the inland province and the coastal provinces by 0.07%. Additionally, Fu finds that although foreign direct investment has increased the gap between inland and coastal provinces, urbanization within inland provinces has offset some of this impact reducing regional income inequalities. Fu suggests that the costs of emigration seem to outweigh the benefits coming from remittances and other factors. The provinces that have benefited most from globalization, the coastal provinces, seem to benefit more from emigration. This is in line with Docquier and Rapoport's (2012) cross-country study showing that skilled migration has a net negative impact for some countries but a net positive impact for many countries, especially those countries with low-skilled migration rates (below 20%) and countries that have experienced more globalization, countries such as India and China. Examining the impact of emigration across provinces within China seems to reinforce many of the conclusions from previous research.

19.5 Conclusion

In the past two decades, the world has seen remarkable strides in opening up to trade in goods and services as well as to capital flows. The last bastion in the quest towards globalization is the flow of people across countries which still remains relatively closed and dependent on individual countries' immigration policies. In 2017, only 258 million out of a global population of 8.7 billion lived outside their native country; in other words, only 3.4% of the world's population are emigrants (IOM 2018). Various economic studies show that the efficiency gains from eliminating international barriers in goods flow results in gains of 0.3–4.1% of world GDP and efficiency gains from eliminating international barriers in capital flows lead to gains of 0.1–0.7% of world GDP (Clemens 2011). However, the estimated gain accrued by eliminating all barriers to labor mobility is a jaw-dropping 67–147.5% of world GDP (Clemens 2011). Despite these potential global gains, economists tend to focus more on immigration and not emigration with most studies focusing on the economic impact of the arrival of labor in the destination country and not the departure of labor from the sending country. Understanding the well-being of the sending countries is critically important in any study of well-being across the world, especially when addressing topics such as poverty across countries. The impact of emigration is not equal across space. Though the global impact of international migration may be positive, the efficiency gains from labor mobility are not shared equally across countries or within sending countries. The China case study on emigration, suggests emigration exacerbated inequality between wealthier coastal provinces and inland areas. Policymakers may need to focus on policies that specifically address and alleviate the negative impacts of emigration for those regions and countries that may be net losers from emigration.

While the short-term effect of emigration on the sending country is the loss of labor, the long-term effects accrue via emigrant networks that can promote trade, foreign direct investment, and entrepreneurial activities, remittances, and possibly,

brain gain, if emigrants choose to return to their native country. Thus, even if the immediate impacts are negligible or negative, policymakers should not restrict the mobility of their citizens but instead focus on maintaining and even strengthening their connections with emigrants. Policymakers should strive to foster and build up the positive aspects of migration while addressing the root cause of economic factors that push the migrants to move to another country by improving education and economic opportunities at home.

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Chapter 20

Economic Effects of Remittances on Migrants' Country of Origin



Barış Alpaslan, Aysegül Kayaoglu, Jürgen Meckl, Joaquín Naval, Michaela Vanore, and Thomas H.W. Ziesemer

20.1 Introduction

International remittances of migrants to their home countries have been an object of increasing research within economics and other social sciences in recent years. Given the volume of remittances and their evolution over the last two decades or so, this comes with no surprise. According to the World Bank's "Migration and Remittances Data 2018" (World Bank 2018), earnings that migrant workers from developing countries sent back home were estimated to be some US\$ 420 billion for 2017, and it is believed that this figure is underestimated considering the significant flow of informal remittances. This amounts to an increase of the aggregate volume of recorded remittances of more than 500% over the last two decades. In countries

B. Alpaslan

Department of Economics, Faculty of Political Science, Social Sciences University of Ankara, Ankara, Turkey

e-mail: baris.alpaslan@asbu.edu.tr

Sheffield Institute for International Development, University of Sheffield, Sheffield, UK

Crawford School of Public Policy, Australian National University, Centre for Applied Macroeconomic Analysis, Canberra, Australia

B. Alpaslan · A. Kayaoglu

Economic Research Forum, Giza, Egypt

e-mail: kayaogluyilmaz@itu.edu.tr

A. Kayaoglu

Department of Economics, Istanbul Technical University, Istanbul, Turkey

J. Meckl

Faculty of Economics and Business Studies, Justus-Liebig University Giessen, Gießen, Germany

e-mail: juergen.meckl@wirtschaft.uni-giessen.de

J. Naval

Department of Economics, University of Girona, Girona, Spain

e-mail: joaquin.naval@udg.edu

like Comoros, El Salvador, Gambia, Haiti, Liberia and Nepal, remittances sum up to more than 20% of Gross domestic product (GDP), and even in somewhat more advanced countries like Egypt, Morocco and Tunisia, they still make up 5–10% of GDP. These figures are indeed substantially larger for many countries than the size of official aid flows. As a result, international remittances account for a considerable source of external funding at the macro-level. At the micro-level, these transfers enable households not only to allocate more resources to the consumption of both durable and non-durable goods such as housing, education, health and entrepreneurial activities but also to affect their intentions to migrate and other types of behavioural norms. Its profound economic consequences at both micro- and macro-levels are an important cause for concern.

This chapter primarily concentrates on the empirical results of the economic effects of remittances on the migrants' country of origin. As emphasized by Rapoport and Docquier (2006), migrants may be motivated by different reasons to transfer income to their home country: (i) taking care of family members left behind in some form (including insurance of families against highly volatile income due to idiosyncratic risks that cannot be insured in cases of underdeveloped insurance markets); (ii) repayments for informal family loans (esp. in cases of limited access to credit markets) for funding costs of migration or providing such informal loans to potential future migrants and (iii) strategic considerations in cases of imperfect information about individual productivities (e.g. compensate or bribe low-productive potential migrants to stay at home in order to improve income prospects of high-productive migrants in cases of statistical discrimination). We take the motivation of migrants as given and concentrate on the micro- and macroeconomic effects of these transfers.

As there is a range of motivational concerns, the effects of remittances are expected to be manifold and to differ from those of official aid substantially. With extensive liquidity constraints and missing access to insurance markets for a large part of the population in developing countries, economic outcomes are expected to be highly sensitive with respect to the distribution of financial means. The latter substantially differ when migrants transfer money directly to their home country compared to the distribution of foreign aid by the home countries' governments. However, even between different recipient countries, market imperfections and income distributions differ substantially, so that we should expect a broad range of highly country-specific impacts.

The intuition behind much of the empirical work is as follows. Remittances are international transfers. Receiving transfers enhances disposable income, and thus

M. Vanore

Graduate School of Governance/United Nations, University-MERIT, Maastricht University,
Maastricht, The Netherlands
e-mail: michaella.vanore@maastrichtuniversity.nl

T. H.W. Ziesemer (✉)

Department of Economics, Maastricht University, UNU-MERIT, P.O. Box 616, 6200 MD
Maastricht, The Netherlands
e-mail: t.ziesemer@maastrichtuniversity.nl

allows for more consumption and savings. Higher savings will either spur investment of several types or reduce foreign debt (or both) and thus affect migration and international trade in line with the theory of non-traded goods. As a result, economic effects of remittances are primarily income effects in an economic environment of market imperfections.

In a dynamic model with liquidity constraints and credit market imperfections, Naval (2017) integrates the theory of family decisions and effects of remittances on the just mentioned variables with effects regarding inequality, migration and remittances into a model with productivity differences across countries. Initial inter-household inequality stems from inherited wealth while intra-household heterogeneity arises due to migrant and non-migrant family members. Remittances help to alleviate intra-household differences between migrants and those left behind and modify the evolution of inter-household inequality.

We consider empirical results with intra-household effects in Sect. 20.2 and imagine that they could be integrated in theory in future work. In Sect. 20.3 we look at the related issues of norms, consumption, investment and inequality at the household level. In Sect. 20.4 we look at country-level results showing that the results are very similar to those at the household level.

20.2 Intra-Household and Other Social Effects

The potential effects of remittances on development in migrants' countries of origin and the channels that support those effects can differ depending on the analytical unit, with micro-level impacts (individual level) sometimes deviating from those observed on meso- (household, community) and macro-(country) level. This section discusses remittances and their potential impacts on intra-household allocations and decision-making with a particular emphasis on the interactions among gender, generation and remittances in shaping those processes—exploring how micro- and meso-level processes and structures interact. This section first explores the theoretical links between remittances and intra-household allocations before exploring the literature on the relationship between financial remittances, household time-allocation decisions and intra-household expenditure behaviours.

The potential intra-household impacts of remittances are likely to reflect the initial migrant selection. Neoclassical economics' theories of migration generally frame the initial migration decision as an individual one informed by a cost-benefit analysis of the risks associated with mobility compared to the potential economic benefits of movement to a new economy. Todaro (1969) proposed that labour migration from rural-to-urban areas would be motivated by the rural–urban wage differential combined with the probability of finding employment in an urban area. Harris and Todaro (1970) extended this model by positing that labour migration should arise from expected wages between urban and rural sectors, with migration ceasing once equilibrium between these sectors is reached, that is, when expected urban–rural wage differentials decline to zero given increased urban unemployment and full

availability of workers. Probability of employment and expected wage differentials may be shaped not only by structural market factors but also by individual migrant characteristics. To that end, Sjaastad's seminal work (Sjaastad 1962) modelled migration as an individual investment decision in which an individual will move when their potential lifetime returns of a migration investment (taking into account their age, knowledge, skill set and gender) from employment in a new economy would cross a critical cost threshold. While these early contributions framed migration as an internal, rural-to-urban phenomenon, the rationale can be extended to explain cross-border moves. Underlying these different theoretical contributions is the assumption that wages and economic differentials motivate individuals to move, and migrants are rational actors whose mobility decisions reflect anticipated economic gains arising from the mobility experience.

Subsequent theories, the New Economics of Labour Migration (Stark and Bloom 1985) among them, view individual mobility decisions as reflective of household-level strategies. Based on evidence that rural-to-urban migration often does not result in higher wage income, Stark and Levhari (1982) proposed that individual migration decisions may be promoted by a household's strategy to diversify sources of risk rather than purely based on higher anticipated wages. If a household in a rural area relies on agriculture as a primary source of income, for example, encouraging a household member to migrate to an urban area where this individual is likely to work in a different sector may be a conscientious strategy of a household to avoid the risks endemic to agriculture (e.g. crop disease, environmental shocks). Diversifying sources of income and potentially increasing the total volume may also allow households to access credit, with migration acting as an informal social protection strategy that households employ to overcome weak or absent credit and insurance markets in the community of origin.¹

The neoclassical and middle-range theories of migration share an assumption that migration is motivated by economic gains; from the household perspective, these gains would be realised chiefly through remittances.² The theory would suggest that migration should generate economic benefits on the individual level that carry over into either higher household income or into different sources of household income, which in turn may be expected to shift intra-household dynamics—including those related to time allocation and resource division.

¹Several studies have identified that households and families may essentially act as informal insurance providers that help smooth the consumption of individual household members against the effect of negative income shocks; see, e.g. Stark (1991), and Agarwal and Horowitz (2002).

²A separate strand of theory has emerged that explores motivations for remittances. For example, contributions from Johnson and Whitelaw (1974) and Lucas and Stark (1985) identify altruism—a migrant's desire to ensure his/her family members well-being—as a main motivation for remittance-sending; others (e.g. Ilahi and Jafarey, 1999; Poirine, 1997) model remittances as repayment for an informal, family-based 'loan' that financed the initial migration.

20.2.1 Intra-Household Decision-Making in Remittance-Receiving Contexts

Depending on who migrates from a household, one may expect the division of roles and responsibilities to shift, with clear implications for decision-making, time allocation, and future expenditure and consumption behaviours. Many of such changes cannot be attributed to financial remittances, however, but to other changes and processes initiated by migration (e.g. the physical absence of a household member, changes in values and attitudes given transfer of social remittances). A body of studies collected in contexts of both internal and international migration have identified channels through which financial remittances can shift intra-household allocation.

Within this literature, a growing body has explored the intersection among gendered decision-making, intra-household time allocation and financial remittances. Studies conducted using large-scale, cross-sectional survey data in countries such as India have suggested that the migration of a husband can correspond to increased decision-making autonomy among wives who remain in the home country, conditional on whether or not the remaining wife lives independently or lives in a household with members of the extended family. Women who live independently may have greater autonomy in making daily decisions, in participating in the labour market, and in making longer term decisions for the family such as those related to schooling of children. In contrast, those living with members of the extended family are not found to have increased decision-making power (Desai and Benerji 2008). Gendered effects of migration on time allocation have been observed in China, with authors such as Chang et al. (2011) finding that migration increases the time elderly persons and children spent on farm work and domestic work, with much larger and significant increases in working time observed among women and girls compared to men and boys. With the use of five waves of panel data collected in China between 1991 and 2000, Chen (2006) similarly identified that migration and supplemental income from remittances might correspond to changes in time allocation, the effects of which vary across household members. Mothers were found to reduce time spent on both household chores and income-generating activities with the migration of a husband. Nevertheless, the amount of time female children spent on household chores, namely laundry and food preparation, increased significantly while the time boys spent in laundry decreased over time.

20.2.2 Remittances and Intra-Household Labour Allocation

The Chen (2006) study is part of a more significant strand of literature that explores the potential impacts of remittance receipt on the labour market behaviours of recipients, which is tied to intra-household decisions and behaviours on time allocation. In their model of remittance motivations, Chami et al. (2005) identify that remittances behave countercyclically and in a compensatory way, where the altruism of

the remitter will ensure that a recipient is protected against adverse shocks like wage loss. The model implies that the problem of moral hazard may arise; if remittances are treated as non-market substitutes for wages, recipients may reduce their labour if the altruism of the remitter ensures consistent transfers. Further models and empirical tests of the relationship between regular transfers and labour market time allocation among recipients (see, e.g., Azam and Gubert 2005; Kapur 2005; Naiditch and Vranceanu 2009) suggest that recipients will be incentivized to reduce their labour supply and increase consumption of leisure. Other studies, such as that of Görlich et al. (2007) among remittance recipients in Moldova, find that receiving remittances indeed increases significantly the probability that a recipient will withdraw from the labour market, but not because of increased consumption of leisure. Instead, Görlich et al. (2007) find that recipients have a higher probability of being involved in home production and entering higher education, suggesting that migration and subsequent remittance transfers increase the likelihood of intra-household specialisation, where different members choose optimal time allocation in household tasks like childcare or subsistence farming, work abroad or education.

Studies on time allocation and labour market participation of remittance recipients suggest that remittances shape household members' behaviours in different ways; other studies have explored this further by investigating how the migration of an adult and subsequent remittance transfers shape the time allocation of children specifically. Using a differences-in-differences strategy to compare remittance-receiving households and non-recipient households during the 2008–2009 US financial crisis, Alcaraz et al. (2012) find that reduced remittances resulting from economic shocks of Mexican migrants in the United States (US) caused a significant decrease in child school attendance and an increase in child labour. There is growing evidence that remittances do not have a universal impact on child labour, however, but instead affect children differently according to gender and age. Based on data from El Salvador, Acosta (2011) found that while remittance receipt had an overall modest impact on schooling, it corresponded to a significant reduction in wage labour among children. The results suggest gendered distribution of resources within the household, however: increased school attendance and reduced labour activity were observed among girls, yet among boys, observed reductions in participation in wage labour were offset by increased labour in family activities. Similarly, in a study on the short-run effects of paternal migration on children's time allocation in Mexico, Antman (2011a) found that in the immediate aftermath of a father's migration to the US, children experienced a significant increase in out-of-household work participation. This effect is driven primarily by increased labour participation of adolescent boys (aged 12–15) that would be expected to be moderated with increased remittance transfers over time. Duration of migration and child age were found to be important explanatory factors in understanding the impacts of remittances on child labour in Burkina Faso as well. Using an instrumental variable approach with cross-sectional household data, Bargain and Boutin (2015) found that among rural households with a migrant in long-term migration, remittance receipt corresponded to a significantly lower proportion of children in the household engaged in labour. The effect was driven primarily by children in younger age cohorts (aged 5–10) rather than those

in older cohorts (aged 11–14), and remittances were observed to have no significant impact on child labour in households with a recent migrant. These studies taken together highlight that the time allocations of different household members may be shaped differently by remittances, which are also likely to vary over time and generate different intra-household impacts given how they change household resources.

20.3 Household-Level Effects on Consumption and Norms, on Investment in Physical and Human Capital, and on Income Inequality

20.3.1 Effects on Consumption and Norms

Those left behind, especially with an origin in rural areas appear to be the central concern of emigrants (Taylor et al. 2003) that tremendously affect the flow of remittances. It is shown that remittances contribute to rural well-being and agricultural production through their effect on household consumption behaviour (Lucas and Stark 1985; Lucas 1987, 2006). Moreover, the literature on “new economics of labour migration” discusses that migration is a household decision instead of an individual one, and remittances in this framework are believed to loosen constraints on production particularly in the rural areas of less developed countries where market imperfections prevail (Stark and Bloom 1985).

The ways households use remittances have been given notable attention in the literature, with different kinds of literature highlighting that production activity, initial consumption of the household and perceived justification of expenditures may shape usage behaviours. Differences in consumption patterns with remittance receipt suggest that money may not be completely fungible; the source of income may, in fact, influence how it is spent. Remittances may not be used as other sources of income, and several studies (e.g., Adams 1991; Adams 2002; Adams and Cuecuecha 2010; Kayaoglu 2017) note different usage may translate to differential impacts on the household and wider communities. It has been found that income from remittances has different effects on the household consumption decisions than earnings obtained from an increase in farm income or wage. For instance, the former is usually used less on food or other non-durable goods but instead more on durable goods, health, education, housing, setting up businesses and so on (De Brauw and Rozelle 2008; Duflo and Udry 2004) which also works as consumption smoothers at times of negative external shocks (Acosta et al. 2008a). It is also discussed that the way the remittances are spent depends very much on the initial consumption level of the household. It is argued that remittances are used more on non-durable goods when households have a low initial level of consumption (Stuart and Kearney 1981), but once households reach a certain level of consumption, then remittances start to be used more for investments in durable goods, education and housing (Rhoades 1978; Russell 1986; Acosta et al. 2008a). Moreover, another strand of the literature

suggests that receiving remittances is not enough to increase the rural production capacity of receiving households, and it has been suggested that several other factors should also be considered if one expects remittances to increase not only consumption in non-durable goods but also production. These factors can be summarized as initial (productive) resource endowment level of households, amount and frequency of receiving remittances, the market structure in the receiving region, regional geography and management skills of receiving households (Upton 1973; Arizpe 1981; Rempel and Lobdell 1978; Gladwin 1979; Saint and Goldsmith 1980).

A growing body of literature has explored remittance use and intra-household resource distribution within a 'mental accounting' framework (see, e.g., Thaler 1985) in which individuals are expected to create different 'mental accounts' for different sources of income, which changes the types of expenditures these accounts support. Davies et al. (2009) identify remittances as unlike other sources of income because of dynamics between the remitter and the recipient. Remitters may place specific conditions on a transfer, indicating what a transfer should be spent on, or recipients may have "emotional tags" associated with the remittance tied to perceptions of the remitter, the migration experience or the motivation for migration. The conditions placed on a transfer by the remitter combined with the emotional tags of recipients may encourage recipients to use the transfers in specific ways and on specific household members, which shifts intra-household resource allocation. Empirical evidence on unique expenditure behaviours associated with remittances compared to other income sources is mixed, however. For example, in their study of dietary diversity among East African pastoralists, Villa et al. (2010) find that remittances do not have a significant impact on dietary diversity, whereas other income sources do. In contrast, Waidler et al. (2017) in their assessment of expenditure behaviours in Moldovan households find that remittances and social assistance transfers are associated with different expenditure behaviours, with remittances positively associated with increased expenditures on utility bills and negatively associated with food expenditures. In contrast, social assistance is positively associated with expenditures on both clothing and utility bills.

The studies about the effect of international remittances on household consumption are numerous, covering different countries and regions. Although they have a consensus about the effect of remittances on household welfare through increases in their consumption levels, the arguments within the current literature about their effect on agricultural production are somewhat mixed and suggest that it depends on various factors listed above. Judging from the case of South Asia, Ullah (2017) argues that international remittances are mainly used for education expenditures, house renovation, food consumption, buying land and repayment of loans. The findings are similar for the Latin American (LA) countries, although it has been shown that receivers also utilize remittances to improve agricultural production and farm assets and for health expenses (see Durand and Massey 1992; Jokisch 2002; Adams 2006b; Acosta et al. 2008a; Ponce et al. 2012; Taylor 1992; Taylor and Mora 2006). Regarding the effect of remittances on rural Chinese households, Taylor et al. (2003) found that remittances partially offset the lost-labour effect of migration and are proved to be a stimulus for crop production. In addition to these effects, Pakistani

rural households have also been found to use remittances to diversify their crop production (Adams 1996; De Brauw and Rozelle 2008). In the case of Fiji, Xing (2018) recently demonstrated that rural households use remittances not only for food consumption but mainly for the agricultural production and diversification.

In addition to the focus on consuming remittances to have higher agricultural production, several studies have additionally paid attention to the role of remittances on education investments particularly in regards to households with low parental schooling (see Edwards and Ureta 2003; Acosta et al. 2007, 2008a, b; Calero and Sparrow 2009; Yang and Martinez 2006; Kifle 2007; Adams and Page 2005). Rapoport and Docquier (2006) and Hu (2012), in different contexts, also found that educational attainment of children in families with migrant members is higher. Castaldo and Reilly (2007) and Miluka et al. (2010) found that rural recipients in Albania invest less in education and productivity-enhancing crop technologies but more in livestock production. Moreover, several studies suggest that remittances improve health outcomes of a household member in the source countries (see, e.g., Frank and Hammer 2002; Hildebrandt and McKenzie 2005). On the contrary to these examples with positive effects of remittances on productive investments, some other studies, however, adopt a rather pessimistic view and suggest that remittances in practice are mainly used for immediate consumption and only partially to further production (see Lipton 1980; Reichert 1981; Grindle 1988; Ahlburg 1991; Russell 1992; Brown and Ahlburg 1999; Chami, Fullenkamp and Jahjah 2005). Connell (1981) and Macpherson (1985) argue that barriers for profitable investment opportunities in the Pacific region are, for example, the main reasons behind the utilization of remittances in non-durable consumption.

Moreover, remittances have also been found to affect behavioural norms and attitudes of recipients as it is a way of keeping contact with household members in the source regions/countries. Analyzing the household-level data, Van Dalen et al. (2005) show that remittances increase emigration intentions of recipients in Egypt, Morocco and Turkey. Leevs (2009) also suggests positive effects of remittances on migration intentions of receivers in Tonga and Fiji. Recently, Piracha and Saraogi (2017) and Dimova and Wolff (2015) analyzed the household-level data from Moldova and Bosnia & Herzegovina, respectively, and likewise concluded that remittances have caused chain migration also in those two countries in Europe. As it is explained in the following subsection, the changes in the migration intention of recipients do also affect their consumption decisions on education (Antman 2011a). In addition to these household-level empirical findings, theoretical literature about the role of remittances on changing norms argues that fertility norms in source countries are also affected by migration and remittances (e.g., Lindstrom and Giorguli Saucedo 2002; Lindstrom and Muñoz-Franco 2005; Beine et al. 2013; Bertoli and Marchetta 2015).

In reviewing the relevant literature, there are considerable effects of remittances on the consumption behaviour and norms of recipients. Although conditions of the recipient household and origin region/country together with the amount and frequency of remittances play a significant role in the way the remittances are utilized by the recipients, the effects of remittances on the behavioural norms are also affected by

experiences of emigrants in the destination regions/countries. The relevant literature discusses that use of remittances for buying non-durable goods increases production and household welfare. Thus, the following subsection will be specifically discussing the effects of remittances on two essential aspects of consumptions, namely investment in physical and human capital.

20.3.2 Effects on Investment in Physical and Human Capital

There are many different uses of remittances, but much research has studied investments made by households from developing countries in the form of both human and physical capital as they are important sources of economic growth. Education of children left behind is the human capital investment which has received more attention, but health is of primary interest as well. Moreover, remittances are also frequently used for physical capital investments for entrepreneurship of return migrants and their families. While early research suggests that remittances are mainly used to increase non-durable consumption and housing, most of the current research found and tried to understand the use of remittances in productive investments (Durand et al. 1996). Using a natural experiment of exogenous exchange rate shocks to the Philippine peso in the course of the 1997 Asian financial crisis, Yang (2008) shows how remittances relax resource constraints and contribute to reducing child labour and to increasing child schooling and educational expenditure. Moreover, remittances enable households to devote more time to self-employment, and to become more likely to start capital-intensive enterprises in the Philippines. However, the effects could be due to remittances, migrant savings or return migration. In contrast, Yang (2008) found no statistically significant effect on current consumption.

The impact of migration and remittances on family members left behind in the developing world is still, however, an open debate. Households with migrants benefit from remittances because the higher income eases liquidity constraints, which enables the remaining members to invest in education, health and other productive investments. There is increasing evidence from, among others, the Philippines, Ghana, Mexico, El Salvador and other Latin American economies that suggests migration and remittances reduce child labour and promote school attendance (Edwards and Ureta 2003; Acosta et al. 2007; Yang 2008; Acosta 2011; Alcaraz et al. 2012; Gyimah-Brempong and Asiedu 2015), and allow expenditures in a higher quality of education (Salas 2014).

However, parental absence can increase the time children work, cause psychological costs on children and reduce parental inputs into education acquisition. In addition, these costs can differ between rural and urban areas, boys and girls, or whether the migrant is the father or the mother. In Bolivia, Coon (2016) finds that remittances reduce the number of hours children work and concludes that fewer remittances are needed to reduce the hours worked in rural than in urban areas. Controlling for remittances, Cortes (2015) finds evidence for the adverse effects of parental absence being worse when the mother migrates than when the father does in the Philippines, and

Antman (2012) argues that the effects of a father migrating from Mexico to the US have a positive effect on the education of girls left behind thanks to remittances and a shift of the decision-making power towards the mother. In Nepal, Acharya and Leon-Gonzalez (2014) show that the effects of migration and remittances are positive for the children of less-educated parents with severe liquidity constraints, while the effects are negative, due to parental absence, for the children of more educated parents.

Thanks to better data and the increasing importance of migration in the research agenda, the gender dimension of migration is studied more and more. Using multivariate regression techniques with cross-sectional data collected in Mexico, Antman (2011b) observed that the international migration of a male household head and subsequent remittances corresponded to greater resource allocations to female children. The study also found that the return of a male household head corresponded to higher allocations of resources to his sons, which the author identifies as compensating for lower resources during migration. Other studies suggest that the gender of the migrant and the remittance recipient is not as meaningful in shaping expenditure behaviours in all contexts. Using both parametric and semi-parametric techniques, Göbel (2013) estimated how gender and remittances shape food, housing, education and health expenditure patterns in Ecuador. The study suggested that expenditures on education and health increase significantly with receipt of remittances, with only marginal increases in expenditures on education occurring when the remitter and recipient are female.

The literature has also pointed out that when remittances relax liquidity constraints they allow investment in migration by recipients. In Bosnia & Herzegovina, Dimova and Wolff (2015) found that people who receive remittances have between 6 and 10 greater percentage points probability of migrating in the coming year than those who do not receive remittances. This probability of migration intention can reduce educational attainment, as indicated in the study of McKenzie and Rapoport (2011) for rural Mexico. Similarly, Antman (2011a) found that 12–15 year-old boys reduce study hours and increase work hours in response to a father's U.S. migration.

To understand why we do not observe more migration, Stöhr (2015) studies two opposite effects that affect migration in Moldova: migration encourages migration of siblings by reducing the migration costs, but caring for the elderly family members reduces it. He concludes that the latter effect dominates the former. Children feel responsible for their parents; thus, elderly parents benefit from the remittances and the time spent in the care of some family members who do not migrate. This is due to the absence of a good market for elderly care, which is a typical situation in developing countries.

When we look at the impact of remittances on investments in human capital through health expenditures, we see that remittances increase the spending on health services of those left behind in Mexico (Amuedo-Dorantes and Pozo 2011a). However, Antman (2010) found a statistically significant relationship between having a child who migrates from Mexico to the U.S. and elderly family self-reporting poor

mental and physical health and suffering a heart attack or stroke.³ For the children, Hildebrandt and McKenzie (2005) used historic migration networks and the pattern of development of the railroad system as instruments to conclude that (i) migration reduces infant mortality rates and increases birth weights in Mexico; (ii) without the instrumental variable approach to account for migrant selectivity the gains are underestimated; (iii) not only higher wealth due to remittances but higher health knowledge of migrants in the US explain the outcomes; (iv) parental absence may have adverse effects because migrants children receive less breastfeeding than non-migrants, fewer vaccines and visit a doctor in their first year of life less frequently, which makes them cautious about the long-term effects of migration and remittances on health. However, in six communities of the poor rural Nicaragua, Macours and Vakis (2010) found that the income gains from mother's migration more than compensate the costs from their absence.

Another use of remittances is as a substitute for credit to cope with health and climate shocks. In Mexico, Ambrosius and Cuecuecha (2013) exploited the data on health shocks and observe that they increase debt among households who do not have access to remittances from family members in the US. Hence, remittances act as informal insurance that can substitute loans in case of health necessity. However, although remittances diversify income sources to cope with negative climate transitory shocks in Mali (Generoso 2015), in contrast to access to credit, do not result in an accumulation of agricultural equipment that can help to eliminate a structural food insecurity situation.

In line with the early work of Massey and Parrado (1998), the recent evidence suggests that migration and remittances promote entrepreneurship. Batista et al. (2017) studied return migration and conclude that it increases the probability of business ownership from 13 percentage points to 22–27. They studied four provinces of Mozambique and control for the self-selection of migrants at origin and return. Piracha and Vadean (2010) and Wahba and Zenou (2012), in Albania and Egypt, also found positive effects but only considered self-selection at the origin. Demurger and Xu (2011) found the same pattern for internal migration in China. Moreover, migration experience is found to increase the probability of survival of entrepreneurial activities of return migrants in Egypt (Marchetta 2012). In Mexico, Woodruff and Zenteno (2007) found that remittances increase investment in small-scale entrepreneurs. However, Amuedo-Dorantes and Pozo (2006b) found a negative impact of remittances on business ownership in the Dominican Republic. Therefore, the effects of migration and remittances on entrepreneurship, schooling and health are heterogeneous and need further research.

³Ivlevs et al. (2019) consider the effects of remittances on mental health and subjective well-being.

20.3.3 *Effects on Income Inequality*

In reviewing the development literature, there are a number of studies that have considered the effects of remittances particularly on household-level income inequality, the subject that will be elaborately addressed in this subsection. What remains unclear, however, is whether or not remittances have an increasing or a reducing effect or even no effect on income inequality. Additionally, this effect can vary depending on the socio-economic status of households, for example, income distribution to which migrants belong, and whether or not earnings by migrants are sent to rich or poor households.

Therefore, this subsection systematically reviews all the relevant studies mainly on two key aspects of remittances: the inequality-increasing and reducing effects of remittances, and then it moves on to provide a summary and critique of the findings obtained in some of these studies. We first then begin by reviewing those studies (e.g., Adams 1989; Barham et al. 1998; Adams, 2006a; Adams et al. 2008; Bouoiyour and Miftah 2014; Möllers and Meyer 2014), reporting that remittances lead to an increase in income inequality. Adams (1989) appears to be one of the first studies in the literature that have stressed the clear-cut inequality-increasing effect of remittances and presented evidence for rural Egypt. Barham et al. (1998), Adams (2006a) and Bouoiyour and Miftah (2014), for instance, estimated the net effects of migration and remittances on the distribution of household income. In particular, using a sample of households in Barham et al. (1998) compared the income of remittance-receiving households with that of non-remittance-receiving ones. The similar analysis was also done for Ghana and rural southern Morocco by Adams (2006a) and Bouoiyour and Miftah (2014), respectively.

However, there is also another strand of the literature which proposes that remittances facilitate inequality reduction (e.g. Taylor and Wyatt 1996; Taylor et al. 2005; Brown and Jimenez 2008; Gubert et al. 2010; Odozi et al. 2010; Mughal and Anwar 2012; Margolis et al. 2015; Bang et al. 2016; Kóczán and Loyola 2018). For example, a recent study by Kóczán and Loyola (2018) attempted to measure the effects of remittances on inequality in Mexico before, during and in the aftermath of the Mexican Peso and the Global Financial crises, which were believed to hit both remittance-sending and receiving countries. To this end, they estimated counterfactual income distributions for recipient families in the case where there are no-remittances, using a nationally representative household survey. One key finding in their study is that when estimating non-remittances income for migrant families in the counterfactual scenario, the resulting Gini coefficient turns out to be higher than the observed one. Another finding that has been reported in the study of Kóczán and Loyola (2018) is that during both crises, remittances contributed to reducing inequality in the migrant-sending country. Especially during the Global Financial crisis, these remittances helped households at the bottom of the income distribution to be less affected by the consequences of the crisis. More precisely, those households seemed to receive more remittances than households at the top of the distribution, compared to the pre- and post-crisis years.

On the other hand, Acosta, Fajnzylber and Lopez (2008), who exploited both country-level and nationally representative household survey data for ten Latin American and Caribbean countries with different migration patterns, have in several ways provided mixed evidence for understanding the effects of remittances on inequality. They first used decomposition of income inequality in order to estimate the effects of discrete and marginal changes in remittances (albeit with no change in migration) on household income distribution. According to the authors, the results would, however, be misleading because the analysis relies heavily on the assumption that remittances are considered to be exogenous transfers by migrants, yet this may not be accurate though. Therefore, in their analysis remittances were assumed to be a substitute instead for home earnings that could have been obtained if migrants had stayed at home, rather than leaving their countries to work abroad. Consequently, they believe that sufficient consideration needs to be given to the counterfactual scenario of no-remittances and no-migration (the case where per capita household income for migrant families is imputed). Based on the micro-econometric results of their study obtained from household survey-based estimates, in almost all countries under consideration, the Gini coefficient of the given non-remittances income is higher than the observed Gini coefficient for per capita household income. When the no-remittances, no-migration scenario is considered, the results, however, indicate that in six out of ten countries, remittances have a less inequality-reducing impact. In contrast, for the rest of the countries, remittances are much more equalizers than before.

Finally, there is a relatively small body of literature that has found no convincing evidence of any effects of remittances on income inequality (e.g., Adams 2006b; Beyene 2014). Indeed, Adams (2006b) and Beyene (2014) have failed to postulate any significant correlation between remittances and income inequality for Guatemala and Ethiopia, respectively.

The literature review in this subsection indicates that the direct effect of remittances on inequality at the household level depends mainly on the socio-economic status of households, as noted earlier. On the other hand, consumption behaviours, norms and investment decisions of household members, and therefore their overall well-being can, in fact, vary depending on whether or not they receive remittances.

20.4 Country-Level Effects: Causes, Growth Channels, Globalization and Distribution

In this section, unless stated otherwise, we look at the effect of remittances for panel data at the country level under the assumption of slope homogeneity.

20.4.1 Causes of Remittances and Reinforcing or Weakening Factors⁴

Differences in wages are the major incentives for people to migrate according to the textbook model of international migration without market imperfections. Remittances then are altruistic international transfers based on the migrants' individual decisions because in the model there is nothing received in exchange for it. In contrast, in models with market imperfections, the family decides on migration and remittances to mitigate market imperfections such as credit constraints and absence of insurance (Stark and Bloom 1985; Rapoport and Docquier 2006). Credit constraints limit investment decisions of firms and household decisions on education. These motivations are strengthened or mitigated by several factors: Proximity to remittance-sending regions (Adams 2006a), the cost of sending money reduced by financial openness (Beine et al. 2014), skill composition of migrants, economically better integration of migrants, network size, age-dependence, lack of knowledge and capacities among local governments and non-governmental organizations (NGOs), social capital indicators, the misery index, interest rate differences between the sending and the receiving countries with mixed evidence (Ziesemer 2009), oil prices and other volatile macroeconomic variables including crises, more migration, the share of female and college-educated migrants, and informal credit from parents, rainfalls at low credit volumes, disasters, forced displacements and related factors, foreign income, financial liberalization, and exchange rates, the latter with mixed evidence.

20.4.2 Financial Development

As credit market imperfections are among the major reasons for migration, an important question is whether remittances help developing credit markets more. Toxopeus and Lensink (2008) show that remittances have a positive impact on the share of adults with bank accounts, and bank accounts have a positive impact on growth. Gheeraert et al. (2010) show that remittances decrease transaction costs, increase both bank deposits and formal investments, with an ambiguous marginal impact on investments. For the credit volume, the evidence is mixed. Quisumbing and McNiven (2010) provide evidence that remittances do not change the credit constraints in Bukidnon, the Philippines, which is unexpected from the perspective of solving market imperfections; but the composition of assets shifts from land to others. One of the reasons may be that financial development is based on many political decisions, which may differ from country to country (Hudson 2008). Cooray (2012) shows that remittances affect financial sector size and efficiency; size more when there is less government ownership of banks and efficiency more if there is less government

⁴We had to limit referencing and have chosen to do so in this section because our core task is 'effects of remittances'.

ownership. Closely related, Ambrosius and Cuecuecha (2016) find that remittances increase borrowing through informal finance rather than bank loans. Aggarwal et al. (2011), Beine et al. (2014), Fromentin (2018), Bhattacharya et al. (2018) all find a positive impact of remittances on the M2/GDP, credit volume/GDP, deposit/GDP ratios and financial openness for panels of countries for the system GMM estimator and with two-way causality. Coulibaly (2015) and Fromentin (2017) confirm these results, except for low-income countries, allowing for slope heterogeneity using multiple VARs (with mixed evidence for reverse causality) and the pooled-mean-group estimator, respectively. On the macro-level, financial development benefits from remittances but whether individuals' credit constraints get less severe is not yet shown (see also Gupta et al. 2009, endnote 22).

20.4.3 Effects on Distribution, Poverty and Health

The effect of remittances on distribution has received attention because of the potential effects on development. Among other things, as noted in the previous section, remittances can alleviate credit market imperfections and reduce inequality and extreme poverty, but they can also increase inequality. In a dynamic theoretical model with credit market imperfections, Naval (2017) explores productivity differences between origin and destination countries to explain different effects of migration and remittances on inequality. Remittances are chosen by migrants to transfer resources from migrants to those left behind, thus reducing intra-household inequality. Naval (2017) finds the positive correlation between migration and inequality for the half of countries with the highest emigration rates, and his theoretical model predicts that emigration rates and inequality increase as the level of income of a country increases. In contrast, these decrease as more advanced stages of development are reached. Hence, migration and inequality should be positively related. Moreover, Naval (2017) reproduces the inverted u-shape relation between emigration rates and per capita GDP (see Ziesemer 2012a; Clemens 2014 and references there) with more recent data, and the falling ratio of highly to less-educated migrants as per capita GDP grows, which highlights the interaction between education, migration, remittances and inequality. As a consequence, all effects of migration on the inequality-development link go together with effects of and on remittances as all variables are endogenous in the theoretical model. In contrast, remittances are considered to be (weakly) exogenous variables in regression analysis.

Remittances go more to urban than to rural areas in Nepal, thereby increasing regional inequality (Seddon et al. 2002). Koechlin and Gianmarco (2007) find an inverted u-shape relation between remittances and inequality in a cross-section study of 78 countries.

Remittances as a share of GDP reduce Gini coefficients of income and poverty indicators for a panel of 41 countries in Sub-Saharan Africa (SSA); the effect is stronger if financial development is more advanced (Akobeng 2016). Similar results hold for Latin America (Vacaflores 2018).

Remittances reduce the level and depth of poverty in a large panel of 115 countries (Adams 2006b) and for Sub-Saharan Africa (Gupta et al. (2009). For a panel of 100 countries for the years 1990–2010 remittances reduce the percentage of those working for less than \$2 per day Combes et al. (2014). Remittances and financial development reduce the poverty headcount but their interaction term increases it, implying a weakening effect under better financial development (Inoue 2018).

Remittances increase health expenditure and reduce food deficits, undernourishment, stunting and child mortality (Azizi 2018). Zhunio et al. (2012) find positive effects on life expectancy and child mortality in a panel of 69 middle and low-income countries.

20.4.4 Effects in Accumulation and Growth Regressions

20.4.4.1 Direct Effects on Growth

The following papers found positive direct effects of remittances on growth. Giuliano and Ruiz-Arranz (2009) find a more potent effect for financially less developed countries, thus indicating that remittances solve a market imperfection problem. Bettin and Zazzaro (2012) use interaction terms and find that a positive effect of remittances is smaller if bank inefficiency is more significant, implying that market imperfections are solved better when banks are more efficient. Many papers show similar results for all regions of the world. Catrinescu et al. (2009) find more robust effects when remittances are an interaction variable with institutional indicators. For North Africa, remittances have positive effects increasing with economic freedom (Zghidi et al. 2018). World Bank (2006) finds positive effects with interaction effects from education, institutions and capital markets in Latin America. Williams (2018a) finds adverse effects of lagged remittances and a democracy indicator. An additional interaction effect of remittances with a democracy indicator is positive and may dominate the other effects if democracy is strong enough. Cooray et al. (2016) find positive effects mainly through interaction with secondary and tertiary levels of female enrolment. Hamma (2016) investigates multiple interaction terms.

Faini (2005), in a cross-section study, and Mundaca (2009) also find positive effects. The following papers all find positive effects: Goschin (2014) and Meyer and Shera (2017) for Central and Eastern European countries; Fajnzylber and Lopez (2008), for a cross-section of Latin American countries; Ramirez and Sharma (2008) and Acosta, Fajnzylber and Lopez (2008) for panels of Latin America and the Caribbean; Fayissa and Nsiah (2010) for 18 Latin American countries; Garcia-Fuentes and Kennedy (2009) for 14 LA countries (provided human capital is large enough); Vargas-Silva (2009) for a panel of 29 Asian countries; Imai et al. (2014) for 24 countries in Asia and Pacific; Lim and Basnet (2017) find a positive relationship with income and not for consumption for five South Asian countries; Lartey (2013) for 36 countries in SSA; Eltayeb (2009) for seven MENA countries; Ziesemer (2012a, b) for a panel of 42 poor developing countries using a highly non-linear specification. Le and Bodman (2011) find a statistically significant, positive growth effect

for a remittance stock variable for 50 developing countries. However, the effect of international research and development (R&D) capital stock is more substantial. In the presence of a negative interaction effect of these two regressors, the effects are only slightly weaker. Acharya and Leon-Gonzalez (2014) find positive effects on growth for a panel of 18 Asian and African countries, which are stronger without the human capital variable, especially in the low-income sub-group, indicating that human capital is an essential channel for the effect.

In time-series studies, Mundaca (2005) also finds positive effects for Mexico and the Dominican Republic, Kumar (2013) for Guayana, Agbola (2013) for Ghana with a stronger effect through interaction with human capital. Solimano (2003) finds a positive sign in a time-series growth regression for Colombia and Ecuador, which is insignificant for Ecuador.

Besides for Ecuador, no direct growth effects or mixed or inconclusive evidence is found in panel studies of IMF (2005), Lucas (2005), Jongwanich (2007), Ruiz et al. (2009), Rao and Hassan (2011), Burgess and Haksar (2005) and Ang (2007) for the Philippines, Donou-Adonsou and Lim (2016) for the West African Economic and Monetary Union. Lim and Simmons (2015) find no long-term relationship for the panel of Caribbean Community (CARICOM) countries. Siddique et al. (2012) find a positive effect for Bangladesh and Sri Lanka, but not for India. Adams and Klobodu (2016) find a positive effect only for interaction with democracy and regime-durability variables for 33 countries in SSA.

Negative effects are found by Chami et al. (2003), Le (2009), Cáceres and Saca (2006) for El Salvador, Rao and Takirua (2010) for Kiribati.

These are 24 studies finding a positive effect, 4 a negative one, and 12 are inconclusive or have mixed evidence. This raises the question as to why the evidence is so unclear. IMF (2005) points to problems in instrumenting strategies. Ziesemer (2010) shows that due to collinearity as expressed through high variance inflation factors small changes in the specification can lead to opposite signs for remittances in panel data studies. Ziesemer (2012a) suggests that panels with a longer period such as the studies on relatively homogenous Latin American countries produce more clearly positive results, and poor and less poor country samples lead to different results because of heterogeneity issues. Clemens and McKenzie (2018) argue that (i) remittance data may be mismeasured through changes in the way of measuring; (ii) cross-country studies are unable to detect the changes in measurement and may have low power otherwise; (iii) opportunity costs of preceding emigration are not taken into account in the dependent variables of growth regressions provided migrants were employed abroad, and domestic employment is reduced. Freund and Spatafora (2008) present estimates of the mismeasurement of remittances. They are similar to those for GDP in Schneider and Enste (2000). The problem of the impact of labour reduction can be mitigated by using variables for levels and growth rates of labour in the growth regression, add equations for labour and migration, and run simulations with a simultaneous equation model (Ziesemer 2012b; and Sect. 20.4.7 below). Moreover, growth regressions in this area are in line with exogenous growth models, and growth rate effects can only be transitional; therefore, they can be hard to detect near the steady-state where they are small. Correspondingly, Jouini (2015)

finds short-run relations but no long-run relations using an unrestricted error correction autoregressive distributed lag (ARDL) approach for Tunisia. Perhaps the most problematic aspect about direct effects of remittances on growth is that it is unclear what the economic mechanism is and estimated effects may stem mainly from shifts towards less productive sectors, which are not explicitly visible in growth regressions or from correlation with other regressors. Distinguishing between direct and indirect effects as in Rao and Hassan (2012), Ziesemer (2009, 2012a) and more recently others discussed below is in line with economic intuition. Konte (2018) uses multiple-growth-regime analysis to find statistical reasons why remittances work for some countries and not for others. Being in SSA makes it more likely to have positive effects whereas financial development moderately reduces this probability. Ziesemer (2012b) and Matuzeviciute and Butkus (2016) use the income class differentiation as textbooks do because of differences in countries' behaviour; the latter find a negative effect for poor countries and a turning point constellation with results getting positive around an income of \$8500, but negative for high remittances as a share of GDP around 11%. However, results in the literature do not only differ by country, but rather also for papers about the same country, for example, for Bangladesh.

20.4.4.2 Indirect Effects Through Labour Supply

The findings for labour supply effects are closely linked to the above issues of labour being endogenous through migration and a negative effect of remittances through lower effort (see Chami et al. 2003). Narazani (2009) finds labour supply reduction for wagedworkers but more labour supply for self-employed in Albania, perhaps those for whom remittances solve the investment credit problem. Binzel and Assaad (2011) find that male emigration enhances female labour supply in Egypt, but no effect of remittances. Jadotte and Ramos (2016) find that remittances reduce mainly male labour supply in Haiti, taking into account the endogeneity of remittances and self-selection of migrants. In the long term, remittances reduce labour supply in Asia through lower fertility, speeding up the fertility transition (Anwar and Mughal 2016). Bayangos and Jansen (2011) for the Philippines, Acosta et al. (2009) for El Salvador, and Guha (2013) for Bangladesh find that remittances reduce labour supply increasing wages and reducing exports or the traded goods sector, together defining the 'Dutch disease'. Also, Chami et al. (2018aa) find that they enhance labour demand leading to a reduction in unemployment, but they also favour low-productivity sectors, except fragile states. Azizi (2018) finds that labour supply reduction stems from the female supply.

20.4.4.3 Indirect Effects via Productivity

Productivity effects can come either from the just mentioned changes of sector weights or from effects on sectors' total factor productivity (TFP). Rao and Hassan (2011) model a TFP function including income volatility, investment, money and

exchange rates. Remittances have positive effects on these variables which are then included in the growth regression with positive effects. Senbeta (2013) regresses TFP growth rates on remittances for a panel of 50 developing countries and finds no effect. In a time-series study for Pakistan and a panel study for 61 countries, Al Mamun et al. (2016) and Al Mamun et al. (2015) find a positive effect on real GDP per worker, which is a decreasing effect in the panel study. Kumar et al. (2018) find a bi-causal effect for remittances and TFP, which has a u-shape for Bangladesh and inverted u-shape for India. Hübler (2016) finds that total remittances increase the number of mobile phones, but international remittances decrease them in one of the robustness checks.

20.4.4.4 Indirect Effects Through Physical and Human Capital

Several papers deal with human and physical capital. Ziesemer (2009) considers remittances as international transfers added to national income and finds a strongly positive effect on the savings ratio for four different panel groups, which decreases interest and increases investment, and increases primary school enrolment in the poorest countries and literacy in the less poor developing countries. Jongwanich (2007) finds an indirect growth effect via human capital and investment for a panel of 17 countries. Ziesemer (2012a) finds a positive effect of remittances on growth for a sample of countries with income below \$1200 and income affects investment. In all these papers, the effects go into a growth equation. Acharya and León-Gonzales (2014) find positive effects for physical capital in Asian and middle-income countries and a human capital stock index in all sub-groups of 18 African and Asian countries.

Blouchoutzi and Christos (2010) find that remittances increase consumption, investment and imports in Albania, Romania and Bulgaria. Senbeta (2013) regresses gross capital formation as a share of GDP on remittances and finds a strongly positive effect for a panel of 50 developing countries. Lartey (2013) finds a positive effect in the investment equation of 36 countries in SSA. Donou-Adonsou and Lim (2016) find a positive effect in the investment equation for the countries of the West African Economic and Monetary Union. Lim and Simmons (2015) find no long-term relation of investment and remittances for the panel of CARICOM countries, but rather only one for consumption. Ali and Alpaslan (2017) find a long-run bi-causal relation between remittances and investment using the mean-group estimator dealing with heterogeneity for a panel of 49 developing and emerging economies. Except for the CARICOM panel, all papers find positive relations. The effect of remittances on investment depends on civil liberties in developing countries, but not for emerging economies (Edwards and Biser 2011).

Concerning education, there is almost unanimity about having positive effects. As the household section also deals with it, we can be brief here. Beine et al. (2003) find a positive effect on gross investment in human capital for a cross-section of 50 developing countries. Besides the papers mentioned above, Zhunio et al. (2012) find them for primary and secondary school attainment in 69 middle and low-income countries. Azizi (2018) finds a positive impact of bilateral remittance data on school

enrolment and completion for 122 countries, which is stronger for girls than for boys. Through a substantial impact on schooling, this should also have an impact on the labour supply of young persons (Chami et al. 2018a). Therefore, the labour supply issues require a framework that does take into account leisure-labour choice together with education.

20.4.5 Globalization: Effects on Migration, Exchange Rates and Trade

While migration is a pre-condition for remittances, the question is also, whether remittances reduce or enhance migration. Dimova and Wolff (2015) find a positive effect of remittances on emigration. Ziesemer (2011) finds an inverted u-shape relation between net immigration and remittances for a panel of developing countries subdivided into a poor and a less poor sample. The peak for the inverted u-shape is below the panel average value of remittances. By, implication, as most observations are beyond the threshold, higher remittances as a share of GDP support emigration.⁵ Only for countries with low remittance/GDP ratio, the effect supports less emigration. Wang and Wong (2011) show for a panel of 35 developing countries that out-migration is encouraged for people with primary education, but less for secondary and tertiary education. If so, the problem of a brain drain may be less severe. In contrast, Chami et al. (2018b) suggest that currency appreciation through remittances may reinforce emigration and brain drain, and lead to a remittance trap rather than having just (non-) Walrasian price and quantity adjustments in more severely affected countries. Chami et al. (2008) and Naceur et al. (2012) show that both the sign and the statistical significance for the impact of remittances on the real effective exchange rate depend on the regions and the countries. Briefly speaking, there is a statistically significant appreciation in Africa, East Asia and South Asia,⁶ but not in other remittance-receiving parts of the world. Kim (2013) shows that remittances reduce the probability of currency crises. Higher human capital stocks and productivity improvements could perhaps counter the concomitant fall of the traded/non-traded sector ratio by way of shifting comparative advantage. Roy and Dixon (2016) and Chowdhury and Rabbi (2014) and others suggest more openness to obtain a devaluation of the real effective exchange rate.

⁵Naiditch et al. (2015) make a theoretical argument that remittances relaxing the credit constraint may lead to the opposite u-shape, which we interpret as a mitigation of the empirical one.

⁶See Roy and Dixon (2016), Uddin and Murshed (2017) for South Asia; Chowdhury and Rabbi (2014) for Bangladesh.

20.4.6 Effects on and Reactions of Governments and Institutions

One of the weak institutions in developing countries is the tax system and the spending on public goods broadly defined. Ebeke (2012) finds that remittances increase the level and stability of tax revenues in countries that have adopted the value-added tax (VAT) system. Similarly, Asatryana et al. (2017) find increasing revenues through VAT but not income taxes and VAT rates are decreased. Ziesemer (2012b) finds a negative effect on the tax-revenue/GDP ratio for less poor developing countries and an inverted u-shape for poorer countries with most countries in the increasing range.

Ebeke (2012) finds for the system general-method-of-moments (GMM) estimator that remittances have positive effects on public expenditure on education and health, but the interaction with governance indicators has negative effects. For public expenditure on education, Ziesemer (2012b) finds inverted u-shapes, which differ for more and less poor countries.

Remittances improve democratic institutions by increasing schooling and reducing poverty in SSA (Williams 2017). Remittances strengthen democracy, and more so if governments spend less money in a panel of 133 developing countries (Deonanan and Williams 2017). Williams (2018b) finds a positive effect on the government size, independent of democratic institution indicators for the same large panel. Government expenditure is increased in years before elections, but remittances interacted with the election-year dummies reduce them (Combes et al. 2015) in a panel of 70 developing countries. Abdih et al. (2012) show that remittances lead to lower performance of governance indicators. Similarly, Lum et al. (2013) show that remittances increase recipient countries' government authority but reduce legitimacy and capacity. In a theoretical paper, Chatterjee and Turnovsky (2018) investigate the link with collateral, Dutch disease and the size of the informal sector.

20.4.7 Linking the Effects: Simultaneous Equation Models

Single equation regressions find mostly statistically significant regression coefficients with the expected sign. This means that if the right-hand side variable changes, the left-hand side variable will also change in the usual way. This says little about the question of whether or not the right-hand side variable will change and nothing about the question of whether other forces are working against the expected effect. Simultaneous equation models with simulations can answer both of these questions. These models estimate several effects simultaneously and (policy) shocks can show how all the variables react and what the result is if several effects are working together and perhaps against each other. Moreover, it is a way to see the extreme consequences of misspecification (Nakamura and Nakamura 1998). Jongwanich (2007), Toxopeus and Lensink (2008), Chowdhury and Rabbi (2014) and Coulibaly (2015),

all discussed above, estimate simultaneous equation models, but they do not run simulations to test dynamic interactions.

Ziesemer (2009) finds a positive effect of remittances on savings and from savings to primary school enrolment and literacy. Savings decrease interest rates, which in turn increase investments. Investments and the schooling variable have a positive impact on growth. In the poorer sub-sample, the equation for enrolment has a positive effect from savings, indicating the imperfect working of credit markets and showing one of the channels through which remittances finance education. For the just mentioned variables, there is an estimated system of dynamic panel data equations for four country samples, and simulation with and without positive values for remittances shows that more remittances (as % of GDP) are favourable for the channels to growth. No link is absent or negligible. There are feedback effects to remittances. First, less developed countries' (LDCs) enhanced GDP per capita reduces worker remittances. Second, the decrease in interest rates reduces worker remittances. Ultimately, it is possible to show (going beyond the results shown in the article) that the total effect from adding a shock to the remittance equation is self-curtailling neither for GDP per capita nor for remittances or interest rates for country samples with GDP per capita below and above \$1200.

Ziesemer (2012a) adds equations for net immigration, labour growth, tax revenues (as % of GDP) and public expenditure on education (as % of GDP) to the model for poor developing countries. It can be shown that as long as the permanent shock to remittances is small, 0.0007 or lower, GDP per capita, savings and investment ratios and worker remittances themselves are increased. However, if shocks are 0.0008 and larger, the GDP per capita increases labour growth, which in turns pulls down GDP growth after some time. This increases emigration and worker remittances to high values but decreases savings and investment ratios below the baseline. When GDP and labour demand are far enough below baseline, GDP starts growing again, net emigration turns to net immigration and saving and investment ratio go beyond baseline again. The critical point here is that once education and labour demand are strong, net immigration turns positive, which implies an increase of population and labour growth. Through this, GDP falls below baseline again, and employment and net immigration go below baseline again. Whereas net immigration remains negative under the baseline scenario, which ends in 2157 when remittances become zero, under the sufficiently strong shock to remittances net immigration turns positive in 2071, or earlier if the shock is stronger. In brief, weak shocks keep and strong shocks change the feedback effects and the dynamic properties of the model due to the numerous economic nonlinearities. Changes in the sign of net immigration may go together with changes in the sign of population growth. A change to positive net migration may be desirable for rich countries if they want to limit their immigration. However, from the point of view of the poor countries, positive net immigration induces more population and labour growth and therefore is reducing growth. In sum, economic policies such as the removal of discriminatory taxes in line with tax theory should aim at a slight increase of remittances in a welfare perspective of LDCs.

A permanent shock to remittances increases the tax ratio and public expenditure on education. The latter reduces the savings ratio but this is only a small effect

allowing savings to increase through the shock. This is also shown in a smaller model in Ziesemer (2012b). There, also results for the less poor developing countries are shown: when citizens have more income through higher remittances, the governments reduce the tax ratio and public expenditure on education. Simulation of simultaneous equation models with shocks make it possible to find differences in government behaviour of more and less poor countries.

Cruz Zuinga (2011) provides a panel vector autoregressive regression (VAR) model with fixed effects and slope homogeneity for GDP per capita, investment, remittances, exchange rates and openness. A shock to remittances shows small positive effects on GDP per capita and exchange rates. Growth effects are strongest in Eastern Europe and weakest in Africa.

Tabit and Moussir (2017) show positive short-run and long-run relations between remittances and GDP in an error correction model for Morocco. A stationary VAR without error correction terms generates shocks of remittances with a positive but statistically insignificant effect on GDP and other variables. Papers using shocks in vector error correction models would lead us mainly to monetary macroeconomics (Lueth and Ruiz-Arranz 2007; Vargas-Silva 2009).

Finally, some of the papers mentioned (Acosta et al. 2009; Guha 2013) above use theoretical dynamic stochastic general equilibrium models, calibrate them to the data of a specific country and compare results to Bayesian VARs. Effects of shocks can be calculated from these models.

20.5 Conclusion

From the extensive heterogeneity between migrants and their motivations to migrate on the one hand and between the status of development and the institutional frameworks of sending countries, on the other hand, we should expect the effects of remittances to be highly specific. Household studies confirm overall positive effects of remittances on consumption in general and especially on durable goods for the not-too-poor households, positive effects on households' agricultural production (esp. concerning diversification), migration intentions, supporting household expenditures on education and physical capital investment as well as increasing entrepreneurial activities. However, they show relatively mixed results concerning inequality. The macroeconomic studies show that remittances in most cases have a positive effect on living standards in labour-sending countries via reducing poverty, positively affecting health, life expectancy and education, supporting financial development and economic growth (there is, however, a lot of mixed evidence and even some negative results here), improving institutions and positively affecting emigration (although in a non-monotonic way); in line with the microeconomic studies, evidence on the effect of remittances on economy-wide inequality is also mixed.

There are too many publications to cite all in a length-limited short survey. The main reason is that almost all questions are investigated not only for panels but also for many countries single wise. Other surveys are Solimano (2005) with emphasis

on financial development, Page and Plaza (2006) on globalization aspects, Lueth and Ruiz-Arranz (2008) and Borja (2012) on determinants and sources of remittances, and Ziesemer (2012a) on growth and development channels. Excluded here are social aspects such as social capital, happiness, social resilience, vulnerability, life chances, social support, communication, housing, crime, diaspora relations, religion, language, and special consumption, financial, sectoral or regional issues. These aspects as well as stock-market development, growth volatility and the business cycle, and aggregate demand components require the readers' keyword-specific search.

We have been reluctant regarding the discussion of econometric issues. There are several papers which use control variables with deterministic trends like GDP per capita without de-trending them (Wooldridge 2013, Sect. 20.10.5). Papers showing linear effects often do not report whether non-linear effects have been tested. We recommend being cautious with taking results from papers without having checked them concerning these issues.

Acknowledgements The authors are grateful for useful comments from two anonymous referees. Remaining errors are entirely ours.

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Chapter 21

The Impact of Immigration on Foreign Market Access: A Panel Analysis



Murat Genç and Dennis Wesselbaum

21.1 Introduction

Over the last couple of decades, the world has seen an increase in flows of capital (Foreign Direct Investment, FDI for short) and labour (migration). FDI flows in 2017 stand at \$1.43 trillion according to the United Nations World Investment Report 2018, with the largest flows reported for developed economies (\$712 billion) followed by developing countries (\$671 billion). The United States experience the largest outflow (\$342 billion) followed by Japan (\$160 billion), and China (\$125 billion). The average inward FDI return was 6.7%, where returns in developing countries, on average, were larger compared to developed countries (8 vs. 5.7%).

From the UN International Migration Report 2015 we can infer that 3.3% of the world's population (roughly 250 million people) are migrants. Here, we use the UN Recommendations on Statistics of International Migration and define an international migrant as "[...] any person who changes his or her country of usual residence". While the level is increasing, the report also documents that the rate of change is increasing. The UN report also documents that Europe and Asia are the two major areas of destination for international migrants. The top countries hosting migrants in 2015 were the United States, Germany, the Russian Federation, Saudi Arabia, and the United Kingdom. In some countries, the average annual rate of change was more than six percent. The average migrant in the world is male (52%), 39 years old, and comes from a middle-income country. Most migrants originate in Asia and Europe while Latin America and Africa are closing the gap.

M. Genç (✉) · D. Wesselbaum
Department of Economics, University of Otago, Dunedin, New Zealand
e-mail: Murat.Genc@otago.ac.nz

D. Wesselbaum
e-mail: Dennis.Wesselbaum@otago.ac.nz

In this chapter, we investigate the relationship between FDI flows, trade, and migration. There are various channels through which migration can, in theory, affect trade and FDI flows. First, immigrants moving to a country have specific tastes and demand a set of goods produced in their home countries. Hence, one can expect imports to the destination country to increase. Further, this effect should not change the volume of exports out of the destination country towards the origin country. Of course, there might be an offsetting substitution effect, where migrants in a given destination country start to produce these specific goods themselves (Girma and Yu 2002). Second, a key channel is that migrant (networks) reduce the trade costs between the destination and the origin country. Migrants, trivially, have better information of origin country markets, the language (esp. dialects), and business practices (incl. laws). Further, they form networks increasing the interconnectedness of countries. Along this line, we would expect the effect of reduced trade costs to be largest for very different destination–origin country pairs. This is due to the fact that the value of information is largest in this scenario.

We are, of course, not the first to look at these links. The early studies by Gould (1994), Rauch and Trindade (2002), and Rauch and Casella (2003) show how migrant networks can promote bilateral trade. Networks could increase the diffusion of knowledge (Jaffe et al. 1993), remove informational or cultural barriers (Kugler and Rapoport 2011), or better contract enforcement and taste similarities (Burchardi et al. 2018). Chaney (2014), for example, finds that French firms only export into markets where they have a contact. He then builds a network model of trade that fits the distribution of foreign markets accessed by firms in his sample. There are numerous further studies that establish a positive link between immigration and trade, as confirmed by Genç et al. (2012) in their meta-analysis of 48 empirical studies. For Sweden, Hatzigeorgiou (2010) find that immigration increase exports and imports, finding a stronger effect on exports. Interestingly, he provides evidence for the information channel by showing that the effect of migration is larger for differentiated goods than for homogeneous goods. Along this line, Fagiolo and Mastroiello (2014) use a complex-network model of merchandise trade and find that the networks of migration and trade are strongly correlated. However, trade also depends on the relative embeddedness of a country in the complex web of corridors making up the networks.

The link between immigration and trade has also been established at the firm level. For example, Cohen et al. (2017) find that firms are more likely to trade with countries that have a larger resident population close to their firm headquarters. They use the location of WWII Japanese internment camps as an instrumental variable to identify a population shock. Bastos and Silva (2012) match historically determined emigration stocks with detailed firm-level data from Portugal, and find that larger stocks of emigrants in a given destination increase export participation and intensity. In addition, they show that the former of these effects tends to be more pronounced among firms that are more likely to have close ties with the emigrants. Parratto et al. (2016) use employer–employee matched data for the whole Danish population of firms (and workers) between 1995 and 2007, and find that on average more ethnically

diversified firms perform better on the international market along all measures of market reach.

The literature on the link between immigration and FDI is, however, more recent and is not that well established. Burchardi et al. (2018) have shown that the ancestry composition in U.S. counties has an effect on FDI sent and received by firms. They argue that this is mainly driven by a reduction in information asymmetries. Lücke and Stöhr (2018) use panel data for OECD countries and find a robust positive impact of bilateral immigrants on FDI only if residents of the two countries have few language skills in common. Parsons and Vezina (2018) use a natural experiment to address the causation versus correlation issue. They use the outflow of Vietnamese Boat People to the United States. They find that after trade restrictions were lifted, 20 years after the refugee inflow, U.S. exports to Vietnam grew the largest in U.S. states with larger Vietnamese populations. Along this line, Javorcik et al. (2011) show that US FDI abroad is positively correlated with migrants from the origin country in the US. Similarly, Buch et al. (2006) find that German states with a large foreign population have higher stocks of inward FDI. Tong (2005) shows that Chinese networks increase FDI flows between South-East Asian countries and countries beyond.

Kugler and Rapoport (2007) considered the skill component of migration. They find that manufacturing FDI is negatively correlated with low-skill migration. However, FDI flows in the service and the manufacturing sector are positively correlated with high-skill migration. Felbermayr and Jung (2009) find positive effects of migration on trade, but show that this effect does not depend on education levels. In contrast, Gheasi et al. (2013) show that education matters for this relationship in the UK. More educated migrants create a stronger positive effect on FDI. Tomohara (2017) uses FDI data for Japan and finds that with increasing skilled immigration, FDI inflows become more dominant than imports.

In contrast to this literature, we consider flows of capital and migrants across a larger set of destination and origin countries over 12 years. Further, we investigate whether the elasticity of FDI flows with respect to migration depends on the number of migrants. We hypothesize that the size of the migrant flow, as it affects the stock of migrants, and therefore the size of the migrant network, could have a non-constant effect on capital flows. We argue that the diffusion of knowledge is faster and informational or cultural barriers are reduced by more when the migrant network becomes larger. We test this hypothesis using flows of capital and migrants between 15 OECD countries and 126 origin countries from 2000 to 2012.

We then distinguish between the flow of capital (FDI) and the flow of goods and services (trade). As argued by Benassy-Quere et al. (2007) FDI flows, in contrast to trade flows, are more sensitive to any form of uncertainty. This is due to the high sunk cost component in investing capital abroad. Therefore, we are interested in investigating whether drivers are similar or different across these two components of international cooperation.

Several results stand out. We find that migration is a main driver of FDI flows in our sample. The direct effect of migration on FDI is highly significant. We find that for a ten percent increase in migration this year, FDI flows next year will be roughly 5.6% higher. This lends support to the previous literature finding that migrant networks

increase capital (and trade) flows. If we control for various other covariates, we find that the partial effect of migration is reduced but still significant. Here, we find that a ten percent increase in migration flows this year will increase FDI flows next year by 4.3%. Further, we do not find evidence for the impact of migration to depend on the size of migration flows. The squared migration term that we include in our regression model is statistically insignificant.

We then turn our attention away from the flow in capital (FDI) and correlate migration and the trade in goods and services (imports and exports). We find that the effect of migration on trade is of similar magnitude as its effect on FDI flows. While in the FDI case, a ten percent increase in migration increased FDI flows by roughly 5.6%, the increase is 6.3% for exports and 6% for imports. Finally, for exports we find that the immigrant elasticity of exports depends on the size of migrant flows in the form of an inverted U-shaped relationship. Such a relationship is not present in the case of imports.

The chapter is structured as follows. In the next section, we present our data set. Section 21.3 has a preliminary view at our data. We present our empirical approach in Sect. 21.4. Section 21.5 presents our empirical results and Sect. 21.6 briefly concludes.

21.2 Data

21.2.1 Migration Flows

One of our key variables is the migration flow (migration) from origin to destination country. The data for migration are taken from the work by Aburn and Wesselbaum (2017). They have 16 OECD destination countries and 198 origin countries over the period from 1980 to 2015. The time period and choice of destination countries are dictated by data availability.

Migration flows are taken from the 2015 Revision of the United Nations' Population Division and are combined with data from the OECD. As usual in the migration literature, this data set only covers regular, permanent migration. This implies that the data set excludes illegal immigration. This will likely lead to an underestimation of the true migration flows.

Although this data set has more than 80,000 observations, we can only use 35,062 of them in our analysis due to the data availability of other variables that need. This gives us a migration data set that only contains about 10% zero migration flows.

Our migration data are annual. Other papers in the literature use decennial time observations rather than annual migration flows (e.g. Kugler and Rapoport 2011). The advantage is that they can use a larger set of bilateral country pairs. However, the flip side is that these data sets contain a much larger number of zero flows. Further, the small number of time observations ignores year-to-year variations, especially

important for the estimation of the effects of short-term fluctuations. This could be important given the large sensitivity of capital flows.

21.2.2 FDI Flows

Our FDI data come from Feng et al. (2018). They are one-way FDI outflows from 172 origin countries to 169 destination countries in millions of US\$ that are available from the UNCTAD database. The data cover the years from 2001 to 2012. Of the FDI data, 33% are zeros, and about 18.6% are negative values.

21.2.3 Trade Data

Trade (exports and imports) data are obtained from UNSD's COMTRADE database through World Integrated Trade Solution (WITS), and are in thousands of US\$.

21.2.4 Covariates

All the covariates are standard gravity variables which are obtained from the Dynamic Gravity Dataset that has recently been developed (Gurevich and Herman 2018). This dataset is constructed in such a way that many standard gravity variables exhibit more variation in time and magnitude. The distance variable, for example, reflects the distance between pairs of cities by incorporating the proportion of the country's population residing in each city, making distance a time-varying variable.

We use distance as a proxy for migration and trade costs. It is the population-weighted average of city-to-city bilateral distances in kilometres between each major city in the origin and destination countries. This definition of distance more accurately captures the distance economic activity must travel between two countries (Gurevich and Herman, The Dynamic Gravity Dataset: Technical Documentation Version 1.00). Further, we consider three dummy variables that proxy cultural closeness between countries. First, we use a border dummy (Contiguity), which is one if the country-pair shares a border. For various reasons (German reunification in 1990 and independence of Czech Republic, Slovakia, and Slovenia in the early 1990s) the border dummy is time-varying. Second, we use a common language dummy. The dummy for language is one, if a country-pair has the same official language. Finally, a dummy picking up post-1945 colonial ties (Colony). This dummy is one if the origin country was a colony of the destination OECD country for at least one year after 1945.

Finally, as a trade facilitation variable, we use a dummy variable (*agree_pta*) that equals one if the origin and destination countries are engaged in a preferential trade agreement of any type within a given year.

Table 21.1 Descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
FDI (millions \$)	9153	602.099	3821.874	-31,200	109,000
FDI when nonnegative	7433	895.227	4027.349	0	109,000
Migration	35,062	1485.267	6940.917	0	271,000
Migration (nonzero)	31,409	1658.01	7313.905	1	271,000
Exports (1,000 \$)	15,127	2,560,000	1.10e+07	0	2.71e+08
Imports (1,000 \$)	23,900	2,160,000	1.04e+07	0.009	3.05e+08
Distance (kms)	35,014	7363.417	4524.301	157.801	19505.67
Contiguity	35,014	0.018	0.133	0	1
Comlanguage	34,640	0.14	0.347	0	1
Agree_pta	35,014	0.223	0.416	0	1
Colony	35,014	0.009	0.094	0	1

We had data on population and GDP as well, but these variables could not be included in the regression models due to collinearity in any of the models we estimated.

21.3 A Preliminary View at the Data

In this section, we want to have the first, preliminary view at our data set. Although our migration dataset contains 198 origin countries and 16 OECD destination countries, we end up with 126 origin countries and 15 OECD destination countries when we merge it with the FDI data.¹ Merging it with trade data gives us 97 origin countries for exports and 144 origin countries for imports.

Table 21.1 presents the descriptive statistics of our key variables. The average FDI flows are about 600 million US\$ when negative flows are ignored. The average number of migrants is about one and half million. About 2% of the country pairs share a common border, and 14% have the same official language. About 22% of the country pairs are engaged in some type of a preferential trade agreement in a given year.

Figure 21.1 plots migration flows over time in our sample. We plot the total annual migrant inflows into all our destination countries coming from the 126 origin countries. There is a clear trend of increasing migration over the entire sample period. This includes a sharp peak in 2007, just before the Global Financial Crisis in 2008.

Figure 21.2 presents total FDI flows in our sample over time. We again observe a sharp peak in 2007 just before the Global Financial Crisis. The pattern the graph

¹These OECD countries are Australia, Austria, Belgium, Canada, Denmark, Finland, Germany, Italy, Netherlands, New Zealand, Norway, Spain, Sweden, Switzerland, UK, and USA. Belgium is not included in the FDI dataset.

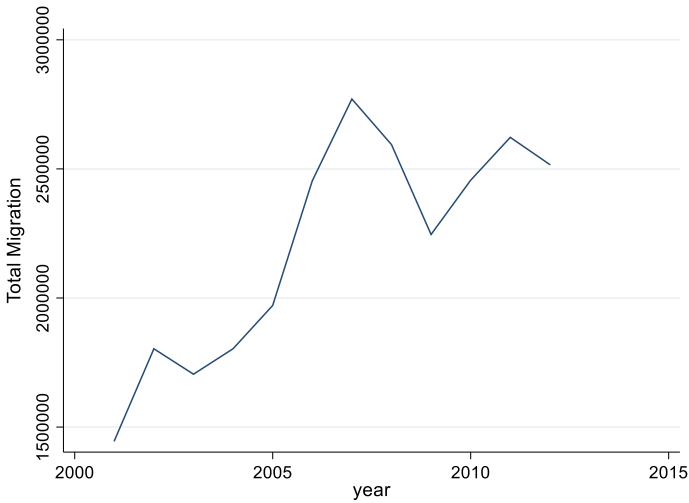


Fig. 21.1 Migration flows over time

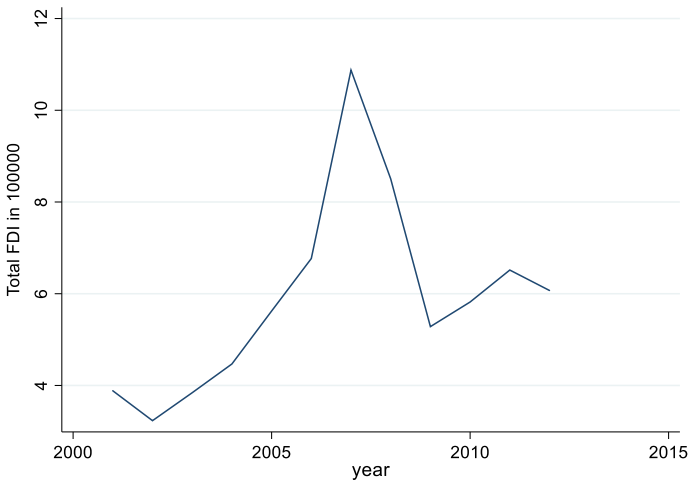


Fig. 21.2 Total FDI flows in our sample

displays is very similar to the pattern displayed in the plot of migrant flows. However, the drop in FDI flows after the GFC is much sharper compared to the drop in migrant flows.

In Fig. 21.3, we show a scatter plot of migration versus FDI flows. In order to gain some intuition for our later analysis, we also plot a simple linear regression line (in red). We find a positive correlation between migration and FDI. This is as expected given the theoretical insights and the previous literature we discussed. It indicates that there is a relationship between migration and FDI. We also ran a

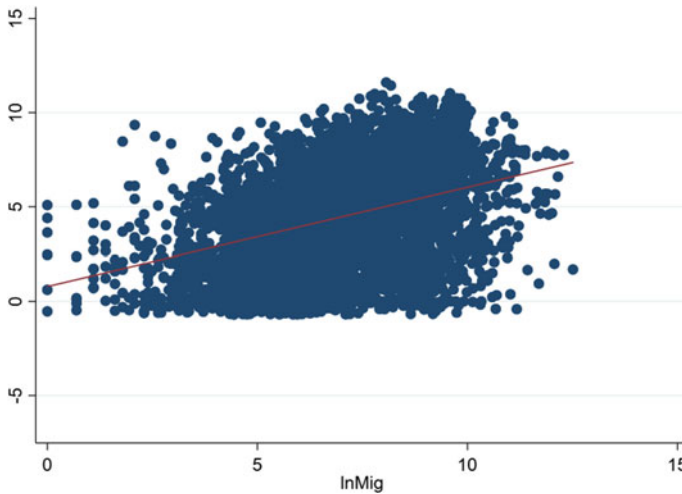


Fig. 21.3 Scatter plot of log migration versus log FDI

quadratic regression to investigate the presence of non-linearity in the relationship, but the difference between the linear regression line and the obtained quadratic form was negligible.

21.4 Empirical Approach

We construct a standard gravity model to investigate the relation between FDI and migrant flows, and also to investigate the relationship between trade and migrant flows. Gravity models have been used extensively in the literature for both trade flows and FDI flows. Although gravity models have traditionally been employed as linear models with log-transformed dependent variables, it is now widely recognized that more care needs to be taken due to the presence of many zeros in the observed values of the log-transformed variables. This is in fact the case in our analysis as 33% of the FDI flows are zeros in our sample.

Following the approach advocated by Silva and Tenreyro (2006) and recommended by Yotov et al. (2016), we estimate the gravity model in its multiplicative form by using a Poisson estimator known as the Poisson pseudo-maximum-likelihood (PPML) estimator. Thus, we estimate the simple gravity equation

$$y_{ijt} = \exp[\lambda_{it} + \psi_{jt} + \eta_{ij} + \beta X_{ijt}] + \varepsilon_{ijt},$$

where i , j , and t are indices for origin, destination, and time. The vector X contains migration flow, the main variable of interest, and the standard gravity variables as control variables. The terms λ_{it} , ψ_{jt} , η_{ij} represent the origin-time, destination-time,

and origin–destination (pair) fixed effects, and ε_{ijt} is the standard error term. The dependent variable, y_{ijt} , is either FDI flow or exports or imports, in levels.

This is a three-way fixed effects model with time-varying origin and destination fixed effects and time-invariant pair fixed effects. Computational issues with large samples such as ours have made it difficult to estimate such models for a long time, but Larch et al. (2019) have introduced an iterative PPML estimator that makes it possible to estimate these “high-dimensional fixed effects (HDFFE)” models. We use their Stata command *ppml_panel_sg* to estimate the model (Zylkin 2017).

We are mainly interested in the impact of migration on the dependent variable in the equations we estimate. We take the logarithm of migration flow, and, in order to reduce the problem of endogeneity, we use its lagged value in the regression. Thus, its coefficient can be interpreted as an elasticity.²

The gravity control variables GDP, population, and distance enter our model after taking their logarithms. The remaining control variables described before enter as dummy variables.

21.5 Empirical Results

a. FDI and Migration

Table 21.2 presents our estimation results. Model (1) presents the direct or total effect of migration on FDI flows in our sample. Here, we find a significant positive effect of migration on FDI. For a ten percent increase in migration flows, we would observe an increase of 5.7% in FDI flows. Notice that we are using lagged migration. Therefore, the interpretation slightly needs to be adjusted. For a ten percent increase in migration this year, FDI flows next year will be 5.7% higher. This also documents the persistence effect in the migration-trade relationship. This could be explained by network effects (Kugler and Rapoport 2011). Once migrants arrive, they need time to settle-in, where an existing migrant network would help. In general, such an existing migrant network would reduce the cost of migration. Related to trade, this implies that if migrants move from origin country i to designation country j , the network generated between the two countries ij will lead to a reduction in trade costs and, therefore, will create an incentive to do more business. We find this effect in our regression with an increase in FDI flows of about 5.7%.

Model (2) adds control variables that allow us to see whether the effect of migration also works through other channels and to address the unobserved variable bias. Of course, now our parameter estimate for migration will only indicate an indirect,

²Some of the values for migration flows are zeros, 2.42% in analysing FDI flows and 10.4% in analysing trade flows. We considered using the inverse hyperbolic sine (IHS) transformation, which retains zeros, as suggested by Burbidge et al. (1988). This transformation assigns zeros to observed values of zeros. We instead assigned zeros to the logarithm of zero migration flows just as HIS transformation would, equivalent to changing zeros to ones before taking the logarithm. We compared our results to the results obtained with HIS transformation. They were almost identical.

Table 21.2 FDI flows

	(1)	(2)	(3)
Lagged migration	0.566*** (0.0374)	0.434*** (0.0435)	0.559* (0.220)
Log distance		-0.362*** (0.0770)	-0.359*** (0.0779)
Contiguity		0.109 (0.137)	0.107 (0.137)
Common language		-0.0858 (0.0894)	-0.0789 (0.0882)
Agree_pta		-0.0607 (0.105)	-0.0546 (0.106)
Colony		-0.965*** (0.292)	-0.944*** (0.283)
(lagged migration) ²			-0.00823 (0.0129)
N	4673	4604	4604
r ²	0.875	0.877	0.878

Panel PPML estimation with time-varying origin and destination fixed effects. Logarithms of GDP and population are dropped due to collinearity with fixed effects. Standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

or partial effect, of migration on FDI flows. Our regression shows that the effect of lagged migration on FDI is still significantly positive but smaller in magnitude compared to the direct (total) effect. Here, we find that a ten percent increase in migration flows this year will increase FDI flows next year by 4.3%. Distance, as expected, has a statistically significant impact on FDI flows. Colonial ties are found to have a negative impact. The remaining gravity variables have not been found to have a statistically significant effect.

Model (3) includes the square of logged lagged migration. Here, we test whether the migration elasticity of FDI flows would vary with the size of the migrant network, a hypothesis that a priori appears intuitive. However, we do not find evidence for this hypothesis in our data set. The squared migration term is statistically insignificant. The coefficient of lagged migration is significant again, and its magnitude is as high as it was with no other controls.

In conclusion, we find that migration does significantly affect FDI flows. For a ten percent increase in migration this year, FDI flows next year will increase by about 5.7%. Our findings support the results by others in the related literature that migrant networks can increase capital flows and business opportunities. The literature starting with Gould (1994), Rauch and Trindade (2002), and Rauch and Casella (2003) argue that migrant networks would increase bilateral trade. We find support for their results by showing that migration increases capital flows. Our results are in line with the findings by Javorcik et al. (2011) that show that US FDI abroad is positively correlated with migrants from the origin country in the US. They find that a 1% increase in the migrant stock increases the FDI stock by around 0.5%. Similarly, Buch et al. (2006) find that German states with a large foreign population have higher stocks of inward FDI. Tong (2005) shows that Chinese networks increase FDI flows between South-East Asian countries and countries beyond. We add to these papers by considering a larger cross-country panel.

When it comes to the mechanisms through which migration could affect FDI flows our results are silent. However, drawing from the work by Jaffe et al. (1993) and Kugler and Rapoport (2011), we could argue that migrant networks on the one hand increase knowledge diffusion and remove informational or cultural barriers.

At the end of this section, we want to emphasize some shortcomings of our study. The biggest concern is that our regression suffers from endogeneity bias. We tried to mitigate this problem by using lagged migration, but a better approach would be to use a proper instrumental variable approach. We were thinking about using natural disasters as an instrument. However, whether the exclusion restrictions hold is a difficult question.

b. Is Trade Different?

In the previous section, we considered FDI flows. FDI flows, by definition, are different from trade as they measure financial capital rather than the trade of goods and services. In this section, we want to repeat our previous empirical approach, but use a trade variable.

Table 21.3 present our estimation results using imports at origin countries as dependent variable.

As before, we start with the direct effect of lagged migration on imports. We find that the effect is highly significant. For a ten percent increase in migration flows, we find an increase in the import value of 6%. This effect is similar in magnitude to the effect on FDI flows, which was about 5.7%. Next, model (5) controls for other covariates. Controlling for other variables reduces the impact of migration considerably. A ten percent increase in migration flows is now associated with a 1.5% increase in imports. As it was the case with FDI flows, the coefficient of the squared logged lagged migration is not statistically significant, implying that the

Table 21.3 Imports

	(4)	(5)	(6)
Lagged migration	0.601*** (0.0151)	0.150*** (0.00880)	0.142*** (0.0214)
Log distance		-0.926*** (0.0292)	-0.925*** (0.0292)
Contiguity		0.219*** (0.0226)	0.219*** (0.0227)
Common language		-0.0538 (0.0299)	-0.0541 (0.0300)
Agree_pta		0.211*** (0.0443)	0.211*** (0.0444)
Colony		0.420*** (0.0595)	0.419*** (0.0593)
(Lagged migration) ²			0.000528 (0.00146)
N	23,916	22,687	22,687
r ²	0.706	0.954	0.954

Panel PPML estimation with time-varying origin and destination fixed effects. Logarithms of GDP and population are dropped due to collinearity with fixed effects. Standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 21.4 Exports

	(7)	(8)	(9)
Lagged migration	0.631 ^{***} (0.0162)	0.247 ^{***} (0.0113)	0.0338 (0.0281)
Log distance		-0.565 ^{***} (0.0238)	-0.566 ^{***} (0.0235)
Contiguity		0.323 ^{***} (0.0303)	0.312 ^{***} (0.0305)
Common language		-0.0201 (0.0387)	-0.0326 (0.0387)
Agree_pta		0.582 ^{***} (0.0431)	0.581 ^{***} (0.0430)
Colony		0.272 ^{***} (0.0785)	0.253 ^{**} (0.0812)
(Lagged migration) ²			0.0137 ^{***} (0.00167)
N	15,131	14,581	14,581
r ²	0.794	0.946	0.946

Panel PPML estimation with time-varying origin and destination fixed effects. Logarithms of GDP and population are dropped due to collinearity with fixed effects. Standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

constant-elasticity model is appropriate. Adding this squared term does not have any significant effect on the magnitude and statistical significance of the coefficients.

All the gravity variables have the expected signs, and all, apart from common language dummy, are statistically significant. Only the coefficients of logged distance and colony dummy variable were statistically significant in the estimation equation for FDI flows. Engaging in any type of a preferential trade agreement is found to have a positive effect on imports. (Such engagement is predicted to increase imports by about 23.5%, on average.) Having colonial ties has a very significant impact, increasing imports by about 52%, on average. A common border, on the other hand, increases imports by about 25%.

So far, we considered import value as a dependent variable, as a proxy variable of trade. We want to see whether the results are robust to using a different measure of trade: the export value. Table 21.4 presents our estimation results.

The results are similar to the ones obtained for import values. The main difference we find is that for exports, the coefficient on the squared logged migration flow is positive and statistically significant. This implies that the immigrant elasticity of exports is not constant and it varies with the size of migrant flows. The positive coefficient on this variable means that the marginal benefits from migration are larger for exports for higher levels of migration flows.

The magnitude of the effect of migrant flows on exports is of similar magnitude found for imports. The impact of being engaged in a preferential trade is found to have a very large impact on exports, about 79% increase on average. The impacts of having a common border and engaging in a preferential trade agreement are slightly larger for exports; 38% and 31%, respectively. The elasticity of exports with respect to distance is, however, much smaller compared to imports.

Overall, we can conclude that contiguity and free trade agreements are not associated with FDI flows, but they have an impact on trade. Speaking a common language, the way it is defined here, is not found to have an impact on FDI flows or trade. Most

importantly, migration flows are found to be associated with both FDI flows and trade. The constant migration elasticity model is found to be valid for FDI flows and imports, but not for exports.

21.6 Summary and Conclusion

This chapter is motivated by the observed dynamic in flows of capital (Foreign Direct Investment, FDI for short) and labour (migration) over the last couple of decades that the world has seen. We investigate the relationship between FDI flows, trade, and migration.

We add to a growing literature that looks at the link between FDI, trade, and migration.

In contrast to the existing literature, we consider flows of capital, trade variables, and migrants across a larger set of destination and origin countries over 12 years (2000–2012). First, we investigate the relationship between migration flows and FDI flows as well as the relationship between migration and trade. We then investigate whether migration elasticity of FDI flows and trade is constant. Our idea is that the size of the migrant flows, as it affects the stock of migrants over time, can have a non-constant effect on capital flows and trade volumes. In line with the mechanisms discussed earlier, we argue that the diffusion of knowledge could be faster and informational or cultural barriers could be reduced by more, when the size of the migrant network increases. We test this hypothesis using flows of capital, trade, and migration between 16 OECD countries and 126 origin countries for FDI flows and 97 origin countries for trade flows from 2000 to 2012.

Our findings can be summarized as follows. We find that migration and previous colonial ties are important drivers of FDI flows in our sample. Contiguity and preferential trade agreements are also found to contribute to trade flows. The direct effect of migration on FDI is highly significant. We find that for a ten percent increase in migration this year, FDI flows next year will be roughly 5.7% higher. If we control for various other covariates, we find that the partial effect of migration is slightly reduced, but still significant. We find that a ten percent increase in migration flows this year will increase FDI flows next year by 4.3%. Further, the effect of migration on imports or exports is of similar magnitude when no other variable is controlled for. However, the impact is found to be much smaller when gravity variables are included in the regressions. Overall, these findings support the results in the previous literature finding that migrant networks increase capital and trade flows.

Further, once we deviate from a constant-elasticity model, we do not find evidence for non-constancy in the relationship between migration and FDI. The squared migration term that we include in our regression model is insignificant. This also holds for imports. However, for exports we find evidence for a non-constant elasticity.

When we look at the other covariates in our regression, we find that both colonial ties and distance reduce FDI flows. For a ten percent increase in population-weighted distance between the pairs of countries, FDI flows will be reduced by roughly 3.6%.

The reduction in trade flows is much larger for trade, 9.3% for imports and 5.7% for exports. Colonial ties are found to have a positive impact on trade flows. Preferential trade agreements and contiguity are also found to be positively associated with trade volumes.

Overall, our results highlight the importance of immigration policies as a means to increase FDI and trade flows between countries. There are benefits to be received from encouraging immigration and engaging in preferential trade agreements.

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Chapter 22

Unskilled Migration with Remittance and Welfare Analysis



Li-Wen Hung and Shin-Kun Peng

22.1 Introduction and Literature Review

This research investigates the impacts of trade liberalization on the pattern of temporary unskilled migration with remittance. Moreover, we examine the inequality in gains from trade among heterogeneous agents (unskilled workers and entrepreneurs) as well as the welfare implications of the two countries, respectively.

A critical stylized fact inspiring our study is that the growing demand for low-skilled workers such as caregivers and by labor-intensive industries in developed countries has facilitated the circulation of unskilled workers worldwide. For example, Japan used to adopt a strict immigration policy, and the number of recorded foreign workers is relatively small compared to other developed countries. However, Japanese authorities have considered lifting the tight constraints on importing foreign workers recently due to the excess demand for labor.¹ According to OECD (2018), over 258 million migrants were working outside of their home countries in 2017.

The remittances sent by migrant workers are increasingly essential to their home countries. By World Bank (2016) estimations, international migrant remittances to developing countries amounted to USD 441 billion in 2015. Moreover, remittances account for a high proportion of some small countries' GDP; Tajikistan (42%), Kyrgyz Republic (30%), Nepal (29%), Tonga (28%), and Moldova (26%) were countries with high remittances to GDP ratio in 2015. Remittance flows are usually larger

¹There were 0.49 million immigrants in 2008, and its population reached 0.56 million in 2009. By 2018, the number of immigrants has increased rapidly to 1.46 million, <https://www.mhlw.go.jp/content/11655000/000472892.pdf>.

L.-W. Hung
Academia Sinica, Taipei, Taiwan
e-mail: bonuswen@gmail.com

S.-K. Peng (✉)
Academia Sinica and National Taiwan University, Taipei, Taiwan
e-mail: speng@econ.sinica.edu.tw

than those from official development assistance, and they are also more reliable and stable sources of income for families in developing countries.² The Philippines sends a great number of workers abroad and is also the main remittance recipient country in the world. It is widely known that overseas Filipino workers make a notable contribution to the Philippine economic growth. In a nutshell, remittances play a key role in alleviating inequality and activating the economy of workers' home countries. Figure 22.1 summarizes the remittance and migration stock trends of four Asian countries.³

There is extensive literature discussing the incentive of migration. For example, Lucas and Stark (1985) try to find the motivations to work abroad and detail why migrants are willing to send money back. However, their paper does not consider the different migration behaviors between unskilled workers and entrepreneurs. Bond et al. (2012) construct a dynamic small open economy model to investigate how the rural–urban migration of unskilled workers affects trade, urbanization, capital accumulation, factor payoffs, and other welfare-related issues. Stark (2006) shows a positive relationship between the incentive to migrate and income inequality. Tabuchi and Thisse (2002) study agents with heterogeneity tastes (noneconomic factor) in a discrete choice model under the core-periphery setting⁴ to investigate the migration decision. Nevertheless, the concept of family decisions and remittances is not involved in these studies.

Migration costs are an essential factor influencing the migration incentive. We focus on psychological (non-economic) costs rather than economic migration costs (Borjas 1999; McKenzie and Rapoport 2007; Grogger and Hanson 2011). Economic migration costs affect migrant utility levels through income constraints. However, the psychological costs directly enter the utility function and alter the family migration decisions. Although those migrants may earn higher incomes abroad than at home, they do not live with their family members. Parreñas (2001) points out that migrants feel dislocated when they move to another country, and they have to endure the emotional pain of family separation. Furthermore, their rights (including health care and labor insurance) are limited in many aspects, even if they gain residency in the destination countries. Xenophobia is also a severe problem because migrants are often blamed for taking jobs away from natives in developed countries. They also have to face contradictory class mobility. Some migrants are well-educated, having earned college diplomas at universities in their home countries, but they usually serve as production line operators, domestic cleaners, or care workers in destination countries. We call the penalty of leaving home countries as an “attachment cost,” and

²The home family uses the money received from their family members abroad to buy goods, services, and to educate their children. There is thus the need to convert the funds into domestic currency. Since the banking systems are not sufficiently developed in developing countries and rural areas do not have the same access to banking systems as do urban areas, some of the funds are transferred through the informal sectors. The amounts of remittances may therefore be underestimated.

³An improved banking system may result in an increase in official remittances.

⁴Krugman (1991) proves that when trade cost is sufficiently low, manufactured sector (or skilled workers) will agglomerate in a single region and the region becomes a “core.” Moreover, the surrounding peripheral supply agricultural good.

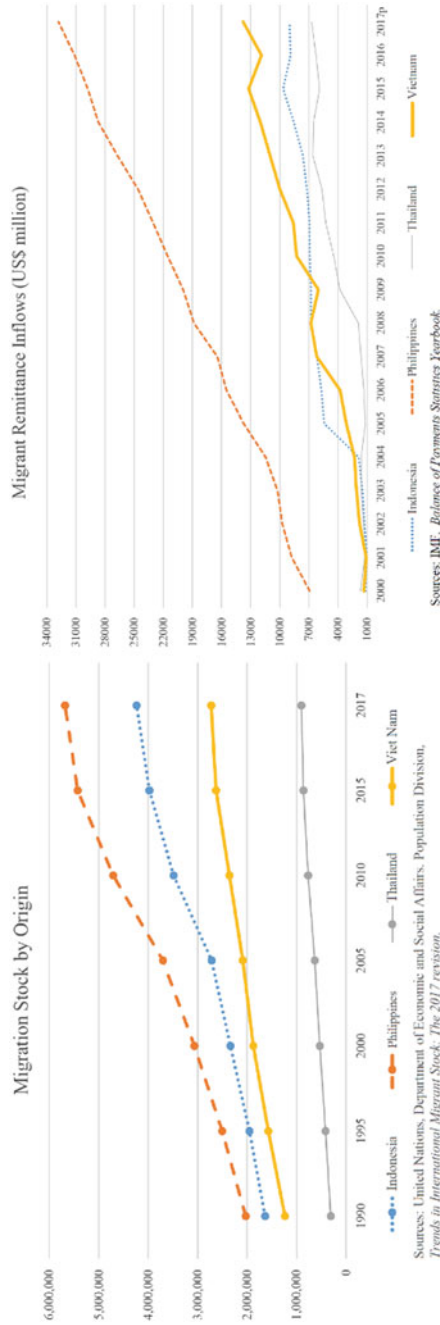


Fig. 22.1 Migration stock (left) and remittance inflows (right)

we try to investigate how it affects the migration decisions and to verify the welfare impacts.

We assume that the migration patterns of unskilled workers are different from entrepreneurial migration. Skilled migrants such as entrepreneurs are usually allowed to move simultaneously with their family members such as spouses and children; as for the migrant workers, only a portion of family members is involved.⁵ In other words, only a few members (not all) within the household migrate to other countries to search for employment and send remittances back to families in the home countries to cover their living expenses. It implies that the migration decision is made by the whole family instead of the individual with one's own cost-benefit analysis.

Another strand of literature is about inequality. As documented in a study on migration between cities by Stark (1991), a young family member migrates to a city while the rest of her/his family remain in an original area. The youth in cities perhaps is the most important source for rural household income inequalities, and the empirical evidence shows an inverse U-shaped relationship between migration rate and wealth inequality in sending regions (Mckenzie and Rapoport 2007; Naval 2017; Shen et al. 2010). Card (2009) concludes that wage inequality in the destination country is merely affected by migrants. Another strand of literature proves that lifting migration constraints will generate tremendous welfare gains for the countries involved (Borjas 1999; Kennah 2013; Iranzo and Peri 2009).

The issue of remittances associated with unskilled migrant workers has not been studied precisely within the heterogeneous firm model framework. Thus, we develop a modified Melitz model (2003) featured with the occupation self-selection model of Lucas (1978)⁶ to accommodate the issue of unskilled migration with remittances and attachment cost. In order to simplify the analyses, we additionally incorporate the core-periphery framework. Therefore, it is sufficiently tractable to allow for many analytical solutions and to obtain proper welfare comparisons. Considering the different migration patterns between entrepreneurs and migrant workers, we assume that the entrepreneurs set up firms and hire workers (including migrants and local workers) to produce goods to meet domestic and foreign demands, while the workers can choose to work for the manufacturing sector or the agricultural sector. The most important contribution of this study is that we investigate the family migration decision and directly connect foreign and domestic labor markets.

We prove herein the existence of a core-periphery style equilibrium with a proportion of household members migrating to the North for earning higher wages and sending remittances back to their families in the South. We also find that (i) more migrants of each Southern household go to the North when the attachment cost is lower; (ii) the equilibrium migration ratio is negatively related to the attachment cost and the transportation cost of the manufactured goods; (iii) the domestic and

⁵Past literature assumes that skilled workers can move between countries without incurring a cost while unskilled workers are immobile (see Forslid and Ottaviano 2003; Krugman 1991). We adopt the partial migration pattern to relax the immobile assumption and highlight the cost disparity between these two parties.

⁶See also Chen and Peng (2017) or Dinopoulos and Unel (2017).

exporting thresholds are positively related to the attachment cost and the transportation cost of the manufactured goods; (iv) the real wages of entrepreneurs and unskilled workers increase after the migration is allowed; (v) the welfare of the migrant family decreases in the attachment cost and the transportation cost of the manufactured goods; (vi) the welfare gap between entrepreneurs and unskilled workers depends on the magnitude of remittances and the relative population ratio.

The remainder of the paper is organized as follows. Section 22.2 briefly states some stylized facts about migration. Section 22.3 characterizes the model and the equilibrium. Section 22.4 studies the comparative statics analysis of the migration equilibrium. Sections 22.5 examines the welfare and inequality analyses. Section 22.6 discusses the optimal migration ratio. Section 22.7 concludes the study.

22.2 Models with and Without Unskilled Migrants

In this economic framework, there are only two countries, the North and the South, which have the population L_N and L_S , respectively. Workers are the only input, and there is no unemployment in this model.

Consumers' preferences are specified by a Cobb-Douglas utility function. Here, M_i , $i = N, S$, is the composite index of the manufactured goods consumed by households of country i , and A_i , $i = N, S$, stands for the consumption of the agricultural good by households of country i . M_{SN} (A_{SN}) are the amount of manufactured goods (agricultural good) that workers migrating from the South (S) to the North (N) consume in the North. The Northern households have an identical preference as:

$$U_N = \left(\frac{M_N}{\alpha}\right)^\alpha \left(\frac{A_N}{1-\alpha}\right)^{1-\alpha}, \quad 0 < \alpha < 1, \tag{22.1}$$

Here, Θ represents the whole variety set in the North, and M_N is defined as:

$$M_N = \left[\int_{\omega \in \Theta} q(\omega)^{\frac{\sigma-1}{\sigma}} d\omega \right]^{\frac{\sigma}{\sigma-1}},$$

where $q(\omega)$ represents the consumption of variety ω , $\sigma > 1$ is the elasticity of substitution between any two varieties, NI_N represents the national income of the North, and it is the market value of goods produced by its citizen, \mathbf{P}_N^M (\mathbf{P}_N^A) denotes the price level of the manufactured goods (agricultural good), and $p_N(\omega)$ is the price of manufactured variety ω in the North. By maximizing the utility of the consumer subject to the budget constraint, we then have the demand functions of two goods:

$$M_N = \alpha \frac{NI_N}{P_N^M}, A_N = (1 - \alpha) \frac{NI_N}{P_N^A}, \text{ where } P_N^M = \left[\int_{\omega \in \Theta} p_N(\omega)^{1-\sigma} d\omega \right]^{\frac{1}{1-\sigma}}. \tag{22.2}$$

Substituting (22.2) into (22.1), the indirect utility function of country N is given by $V_N = (NI_N)/(P_N^M)^\alpha (P_N^A)^{1-\alpha}$, which is defined as the welfare level in the North.

To emphasize the migration behavior of the Southern households, we modify the utility function to accommodate the concept of ‘‘attachment cost’’ for migrant families. When workers migrate to another country, they send their wages earned in the North with remittance rate ν to their families and suffer from the pain of family separation. The coefficient of the attachment cost is denoted by $\varphi/2$, and λ is the ratio of family members who migrate; hence, the total attachment cost is $\varphi\lambda^2/2$, which is increasing in the migration ratio. The utility of the Southern family is composed of the utility of migrants (u_{SN}) and that of those who remain behind (remainders) (u_S). We assume that migration is unilateral; that is, only the Southern families decide whether to send their members to another country or not.

The utility of Southern households is defined as:

$$U_S = u_S + u_{SN},$$

where

$$u_S = \frac{(M_S)^\alpha (A_S)^{1-\alpha}}{(\alpha)^\alpha (1 - \alpha)^{1-\alpha}}, u_{SN} = \frac{(M_{SN})^\alpha (A_{SN})^{1-\alpha}}{(\alpha)^\alpha (1 - \alpha)^{1-\alpha}} - \frac{\varphi}{2} \lambda^2,$$

and M_S and M_{SN} are defined as:

$$M_S = \left[\int_{\omega \in \Xi} q(\omega)^{\frac{\sigma-1}{\sigma}} d\omega \right]^{\frac{\sigma}{\sigma-1}}, M_{SN} = \left[\int_{\omega \in \Theta} q(\omega)^{\frac{\sigma-1}{\sigma}} d\omega \right]^{\frac{\sigma}{\sigma-1}}.$$

where Ξ represents the whole variety set in the South. We normalize the family size to unity given the migration ratio λ and remittance rate ν . w_N is the wage migrants earn in the North, and w_S is the wage in the South, then the disposable incomes of migrants (I_{SN}) and remainders (I_S) are:

$$I_S = \lambda \nu w_N + (1 - \lambda)w_S, I_{SN} = \lambda(1 - \nu)w_N. \tag{22.3}$$

Migrant family members in the two countries maximize their utility separately, and:

$$M_S = \alpha \frac{I_S}{P_S^M}, A_S = (1 - \alpha) \frac{I_S}{P_S^A},$$

$$M_{SN} = \alpha \frac{I_{SN}}{\mathbf{P}_N^M}, A_S = (1 - \alpha) \frac{I_{SN}}{\mathbf{P}_N^A},$$

where \mathbf{P}_S^M is the aggregate price level of manufactured goods, \mathbf{P}_S^A is the price level of the agricultural good in S country, and the composite utility function of a migrant family is:

$$V_S = \frac{\lambda(1 - \nu)w_N}{(\mathbf{P}_N^M)^\alpha (\mathbf{P}_N^A)^{1-\alpha}} - \frac{\varphi}{2}\lambda^2 + \frac{\lambda\nu w_N + (1 - \lambda)w_S}{(\mathbf{P}_S^M)^\alpha (\mathbf{P}_S^A)^{1-\alpha}}. \quad (22.4)$$

Moreover, V_S is defined as the welfare level of a migrant family.

Every individual has one unit of the labor force. However, those in the North are heterogeneous in their capability of setting up firms which are run under monopolistic competition, denoted by θ . A higher θ implies lower marginal costs to operate the firm. The capacity level, known by themselves, affects their occupational choice between being entrepreneurs and workers. The capability of potential entrepreneurs $\theta \in [1, \infty)$ follows an untruncated Pareto distribution with the cumulative density function $G(\theta) = 1 - \theta^{-\kappa}$ and $\kappa > \sigma - 1$. An entrepreneur with capacity θ can produce one unit of manufactured goods by hiring $1/\theta$ unit of the labor force and earn an operating profit. Workers earn local wage w_N by providing their labor force to entrepreneurs. Individuals compare two kinds of payoffs and select their occupation by themselves. After entrepreneurs set up firms, they hire workers to produce $y(\theta)$ units of goods that equal the domestic demand $q_N(\theta)$ (including the demand of migrants) and foreign demand $q_S(\theta)$. Firms generate extra costs $w_N f_x$ while exporting, f_x units of workers are needed, and we assume an iceberg trade cost of differentiated goods; that is, $\tau_M > 1$. Workers not hired in the manufactured sector will enter the agricultural sector.

The agricultural sector is perfectly competitive, and the price of the agricultural good in the South is normalized to 1. One unit of the labor force can generate one unit of agricultural good, and the transportation cost is $\tau_A > 1$. If the North is the net importer of agricultural good, then the wage in the North is the trade cost of the agricultural good; that is, $w_N = \tau_A \tau_A$.⁷ Under this core-periphery setting, we assume that manufactured goods are produced only by the North, and the South only produces agricultural good.⁸

Given the same pricing rules for all firms, we can link each variety ω with productivity θ . By solving firms' maximization problem, we can express aggregate consumer demand for manufactured goods in the North (N) and the South (S)⁹ as:

⁷Davis (1998) mentions that if two countries produce competitive agricultural good at the same time, then the wage difference equals their trade cost; that is, τ_A in our setting.

⁸The results are not affected if the North also produces the agricultural good.

⁹The exporting amount of Northern manufacturing firms is equal to the demand of the South.

$$q_N(\theta) = \alpha \frac{Y_N}{\mathbf{P}_N^M} \left[\frac{\mathbf{P}_N^M}{p_N(\theta)} \right]^\sigma, \quad q_S(\theta) = \alpha \frac{Y_S}{\mathbf{P}_S^M} \left[\frac{\mathbf{P}_S^M}{p_S(\theta)} \right]^\sigma,$$

where Y_N (Y_S) is the aggregate income within country N (S). The optimal price and operating profits for a specific firm are:

$$p_N(\theta) = \frac{\sigma}{\sigma - 1} \frac{w_N}{\theta}, \quad p_S(\theta) = \frac{\sigma}{\sigma - 1} \frac{\tau_M w_N}{\theta},$$

$$\pi_N(\theta) = \alpha \frac{Y_N}{\sigma} \left(\frac{\sigma - 1}{\sigma} \frac{\theta \mathbf{P}_N^M}{w_N} \right)^{\sigma-1}, \quad \pi_S(\theta) = \alpha \frac{Y_S}{\sigma} \left(\frac{\sigma - 1}{\sigma} \frac{\theta \mathbf{P}_S^M}{\tau_M w_N} \right)^{\sigma-1}. \quad (22.5)$$

Here, $p_N(\theta)$ is the domestic price in the North, $p_S(\theta)$ is the exporting price that consumers face in the South, $\pi_N(\theta)$ is the domestic operating profit in the North, and $\pi_S(\theta)$ is the exporting profit for the Northern firms. As in Lucas (1978), we assume that the operating profits of a firm with productivity θ are the income of the entrepreneurs; that is:

$$\pi(\theta) = \pi_N(\theta) + \mathbb{I}_S \pi_S(\theta) - \mathbb{I}_S w_N f_x, \quad \mathbb{I}_S = 0, 1.$$

where \mathbb{I}_S is the indicator function with two values: $\mathbb{I}_S = 1$ when a firm exports and $\mathbb{I}_S = 0$ otherwise. Individuals in the North could choose to be workers, entrepreneurs only producing for the domestic market, or entrepreneurs serving two markets. Here, θ_N and θ_S are the production thresholds needed to stay in the domestic and foreign markets, respectively. Past literature reveals that the exporting threshold is larger than the domestic one; that is, $\theta_S > \theta_N$. One possible reason is that those exporting firms must pay extra costs to access the foreign market, and higher productivity is required to break even in the exporting market. The partitioning of firms by export status will occur if the following condition **P** is satisfied.

Condition P (Partition) $\frac{L_N}{L_S} > \Gamma = \frac{\alpha}{\sigma} \frac{\sigma(\kappa-1)+1}{\tau_{AK}} \frac{1+f_x}{f_x}.$

The marginal entrepreneur only obtains the domestic operating profit, and the domestic production cutoff is determined by equating the domestic operating profits to local wage (w_N). It means that the marginal domestic entrepreneur is indifferent between setting up the firm and being a worker. The exporting cutoff is decided by equating the foreign operating profit to the fixed cost ($w_N f_x$) required while exporting. Therefore, the thresholds of selling in the domestic market (θ_N) and foreign market (θ_S) can be decided by the following equations.

$$\pi(\theta_N) = \alpha \frac{Y_N}{\sigma} \left(\frac{\sigma - 1}{\sigma} \frac{\theta_N}{w_N} \mathbf{P}_N^M \right)^{\sigma-1} = w_N,$$

$$\pi(\theta_S) = \alpha \frac{Y_S}{\sigma} \left(\frac{\sigma - 1}{\sigma} \frac{\theta_S}{\tau_M w_N} \mathbf{P}_S^M \right)^{\sigma-1} = w_N f_x. \quad (22.6)$$

In fact, these two equations are the zero-profit conditions in these two markets.

22.2.1 No Unskilled Migration in an Open Economy

First, we consider an open economy without migration. The mass of domestic firms n_N and that of exporting firms n_S are shown as:

$$n_N = [1 - G(\theta_N)]L_N, n_S = [1 - G(\theta_S)]L_N. \quad (22.7)$$

The aggregate income (also the national income in the benchmark case) of two countries are as follows:

$$\begin{aligned} Y_N &= L_N \{G(\theta_N)w_N + [1 - G(\theta_N)]\bar{\pi}_N + [1 - G(\theta_S)][\bar{\pi}_S - w_N f_x]\}, \\ Y_S &= L_S. \end{aligned} \quad (22.8)$$

where $\bar{\pi}_N$ and $\bar{\pi}_S$ are the average profits of firms in the two markets, respectively:

$$\begin{aligned} \bar{\pi}_S &= \left[\int_{\theta_S}^{\infty} \pi_S(\theta)^{\sigma-1} \frac{dG(\theta)}{1 - G(\theta_S)} \right]^{\frac{1}{\sigma-1}} = w_N f_x \left(\frac{\tilde{\theta}_S}{\theta_S} \right)^{\sigma-1}, \\ \bar{\pi}_N &= \left[\int_{\theta_N}^{\infty} \pi_N(\theta)^{\sigma-1} \frac{dG(\theta)}{1 - G(\theta_N)} \right]^{\frac{1}{\sigma-1}} = w_N \left(\frac{\tilde{\theta}_N}{\theta_N} \right)^{\sigma-1}, \end{aligned} \quad (22.9)$$

and

$$\begin{aligned} \tilde{\theta}_N &= \left[\int_{\theta_N}^{\infty} \theta^{\sigma-1} \frac{dG(\theta)}{1 - G(\theta_N)} \right]^{\frac{1}{\sigma-1}} = \left(\frac{\kappa}{\kappa - \sigma + 1} \right)^{\frac{1}{\sigma-1}} \theta_N, \\ \tilde{\theta}_S &= \left[\int_{\theta_S}^{\infty} \theta^{\sigma-1} \frac{dG(\theta)}{1 - G(\theta_S)} \right]^{\frac{1}{\sigma-1}} = \left(\frac{\kappa}{\kappa - \sigma + 1} \right)^{\frac{1}{\sigma-1}} \theta_S. \end{aligned} \quad (22.10)$$

By denoting \tilde{h}_N and \tilde{h}_S as the average labor demands in the domestic and export sectors, the labor clearing condition implies that:

$$\begin{aligned} G(\theta_N) &= [1 - G(\theta_N)]\tilde{h}_N + [1 - G(\theta_S)](\tilde{h}_S + f_x) \\ &= (\sigma - 1) \left\{ [1 - G(\theta_N)] \left(\frac{\tilde{\theta}_N}{\theta_N} \right)^{\sigma-1} + [1 - G(\theta_S)] \left(\frac{\tilde{\theta}_S}{\theta_S} \right)^{\sigma-1} f_x \right\} \\ &\quad + [1 - G(\theta_S)]f_x. \end{aligned} \quad (22.11)$$

The aggregate price levels of manufactured goods in the North and the South are:

$$\mathbf{P}_N^M = \frac{\sigma}{\sigma - 1} w_N \left(\frac{\kappa L_N}{\kappa - \sigma + 1} \right)^{\frac{1}{\sigma-1}} (\theta_N)^{\frac{\kappa - \sigma + 1}{\sigma-1}}, \quad (22.12)$$

$$P_S^M = \tau_M \frac{\sigma}{\sigma - 1} w_N \left(\frac{\kappa L_N}{\kappa - \sigma + 1} \right)^{\frac{1}{\sigma-1}} (\theta_S)^{\frac{\kappa-\sigma+1}{\sigma-1}}. \tag{22.13}$$

Together with the zero-profit conditions (22.6) and $w_N = P_N^A = \tau_A$, $w_S = 1$, we solve for the thresholds:

$$\theta_S = \left[\frac{\sigma}{\alpha} \frac{\kappa}{\kappa - \sigma + 1} \frac{L_N}{L_S} \tau_A f_x \right]^{\frac{1}{\kappa}}, \tag{22.14}$$

$$\theta_N = \left[\frac{(\theta_c)^\kappa}{(\theta_S)^\kappa - f_x (\theta_c)^\kappa} \right]^{\frac{1}{\kappa}} \theta_S. \tag{22.15}$$

where $\theta_c = [(\sigma\kappa - \sigma + 1)/\kappa - \sigma + 1]^{\frac{1}{\kappa}}$, is a constant.

Only the North produces and exports manufactured goods. Thus, the trade cost τ_M does not play any role in non-migration optimal production thresholds θ_S and θ_N . The Northern market itself is not affected by τ_M . For firms exporting to the Southern market, the extra trade cost τ_M is canceled out by raising the price at the same rate.

In the next step we compare the welfare level in the North with that in the South. The welfare gap between unskilled workers in the two countries is:

$$\frac{w_N}{P_N} - \frac{w_S}{P_S} = \frac{1}{(P_S^M)^\alpha} \left[\left(\frac{\theta_S}{\theta_N} \right)^{\alpha \frac{\kappa-\sigma+1}{\sigma-1}} (\tau_M \tau_A)^\alpha - 1 \right] > 0,$$

where P_N and P_S are the aggregate price levels of two countries. It means that the real wage in the North is always higher than that in the South. It can serve as an incentive to migrate for the Southern workers after migration is allowed even if they take the attachment costs into consideration. To simplify the welfare analysis, we consider the trade costs that satisfy Condition **T**¹⁰ below.

Condition T (Trade Cost) $(\tau_M)^\alpha > (\tau_A)^{1-\alpha}$

$$\frac{P_S}{P_N} = \left[\left(\frac{\theta_S}{\theta_N} \right)^{\alpha \frac{\kappa-\sigma+1}{\sigma-1}} \frac{(\tau_M)^\alpha}{(\tau_A)^\alpha} \right] > 1.$$

With Condition **T**, the price level is always lower in the North ($P_S/P_N > 1$). In fact, even if τ_M is slightly smaller than τ_A , the price level may be higher in the South. Moreover, the parameters above satisfy the labor clearing condition $L_S = (1 - \alpha)(Y_S + Y_N/\tau_A)$.

¹⁰The trade cost of the agricultural good is usually normalized into $\tau_A = 1 < \tau_M$. We relax the assumption by imposing condition **T**.

22.2.2 *Unskilled Migration and Remittance in an Open Economy*

This section allows the migration of unskilled workers; that is, part of Southern family members could choose to go abroad to earn higher wages ($w_N = \tau_A > 1$)¹¹ while enduring attachment costs (φ) or to stay at home and get paid $w_S = 1$. We slightly abuse the notations here. We still denote P_N^M and P_S^M ¹² as the aggregate prices of manufactured goods in the two countries; however, the values are different from the previous section. And the superscript “O” represents the variables after the migration is permitted.

The migration behavior is the same across all Southern households. Here, $\lambda \geq 0$ is the migration ratio per household, and $\nu > 0$ is a constant remittance rate of migrants. To verify the effects of migrant behavior on the production thresholds and welfare levels of these two countries, we need to specify the decision process of the Southern family members and explain how the equilibrium is derived. The decision timing is listed below.

Stage 1 *The migrant family decides the migration ratio λ to maximize the utility of the whole family (centralized problem).*

Stage 2 *Given the migration ratio λ , family members with identical preferences maximize their utility subject to their incomes in the two countries (decentralized problem).*

Stage 3 *Manufacturing firms produce goods and maximize profit.*

By backward induction, first, we derive the production thresholds given migration ratio λ . Second, migrants and their family members maximize their utility subject to their different income, respectively. Finally, the Southern families maximize their indirect utility function to derive the optimal migration ratio. Together with two threshold functions and one migrant ratio function, we can solve for the optimal production thresholds and migrant ratio.

For the purpose of solving the equilibrium in the manufacturing sector, we modify the aggregate incomes of the two countries as:

$$\begin{aligned} Y_N^O &= w_N G(\theta_N^O) L_N + (1 - \nu) w_N \lambda L_S + L_N [1 - G(\theta_N^O)] \bar{\pi}_N^O \\ &\quad + L_N [1 - G(\theta_S^O)] [\bar{\pi}_S^O - w_N f_x], \\ Y_S^O &= [(1 - \lambda) w_S + \lambda \nu w_N] L_S, \end{aligned} \quad (22.16)$$

where θ_N^O and θ_S^O are the domestic and exporting thresholds after migration is allowed; $\bar{\pi}_N^O$ and $\bar{\pi}_S^O$ stand for the average operating profit of the two markets after migration is allowed. The aggregate national incomes NI_N^O and NI_S^O of the two countries are:

¹¹The wage equals the trade cost of agricultural good τ_A and is not affected by the migrants.

¹²The aggregate prices of agricultural good in the two countries are still the same; that is, $P_N^A = \tau_A$ and $P_S^A = 1$.

$$\begin{aligned} NI_N^O &= w_N G(\theta_N^O) L_N + L_N [1 - G(\theta_N^O)] \bar{\pi}_N^O + L_N [1 - G(\theta_S^O)] [\bar{\pi}_S^O - w_N f_x], \\ NI_S^O &= [(1 - \lambda) w_S + \lambda w_N] L_S, \end{aligned} \quad (22.17)$$

By denoting \tilde{h}_N^O and \tilde{h}_S^O as the average labor demands in the domestic and export sectors. Thus, the labor market condition in the North becomes:

$$\begin{aligned} G(\theta_N^O) L_N + \lambda L_S &= L_N [1 - G(\theta_N^O)] \tilde{h}_N^O + L_N [1 - G(\theta_S^O)] (\tilde{h}_S^O + f_x) \\ &= (\sigma - 1) L_N \left\{ [1 - G(\theta_N^O)] \left(\frac{\tilde{\theta}_N^O}{\theta_N^O} \right)^{\sigma-1} \right. \\ &\quad \left. + [1 - G(\theta_S^O)] \left(\frac{\tilde{\theta}_S^O}{\theta_S^O} \right)^{\sigma-1} f_x \right\} + L_N [1 - G(\theta_S^O)] f_x. \end{aligned} \quad (22.18)$$

By combining with the zero-profit condition (22.6) and labor market clearing condition (22.18), the two production thresholds are:

$$\theta_S^O = \left[\frac{\sigma \kappa \tau_A f_x}{\alpha (\kappa - \sigma + 1) (1 - \lambda + \lambda \nu \tau_A)} \frac{L_N}{L_S} \right]^{\frac{1}{\kappa}}, \quad (22.19)$$

$$\theta_N^O = \left[\frac{(\theta_S^O \theta_c)^\kappa L_N}{(L_N + \lambda L_S) (\theta_S^O)^\kappa - L_N f_x (\theta_c)^\kappa} \right]^{\frac{1}{\kappa}}. \quad (22.20)$$

Condition **P** must hold to keep $\theta_S^O > \theta_N^O$.

We further assume that the amount migrants remit back to their family is more than the wages that they can earn in their home country; that is:

Condition R (Remittance) $\nu \tau_A > 1$.

With Condition **R**, we can compare the values of production thresholds before and after migration is allowed. The result is shown below.

Lemma 1 *The number of domestic firms and exporting firms increases after migration is allowed; thus, the price level decreases in both countries.*

Proof Insert (22.14) into (22.19), and (22.15) into (22.20), then we obtain

$$\begin{aligned} \theta_S^O &= \left(\frac{1}{1 - \lambda + \lambda \nu \tau_A} \right)^{\frac{1}{\kappa}} \theta_S, \\ \theta_N^O &= \left[\frac{(\theta_c)^\kappa L_N}{L_N + \lambda L_S - (1 - \lambda + \lambda \nu \tau_A) L_N (\theta_S)^{-\kappa} (\theta_c)^\kappa f_x} \right]^{\frac{1}{\kappa}}. \end{aligned}$$

and combining with Condition **R**, we immediately have:

$$\theta_S > \theta_S^O, \theta_N > \theta_N^O.$$

We know that the domestic and the exporting thresholds decrease when migration is permitted, meaning that the number of firms increases. By (22.12) and (22.13), the aggregate price levels are decreasing after allowing workers to go abroad in both countries. ■

Before we move on to the next stage of the decision process, we need to examine the limit of the migration ratio. By the labor clearing condition in the South:

$$(1 - \lambda)L_S = (1 - \alpha) \left(\frac{NI_S^O}{P_S^A} + \frac{NI_N^O}{P_N^A} \right),$$

Thus, we know that the condition for the South to export agricultural good is $(1 - \lambda)L_S > (1 - \alpha)(NI_S^O/P_S^A)$, and it implies the upper bound $\bar{\lambda}$ of migration rate¹³:

$$1 > \bar{\lambda} = \frac{\alpha}{\alpha + (1 - \alpha)\nu\tau_A} > \lambda. \quad (22.21)$$

In the second stage, migrants and their family members maximize their utility separately. A family's indirect utility function is the aggregation of family members' utility in the two countries as Eq. (22.4).

We next derive the optimal migration ratio λ for the Southern families. The equilibrium migration ratio is characterized by maximizing the composite indirect utility function of the Southern family as:

$$\max_{\lambda} V_S = \frac{\lambda(1 - \nu)w_N}{(P_N^M)^\alpha (P_N^A)^{1-\alpha}} + \frac{\lambda\nu w_N + (1 - \lambda)w_S}{(P_S^M)^\alpha (P_S^A)^{1-\alpha}} - \frac{\varphi}{2}\lambda^2, \quad (22.22)$$

Differentiating the indirect utility function given aggregate price level (the decision of single family cannot affect the aggregate price level) and combining with (22.12) and (22.13), we now obtain¹⁴

$$\lambda = \frac{\Omega}{\varphi} \left[\frac{1 - \nu}{(\theta_N^O)^\alpha (\theta_N^O)^{\frac{\kappa - \sigma + 1}{\sigma - 1}}} + \frac{\nu\tau_A - 1}{(\tau_M\tau_A)^\alpha (\theta_S^O)^\alpha (\theta_S^O)^{\frac{\kappa - \sigma + 1}{\sigma - 1}}} \right]. \quad (22.23)$$

where $\Omega = [(\sigma - 1)/\sigma]^\alpha [kL_N/(\kappa - \sigma + 1)]^{\frac{\alpha}{\sigma - 1}}$.

To guarantee the interior solution ($\lambda < \bar{\lambda} < 1$), we impose Condition **A** to ensure that the attachment cost is sufficiently high to maintain the partial migration pattern.

¹³Given remittance rate $\nu > 0$, the upper bound of migration ratio $\bar{\lambda}$ would be strictly smaller than 1, hence we exclude the possibility that all Southern family members migrate to the North.

¹⁴The second-order condition satisfies $\partial^2 V_S / \partial \lambda^2 < 0$.

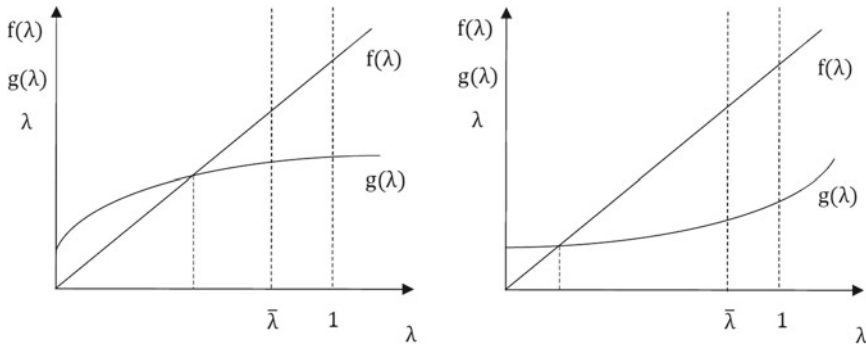


Fig. 22.2 The convexity of λ

Condition **A** is immediately derived by inserting $\bar{\theta}_N = \bar{\theta}_N^O(\bar{\lambda})$ and $\bar{\theta}_S = \bar{\theta}_S^O(\bar{\lambda})$ into (22.23), and then rearranging the inequality $\lambda < \bar{\lambda}$.

Condition A (Attachment Cost) $\varphi > \frac{\Omega}{\varphi} \left[(1 - \nu)(\bar{\theta}_N)^{-\alpha \frac{\kappa - \sigma + 1}{\sigma - 1}} + \frac{\nu \tau_A - 1}{(\tau_M \tau_A)^\alpha} (\bar{\theta}_S)^{-\alpha \frac{\kappa - \sigma + 1}{\sigma - 1}} \right]$.

These examinations enable us to conclude the following proposition.

Proposition 1 *If conditions **P**, **R**, and **A** hold, then with the utility maximization of the Southern family, there exists an equilibrium λ^* such that a proportion of the household members migrate while remitting a part of their wage income (νw_N) to their families.*

Proof In order to investigate the properties of equilibrium, we rewrite the right-hand side and left-hand side of migration Eq. (22.23) as:

$$\begin{aligned}
 f(\lambda) &= \lambda, \\
 g(\lambda) &= \frac{\Omega}{\varphi} \left[\frac{1 - \nu}{(\theta_N^O)^\alpha \frac{\kappa - \sigma + 1}{\sigma - 1}} + \frac{\nu \tau_A - 1}{(\tau_M \tau_A)^\alpha (\theta_S^O)^\alpha \frac{\kappa - \sigma + 1}{\sigma - 1}} \right]. \tag{22.24}
 \end{aligned}$$

and with (22.19) and (22.20), we prove in the appendix that $\partial f(\lambda)/\partial \lambda > 0$ and $\partial g(\lambda)/\partial \lambda > 0$. By combining with $1 > \bar{\lambda} > g(\bar{\lambda}) > g(0) > 0$, we know that λ^* exists. In fact, the solution is unique, because the second-order condition ensures that $g(\lambda)$ is smooth (either convex or concave). We use Fig. 22.2¹⁵ to demonstrate the relationship between the uniqueness of the solution and the convexity of $g(\lambda)$ as:

The mathematical details are also presented in Appendix 1. ■

In summary, given the parameter set $\{\alpha, \kappa, \sigma, \nu, \varphi, f_x, \tau_A, \tau_M, L_N, L_S\}$, we prove that unskilled migrants have an incentive to migrate from the South to the North, and this is not fully discussed in the occupation self-selection model.

¹⁵The horizontal axis of Fig. 22.2 and Fig. 22.3 are the value of λ . The scale may not be the exact size for demonstration purpose.

22.3 The Comparative Statics

This section examines the properties of production thresholds. By differentiating the threshold with respect to τ_M , τ_A , ν , and φ , and the results of comparative statics are shown in the following proposition.

Proposition 2

- (1) *The migration ratio (λ^*) is decreasing in the transportation cost of manufactured goods (τ_M) and the attachment cost (φ).*
- (2) *The domestic cutoff ($\theta_N^O(\lambda^*)$) and exporting thresholds ($\theta_S^O(\lambda^*)$) are increasing in the transportation cost of manufactured goods (τ_M) and the attachment cost (φ).*

Proof

- (1) To verify the effects of exogenous variables. First, we calculate the partial derivative of $g(\lambda)$ with respect to τ_M and φ as

$$\frac{\partial g(\lambda)}{\partial \tau_M} < 0, \frac{\partial g(\lambda)}{\partial \varphi} < 0,$$

We have proved in the previous proposition that $g(\lambda)$ is smooth (either convex or concave), and its convexity depends on certain parameters. When $g(\lambda)$ is moving downward, λ^* becomes smaller. We use Fig. 22.3 to illustrate the inference.

Here, λ^{**} in Fig. 22.3 denotes an arbitrary new equilibrium. We can conclude that:

$$\frac{\partial \lambda^*}{\partial \tau_M} < 0, \frac{\partial \lambda^*}{\partial \varphi} < 0.$$

- (2) By the deduction process in Appendix 1, we know the signs of the partial derivatives of $\theta_N^O(\lambda^*)$ and $\theta_S^O(\lambda^*)$ with respect to λ are:

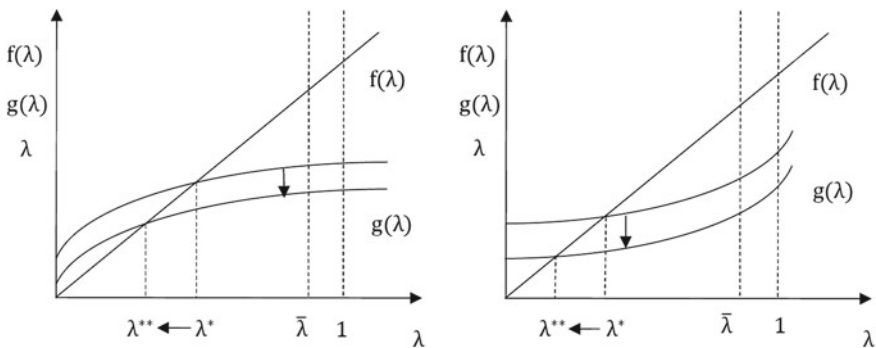


Fig. 22.3 The movement of migration ratio

$$\frac{\partial \theta_N^O(\lambda^*)}{\partial \lambda} < 0, \frac{\partial \theta_S^O(\lambda^*)}{\partial \lambda} < 0,$$

By differentiating (22.19) and (22.20) and by combining with the first part of Proposition 2, we know that:

$$\begin{aligned} \frac{d\theta_N^O(\lambda^*)}{d\tau_M} &= \frac{\partial \theta_N^O(\lambda^*)}{\partial \lambda} \frac{\partial \lambda^*}{\partial \tau_M} + \frac{\partial \theta_N^O(\lambda^*)}{\partial \tau_M} = \frac{\partial \theta_N^O(\lambda^*)}{\partial \lambda} \frac{\partial \lambda^*}{\partial \tau_M} > 0, \\ \frac{d\theta_S^O(\lambda^*)}{d\tau_M} &= \frac{\partial \theta_S^O(\lambda^*)}{\partial \lambda} \frac{\partial \lambda^*}{\partial \tau_M} + \frac{\partial \theta_S^O(\lambda^*)}{\partial \tau_M} = \frac{\partial \theta_S^O(\lambda^*)}{\partial \lambda} \frac{\partial \lambda^*}{\partial \tau_M} > 0, \\ \frac{d\theta_N^O(\lambda^*)}{d\varphi} &= \frac{\partial \theta_N^O(\lambda^*)}{\partial \lambda} \frac{\partial \lambda^*}{d\varphi} + \frac{\partial \theta_N^O(\lambda^*)}{d\varphi} = \frac{\partial \theta_N^O(\lambda^*)}{\partial \lambda} \frac{\partial \lambda^*}{d\varphi} > 0, \\ \frac{d\theta_S^O(\lambda^*)}{d\varphi} &= \frac{\partial \theta_S^O(\lambda^*)}{\partial \lambda} \frac{\partial \lambda^*}{d\varphi} + \frac{\partial \theta_S^O(\lambda^*)}{d\varphi} = \frac{\partial \theta_S^O(\lambda^*)}{\partial \lambda} \frac{\partial \lambda^*}{d\varphi} > 0. \end{aligned}$$

The second equality of these equations is explained in Appendix 2. The results indicate that the two production thresholds are increasing in τ_M and φ . However, the effects of the transportation cost of agricultural goods (τ_A) and remittance rate (ν) on migration ratio and the two production thresholds remain ambiguous. ■

The transportation cost of M-goods, τ_M affects the migration ratio through two channels. First, when τ_M increases, the price level in the South increases; other things being equal, the value of remittance shrinks while the family members suffer the same level of attachment costs, and the migration ratio λ decreases. When λ decreases, both production thresholds θ_S^O and θ_N^O rise. This further lifts the price levels of the two countries. If the increasing size is larger in the Southern country, then households send more members abroad. The aggregate effect shows that the migration ratio drops when τ_M increases. As for the transportation cost of the agricultural good (τ_A) and remittance rate (ν), if τ_A increases, then the aggregate price level in the North increases as well as does the wage paid to workers, because $w_N = \tau_A$. Thus, the aggregate effect is unclear. If the remittance rate (ν) increases, then the welfare level in original family increases while migrants suffer, and the effects depend on the magnitude of parameters.

We now move to examine the welfare change of migration families by rewriting the indirect utility function (22.22) as:

$$V_S^* = \Omega \left[\frac{\lambda^*(1 - \nu)}{[\theta_N^O(\lambda^*)]^\alpha \frac{\kappa - \sigma + 1}{\sigma - 1}} + \frac{\lambda^* \nu \tau_A + 1 - \lambda^*}{(\tau_M \tau_A)^\alpha [\theta_S^O(\lambda^*)]^\alpha \frac{\kappa - \sigma + 1}{\sigma - 1}} \right] - \frac{\varphi}{2} (\lambda^*)^2.$$

The directions of welfare changes are summarized in the following proposition.

Proposition 3 *The welfare level of the migrant families is decreasing in the transportation cost of manufactured goods τ_M and the attachment cost (φ).*

Proof By envelope theorem ($\partial V_S^*(\lambda)/\partial\lambda = 0$) and the results of the previous proposition, we can recognize the signs of the derivatives with respect to τ_M and φ :

$$\begin{aligned} \frac{dV_S^*(\lambda, \varphi)}{d\varphi} &= \frac{\partial V_S^*(\lambda, \varphi)}{\partial\lambda} \frac{\partial\lambda^*}{\partial\varphi} + \frac{\partial V_S^*(\lambda, \varphi)}{\partial\varphi} + \frac{\partial V_S^*(\lambda, \varphi)}{\partial\theta_N^O} \frac{\partial\theta_N^O}{\partial\lambda} \frac{\partial\lambda^*}{\partial\varphi} \\ &\quad + \frac{\partial V_S^*(\lambda, \varphi)}{\partial\theta_N^O} \frac{\partial\theta_N^O}{\partial\varphi} + \frac{\partial V_S^*(\lambda, \varphi)}{\partial\theta_S^O} \frac{\partial\theta_S^O}{\partial\lambda} \frac{\partial\lambda^*}{\partial\varphi} + \frac{\partial V_S^*(\lambda, \varphi)}{\partial\theta_S^O} \frac{\partial\theta_S^O}{\partial\varphi} \\ &= \frac{\partial V_S^*(\lambda, \varphi)}{\partial\varphi} + \frac{\partial V_S^*(\lambda, \varphi)}{\partial\theta_N^O} \frac{\partial\theta_N^O}{\partial\lambda} \frac{\partial\lambda^*}{\partial\varphi} + \frac{\partial V_S^*(\lambda, \varphi)}{\partial\theta_S^O} \frac{\partial\theta_S^O}{\partial\lambda} \frac{\partial\lambda^*}{\partial\varphi} < 0, \end{aligned}$$

and

$$\begin{aligned} \frac{dV_S^*(\lambda, \tau_M)}{d\tau_M} &= \frac{\partial V_S^*(\lambda, \tau_M)}{\partial\lambda} \frac{\partial\lambda^*}{\partial\tau_M} + \frac{\partial V_S^*(\lambda, \tau_M)}{\partial\tau_M} + \frac{\partial V_S^*(\lambda, \tau_M)}{\partial\theta_N^O} \frac{\partial\theta_N^O}{\partial\lambda} \frac{\partial\lambda^*}{\partial\tau_M} \\ &\quad + \frac{\partial V_S^*(\lambda, \tau_M)}{\partial\theta_N^O} \frac{\partial\theta_N^O}{\partial\tau_M} + \frac{\partial V_S^*(\lambda, \tau_M)}{\partial\theta_S^O} \frac{\partial\theta_S^O}{\partial\lambda} \frac{\partial\lambda^*}{\partial\tau_M} + \frac{\partial V_S^*(\lambda, \tau_M)}{\partial\theta_S^O} \frac{\partial\theta_S^O}{\partial\tau_M} \\ &= \frac{\partial V_S^*(\lambda, \tau_M)}{\partial\tau_M} + \frac{\partial V_S^*(\lambda, \tau_M)}{\partial\theta_N^O} \frac{\partial\theta_N^O}{\partial\lambda} \frac{\partial\lambda^*}{\partial\tau_M} + \frac{\partial V_S^*(\lambda, \tau_M)}{\partial\theta_S^O} \frac{\partial\theta_S^O}{\partial\lambda} \frac{\partial\lambda^*}{\partial\tau_M} < 0. \end{aligned}$$

With the results above, we conclude that the welfare level of migrant families is decreasing in φ and τ_M . Nevertheless, the effects of the transportation cost of agricultural goods (τ_A) and remittance rate (ν) on welfare are undetermined. ■

Increases in τ_M and φ will raise the aggregate prices of the two countries. Thus, the purchasing power of migrant families decreases, and hence the welfare of migrant families decreases. An increase in φ lifts the level of attachment cost and ruins the welfare level of migrant families as well.

22.4 Welfare and Inequality Analysis

The section presents the welfare issues. First, we compare the welfare levels of the two countries before and after migration is allowed.

Proposition 4 (Welfare Levels of Two Countries) *Both countries have higher welfare levels after migration is allowed.*

Proof

- (1) By Condition **R**, we can simply prove that the aggregate income of the South becomes larger after migration is allowed; that is, $Y_S^O = (1 - \lambda + \lambda\nu\tau_A)L_S > Y_S = L_S$. Moreover, the price level decreases ($P_S^O < P_S$) in the South. Thus, the welfare level is obviously larger than before—that is,

$$\frac{Y_S^O}{P_S^O} - \frac{Y_S}{P_S} > 0.$$

(2) With labor clearing condition (22.18), we can rewrite the aggregate income of the North before and after allowing labor migration:

$$Y_N = \frac{\sigma \kappa w_N L_N}{\kappa - \sigma + 1} [(\theta_N)^{-\kappa} + (\theta_S)^{-\kappa} f_x],$$

$$Y_N^O = \frac{\sigma \kappa w_N L_N}{\kappa - \sigma + 1} [(\theta_N^O)^{-\kappa} + (\theta_S^O)^{-\kappa} f_x] - v \tau_A \lambda L_S,$$

and by (22.14), (22.15), (22.19), and (22.20), we can prove that $Y_N^O > Y_N$ and the price level in the North is decreasing as well, so we know that the welfare level in the North is increasing.

$$\frac{Y_N^O}{P_N^O} - \frac{Y_N}{P_N} > 0.$$

The welfare levels of the Southern households increase after migration is permitted; otherwise, they are not willing to migrate. Therefore, we conclude that both countries gain from migration. ■

We next investigate the welfare effects within the North.

Proposition 5 (Welfare Levels of Northern Unskilled Workers) *The welfare levels of unskilled workers in the North increases, because of decreases in the price level.*

Proof The wage in the North is not affected by the migrants. It is easy to verify that the welfare level of workers increases. Because of a decrease in the aggregate price, and so we know that:

$$\frac{w_N}{P_N^O} - \frac{w_N}{P_N} > 0.$$

In a nutshell, Northern workers gain from migration. ■

We now discuss the welfare change of entrepreneurs. Entrepreneurs' payoff is the firms' net profit, and thus we can calculate the average income of entrepreneurs as:

$$\begin{aligned} \bar{y}_e &= \bar{\pi}_N^O + \frac{1 - G(\theta_S^O)}{1 - G(\theta_N^O)} (\pi_S^O - w_N f_x) \\ &= w_N \left\{ \left(\frac{\tilde{\theta}_N^O}{\theta_N^O} \right)^{\sigma-1} + \frac{1 - G(\theta_S^O)}{1 - G(\theta_N^O)} \left[\left(\frac{\tilde{\theta}_S^O}{\theta_S^O} \right)^{\sigma-1} - 1 \right] f_x \right\} \end{aligned}$$

$$= \frac{w_N}{\kappa - \sigma + 1} \left[\kappa + (\sigma - 1) (\hat{\theta})^{-\kappa} f_x \right],$$

where

$$\hat{\theta} = \frac{\theta_S^O}{\theta_N^O} = \left[\frac{(L_N + \lambda L_S) (\theta_S^O)^\kappa - L_N (\theta_c)^\kappa f_x}{(\theta_c)^\kappa L_N} \right]^{\frac{1}{\kappa}} > 1.$$

Here, we define the income gap Δ between entrepreneurs and workers in the North as $\bar{y}_e - w_N$, and:

$$\Delta \equiv \bar{y}_e - w_N = w_N \left\{ \frac{1}{\kappa - \sigma + 1} \left[\kappa + (\sigma - 1) (\hat{\theta})^{-\kappa} f_x \right] - 1 \right\}.$$

The equation above shows that the income gap between workers and entrepreneurs in the North only depends on the relative magnitude between the two production thresholds $\hat{\theta}$. A Large $\hat{\theta}$ means that the domestic market is much larger than the foreign market. Only a small proportion of firms is eligible to export, and the average operating profit from a foreign country is small compared with a smaller $\hat{\theta}$, and so a large $\hat{\theta}$ generates moderate income gaps. However, a small $\hat{\theta}$ implies that most firms can export and earn a higher operating profit, and it ruins the income gap.

In the final step, we investigate the impacts of transportation cost of manufactured good τ_M (trade liberalization) on the income gap between entrepreneurs and workers within the North. The results are presented in the following proposition.

Proposition 6 (*Welfare Levels between Entrepreneurs and Workers in the North*)
The income gap between entrepreneurs and workers increases if the remittances sent back are sufficiently large.

Proof First, we need to realize the relationship between $\hat{\theta}$ and λ . By (22.19) and (22.20), we know that:

$$\frac{\partial \hat{\theta}}{\partial \lambda} \leq 0 \text{ if } \frac{L_S}{L_N} \leq (\nu \tau_A - 1),$$

By simple calculation we conclude that:

$$\text{sign} \left[\frac{\partial \Delta}{\partial \tau_M} \right] = -\text{sign} \left[\frac{\partial \hat{\theta}}{\partial \lambda} \frac{\partial \lambda}{\partial \tau_M} \right] \leq 0 \text{ if } \frac{L_S}{L_N} \leq (\nu \tau_A - 1).$$

The second inequality is derived from $\partial \lambda / \partial \tau_M < 0$. ■

If the North has a larger population, which means $(\nu \tau_A - 1) > L_S / L_N$, then the income gap within the North increase after trade liberalization. Trade liberalization attracts more migrants workers to the North, and the remittances the migrants sent

back increase the demand in the South. The exporting threshold decreases, and the domestic threshold increases, because the firm allocates more labor force in the exporting market. If the South has a larger population, which means $(\nu\tau_A - 1) < L_S/L_N$, then the income gap within the North will decrease under a lower trade cost. Although trade liberalization still attracts migrants workers to the North, the demand in the North increases more, and it allows firms with lower productivity to enter the domestic market or firms to allocate their labor force to the domestic market. Hence, the exporting market shrinks, and inequality decreases.

22.5 The Decision of the Optimal Migration Ratio Through Other Mechanisms

The section proposes other methods to derive the optimal migration ratio. We assume that migrant families decide the migration ratio by themselves in the previous section; however, the number of contract migrant workers (especially caregivers and construction workers) is usually decided by the destination country (quota) or through negotiation. As mentioned earlier in the second section, Japan sets a limit on the number of immigrants so that its labor market is unable to absorb all workers who intend to migrate. We consider the welfare maximization problem of the destination countries and Nash bargaining between two countries to obtain further insights on the optimal migration ratio.

22.5.1 The Quota of the Northern Country

For the North, the optimal migration rate is decided by the maximization of the indirect utility with respect to λ subject to the Southern indirect utility function. By Eq. (22.17), the aggregate national income of the North is:

$$NI_N^O = \left\{ \frac{\sigma - 1}{\kappa - \sigma + 1} \left[(\theta_N^O)^{-\kappa} + (\theta_S^O)^{-\kappa} f_x \right] + 1 \right\} w_N L_N,$$

and the maximization problem becomes:

$$\max_{\lambda} V_N = \frac{NI_N^O}{P_N^O} = \Phi (\theta_N^O)^{-\alpha \frac{\kappa - \sigma + 1}{\sigma - 1}} \left\{ \frac{\sigma - 1}{\kappa - \sigma + 1} \left[(\theta_N^O)^{-\kappa} + (\theta_S^O)^{-\kappa} f_x \right] + 1 \right\}, \tag{22.25}$$

where $\Phi = [(\sigma - 1)/\sigma]^\alpha [\kappa/(\kappa - \sigma + 1)]^{\frac{\alpha}{\sigma - 1}} (L_N)^{\frac{\alpha + \sigma - 1}{\sigma - 1}}$, subject to:

$$V_S = \Omega \left[\frac{\lambda(1 - \nu)}{[\theta_N^O(\lambda)]^\alpha \frac{\kappa - \sigma + 1}{\sigma - 1}} + \frac{\lambda \nu \tau_A + 1 - \lambda}{(\tau_M \tau_A)^\alpha [\theta_S^O(\lambda)]^\alpha \frac{\kappa - \sigma + 1}{\sigma - 1}} \right] - \frac{\varphi}{2} \lambda^2 \geq \underline{V}_S. \quad (22.26)$$

where $\underline{V}_S = w_S / P_S$ is the indirect utility level before migration is allowed.

The results enable us to conclude the following Remark.

Remark *Since V_N is increasing in λ , the constraint binds, and the optimal migration ratio $\hat{\lambda}$ for the North is larger than λ^* .*

Since we do not consider the social cost of migrant workers in the destination country. The migrants reinforce domestic consumption, and their remittances also enhance the purchasing power in the South. The model will be enriched if we consider the negative effects that migrants bring.

22.5.2 Negotiation Between the Two Countries

In this section, the two countries negotiate the migration ratio by maximizing the aggregate welfare function Π (Nash bargaining):

$$\max_{\lambda} \Pi = (V_N - \underline{V}_N)^\mu (V_S - \underline{V}_S)^{1-\mu},$$

where \underline{V}_N and \underline{V}_S are the welfare levels before migration is allowed, and the indirect utility functions V_N and V_S are defined as Eqs. (22.25) and (22.26), respectively.

The equilibrium satisfies the following condition:

$$\mu(V_N - \underline{V}_N)^{\mu-1} \frac{\partial V_N}{\partial \lambda} + (1 - \mu)(V_S - \underline{V}_S)^{-\mu} \frac{\partial V_S}{\partial \lambda} = 0. \quad (22.27)$$

Since we do not consider the costs accompanied by migrants, we thus know that $\partial V_N / \partial \lambda > 0$. $\partial V_S / \partial \lambda < 0$ is the sufficient condition that a solution exists when φ and L_S are sufficiently large. If there is a benevolent social planner who decides the optimal migration λ' (from $\partial V_S / \partial \lambda = 0$) for the Southern families, then the solution λ^N that satisfies (22.27) is larger than λ' (if φ is sufficiently large so that $\partial^2 V_S / \partial \lambda^2 < 0$). In order to verify the relationships between different optimal migration ratios, we pick parameter set $\{\alpha, \kappa, \sigma, \nu, \varphi, f_x, \tau_A, \tau_M, L_N, L_S, \mu\} = \{0.7, 3.18, 4, 0.8, 2, 1, 3, 4, 1, 2, 0.2\}$ ¹⁶ to derive the solution. First, the benchmark migration ratio is $\lambda^* = 0.336$ for the Southern families as we derive in Sect. 22.2.2. Second, if a social planner decides the migration ratio for the Southern families, $\lambda' = 0.34 > \lambda^*$, then the migration ratio decided by the migrant families are smaller than the one made by the social planner, because migrant families deem the aggregate price as given, but the social planner considers the migration effect on the aggregate price as well.

¹⁶Chen and Peng (2017) choose $\sigma = 4$ and adopt Luttmer (2007)'s estimations to derive $\kappa = 3.18$.

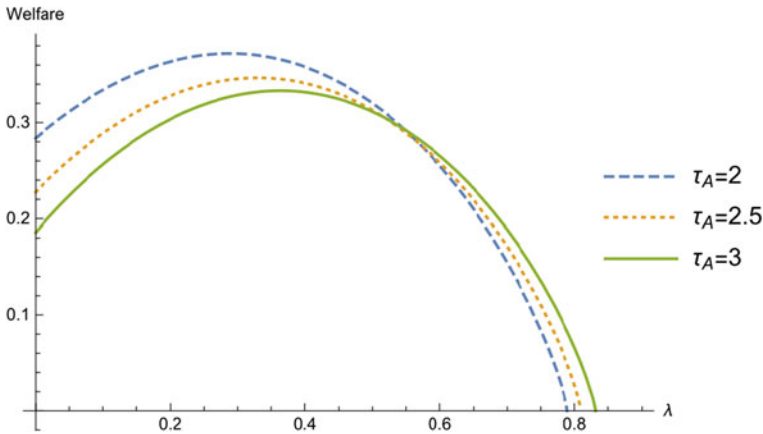


Fig. 22.4 Welfare levels under different transportation costs of the agricultural good

Considering the decreasing price level, the social planner sets a higher migration ratio. Despite the existence of separation cost, family members are more willing to move to other countries. Third, the Nash bargaining between the two countries yields $\lambda^N = 0.363 > \lambda' > \lambda^*$; as mentioned before, we do not consider any cost brought by the migrants to the North. The welfare of the Northern families is increasing in the migration ratio, because it generates lower aggregate price levels. Finally, if the bargaining power μ increases, then λ^N approaches to the upper bound $\bar{\lambda} = 0.493$ from Eq. (22.21).

To gain further insight into the changes of aggregate welfare level and migration ratios, we alter the value of transportation cost of A-good (τ_A) with $\{2, 2.5, 3\}$. By observing Fig. 22.4, we know under those parameter sets and the corresponding optimal migration ratio ($\lambda < \bar{\lambda}$), that the aggregate welfare level is decreasing in τ_A .

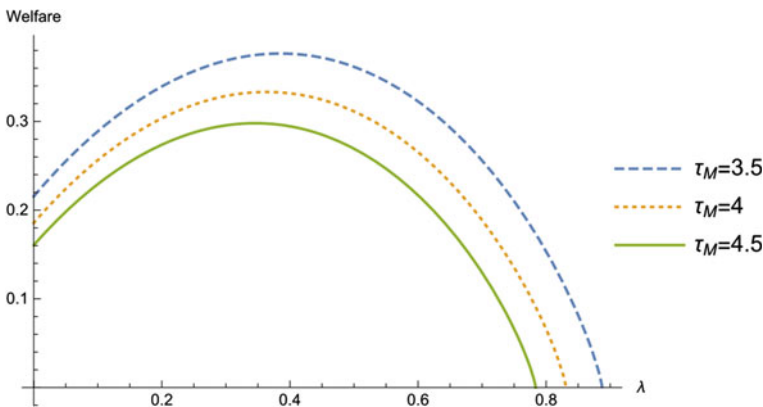


Fig. 22.5 Welfare levels under different transportation costs of the manufactured goods

This implies that the price effect outweighs the income effect under those parameter sets.

By the same token, we change the value of the transportation cost of M-goods (τ_M). Figure 22.5 shows that both migration ratio and aggregate welfare decrease in τ_M . The results suggest that trade liberalization benefits all.

22.6 Concluding Remarks

In this paper we construct a model with migrant workers moving to another country to earn a higher wage and sending remittances to their family in the home country. We derive the equilibrium migration ratio and production thresholds. Moreover, we discuss the impacts on welfare and inequality. We find (i) the existence of a core-periphery style equilibrium with a proportion of the household members going abroad as migrant workers is associated with the remittances being ensured in a given parameter set; (ii) the equilibrium migration ratio is decreasing in the attachment cost and the transportation cost of the manufactured goods; (iii) the domestic and the exporting thresholds increase in the attachment cost and the transportation cost of the manufactured goods; (iv) the welfare levels of migrant families are decreasing in the attachment costs and the transportation cost of the manufactured goods; (v) both countries become better after migration is allowed; (vi) the workers' welfare in the North becomes better, because of a decrease in the price level; (vii) the inequality between entrepreneurs and migrant workers depends on the magnitude of remittance and the population ratio. The effects of the transportation costs of agricultural good and remittance rate on the migration ratio, the domestic and the exporting production thresholds, and the welfare of migrant families remain ambiguous. We also discuss other schemes to decide the migration ratio; that is, the quota set by the host country and the negotiation through the Nash bargaining process. The results show that the migration ratios determined by these two methods are larger than the one of Southern families. This is because we do not consider the costs brought by migrants and that the host country benefits from lower aggregate price levels.

Several extensions are worth examining. First, the implementation of tariffs on both the manufactured goods and the agricultural good can be taken up in the trade model, and then several interesting policies could be discussed. For example, we can use tariffs to finance the public good. Our model then could be used to re-examine the equilibrium spatial configuration of economic activity. Second, we can separate the manufacturing sector into upstream and downstream manufacturing firms, and we thus can re-examine the migration pattern and wage inequality in a vertically integrated economy. Third, the costs accompanied by migrants should be studied. For example, native workers are concerned about migrants crowding out local job opportunities. Moreover, a huge increase in the labor supply is usually related to the lower equilibrium wages. By analyzing the intriguing impacts of migrants on the labor market, we can have a more comprehensive understanding of the welfare issue. Finally, we assume an exogenous remittance rate to simplify the analysis. However,

an endogenous remittance rate should be taken into account when exploring the migration behavior. The interaction between the two variables is also worth studying.

22.7 Appendix

22.7.1 Proof of Proposition 1

First, we prove that $g(\lambda)$ is increasing in λ . By differentiating (22.19) and (22.20) we obtain:

$$\begin{aligned} \frac{\partial \theta_N^O}{\partial \lambda} < 0, \quad \frac{\partial \theta_S^O}{\partial \lambda} < 0, \\ \frac{\partial^2 \theta_N^O}{\partial \lambda^2} > 0, \quad \frac{\partial^2 \theta_S^O}{\partial \lambda^2} > 0, \end{aligned}$$

By differentiating (22.24) and the equation above, we then know that:

$$\frac{\partial g(\lambda)}{\partial \lambda} > 0,$$

A simple calculation and the second-order derivative imply that:

$$\frac{\partial^2 g(\lambda)}{\partial \lambda^2} \begin{cases} \geq 0 \\ < 0 \end{cases} \text{ if } \alpha \begin{cases} \geq \\ < \end{cases} \frac{\kappa(\sigma - 1)}{\kappa - \sigma + 1}.$$

If α is larger (smaller) than $\kappa(\sigma - 1)/\kappa - \sigma + 1$, then it implies that $\partial^2 g(\lambda)/\partial \lambda^2 > 0 (\leq 0)$. As we know that $g(\lambda)$ is a strictly convex (concave) function, it means that $g(\lambda)$ is smooth. The convexity of $g(\lambda)$ ensures that the curve does not vibrate and crosses $f(\lambda)$ many times. Thus, the solution will be unique, and the results of comparative statics will not be affected by its convexity.

22.7.2 Proof of Proposition 2

The effects of exogenous variables on exporting threshold θ_S^O transmit through two channels; for example, if τ_A changes, then by differentiating (22.19) we obtain:

$$\frac{d\theta_S^O}{d\tau_A} = \frac{\partial \theta_S^O}{\partial \lambda} \frac{\partial \lambda}{\partial \tau_A} + \frac{\partial \theta_S^O}{\partial \tau_A}.$$

To clarify the effects of exogenous variables, we calculate the partial derivatives with respect to exogenous variables separately as:

$$\frac{\partial \theta_S^O}{\partial \tau_A} > 0, \frac{\partial \theta_S^O}{\partial \nu} < 0,$$

$$\frac{\partial \theta_S^O}{\partial \tau_M} = \frac{\partial \theta_S^O}{\partial \varphi} = 0.$$

By the same token, we can derive the partial derivatives of (22.20) with respect to exogenous variables and then obtain the results:

$$\frac{\partial \theta_N^O}{\partial \tau_A} < 0, \frac{\partial \theta_N^O}{\partial \nu} > 0,$$

$$\frac{\partial \theta_N^O}{\partial \tau_M} = \frac{\partial \theta_N^O}{\partial \varphi} = 0.$$

By the results above, we know that the impacts of τ_M and φ on θ_N^O and θ_S^O are only via λ .

Acknowledgements We thank Masahisa Fujita for the comments on a preliminary version, and Anupam Das, Olugbenga A. Onafowora, and Ting-Wei Lai, as well as the seminar participants at the WEAI 14th International Conference, 58th ERSO Congress, 56th EAEA Conference, and 2017 Joint Conference of CEANA and TEA at National Tsing Hua University for helpful comments.

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Part V
Migration and Policy

Chapter 23

Migration, Depressed Regions, and Place-Based Policy



Peter V. Schaeffer

23.1 Introduction

Increasingly, migration is the primary engine of demographic change. As birth rates have fallen, the coming and going of people drives local and regional population change, rather than the difference between births and deaths. This is particularly apparent in the economically most advanced nations, but migration is also becoming a more significant factor elsewhere around the world (e.g., UNCTAD 2018). Thus, it is more important than in the past to consider migration trends in policymaking. Traditionally economists expected that migration is from low-wage to high-wage regions and from those with stagnating or declining job opportunities to those where such opportunities are growing. This is still true, but adjustments have sometimes been slow and whole regions have failed to keep up as wealth and populations increased in the rest of the country.

Austin et al. (2018) describe previously prevailing attitudes of US economists: “Do America’s profound spatial economic disparities require spatially targeted policies? Traditionally, economists have been skeptical towards these policies because of a conviction that relief is best targeted towards poor people not poor places, because incomes in poor areas were converging towards incomes in rich areas anyway, and because of fears that favoring one location would impoverish another” (Austin et al. 2018: 2). In this chapter we add migration to the discussion of place-based policies as one of the processes through which regions converge.

In Sect. 23.2 we introduce the distinction of migrations into two basic types, natural and structural migrations, which we will refer to in succeeding sections. Section 23.3 introduces four West Virginia counties to illustrate the severity of long-term decline in some regions. They reveal the difficulty of reversing truly “profound

P. V. Schaeffer (✉)

Division of Resource Economics & Management, Regional Research Institute, West Virginia University, Morgantown, WV 26506-6108, USA

e-mail: peter.schaeffer@mail.wvu.edu

spatial economic disparities” (Austin et al. 2018: 2). We continue the discussion in Sect. 23.4, where we introduce place-based policies. Appalachia provides an interesting backdrop for such a discussion because for over fifty years, the Appalachian Regional Commission (ARC) has been one of very few explicit and sustained place-based policies supported by the US federal government (Glaeser and Gottlieb 2008; Schaeffer et al. 2018). The chapter concludes with a summary assessment and preliminary recommendations for policymaking.

23.2 Natural Versus Structural Migrations

People consider moving if something has changed that makes them reconsider their current location choice. Events that trigger migration decisions can be internal or external to the migrant. Internal changes are important life-cycle events, whereas external changes are economic, political, or environmental events in the home region or elsewhere. Adapting an idea from the employment literature, we distinguish between natural and structural migrations (Schaeffer 2017). Natural migrations are those that occur in response to important events in a person’s life, such as graduating from high school or college, marriage, job promotion, or retirement. While the aggregate scale of such migrations is large, they are geographically dispersed. In addition, because natural migrations repeat themselves year after year, markets and other institutions have adjusted to them and can deal with them in a routine manner. In many instances, such as in college towns, there exists an approximate equilibrium with newcomers being roughly equal in number to people leaving. In addition, natural migrations are usually anticipated ahead of time. Most students going to college expect to move after graduating and may even anticipate more than one move in their future (Schaeffer 1985). What matters for the policy is that the net effect of natural migrations on population numbers and composition is often modest and easily accommodated.

While natural migrations are regular occurrences, structural migrations are responses to significant social, technological, economic, political, or environmental changes. In this chapter we are particularly interested in disruptions caused by the decline of a once dominant industry. Structural migrations are usually of limited duration, although when a region’s economic decline occurs slowly, they can last for years.

Structural migrations pose policy challenges absent in natural migrations. The latter are a routine occurrence while structural migrations can emerge suddenly and unexpectedly. The timing of natural migrations is determined by the individual, which is not the case in structural migrations. Depending on the nature of the external change, individuals who are normally unlikely to move, for example older labor market participants, are compelled to look for opportunities elsewhere. Those affected may have no choice but to move, at least temporarily, in the case of natural disasters, such as Hurricane Katrina in 2005. Such displacements often pose complex

logistics challenges that require cooperation between different levels and geographic units of governments and jurisdictions.

The difference between natural and structural migrations is particularly pronounced when structural change comes suddenly, such as the unexpected closing of a large employer or rapid decline of a whole industry. Such events result in push factors that affect individuals of all ages and skills. The economic crisis of the early 1980 and its effects on workers in the US steel industry serve as an example, as does the experience of the coal and steel industry in the German Ruhr Valley. Although all workers are subject to push factors in such cases, the young tend to be more successful because employers prefer hiring them over older workers. As expected, regions with a strong economy attract more of both natural and structural migrants.

In summary, the model of individual migration decisions is not fundamentally different between the two types of migrations. The most important difference is that structural migrations are caused by events external to the individual and such events are not always expected and anticipated by the affected individuals and communities. In the case of natural migrations, individuals may have been planning a move well ahead of time. Because prospective structural migrants include workers who, because of their age or skills in increasingly obsolete occupations, are not very competitive in the job market, they may succeed only if there are programs enhancing their mobility.

23.3 Economic Decline in Four West Virginia Counties

Generally, we do not call for place-based policies in regions because of a short-term economic decline. Place-based policies are usually reserved for dealing with long-term economic decline or stagnation. The problem with such an approach, however, is that persistent decline creates conditions that are difficult to reverse quickly and easily. While stagnation may be compatible with a spatial equilibrium, long-term decline is not. To illustrate long-term decline, we look at four West Virginia counties: McDowell, Mingo, Tucker, and Tyler (see map in Fig. 23.1). Since all four counties are in West Virginia, laws and policies are the same for all four. West Virginia is a mostly rural state and its largest city, Charleston, has a population just under 50,000. This is relevant because, in the United States today, large urban centers have prospered while many smaller places and rural regions have fallen behind in relative, and sometimes in absolute terms. We focus attention on only four of the 55 West Virginia counties, but most regions in the state are stagnant or declining and the state's current population of 1.8 million (2018 estimate) is ten percent below its peak in 1950, when it had slightly over 2.0 million inhabitants (Table 23.1).

McDowell and Mingo are coal counties that experienced significant growth in the first half of the twentieth century (Table 23.1), but since the middle of that century, their populations, as well as their economic base, have been shrinking except for a modest rebound between 1970 and 1980 (Fig. 23.2). In Fiscal Year (FY) 2019, both counties fell into the category of "Distressed" counties in the classification system used by the ARC. While coal production in West Virginia decreased significantly



Fig. 23.1 Map of West Virginia

Table 23.1 Sustained population decline in four West Virginia counties

County	Peak population	Peak year	2010 population	2010 population in percent of peak population
McDowell	98,887	1950	22,113	22
Mingo	47,409	1950	26,839	57
Tucker	18,675	1910	7,141	38
Tyler	18,252	1900	9,208	50
West Virginia	2,005,552	1950	1,852,832	92

Source <https://www.census.gov/>

only after 2011, job losses starting in the middle of the twentieth century were largely due to technological progress in coal mining, leading to large structural net out-migrations.

Tucker county, with a smaller population than the two coal counties, at the start of the twentieth century had a significant timber industry, but most of its forests had been clear-cut by 1920 and the population already started to decline after 1910. There has been forest regrowth and the county has developed a tourist industry, but

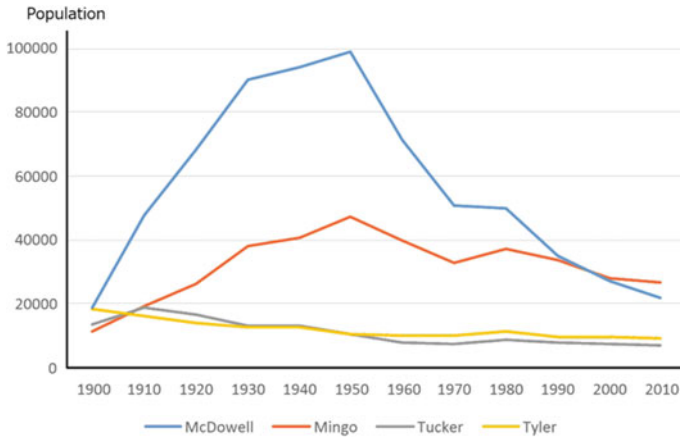


Fig. 23.2 Stagnation and decline in four West Virginia counties. *Source* U.S. Census Bureau

new opportunities have been insufficient to replace the jobs that disappeared. Tyler county is located in the Ohio valley. Its population has been declining during the first half of the last century and has stagnated at slightly above 9,000 since then. In 2016, educational services, health care, and social assistance were the largest employers by far in Tucker and Tyler counties, accounting for approximately 25% of civilian employment. The Ohio valley still has a significant manufacturing base, but employment has been decreasing rapidly in Tyler county. Mining and quarrying play a minor role in these two counties, with only one establishment active out of 179 establishments in Tucker and one of 104 in Tyler county in 2014. Tucker county is classified “At-Risk” in FY 2019 by the ARC and Tucker as “Transitional.” Improving conditions in Tucker county are reflected in Table 23.2, which shows that the county’s labor force participation rate was substantially higher than in the other three counties and almost matched the state’s average. However, the state’s average lags far behind the national average. The information for the four counties indicates

Table 23.2 Indicators of stagnation and decline

County	16 and above, 2010	Labor force participation rate, 2013–2017	Median age, 2010	In poverty, 2013–2017 (%)
McDowell	18,237	28.5	43.8	31.7
Mingo	21,612	42.6	40.9	31.0
Tucker	5,977	52.1	45.7	16.2
Tyler	7,528	47.0	45.2	16.0
West Virginia	1,511,356	53.5	41.3	19.1
United States	243.3 million	63.0	37.2	12.3

Source <https://www.census.gov/>

why a low unemployment rate may not signal a healthy economy. In places such as McDowell county, those seeking to work are either employed or have left, while others are no longer looking for work. All four counties experienced structural net out-migration.

About a third of the jobs in McDowell are filled by commuters from other West Virginia counties and from out-of-state and a sizeable number of commuters from McDowell work in jobs elsewhere. The same pattern holds in Mingo, Tucker, and Tyler, except that in McDowell and Mingo counties the balance between workers commuting from other places and those commuting to work elsewhere is relatively even, whereas in Tucker and Tyler significantly more workers commute elsewhere than come to work in these two counties. This illustrates that counties are imperfect economic units so that their numbers do not tell “the whole story” of the impacts of growth and decline and the geography of jobs differs from the geography of demographic change when a region’s fortunes change. This conclusion is also supported by empirical research in the Appalachian region, which finds that changes in one county have a ripple effect in other counties (Gebremariam et al. 2010).

The impacts of change are multifaceted and even growth can cause problems. Concerns about skyrocketing housing prices in Silicon Valley and Seattle, and in many popular resort towns around the world, are a case in point. However, such costs are compensated for by significant benefits, which is rarely the case in declining regions. In the four West Virginia counties, though the effects of declines in coal production in Appalachia are particularly strongly felt in coal counties such as McDowell and Mingo, the impacts are not limited to these counties.

Because coal shipments account for a large share of rail freight in Appalachian coal regions, a sharp decline threatens the viability of some rail lines in this region. Once abandoned, peripheral rail lines are unlikely to be reactivated and the loss of rail service impacts the location of present and future industries, not just coal. Trucking is similarly affected but can be brought back more easily than rail service (Bowen et al. 2018, Part 3).

Fiscal impacts also are not limited to local effects. While a business closing has its most immediate fiscal impact on local governments, particularly school districts, in the case of coal production, the effect is even more pronounced because decreasing severance taxes impact the state’s finances as well as local governments in coal-producing counties who receive a share of severance taxes from the state. Thus, a cutback in coal production has an immediate statewide and local fiscal effect.

To summarize, declines in employment and/or production have a variety of effects, some immediate and others delayed, and some local and some with a wider geographic impact. The initial impacts themselves differ as well. Large job losses affect retail sales and housing prices as some families struggle to meet their financial obligations. Fiscal losses are often aggravated by increased demand for social services, putting additional strain on agencies already dealing with declining revenues (Gebremariam et al. 2012). Taken together, negative effects often reinforce one another and result in a process of negative cumulative causation.

23.4 Place-Based Policies

The United States has few explicit regional policies. Instead, it relies on market forces and competition between the states—and between regions and communities. This does not mean that interstate and interregional economic differences are of no concern, but generally, governments at all levels rely on unemployment, welfare, social security, and other transfer payments to assist regions with an above-average concentration of poverty, industrial decline, and restructuring, or other economic problems. Most states have programs of their own. In West Virginia, for example, a formula-based state program ensures equal base funding for school districts to mitigate the effect of different tax bases. For an excellent recent discussion of place-based policies see Neumark and Simpson (2014).

The US approach differs from that of several other OECD (Organisation for Economic Cooperation and Development) countries. For example, Canada's Constitution Act of 1982 (Constitution Act 1982, Part III) identifies three commitments to equality: (1) promoting equal opportunities for the well-being of Canadians, (2) reducing disparities in opportunities, and (3) providing essential public services of reasonable quality to all Canadians (Schaeffer et al. 2018). Austria, Germany, and Switzerland promote the goal of reducing disparities through financial transfers (Finanzausgleich) from fiscally strong to weak members of their respective federations. On a larger geographical scale, the European Union also pursues explicit regional policies in support of lagging regions (e.g., Bache and Jones 2000).

In the United States, there are few federal programs that deviate from reliance on market forces. The Tennessee Valley Authority was established in 1933 (Kline and Moretti 2013), and the Appalachian Regional Commission (ARC), which is the largest of these programs, in 1965. "The mission of the ARC is to help close the gap between Appalachia and the rest of the nation and bring the Region's 420 counties and 25 million residents into the economic mainstream" (ARC 2018: 3). The four counties we reviewed in Sect. 23.3 are part of the ARC region. In addition to all of West Virginia, the ARC region includes parts of New York, Pennsylvania, Maryland, Virginia, Ohio, Kentucky, Tennessee, North Carolina, South Carolina, Georgia, Alabama, and Mississippi.

There are multiple reasons why McDowell, Mingo, Tyler, and Tucker continue to decline or stagnate despite efforts to assist them. As the map in Fig. 23.1 shows, none of them are served by an interstate highway and none are near a population center. The largest city in West Virginia is Charleston, the capital. It has been losing population and recently dropped below 50,000 inhabitants. The state's population has also stagnated over the last decades and, therefore, is not a source of growth. West Virginia is one of the most rural states in the continental United States and its mostly small communities do not benefit from significant agglomeration economies. In addition, much of its territory is mountainous, which means that travel between places is often time-consuming and road-building and maintenance expensive. Of the four counties reviewed here, Tucker county is best positioned for recovery because of its natural beauty, summer and winter resorts, two state parks, and a national forest.

It is not far off Interstate 68, which connects West Virginia to the nation's capital and puts the county within reach of the Washington–Baltimore metropolitan region to attract visitors from this large agglomeration.

According to an assessment by Isserman and Rephan (1995) on the 30th anniversary of the ARC, this agency has had a small but positive impact on the economic performance of its region. Citing the challenge of significantly changing the direction of so large a region, Glaeser and Gottlieb (2008) review additional studies that offer a more skeptical view. The ARC's most recent budget request is for some \$150 million, a large amount, but small relative to the size of the Appalachian region (205,000 square miles or 531,000 km², approximately the size of France, and more than 12 million people). The largest spending is on critical infrastructure followed by workforce programs. The ARC received additional funding to support counties affected by the decline of coal production after 2011 and associated large job losses in many coal counties. This step was taken because economic challenges often exacerbate health and social problems. This is the case in Appalachia, which is particularly strongly affected by the opioid crisis, and coal-producing regions are characterized by some of the worst health conditions and lowest educational attainment in the United States.

Austin et al. (2018) discussion includes the geographical targeting of training and education, which is a sound idea if we wish to improve job skills. However, the relative geographic isolation of many towns prevents industries from locating. Thus, improved skills may enhance out-migration. This helps individuals but does not improve the region's economic fortunes. In the case of the four West Virginia counties, such a policy would be of doubtful value to the region. Not only are there relatively few available jobs for recent graduates from schools, colleges, and training programs, in Appalachia wages of individuals with a high school education are relatively high at 97.3% of the national average. However, with some college or an associate degree this drops to 93.2% and to 87.0% with a bachelor or higher degree. In other words, acquiring more education is financially less rewarding for those wishing to stay in Appalachia than, on average, elsewhere in the United States.

The proposal to subsidize employment (e.g., Austin et al. 2018) works if the need for a subsidy is only temporary. Otherwise such a subsidy is likely to slow down painful but necessary adjustment processes and thus has a negative long-term social impact. Retraining and social assistance programs would likely be more effective in mitigating the negative impacts of structural change.

In places with small populations, when a region very quickly loses jobs, the workers most likely to successfully find employment elsewhere are often potential future local and regional leaders in politics and civic organizations. When a region loses such leadership talent in a short time, its ability to respond to adverse conditions is reduced. This is particularly important in small counties and communities, where governments do not have a large staff with diverse technical and organizational skills as one might find in larger places.

If out-migration occurs quickly or is as large as in the case of McDowell county, it can devastate the local real estate market and make it financially difficult for some to leave. Many workers, such as coal miners, used to earn high wages and bought a

home. With skills that are no longer marketable and a home they cannot sell, they may be better off staying where they are and find a lower-wage job than moving with uncertain prospects to an economically vibrant region with high housing costs, and where their skills are not in high demand and they would be without the social support network of family and friends. For such individuals, subsidized employment would “feather the fall” and give them more time to adjust.

The ARC illustrates the challenge of place-based policies when a large region has fallen behind. In fact, the definition of place-based policies is ambiguous without some indication of geographical size. Is a policy that covers a region as large as Appalachia still place-based or would it be more appropriately labeled regional policy? Some regions that have fallen behind in the past have caught back up largely on their own, particularly if they have strong local and regional institutions that provide leadership. The Pittsburgh metropolitan region provides an example. It was hit very hard by the decline of the steel industry in the 1980s but has come back. It still has steel industry employment, but no longer in large steel mills but in more specialized mills. The region is also capitalizing on the know-how accumulated over decades to provide technical services to the steel industry worldwide. Finally, Pittsburgh has developed into a major medical and health center.

But what is possible in a large metropolitan area like Pittsburgh with two world-class higher education institutions, a large national airport, and interstates crossing the region from east to west and north to south, cannot be adapted to mostly rural regions. The slow progress of the catching up of Appalachia to the rest of the nation is an indication that policies for such large regions may need different approaches. Unfortunately, what these approaches should be is not clear and needs to be determined through the evaluation of past efforts, research into potential new efforts, and policy experimentation.

More than 50 years ago, challenges of (re-)developing large regions led regional scholars to propose the geographical concentration of development investments into relatively few centers; it became known as growth pole strategy (Perroux 1955; Darwent 1969; Dobrescu and Dobre 2014). A modified growth pole approach might also be effective in Appalachia and other large lagging areas if redevelopment is the objective.

While we have given reasons why place-based policies may not work well in the case of severe structural problems, there are instances when such policies can be effective, even when dealing with large regions. For example, the strategy works in the aftermath of a disaster because the region’s problems are not caused by long-term structural issues and intervention enhances a region’s existing resilience and does not have to be continued indefinitely.

Place-based policies may also be appropriate if the objective is not primarily economic efficiency and performance. Regional policies in Canada or the EU (Marks 1996) are not motivated by purely economic goals, but are also conceived to enhance the cohesion of linguistically and ethnically diverse governments. In much smaller Switzerland, by tradition, all major language regions (German, French, Italian) are represented in the country’s executive. The renewed interest in place-based policies in the United States can also be linked to politics, motivated by the division of the

country into red (“Republican”) and blue (“Democrat”) blocks, but is not limited to the United States (e.g., Pugalís and Bentley 2014). In such cases, the criteria for evaluation costs and benefits of a policy will be different from those used to evaluate policies aimed to promote economic efficiency.

23.5 Summary and Tentative Recommendations

Structural change results in an adjustment process which sometimes turns into long-term decline or stagnation. It is often caused by the decline of a once dominant industry, as in coal counties of Appalachia, where there are few other well-paying opportunities and none that provide as good an income with only a high school education. Conversely, there are often few opportunities for college graduates and, as we have shown, in Appalachia their pay is even further below the national average than the pay of less highly educated peers. Many promising young people therefore leave the region in search of better opportunities elsewhere. The result is an imbalanced demographic structure with a larger share of older residents than the state, let alone the national average. In many cases the population decline has not yet run its course, even if out-migration has declined. In the final phase population decline results from an excess of deaths over births even after out-migration has largely ended.

Migration is an important, maybe the most important, factor in the adjustment process; subsidizing mobility; and providing placement assistance may facilitate the process (e.g., Monras 2015). Some individuals will need training to update their skills and be marketable in different employments. However, a retraining program aimed at slowing out-migration will be successful only if job opportunities are available once training is completed. Otherwise, the letdown experienced after working on skill improvement only to fail to find a job may discourage participation in this as well as other programs. Therefore, human capital improvement programs in a region may need to be accompanied by job creation strategies to have the desired effect. However, creating private sector jobs that are not supported by the market will ultimately fail.

Processes of decline and growth alike are complex; some impacts are only local, and others regional and sometimes national. The design of a single place-based policy is difficult when different policies are needed to address issues at different political and spatial scales. A region that is growing may not need special policies other than technical and administrative expertise that keeps pace with the region’s growth. A place-based policy to reverse structural decline in a very large region, however, is unlikely to quickly have a significant impact. Unless available funding is very generous, efforts distributed over a wide area and many people will not quickly turn an economy around. In such a case, a growth pole approach where investments are concentrated in a few regional centers may be more effective and have a larger long-term impact. However, policies that favor a few places or regions over the many may be politically difficult to realize.

In a discussion of place-based development policies, it may be useful to categorize available policies and programs (e.g., Bartik 1991), for example by distinguishing

between those linked to the assets (including the built environment), human capital (enhancing, attracting), and institutions (financial, colleges and universities, government offices, US Postal Service, etc.). Another set of criteria could distinguish by location. Some opportunities are tied to a specific location, which could be a place in a town or a whole region. For other programs, for example those supporting the removal of abandoned and dilapidated structures, the appropriate spatial unit may be a town or small county, while yet others program or investments should be placed in a regional center to have the greatest impact. A third distinction is between people-centered, business-centered, and government-centered policies and programs. Such distinctions help to determine the most appropriate scale and administrative unit. Such categories could also facilitate the generation of ideas leading to new policy instruments aimed at different levels of implementation. The example of Appalachia demonstrates the need for a sufficient number of independent policy instruments to achieve diverse independent policy objectives. Expressed formally, this is known as the Tinbergen Hypothesis (Tinbergen 1952).

Sometimes the most appropriate policy, and maybe the only one that can succeed, is to assist with managing the transition and ease the costs of adjustment. In a region losing people and businesses, this could include mergers of communities, counties, or service districts, though, judging by reactions to school consolidations in US states, such policies are unpopular. The cleanup of abandoned structures in poor repair is not glamorous but could provide safety and aesthetic benefits and help stabilize real estate markets. Governments at all levels can also use the location of public buildings and agencies to help local and regional economies. In many rural West Virginia communities, old post offices in the town center have been closed and relocated to less central locations and sometimes outside town altogether. Such decisions remove an anchor from a community's business center and undermine appeals to business owners to invest in downtown.

The regional benefits of a large government office in a lagging region are illustrated by the move in the 1990s of FBI's Criminal Justice Information Services to Clarksburg, West Virginia. This facility provides some 1,300 well-paying jobs and stimulated the growth of a small biotech industry along Interstate 90. Thus, the strategic location of government facilities can generate a multiplier effect in a region. It is worth noting that the area around Morgantown in northcentral West Virginia (see map in Fig. 23.1) is one of only two regions in this state that is experiencing significant economic and population growth. The other region is the Eastern Panhandle, which is connected to the Washington–Baltimore MSA and has become a suburban part of this metropolitan area.

There are no easy ways to stem let alone reverse the effects of the decline of a once dominant industry; it is even more difficult in relatively inaccessible and small communities. It can take a very long time before fortunes change again. For example, for many decades, remote valleys in the Alps emptied out and only recently has there been a partial reversal of this trend (e.g., Steinicke et al. 2012). Economists have learned that it is usually very expensive to bet against the market. If the only objective is economic efficiency, the cost is often not worth the attempt. However, in addition to and sometimes instead of economic objectives governments may also pursue

regional equity whose costs and benefits are not easily assessed in monetary terms. More generally, the utilitarian approach to decision-making sometimes hits its limits, particularly when dealing with issues that are emotionally charged. “Sentiment and symbolism” (Firey 1944: 140) can be powerful factors influencing policy decisions. It is no coincidence that supporters of the coal industry use the welfare of coal miners and supporters of agriculture that of the family farm to create mental images that have emotional appeal. However, if we consider place-based policy from the perspective of economic efficiency, unless problems are caused by significant market failure, large-scale place-based policies seem difficult to justify.

Acknowledgements I appreciate the suggestions of two anonymous referees that helped me improve this chapter. I also owe thanks to Mrs. Jaquelyn Strager in the Division of Resource Economics and Management for producing the map in Fig. 23.1. This research was supported by the West Virginia Agricultural and Forestry Experiment Station through a capacity grant (WVA00692).

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Chapter 24

The Relationship Between Cultural Differences and Migration: Does Cultural Dilemma Matter?



Miriam Marcén and Marina Morales

24.1 Introduction

According to the United Nations Educational, Scientific, and Cultural Organization (UNESCO 2001), culture is defined as *the set of distinctive spiritual, material, intellectual and emotional features of society or a social group. Not only does this encompass art and literature, but it also includes lifestyles, ways of living together, value systems, traditions, and beliefs*. Almost all researchers can argue that culture is very difficult to measure since it appears to be a black box, but surely, all measurement methods would also point to culture as an important determinant of economic outcomes (Guiso et al. 2009). During the last decade, there has been a growing amount of literature studying culture with respect to socioeconomic and demographic variables (Fernández 2011; Giuliano 2016). Several researchers have found empirical evidence of the importance of culture on living and marital arrangements (Furtado et al. 2013; Giuliano 2007; Marcén and Morales 2019, 2020), women's labor force participation and fertility (Bellido et al. 2016; Contreras and Plaza 2010; Fernández 2007; Fernández and Fogli 2006, 2009; Marcén et al. 2018), and other labor market decisions (Eugster et al. 2017; Marcén 2014). In this chapter, we contribute to these lines of research by exploring how cultural differences may affect migrants' choice of the destination country.

We are not the first researchers to study the role of culture on migration issues. In the literature, it has been suggested that culture may affect the migration process not only for migrants but also for the native population (see for a review, Epstein and Gan 2010). With respect to the location choice, the literature distinguishes three possible channels through which culture may operate. First, the presence of individuals of

M. Marcén (✉) · M. Morales
Universidad de Zaragoza, Gran Vía 2, 50005 Zaragoza, Spain
e-mail: mmarcen@unizar.es

M. Morales
e-mail: mcmorales@unizar.es

the same culture or identity/ethnicity in the country of destination could increase its attractiveness (network effects) since it can help immigrants in the host country (decreasing migration costs) and may enhance their economic success (Carrington et al. 1996; Munshi 2003; Pedersen et al. 2008). This could partially explain the migration flow as a result of the cultural effect. However, as Wang et al. (2016) claimed, network effects have decreased in importance for migrants during the last years, and other mechanisms of importance should then be identified. In the second place, researchers point to the cultural diversity (several cultures in specific areas as opposed to just one culture) as a factor that may affect regional attractiveness (Florida 2002; Ottaviano and Peri 2006; Olfert and Partridge 2011; Bakens et al. 2013; Wang et al. 2016). In this setting, the literature shows that cultural diversity, which can generate different amenities and complementarities of skills, can make a potential destination country more attractive for migrants. Third, as strongly related to the two previous channels, either cultural distance or differences may play a role in location choice (Belot and Ederveen 2012; Caragliu et al. 2013; Collier and Hoefler 2018; Wang et al. 2016; White and Buehler 2018). Cultural distance is normally measured as the differences between the home (natives) and host countries. There is empirical evidence indicating that the greater the cultural differences, which can create ethnic/identity conflict (Caselli and Coleman 2013; Wang et al. 2016), the lower the attractiveness of a region/country. In our case, we focus on the third channel although some existing research tries to decompose several of these channels (Wang et al. 2016; White and Buehler 2018).

We argue that cultural differences can make the dilemma of identity preservation and cultural adaptation more difficult. The cultural distance between home and host societies may first affect the immigrants' integration process in the host country followed by the rate at which their bonds with their country of origin decline. Integration appears to be the preferred choice, but it is not always so easily achieved (Ward 2009). Thus, it is not beyond the bounds of possibility that a small cultural gap between the home and host countries would facilitate the adaptation process. Nevertheless, when the cultural gap is large, the integration is more difficult, making those host countries less attractive for immigrants.

There are many possibilities for measuring the cultural differences, using really complex indices in some cases. On the one hand, in order to observe the differences in the values and beliefs of individuals, subjective aspects of culture are used from social/attitudinal surveys such as the World Values Survey or the European Social Survey (Caragliu et al. 2013; Wang et al. 2016; White and Buehler 2018). This way of calculating the cultural distance generates some concerns because of the potential problems associated with a definition of culture based on subjective responses of individuals (Belot and Ederveen 2012). On the other hand, it is possible to find some research papers, including more objective characteristics of cultural differences by means of indicators such as common language or religion and even genetic distances (Collier and Hoefler 2018).

As Caragliu et al. (2013) explained, other forms of cultural differences can also play a role in the choice of the destination country. Surely, migrants do not know all of the values, preferences, and beliefs of the people who live in a specific country, but

immigrants can guess the culture (social norms, values, beliefs, and preferences) of the people living in their chosen country based on observable characteristics. They can understand the way in which and with whom native people live (for example, marriage versus cohabitation practices), they observe the number of children people have (fertility culture; having few children can be socially more acceptable in some countries), their employment behaviors (if women work or not [culturally related gender roles]), they also observe whether people have access to specific activities (culturally related amenities), and of course the language and the main religion of a country. Our analysis is based on the supposition that individuals reveal their values and preferences according to their behavior. In this setting, we proposed a definition of cultural distance taking into account the differences in the observable characteristics related to fertility, marriage, labor market, and amenity cultures, economic conditions, language, and religion. Migrants can be ostracized because their behavior related to observable characteristics differ from the standard behavior of the host country. In order to mitigate the cultural dilemma (that is, integration or not into the new country), it would be expected to observe larger migration flow between countries that are culturally similar to each other.

We consider two separate analyses. On the one hand, we use data on migration flow from the International Migration Database provided by the Organization for Economic Cooperation and Development (OECD), which provides extensive migration flow numbers for a long period of time. On the other hand, we utilize data concerning migrants (stock of migrants) obtained from the Integrated Public Use Microdata Series International (IPUMS International), and Minnesota Population Center (2018), which allows us to control for immigrants' personal characteristics taking into account these immigrants' heterogeneity. The cultural differences are measured by utilizing data on observable characteristics (cultural proxies) at the country level such as total fertility, crude marriage, and unemployment rates, female labor force participation, gross domestic production (GDP) per capita, language, and religion. This is a common strategy in the recent literature in which it is examined whether culture matters (Fernández 2011; Giuliano 2016). Results point to the cultural differences between sending and receiving countries as important factors in the destination country choice. In line with prior literature, we find a negative and statistically significant relationship between the cultural differences and migration flows. When the physical distance is considered, cultural differences appear to be only important in the case of non-border countries. However, in the analysis of the migration stock, cultural differences appear to have an effect on the choice of the destination country depending on the physical distance (border or non-border). It is also possible to argue that there are differences with respect to the importance of cultural differences because of the kind of dataset used: migration flows versus migration stock. Also, the migration stock analysis allows us to explore how the relationship between cultural differences and the migrant location choice varies depending on the physical distance, revealing interesting differences in the importance of cultural differences. Our findings are maintained after conducting several robustness checks using different subsamples and adding controls for potential ethnic networks, years of

migration, and unobservable characteristics that can vary at the country (destination and origin) level and/or over time.

24.2 Data

We utilize data concerning the inflow of foreign populations according to nationality based on the Organization for Economic Co-operation and Development (OECD) Statistics for the period from 2000 to 2015.¹ The selected longitudinal data by home and host country covers 32 OECD receiving countries and 64 countries of origin.² During this entire period, there were around 36.5 million migrants arriving in the destination countries (see the Appendix for a classification of destination countries). To our knowledge, this is a large sample that had not been considered in the previous literature addressing cultural differences.³ Nonetheless, although the number of observations is significant, the migration flow sample presents an important drawback since we cannot control for the individual characteristics of the migrants (heterogeneity problem). This can be problematic in our analysis when, for example, only some individuals with specific characteristics decide to migrate. Imagine a situation in which men are more likely to migrate than women. In this setting, it is possible to hypothesize that the fertility culture of women or female labor force participation can be aspects of the destination country that are less likely to matter in men's location choice. Men are less likely to be ostracized because of those issues. Thus, the personal characteristics of the immigrants can make some cultural aspects more important than others. In order to take these characteristics into account, we have extended the analysis by exploring individual data with information from the Integrated Public Use Microdata Series International (IPUMS International), Minnesota Population Center (2018).⁴ Our sample selection consists of 1,284,490 migrants originating from 64 countries of origin and living in 23 host countries.⁵ The set of countries of origin (64) covered in both analyses is the same, but the destination

¹We recognize that this includes the last Great Recession which could be driving our findings. It is worth noting that we have re-run the analysis with different subsamples and results are invariant. We have also added year fixed effects in our estimations.

²All countries with available information on the variables measuring cultural differences are included.

³We do not restrict the sample to developed or developing countries since; in some cases, the cultural differences are greater among those countries.

⁴The use of census microdata also allows us to consider several additional analyses that cannot be done with the migration flow. For example, from the microdata, we can obtain information on possible ethnic networks, which can affect the migration location choice based on cultural differences; see below for a detailed explanation of all supplementary analyses.

⁵We selected the most recent sample for each destination country provided by the IPUMS International.

countries vary somewhat, depending on the information available in the Integrated Use Microdata Series (IPUMS) International.⁶

As mentioned above, in order to measure cultural differences between the home and the host countries, we use observable characteristics that are supposed to be cultural proxies revealing the values, social norms, and beliefs of individuals (Fernández 2007). The cultural proxies are defined here. In order to measure the fertility culture (Fernández 2007; Bellido et al. 2016; Marcén et al. 2018), we use the observable total fertility rate, which represents the number of children that would be born to a woman if she were to live to the end of her childbearing years and bear children in accordance with age-specific fertility rates of a specified year. As a proxy of the marriage or living together culture (Marcén and Morales 2019), we include the crude marriage rate calculated as the annual number of marriages per 1,000 mid-year population. In the case of the employment culture, we consider two different variables. The female labor force participation rate, which is the proportion of the female population ≥ 15 years of age and who are economically active, can also represent the gender role culture of a country. We also consider the unemployment rate with unemployment referring to the share of the labor force that is without work but available for and seeking employment; this variable is used to represent the employment culture of a country (Eugster et al. 2017; Marcén 2014). In order to measure the culture concerning amenities, we use the gross domestic product (GDP) per capita (constant 2010 US\$). The use of this variable could generate concerns, but this is included under the assumption that those countries with different GDPs per capita have access to very different amenities, at least for the average population, which is not an unrealistic supposition. We revisit this supposition below. Information on the crude marriage rate comes from the United Nations (UN) Demographic Yearbooks (several issues), and the rest of the data is obtained from the World Bank Data. In order to determine a country's main languages and religions, we use information about all languages and religions from the Central Intelligence Agency's World FactBook.⁷

The cultural differences are calculated in a very simple way. In our study, the cultural distance is defined as the difference in absolute values between the cultural proxies in the sending and receiving countries. According to Wang et al. (2016), this is called as the Bilateral Cultural Distance. For languages and religions, we construct dummy variables representing the home and the host country differences in those two cultural proxies. Of course, as mentioned above, we recognize that very complex definitions of cultural differences can be obtained (for example, see Wang et al. 2016); thus, what we show here should be interpreted as a benchmark of the way in which the cultural differences in observable cultural proxies may affect immigrants' location choices.

⁶The analysis was repeated, maintaining the same destination countries. Results did not significantly change, but we lost many observations. For this reason, we prefer the inclusion of the information of all available countries of origin and destination.

⁷We revisit the definition of the cultural proxies below by including only information for native population; this is possible in those cultural variables. This information is included to mitigate potential bias in the cultural proxy variables.

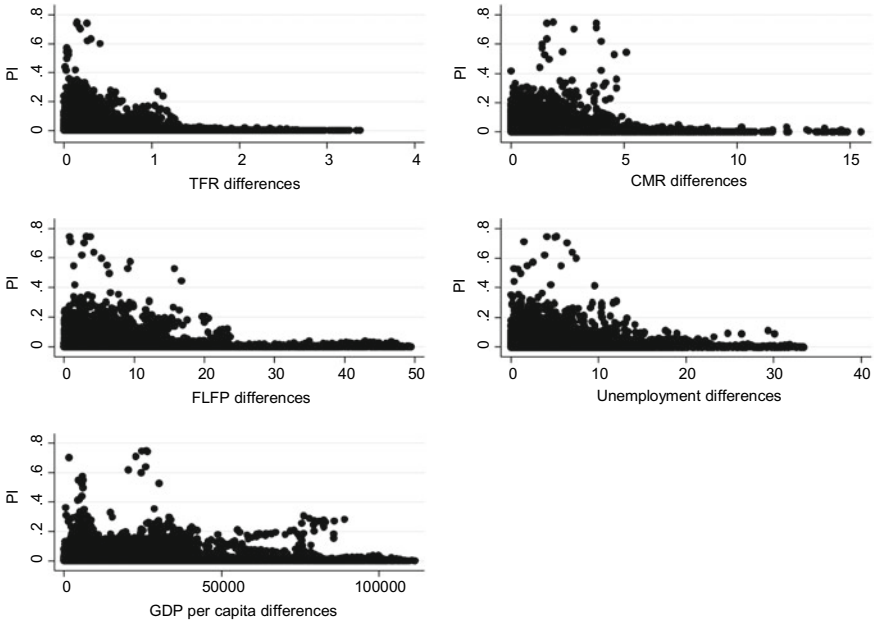


Fig. 24.1 The proportion of immigrants representing the migration flow between home and host countries by year and the cultural differences. *Notes* The cultural differences calculated in absolute value, were plotted on the x-axis, while the proportion of immigrants were plotted on the y-axis

By simply looking at the raw data, Fig. 24.1 shows the relationship between the cultural differences or distances between the home and host countries and the migration flow between those countries for the entire period of 2000–2015. For language and religion, we observe that migrants are more likely, on average, to move to a country with the same language and religion. Thus, a priori, this suggests that cultural differences may play a role in the location choice, but we examine this issue in more detail below.

The raw data concerning migration stock can also be explored. In this case, we have the stock of migrants living in each destination country.⁸ In order to measure the previously mentioned cultural differences, we follow Fernández (2007). As this author explains, although culture changes very slowly, cultural differences do not vary much over time. Under this assumption, the exact year in which the cultural differences are measured coincide with that of the census’s data since it is not an important problem in the analysis.⁹ Table 24.1 presents the summary statistics for the main variables included in this analysis by country of origin (destination countries

⁸The definition of migrant status is based on the country of birth, which is designated in this study as country of origin, sending country, or home-country. We assume that all individuals born outside the host country are migrants as, for example, in Nowotny and Pennerstorfer (2019).

⁹As a simple robustness check, we consider cultural differences during different periods of time. Our findings are in agreement with previous findings.

Table 24.1 Migration stock

Country of origin	Age	Man	High School	College	More college	Observations
Albania	35.25	0.53	0.34	0.03	0.05	45,392
Argentina	37.81	0.49	0.34	0.05	0.19	25,367
Armenia	39.82	0.46	0.39	0.11	0.22	2,855
Australia	38.08	0.47	0.37	0.11	0.28	4,288
Austria	52.01	0.45	0.31	0.09	0.24	2,336
Azerbaijan	53.38	0.41	0.67	0.01	0.22	7,793
Belgium	42.60	0.47	0.37	0.04	0.22	4,298
Bulgaria	43.43	0.41	0.43	0.03	0.13	40,762
Chile	45.94	0.47	0.22	0.03	0.07	26,568
Costa Rica	38.18	0.47	0.19	0.15	0.23	1,771
Croatia	69.08	0.49	0.53	0.02	0.10	5,532
Cuba	49.57	0.48	0.35	0.13	0.25	18,813
Cyprus	40.00	0.42	0.47	0.05	0.33	2,192
Czech Republic	48.90	0.43	0.41	0.06	0.20	2,593
Denmark	51.12	0.48	0.30	0.12	0.33	1,081
Dominican Republic	38.58	0.39	0.27	0.12	0.11	14,543
Estonia	40.21	0.40	0.41	0.09	0.25	402
Finland	49.72	0.34	0.35	0.08	0.39	777
France	44.04	0.46	0.32	0.03	0.23	31,634
Georgia	46.10	0.42	0.47	0.03	0.22	17,117
Germany	46.25	0.45	0.34	0.10	0.19	51,741
Greece	51.49	0.52	0.27	0.08	0.20	2,680
Guatemala	35.56	0.52	0.13	0.07	0.06	12,690
Hungary	45.53	0.46	0.35	0.10	0.24	3,037
Iran	50.90	0.51	0.33	0.07	0.24	10,582
Ireland	50.41	0.49	0.31	0.15	0.30	2,463
Israel	35.67	0.62	0.33	0.06	0.32	762
Italy	61.49	0.49	0.24	0.01	0.14	143,070
Japan	44.56	0.40	0.21	0.22	0.36	6,373
Jordan	39.77	0.63	0.25	0.18	0.34	866
Korea	43.15	0.42	0.19	0.21	0.44	10,890
Kuwait	31.34	0.55	0.19	0.21	0.43	288
Kyrgyzstan	41.90	0.55	0.38	0.03	0.17	60
Latvia	35.06	0.43	0.48	0.03	0.13	2,555
Lithuania	54.55	0.41	0.34	0.01	0.14	12,370
Luxembourg	29.20	0.49	0.29	0.00	0.19	317

(continued)

Table 24.1 (continued)

Country of origin	Age	Man	High School	College	More college	Observations
Macedonia	50.11	0.55	0.44	0.06	0.11	1,062
Malta	44.12	0.51	0.24	0.00	0.59	41
Mauritius	32.38	0.58	0.50	0.00	0.13	386
Mexico	39.20	0.52	0.25	0.11	0.07	99,146
Moldova	40.86	0.41	0.35	0.03	0.32	6,662
Mongolia	31.26	0.33	0.31	0.00	0.57	61
Netherlands	47.09	0.50	0.36	0.08	0.29	4,816
New Zealand	39.76	0.49	0.28	0.17	0.37	711
Norway	50.06	0.46	0.33	0.12	0.30	895
Panama	40.96	0.45	0.19	0.18	0.24	2,979
Poland	48.65	0.46	0.44	0.04	0.17	32,443
Portugal	48.94	0.51	0.23	0.00	0.07	208,206
Puerto Rico	46.15	0.48	0.27	0.21	0.15	13,168
Qatar	40.00	0.45	0.48	0.05	0.08	130
Romania	41.15	0.46	0.41	0.01	0.10	51,788
Russia	43.09	0.43	0.34	0.02	0.25	61,960
Serbia	51.19	0.43	0.34	0.04	0.22	1,036
Singapore	36.09	0.43	0.16	0.14	0.49	399
Slovakia	35.66	0.47	0.49	0.03	0.17	1,750
Slovenia	58.59	0.42	0.32	0.03	0.15	260
Spain	58.55	0.44	0.25	0.01	0.16	110,780
St. Vincent	44.42	0.44	0.39	0.26	0.16	185
Sweden	40.50	0.43	0.34	0.10	0.30	2,451
Switzerland	36.50	0.49	0.42	0.03	0.17	7,102
Tajikistan	46.48	0.40	0.44	0.00	0.56	25
United Kingdom	45.42	0.49	0.33	0.05	0.25	57,162
United States	18.65	0.50	0.09	0.03	0.09	84,883
Uruguay	43.56	0.48	0.33	0.04	0.07	17,145
Average	45.88	0.48	0.28	0.04	0.04	
Std. Dev.	25.20	0.50	0.45	0.20	0.20	

Notes Data comes from IPUMS International. Our main microdata sample consists of 1,284,490 observations of immigrants from 64 different countries of origin

are listed in the Appendix). The raw data reveals dissimilarities across countries with respect to immigrants’ age, gender composition, and education levels. The average age of the immigrants in our sample is around 46 years old with the youngest originating from United States (at 19 years old) and the oldest from Croatia, at 69 years old. Regarding gender, 48% of immigrants are men with variations in this

percentage from just 33% in the case of Mongolian immigrants to 63% in the case of those from Jordan. Overall, 28% of the immigrants completed high school with the lowest percentage being from United States (9%) and the highest from Azerbaijan (67%). With respect to those who completed at least a college degree, some college (1–3 years of degree studies), and college and more (≥ 4 years of degree studies), the lowest percentages are observed from those originating from Albania (8%), and the highest among those from Korea (65%). Thus, differences across countries of origin may indicate the necessity of controlling for those individual characteristics.

24.3 Empirical Strategy

Theoretically, the migration decision can be represented by a random utility maximization model (RUM; Marschak 1960) in which the utility that an individual obtains from living in a particular country is compared with the expected utility received if moving to other destinations. Because the decision-maker's utility is unknown, both expected benefits and migration costs are usually based on the characteristics of the country of origin and destination, which can be used to define the representative utility function (Nowotny and Pennerstorfer 2019). In our case, we focus our attention on cultural differences between countries of origin and destination countries as factors related to migration location decision since those differences can have an effect on the decision of identity preservation or immigrant's integration process in the host country. We argue that when the cultural gap between the home and the host country is large, both the integration or the identity preservation are more difficult, making some potential destination countries less attractive for immigrants.

The data availability imposes limitations on the empirical analysis. This is a common problem in the migration literature. As mentioned above, we propose two different analyses in our work. First, we examine the association between cultural differences and migration flow. In this analysis, the dependent variable is the proportion of immigrants defined as the number of immigrants of country of origin i who move to the destination country j in year t over the total number of immigrants that move to country j in year t , PI_{ijt} .¹⁰ It is possible to argue that we are not considering the population "at risk" of migrating since the total population of the country of origin is not considered there. For the analysis of the migration flow using gravity (based on the Newton's gravitational law) or pseudo-gravity models of migration, which is a similar framework to that developed in this empirical strategy, the use of the total population is considered by some researchers (Bertoli and Moraga 2015) but there are other alternatives (Beine and Parsons 2015; Ortega and Peri 2013). However, the total population can be problematic because variations in that variable could change the proportion of immigrants for reasons unrelated to cultural differences thus leading to biased estimates of the cultural differences. Also, selection

¹⁰We repeated the analysis with this variable not measured on a logarithmic scale. Results do not change so much between different analytical methods.

problems may arise here since those who decide to move to another country cannot be considered a random sample of the population of the country of origin.¹¹ For all of these reasons, we decided to select only those who decide to migrate in order to examine whether the destination country and the cultural differences between that country and the country of origin are important for migrants. In this setting, since all the individuals that decide to migrate to a specific country are likely to have similar knowledge of the characteristics of the destination country and/or even a similar pattern of risk aversion, the variation in the proportion of immigrants for each particular country of origin can be interpreted as a consequence of the cultural differences. Formally, we estimate the equation:

$$\begin{aligned} \ln(PI_{ijt}) = & \alpha + \ln(\mathbf{CulturalDifferences}_{ijt})\boldsymbol{\beta} + \mathbf{OtherDifferences}_{ijt}\boldsymbol{\mu} \\ & + \gamma \ln(D_{ij}) + \Sigma_i \mathbf{HomeCountry} FE_i + \Sigma_j \mathbf{HostCountry} FE_j \\ & + \Sigma_t \mathbf{Year} FE_t + [\Sigma_j \mathbf{Host}_j \times \mathbf{Time}_t + \Sigma_j \mathbf{Host}_j \times \mathbf{Time}_t^2] + u_{ijt} \end{aligned} \quad (24.1)$$

in which $\mathbf{CulturalDifferences}_{ijt}$ include a set of variables on a logarithm scale measuring the cultural differences between sending i and receiving j countries in year t . The log (logarithmic) transformation, which is similar to that applied in gravity or “pseudo” gravity models, is useful for interpreting the coefficients as elasticities.¹² If cultural differences play a role in this analysis, immigrants should decide to migrate to countries culturally similar to their home-country in order to mitigate the cultural dilemma (identity preservation or integration). $\boldsymbol{\beta}$ and $\boldsymbol{\mu}$ coefficients should then be negative given that we would expect that the greater the cultural differences, the lower the proportion of immigrants that move to a culturally different destination country. We have also included a distance (decay) variable, D_{ij} , which is a measure of the physical distance between sending i and receiving j countries.¹³ As the gravity models and other migration models predict, we would expect γ to be negative since high physical distances (high migration costs) may imply low migration flow (Caragliu et al. 2013; White and Buehler 2018; Schwartz 1973). Home and host countries’ fixed effects are incorporated in addition to years fixed effects in order to account for unobservable characteristics that vary at the country level and/or overtime. Specific

¹¹In any case, the selectivity issues are normally more problematic when using microdata, see Greenwood (2016). We revisit this issue below.

¹²When our variables take value of zero in both analyses, we change this for value 0.001 in order to be able to calculate the logarithm. We also ran the regressions with/without those observations and changing that value of 0.001. Results are invariant. This is also a common strategy in gravity models when the number of zeros is not excessive, which is our case with only 3.1% in the migration flow. Then, we prefer the use of this simple method rather than the zero-inflated Poisson model, which is the alternative for a large number of zero values (Bohara and Krieg 1996).

¹³In order to calculate the distance variable, we use information from latitude and longitude for each home and host country based on the geodetic datum WGS84.

linear and quadratic trends at the host country level are included to account for preexisting trends in the migration behavior of the destination countries.¹⁴ Regressions are estimated using population-weighted least squares.

Although, as it is explained above, we have added a distance variable in Eq. 24.1, the importance of the distance should be more thoroughly explored. We wonder whether the cultural differences lose (or not) their importance when migration costs in terms of travel costs are high as a consequence of the physical distance between sending and receiving countries. In order to examine these differences, we develop a supplemental analysis focused on the comparison of the cultural differences between bordering (neighboring) and non-bordering countries by way of the introduction of interaction terms.

It should be noted that the model proposed above may generate some concerns. We recognize that the definition of the dependent variable with only the total number of migrants in the denominator could also be problematic since the proportion of immigrants can vary because of a change in the numerator or because of a change in the denominator. Imagine that there is an armed conflict or a war in a particular country k . The number of immigrants that receive a country j may increase because of the rise in the number of refugees. In this setting, the proportion of immigrants that the country j receives from country i can change because of a variation in the denominator regardless of the changes in cultural differences. In order to mitigate these concerns, we run several robustness checks (see below). We also extend our analysis to the study of the relationship between the cultural differences and migration by using microdata concerning migration stock from the national censuses. This dataset has some advantages since the census data can be of higher quality than the sources collecting annual migration flows (Ramos 2016). Microdata from censuses allow us to take the individual heterogeneity into account, which is not possible by using migration flows in an aggregate way. Additionally, census data incorporate information on unambiguous permanent movers, which can provide us with some interesting results on the association between cultural differences and migration. As previously described, the possible variation concerning the relationship between cultural differences and migration location choice as a consequence of the physical distance is also taken into consideration by exploring the residence choice between home and host countries that share or do not share borders (or are or not quite close countries in terms of physical distance).¹⁵ In order to do that, we estimate the equation:

$$\begin{aligned}
 Y_{mijt} = & \alpha + \ln(\mathbf{CulturalDifferences}_{ijt})\beta + \mathbf{OtherDifferences}_{ijt}\mu + X_{mijt}\delta \\
 & + \eta \ln(\mathbf{Ethnicnetwork}_{mijt}) + \Sigma_i \mathbf{HomeCountry}FE_i \\
 & + \Sigma_j \mathbf{HostCountry}FE_j + \varepsilon_{mijt}
 \end{aligned}
 \tag{24.2}$$

¹⁴All estimates are repeated with/without home and host countries' fixed effects and with/without linear and quadratic trends. Results do not vary between models.

¹⁵We repeated the analysis by considering several different physical distances to account for the physical proximity of countries that are not border countries, see below.

in which Y_{mijt} is a dummy variable that takes value of 1 when immigrant m originating from home-country i is living in a neighbor (or quite close) country j in year t and takes value of 0 when immigrant m originating from the home-country i is living in a non-neighbor country j . Our variables of interest, the cultural differences, are described above. Similarly, in this specification, common culture may play a role in immigrants' places of residence through facilitation of immigrants' integration into the host country. If cultural differences matter despite the increase in physical distance costs, those individuals whose neighboring countries present high cultural differences with respect to their home-country should prefer to migrate to a non-neighbor country. β and μ coefficients should then be negative. However, if the relationship between the cultural differences and the migration location choice varies depending on the physical distance, we would expect to observe changes in the β and μ coefficients. We address this issue by extending migrants' location choices (not only border [neighboring] countries but also other close countries versus the rest of the non-border and non-close countries). X_{mijt} includes individual characteristics, such as gender, age, and education levels, which may be important in the migration choice for culturally independent reasons. Migrants' location choice can also be influenced by ethnic networks. On the one hand, the set of destination countries may be conditioned to the presence of ethnic networks in the destination countries that provide information to the potential migrants. However, it is arguable that the use of migration stock data instead of migration flows could reduce those concerns.¹⁶ On the other hand, the existence of large population of the same ethnicity in a region (ethnic enclaves) may mitigate the adaptation or identity preservation costs of those individuals having the same origin, thus reducing the importance of cultural differences between home and host countries. This should be taken into consideration in our analysis. A control for the ethnic network is needed since, if omitted, our estimated coefficients concerning the variables of interest could be biased. Following Nowotny and Pennerstorfer (2019), we use information on the regional distribution of migrants by country of origin in each destination country in order to account for the ethnic networks. The *Ethnicnetwork*_{mijt} is calculated as the number of migrants of country of origin i living in the region of migrant m over the total number of migrants living in that region of country j and year t . Controls for unobserved characteristics of the countries of origin and destination in which our immigrants live are added by using host country fixed effects and for the country of origin's unobserved characteristics by introducing home-country fixed effects.¹⁷

¹⁶In the case of the migration flow analysis, we are not able to control for the existence of ethnic enclaves in particular regions because we do not know the region of residence of the migrants in the destination country.

¹⁷We used a linear probability model (LPM) for simplicity since results can be easily interpreted and the LPM consistently estimates the coefficients (Greene 2011). Of course, alternative methodologies can be suggested because of the concerns in which the LPM may generate in a model with a binary dependent variable. However, our LPM proposal is suitable since the heteroskedasticity problem and the absence of normality of the error term in the LPM do not present a problem for us. Standard errors have been calculated by using the procedure called robust standard or White-Huber standard errors, so any heteroscedasticity concerns should be mitigated. The non-normality of the error term

24.4 Results

a. Migration flow

Table 24.2 reports the estimates for Eq. (24.1). In column 1, we incorporate all of our cultural difference variables. Our results show a negative and statistically significant relationship between fertility cultural differences and the flows of population between countries. When the differences in the total fertility rate (TFR) between a home and a host country increased by 1%, the migration flow, defined as the proportion of migrants originating from that home-country, is reduced by 0.17%. The same negative and statistically significant relationship is found in the case of the living and marriage arrangement culture. Our estimations indicate a decrease of 0.03% in the migration flow after an increase of 1% in the crude marriage rate (CMR) differences. At this stage of the analysis, differences in the female labor force participation (FLFP) between sending and receiving countries appear to be attractive in terms of migration flow since the association between FLFP differences and the proportion of migrants appear to be positive. However, we do not separate male and female migration, which can distort the importance of gender roles in the location choice because of the different incentives in migration by gender (Lee 1966; Morrison et al. 2007) under the assumption that the FLFP is an appropriate cultural proxy of the gender roles. We revisit this issue in the migration stock analysis. Other employment cultural proxies are incorporated in column 1 using the differences in unemployment rates. While unemployment rate differences are not statistically significant, there is a positive relationship between GDP per capita differences and migration flow. This may indicate that we capture differences in economic conditions rather than differences in the amenities with that cultural proxy. In any case, the study of the impact of economic conditions on migration is not the aim of our chapter, and the inclusion or exclusion of those variables does not alter our findings. We also add language and religious differences in this specification. As expected, not having the same language decreases the proportion of immigrants. The same is observed in the case of the relationship between religious differences and migration flow.

The definition of cultural differences may provoke some debate since it includes new or established immigrant populations. In this setting, it is possible to suggest that

is really only a problem with small samples, which is not our case. With a large enough sample, such as that considered here, the central limit theorem delivers normal distributions for the coefficient estimates and the predicted values; see a similar case in Betts and Fairlie (2001). In order to check the validity of our estimation, we compared the LPM and the probit model, which provides very similar estimations and predictions. However, because of the introduction of many dummy variables to control for unobservable characteristics, the use of probit or logit models is not convenient due to convergence problems in the estimations. This is a common problem for the recent and growing literature on the effect of culture on several demographic and economic variables that use the LPM as the main analytical method in order to be able to control for a large number of unobservable characteristics (Furtado et al. 2013; Marcén and Morales 2020). It is worth noting that the LPM is widely applied in social research (Holm et al. 2015). Then, following prior literature, we retained the LPM in our analysis. All of our estimations were repeated with/without home-country and host country fixed effects. Results did not vary between estimates.

Table 24.2 Main results on the relationship between cultural differences and the migration flow

Dependent variable: Ln (PI)	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Ln (TFR differences)	-0.1782*** (0.013)	-0.1835*** (0.028)	-0.2435*** (0.030)	-0.0536*** (0.011)	-0.0449*** (0.011)	-0.0006*** (0.0001)	-0.0006*** (0.0001)
Ln (CMR differences)	-0.0356*** (0.009)		-0.0460 (0.032)	-0.0152* (0.008)	-0.0143* (0.008)	-0.0001 (0.0001)	-0.0001 (0.0001)
Ln (FLFP differences)	0.0606*** (0.012)	0.0272 (0.036)	-0.0123 (0.027)	0.0259** (0.010)	0.0228** (0.011)	-0.0003** (0.0001)	-0.0004*** (0.0001)
Ln (Unemployment differences)	0.0072 (0.012)	-0.0759 (0.046)	-0.0144 (0.020)	0.0268*** (0.010)	0.0265** (0.011)	-0.0001 (0.0001)	-0.0002 (0.0001)
Ln (GDP per capita differences)	0.1780*** (0.012)		0.2406*** (0.029)	0.1603*** (0.011)	0.1607*** (0.011)	0.0005*** (0.0001)	0.0006*** (0.0001)
Different language	-1.2619*** (0.057)		-1.0942*** (0.127)	-0.7148*** (0.050)	-0.7112*** (0.050)	-0.0026*** (0.001)	-0.0022*** (0.001)
Different religion	-0.4382*** (0.037)		-0.5678*** (0.143)	-0.3259*** (0.032)	-0.3289*** (0.033)	0.0013*** (0.0004)	0.0014*** (0.0004)
Ln (Distance between host-and home-country)				-1.0355*** (0.018)	-1.0445*** (0.018)	-0.0082*** (0.0003)	-0.0087*** (0.0003)
Border						-0.1369*** (0.012)	-0.1367*** (0.012)

(continued)

Table 24.2 (continued)

Dependent variable: Ln (PI)	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Ln (TFR differences)*Border						0.0032** (0.001)	0.0026** (0.001)
Ln (CMR differences)*Border						0.0030*** (0.001)	0.0027*** (0.001)
Ln (FLFP differences)*Border						0.0025** (0.001)	0.0026** (0.001)
Ln (Unemployment differences)*Border						-0.0012 (0.001)	-0.0009 (0.001)
Ln (GDP per capita differences)*Border						0.0142*** (0.001)	0.0140*** (0.001)
Different language*Border						0.0245*** (0.003)	0.0237*** (0.003)
Different religion*Border						0.0480*** (0.004)	0.0477*** (0.003)
Home-country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Host country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Host country*time	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Host country*time ²	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes

(continued)

Table 24.2 (continued)

Dependent variable: Ln (PI)	(1)	(2)	(3)	(4)	(5)	(6)	(7)
P-value (F-test of Dif_TFR + Dif_TFR*Border = 0)						0.0699	0.1114
P-value (F-test of Dif_CMR + Dif_CMR*Border = 0)						0.0003	0.0009
P-value (F-test of Dif_FLFP + Dif_FLFP*Border = 0)						0.077	0.0587
P-value (F-test of Dif_Unemployment + Dif_Unemployment*Border = 0)						0.3755	0.441
P-value (F-test of Dif_GDP + Dif_GDP*Border = 0)						0.0000	0.0000
P-value (F-test of Language + Language*Border = 0)						0.0000	0.0000
P-value (F-test of Religion + Religion*Border = 0)						0.0000	0.0000
Observations	23,814	1,713	1,713	23,814	22,396	23,814	22,396
R ²	0.613	0.740	0.778	0.712	0.710	0.498	0.520

Notes The proportion of immigrants was calculated using data on inflows of foreign population by nationality obtained from the OECD Statistics for the years 2000 to 2015. In column 2, our cultural variables have been calculated using a sample of native population obtained from IPUMS International. Countries of origin at war have been dropped in columns 4 and 7. Estimates were weighted. Robust standard errors are in parentheses. *** Significant at the 1% level, ** Significant at the 5% level, * Significant at the 10% level

averaging the cultural proxies could have created bias in our estimations. In order to check this, we redefine the cultural proxies by incorporating information only about the native population. This is tricky because the information is scarce in the International IPUMS for most of the countries of origin that are considered. In any case, we build the cultural proxies and restrict our sample to those reporting native origin for the fertility culture, gender role culture, and unemployment.¹⁸ Estimates are reported in column 2. The link between fertility culture differences and migration flow is maintained in addition to the relationship between the gender role variable and unemployment with the migration flow. In column 3, we repeat the analysis but select the sample from column 2 in order to explore whether our results are a consequence of the change in the sample size. Our findings are similar between analyses.

Throughout this work, we express the necessity of taking the distance between sending and receiving countries into consideration for the potential influence that its absence has on the relationship between cultural differences and migration. We adopt the measurement of distance as the physical distance although there are other alternatives (travel time or travel costs as distance measurements). Nevertheless, the physical distance can easily be obtained and determined for the large number of possible combinations between our origin and destination countries.¹⁹ We add the distance variable in column 4 of Table 24.2. As expected, the estimated coefficient is negative. With respect to our variables of interest, the cultural differences, our findings are unchanged after considering different variables albeit the magnitude of the coefficients decreases (in absolute value). At this point, the importance of cultural differences can be interpreted. For example, the migration flow of migrants originating from Guatemala (with a TFR of 4.6 in 2000) to Spain (TFR of 1.22 in 2000) is almost 6% lower than that of those originating from Latvia (TFR of 1.25 in the same year) because of the differences in the fertility cultural proxy while holding the rest of variables constant. However, the migration flow would increase by 71% for those migrants having the same language as Spain (for instance, Guatemala) while holding the rest of variables constant. Along the same line, the migration flow also rises by 33% for those having the same religion (again, as in Guatemala and Spain) while holding the rest of variables constant. Therefore, language and religion appear to play a more important role in migration flow than other cultural differences. Similarly, our results are maintained when we drop those countries of origin and destination countries that were in armed conflict or war during the period

¹⁸The fertility cultural proxy is defined as the number of children of native women in each country over the total number of native women in that country. The gender culture is calculated as the number of employed native women aged ≥ 15 over the total number of female active native women in that country. The unemployment proxy is measured as the number of unemployed native individuals in a specific country over the total active native population in that country. All of these variables are obtained using information from the International IPUMS in the same years as the year considered in the migration stock analysis. For the rest of variables of interest, the use of only native information is not possible because data availability problems.

¹⁹We are not able to obtain reliable information on all possible travel time and/or travel costs for more than 20,000 observations in the migration flow analysis and more than one million observations in the migration stock case.

under consideration (see column 5.)²⁰ Although the year and country's fixed effects should incorporate possible regional wars, it is comforting that adding or deleting those countries from our sample does not alter our results.

In order to present further evidence on the effects of the cultural differences while considering the physical distance between the home and the destination country, we rerun the entire analysis, including interaction terms between the variables capturing cultural differences and a dummy variable accounting for whether the home and the host countries are neighboring countries (with quite low travel costs). Results are presented in column 6 of Table 24.2. Our estimations suggest that for most of the variables of interest (with the exception of the GDP per capita and religion) the expected role of the differences between home and host countries can only be detected when countries are non-neighboring countries. When countries are neighbors, the opposite situation is observed or nonstatistically significant effects of the cultural differences are obtained. We can interpret the differences for the case of the fertility culture as an example. The migration flow of migrants originating from France (with a TFR of 2.01 in 2012) to Spain (a border country, TFR of around 1.3 in 2012) is almost 0.09% higher than that of those originating from Portugal (TFR of 1.28 in the same year) because of the differences in the fertility cultural proxy while holding the rest of variables constant. However, migration flow of migrants originating from France (with a TFR of 2.01 in 2012) to Poland (a non-border country but with a TFR of around 1.3 in 2012 similar to that of Spain) is almost -0.02% lower than that of those originating from Portugal (TFR of 1.28 in the same year) because of the differences in the fertility cultural proxy while holding the rest of variables constant. Comparing this finding with language, the migration flow for border countries that have different languages increases by 2.19%, but it decreases by 0.26% for non-neighboring countries while holding the rest of variables constant. As before, the importance of the language is greater than that of other cultural differences when examining the migration flow. Our results are unchanged when we eliminate those countries that are involved in armed conflicts or wars (see column 7). It makes sense that integration costs in the host country would be less important when immigrants have to face low physical distance costs, but it is also possible that individual heterogeneity or the decision of being a permanent resident in the host country could have driven our findings concerning the border analysis. This is discussed in the next section.

b. Migration stock accounting for heterogeneity, ethnic networks, and sample selection

Table 24.3 presents the estimates for Eq. (24.2), which permits us to control for the individual characteristics of the migrants and for potential ethnic networks. All specifications include controls for age and its square, gender (man = 1, woman = 0), education (high school, college, and more than college). Home and host countries' fixed effects are included in all specifications in order to capture unobserved heterogeneity across countries. Controls for the ethnic network are also included in all

²⁰Data on countries on armed conflict or war is obtained from the Armed Conflict Dataset (UCDP/PRIO).

Table 24.3 Main results concerning the relationship between cultural differences and the migration stock

Dependent variable: Migrate to a border country	(1)	(2)	(3)	(4)	(5)	(6)
Ln (TFR differences)	-0.0125*** (0.001)	-0.0057*** (0.001)	-0.0109*** (0.0005)	-0.0109*** (0.0005)	-0.0369*** (0.0004)	-0.0107*** (0.001)
Ln (CMR differences)	-0.0931*** (0.001)	-0.0960*** (0.001)	-0.0399*** (0.001)	-0.0397*** (0.001)	-0.0898*** (0.001)	
Ln (FLFP differences)	-0.0795*** (0.001)	-0.0745*** (0.001)	-0.0825*** (0.001)	-0.0824*** (0.001)	-0.0785*** (0.001)	-0.0787*** (0.002)
Ln (Unemployment differences)	-0.0519*** (0.001)	-0.0553*** (0.001)	0.0068*** (0.001)	0.0070*** (0.001)	-0.0611*** (0.0005)	-0.0276*** (0.001)
Ln (GDP per capita differences)	-0.1100*** (0.001)	-0.1175*** (0.001)	-0.0718*** (0.001)	-0.0716*** (0.001)	-0.1092*** (0.001)	
Different language	0.2061*** (0.002)	0.2073*** (0.002)	0.1740*** (0.002)	0.1716*** (0.002)	0.2792*** (0.002)	
Different religion	-0.0040* (0.002)	-0.0067*** (0.002)	-0.0494*** (0.003)	-0.0499*** (0.003)	-0.2259*** (0.002)	
Ln (Ethnic network)	0.0517*** (0.0004)		0.0327*** (0.0004)	0.0329*** (0.0004)	0.0656*** (0.0004)	0.0504*** (0.001)
Dummy Ethnic network		0.0651*** (0.0004)				
Ln (Host country size)					0.0290***	

(continued)

Table 24.3 (continued)

Dependent variable: Migrate to a border country	(1)	(2)	(3)	(4)	(5)	(6)
Home-country FE	Yes	Yes	Yes	Yes	(0.0004)	Yes
Host country FE	Yes	Yes	Yes	Yes	No	Yes
Year of migration FE	No	No	Yes	No	No	No
Observations	1,284,490	1,284,490	486,601	486,601	1,284,490	372,224
R ²	0.905	0.900	0.962	0.962	0.875	0.963

Notes Data was obtained from IPUMS International. All specifications include controls for age and its square, gender (man = 1, woman = 0), education (high school, college, and more college). The variation in the sample size in columns 3 and 4 is due to the availability of information for the individuals' year of immigration. In column 6 our cultural variables have been calculated using a sample of native population obtained from IPUMS International. Estimates were weighted. Robust standard errors are in parentheses. *** Significant at the 1% level, ** Significant at the 5% level, * Significant at the 10% level

regressions. We focus our analysis on the estimated coefficients concerning cultural differences. Estimations suggest a negative relationship between cultural differences and the probability of residing in a neighboring (border) country. This finding is detected in all cultural aspects with the exception of the language (see column 1 in Table 24.4). Our findings suggest that the integration costs of changing fertility, marriage, employment cultures, and gender roles can be assumed when migrants decide to migrate to a non-neighboring country, but this integration does not happen when language dissimilarities are considered. Other researchers find opposite results concerning the relationship between language and country of destination choice. Some of these researchers conclude that language matters (Belot and Ederveen 2012), whereas others detect no relationship (Karemera et al. 2000; Mayda 2010; Ortega and Peri 2009). However, since learning a language can be costly, not only because of the direct costs of learning but also because of the lower earnings received in the destination country during the adjustment period until acquiring proficiency and integration, it is possible to argue that immigrants prefer to move to neighboring countries (lower migration costs in terms of travel costs) when there are language differences between the home and the host country. The coefficient of the ethnic network is positive and statistically significant and points to the importance of those networks in the probability of choosing a border country rather than a non-border country. The ethnic network is redefined in column 2 by considering a dummy variable that takes the value 1 when a region has a higher proportion of immigrants than the country's average proportion, and 0 otherwise. Again, our estimated points are similar. The ethnic networks then do not appear to be driving our findings.

Since we consider data on the migration stock by using information from the censuses, selectivity concerns may arise in this setting. As Dustmann and Görlach (2015) indicate, potential problems may be a consequence of the selective out-migration since the census data mostly include information on migrants who opt for a permanent residence or a long residence in the destination country. This may be mitigated by controlling for the year of migration because empirical evidence suggests a possible relationship between the potential possibilities of staying (or being successful) in the host country and the year of migration (Dustmann and Görlach 2015). We address this issue in column 3 of Table 24.3 in which the year of migration's fixed effects is incorporated. We should note that the sample size is considerably diminished because of the lack of availability of the year of migration in several destination countries. In any case, it is reassuring that our estimations do not vary with the exception of the unemployment differences, which is positively correlated with the probability of reporting a border country as place of residence. After re-running the analysis with the reduced sample shown in column 3, it is revealed that the change in the coefficient capturing the unemployment differences is due to the variation in the sample rather than the inclusion of the year of migration's fixed effects (see column 4).

Although the home and host countries' fixed effects should have picked up all unobserved characteristics at the country level, it can be argued that the country sizes are very different, which might have distorted the number of individuals that choose a neighboring country or another one. In order to address this issue, we add the

Table 24.4 Robustness checks

Dependent variable: Migrate to a border country	(1)	(2)	(3)	(4)	(5)	(6)
Ln (TFR differences)	-0.0104*** (0.001)	-0.0121*** (0.001)	-0.0124*** (0.001)	-0.0085*** (0.001)	-0.0138*** (0.001)	-0.0113*** (0.001)
Ln (CMR differences)	-0.0694*** (0.001)	-0.0849*** (0.001)	-0.0599*** (0.001)	-0.1008*** (0.001)	-0.0889*** (0.001)	-0.0982*** (0.001)
Ln (FLFP differences)	-0.0779*** (0.002)	-0.0846*** (0.001)	-0.0600*** (0.002)	-0.1099*** (0.002)	-0.0819*** (0.001)	-0.0770*** (0.001)
Ln (Unemployment differences)	-0.0472*** (0.001)	-0.0549*** (0.001)	-0.0400*** (0.001)	-0.0688*** (0.001)	-0.0585*** (0.001)	-0.0459*** (0.001)
Ln (GDP per capita differences)	-0.0969*** (0.002)	-0.1095*** (0.001)	-0.0947*** (0.002)	-0.1083*** (0.001)	-0.1132*** (0.001)	-0.1075*** (0.001)
Different language	0.2425*** (0.004)	0.2163*** (0.003)	0.2540*** (0.005)	0.2019*** (0.003)	0.2105*** (0.003)	0.2018*** (0.003)
Different religion	-0.0935*** (0.004)	-0.0384*** (0.003)	-0.0796*** (0.005)	-0.0187*** (0.004)	0.0012 (0.003)	-0.0071** (0.003)
Ln (Ethnic network)	0.0495*** (0.001)	0.0485*** (0.0005)	0.0512*** (0.001)	0.0458*** (0.001)	0.0514*** (0.001)	0.0520*** (0.001)

(continued)

Table 24.4 (continued)

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent variable: Migrate to a border country	Yes	Yes	Yes	Yes	Yes	Yes
Home-country FE	Yes	Yes	Yes	Yes	Yes	Yes
Host country FE	426,459	763,716	280,931	482,785	612,103	672,387
Observations	0.921	0.913	0.925	0.909	0.908	0.903

Notes Data was obtained from IPUMS International. All specifications include controls for age and its square, gender (man = 1, woman = 0), education (high school, college, and more college). Column 1 incorporates immigrants between 30 and 50 years. Column 2 includes immigrants between 25 and 64 years, whereas those aged 25–40 and 41–64 are in columns 3 and 4, respectively. We selected a sample of immigrant men and women in columns 5 and 6, respectively. *** Significant at the 1% level, ** Significant at the 5% level, * Significant at the 10% level

host country size in column 5 of Table 24.3.²¹ We do not find significant differences compared to our previous estimations. Also, as in the migration flow analysis, the cultural proxies are also calculated using information only for native population (see their definitions above). We recognize the problems with the definition of these variables because of the scarcity of data for several countries of origin. Even being conscious of that scarcity, it is comforting that the relationships between the cultural differences and the probability of reporting a place or residence as a border country are maintained (see column 6 of Table 24.3).

Table 24.4 presents additional robustness checks in order to explore the consistency of our findings using different subsamples. Column 1 shows the results after restricting our sample to those immigrants between 30 and 50 years old. As can be seen, our conclusions do not change. Our results are also unchanged when our sample consists of immigrants between 25 and 64 years old (see column 2) and after separating the sample between the youngest (25 and 40 years) and the oldest individuals (41 and 64 years) (see columns 3 and 4). Since there could have been differences in the gender roles that affect individuals' migration decisions, we divide the sample between males and females in columns 5 and 6, respectively. We find the same results in both columns with the exception of the religious differences, which is not statistically significant for the case of the men's sample. The magnitude of the coefficients is quite similar in all cases. All of our findings suggest that cultural differences can play a role in a person's destination country choice. The higher the cultural differences with the exception of language, the lower the probability of moving to a neighboring country. In the case of language, cultural differences behave in the opposite way. Thus, it is possible to argue that the cultural differences are not so important in the case of the migration flow, but when we observe the immigrant stock residing in a country, the cultural differences are more important, which can be due to the cultural dilemma between identity preservation and integration.

Up to now, we have considered the migrant choice between neighboring and non-neighboring countries. Additionally, in this framework, we can explore the way in which cultural differences matter when the physical distance increases. It can be hypothesized that in some cases being neighboring countries or quite close countries may not affect the relationship between cultural differences and migration location choice. It is also interesting to answer the question about which physical distances change that relationship. We have considered from 400 to 2000 km. The estimated coefficients are plotted in Fig. 24.2. Two findings are deduced from those graphs. First, not all cultural differences behave in the same way. With respect to all cultural differences, except language, the relationship with reporting living in a neighboring or closely bordering country is negative. The greater the physical distance with the non-neighboring destination countries, the more important the TFR, language, and religious differences (the magnitude of the coefficients increases in absolute value) are, whereas the rest of cultural differences are less important (the magnitude of the coefficients decreases in absolute value). Second, the relationship between

²¹Data on country size come from The World Factbook and is defined as the sum of all land and water areas delimited by international boundaries and/or coastline.

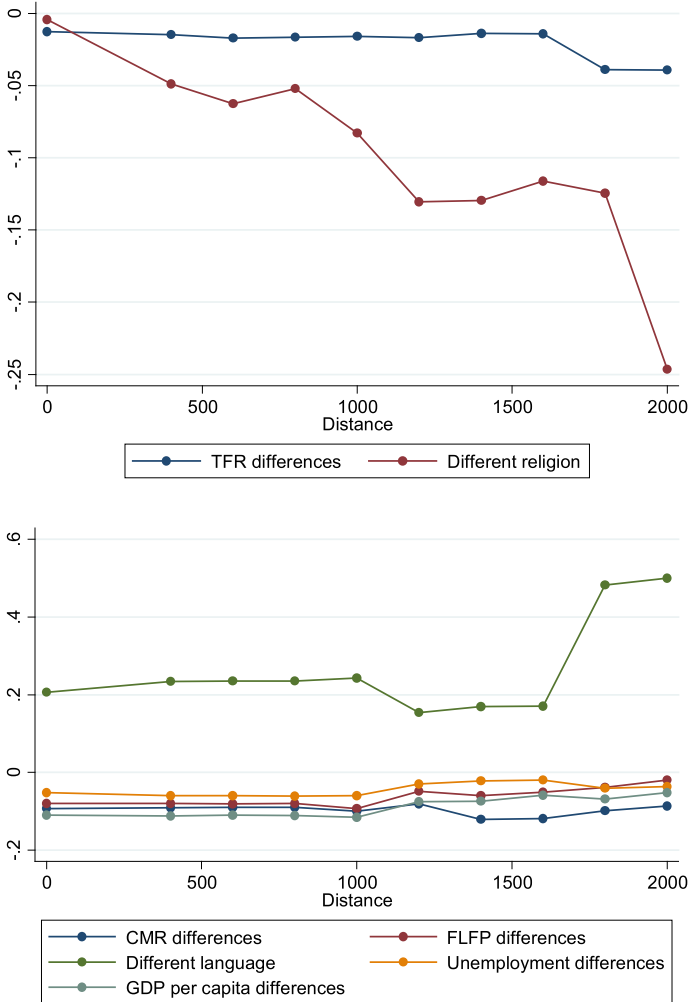


Fig. 24.2 The estimated coefficient on the relationship between cultural differences and the probability of moving to a neighbor or close country by physical distance. *Notes* Data is obtained from IPUMS International. Estimates are weighted. Robust standard errors are calculated. Y-axes show the estimated coefficients and the X-axis the physical distance. The physical distance is 0 when countries are neighbors, with those coefficients corresponding to those reported in column 1 of Table 24.3. All the specifications include the same controls as those shown in column 1 of Table 24.3. All coefficients are significant at the 1% level with the exception of religion whose estimated coefficients when countries are only neighbors or close countries (neighbor and those non-border countries with a physical distance lower than 400)

cultural differences and the migrant's choice of residence does not change until the interval 800–1200 km (which is the equivalent of traveling from Paris to Praha around 1200 km or 2 h by plane) with the exception of religion that changes at the 1600 km distance. Our findings point to variations in the importance of cultural differences depending on the physical distance between the home and the host countries.

24.5 Conclusions

Intercultural migration presents two important questions: (1) should I move to a country with a culture similar to that of my country of origin; and (2) if not, should I adopt the host country's culture? Integration or adaptation to a new culture can be costly because making a change in personal values, preferences, and beliefs is not easy. In addition, besides the learning of culture and skills, migration success depends on the feeling of being accepted. Thus, to mitigate the adaptation costs migrants should migrate to those countries with a common culture. The aim of this paper is to show empirical evidence of the relationship between cultural differences across countries and the location decisions of migrants.

In order to present this evidence, we consider observable characteristics such as cultural proxies that reflect different cultural aspects, which is a common strategy described in the recent literature on cultural issues (Fernández 2007). We conduct two separate analyses using information on both migration flow and stock. Those datasets have advantages and disadvantages, but both of them allow us to develop an easy analysis of the possible effects of the cultural differences on location choices. Our findings suggest that cultural differences between sending and receiving countries may play a role in the immigrants' choice of location. When the physical distances are considered, results are not so clear. It appears that in order to migrate (migration flow) cultural differences are not so important, but when migrants decide to reside in a country (migrant stock), the cultural differences matter in the choice of destination country, depending on the physical distance. We view our findings as a benchmark that still leaves the door open to a more extensive and later analysis on this issue.

Appendix

Host countries	Migration Flow	Migration Stock
Argentina	No	Yes
Armenia	No	Yes
Australia	Yes	No
Austria	Yes	No

(continued)

(continued)

Host countries	Migration Flow	Migration Stock
Belgium	Yes	No
Chile	Yes	Yes
Costa Rica	No	Yes
Cuba	No	Yes
Czech Republic	Yes	No
Denmark	Yes	No
Dominican Republic	No	Yes
Estonia	Yes	No
Finland	Yes	No
France	Yes	Yes
Germany	Yes	No
Greece	Yes	Yes
Hungary	Yes	No
Ireland	Yes	Yes
Israel	Yes	Yes
Italy	Yes	No
Japan	Yes	No
Korea	Yes	No
Kyrgyzstan	No	Yes
Latvia	Yes	No
Luxembourg	Yes	No
Mexico	Yes	Yes
Mongolia	No	Yes
Netherlands	Yes	No
New Zealand	Yes	No
Norway	Yes	No
Panama	No	Yes
Poland	Yes	Yes
Portugal	Yes	Yes
Puerto Rico	No	Yes
Romania	No	Yes
Slovakia	Yes	No
Slovenia	Yes	Yes
Spain	Yes	Yes
Sweden	Yes	No
Switzerland	Yes	No
United Kingdom	Yes	Yes

(continued)

(continued)

Host countries	Migration Flow	Migration Stock
United States	Yes	Yes
Uruguay	No	Yes

Notes this table shows the host countries included in each analysis

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Chapter 25

Migration in a Post-global Era



Tony Fielding

25.1 Introduction

This chapter is about trends in international migration: it begins by setting out the conventional wisdom of the ‘age of migration’ narrative; it then questions that narrative on the basis of four arguments, each favouring an expectation that international migration rates will decrease rather than increase in the near future; and finally, before a short conclusion, it reviews two sets of migration scenarios to see what they might tell us about current and future migration trends.

The popular impression is still that the world is experiencing an unavoidable growth of both international and internal migration numbers and rates, and will continue to do so into the foreseeable future. The percentage of those who live outside their country of birth has risen from 2.8 to 3.3% in the period 2000–2015 (UN DESA 2016), and the number of international migrants is expected to increase from 258 million in 2017 to 405 million in 2050 (Amelia Hill in the Guardian, 10th September 2018). This growth can be explained as being due to four factors. The first is the neoliberal globalization of trade, finance, production, and culture, which in turn has encouraged the cross-border migration of labour and the emergence of ethnically diverse national populations. The second, but linked to the first, is new technologies (especially in transport and communications) which have increased the ease, and lowered the cost, of long-distance travel (witness the rise in international tourism) while making it possible to keep in touch with distant family and friends better than ever before. The third, (linked to both of the above) is the persistence of vast global inequalities in people’s well-being and life chances, which are no longer hidden either by ignorance or by lives lived out very locally, inequalities that are exacerbated by striking differences in fertility and population growth rates such as those between sub-Saharan Africa and the EU. And the fourth, is the expansion and proliferation of

T. Fielding (✉)

School of Global Studies, University of Sussex, Brighton, UK

e-mail: a.j.fielding@sussex.ac.uk

civil conflicts which have all too often become proxy wars fought by outside powers resulting in great suffering and massive population displacements (witness contemporary conflicts in Syria and Yemen)—‘failed states’ have unfortunately become a permanent feature of the global political economy.

It is not surprising, therefore, that both popular (political) and academic (research) discourses seem convinced that we truly live in the ‘Age of Migration’ (Castles et al. 2013). Surely no-one would be so foolish as to contest this now firmly established conventional wisdom. Well, foolish or not, that is precisely what this chapter attempts to do.

Central to the argument that I shall develop here are the closely linked concepts of neoliberal globalization and majoritarian autocracy. They are linked because one of the unintended side effects of globalization is the build-up of ‘left-behind’ populations—people whose jobs, future prospects and way of life have disappeared and who are liable to be driven by their dire economic circumstances and political fatalism into the embrace of right-wing demagogues or ‘populists’.

25.2 Globalization—What Is It and Why It Matters

First globalization—I use the term ‘globalization’ in its narrowest of meanings—the substitution over time of spatially more extended relationships, processes and structures for spatially more limited ones. But, and this is very important to the argument, there is always a balance of forces; those pointing towards globalization being counteracted by those pointing towards localization. To give a rather superficial example of the latter, I used to eat bread and drink beer that were manufactured in large factories located in faraway cities. Now, both are produced in small establishments close to where I live.

‘Neoliberal capitalist globalization’ refers to the fact that, in the recent period, the processes of globalization have largely been unregulated (hence ‘neoliberal’) by the institutions (such as democratically elected governments) that are supposed to protect the common interests of ordinary people. Specifically, global corporations have ‘escaped’ the authority of the nation state (indeed, some would say that this is almost their reason for existence). They, or their suppliers, take advantage of the poverty of people in developing countries by employing them on very low wages, they take advantage of unregulated physical and social environments in these and other countries to maximize their profits, and they use practices such as transfer pricing and shell companies to ensure they pay little or no tax to the governments of the countries in which they operate as producers or in which they sell their products and services.

Neoliberal globalization matters because it transforms peoples’ lives, generally to the advantage of a small equity-owning or managerial elite, and to the disadvantage of the rest of us. This is not to deny the income-boosting life-transforming changes enjoyed by poor people when internationally mobile capital chooses their country or their region for major investment projects (hence, in part, the growth of the Chinese

economy and especially of China's south-eastern coastal provinces). But neoliberal globalization also adds a whole new arena for the concentration of power and wealth. Contemporary economies, from the global to the local, are saturated with power relations, notably (i) those of monopoly (where the buyers, by their multitude relative to the sellers, are 'slaves' to the seller—good examples are to be found among the corporations that make up high technology industries and the 'platform economy'); (ii) those of monopsony (where the sellers, by their multitude relative to the buyer, are 'slaves' to the buyer—good examples are to be found in the retail sector where small and medium-sized companies compete with one another to supply the major supermarket chains); and (iii) those arising from the intersection or merging of economic and political power (for example, in Southeast Asia's 'crony capitalisms' or in Russia's 'mafia state'). Needless to say, there is a distinctive geography to these power relations and to their impacts on peoples' incomes and life chances, both within and across national borders. It is this geography that, to a considerable extent, determines the patterns of both internal and international migration.

25.3 Migration and Globalization—A Two-Way Relationship

It is vitally important to recognize that the connection between migration and globalization is a two-way relationship. Mass-produced goods, global services such as internet-based platforms (e.g. Amazon, Google, Facebook, etc.) plus global finance undermine locally produced goods and services (and their associated social practices and structures). This leads to un- and under-employment resulting in outmigration and emigration. At the same time, international migrants diversify the ethnic compositions of receiving countries (thereby facilitating further migration by providing a supportive host environment), and are the carriers of globalization (in the form of both goods and ideas) to their sending countries' populations. Thus, far from trade and investment flows substituting for migration (as the neoclassical economists would have us believe), the two are far more likely to be mutually reinforcing (i.e. they are in a positive feedback loop; see Fielding 2016: 181–183).

This 'positive feedback loop' between migration and globalization has formed the basis of many studies of international migration in the post-World War II period. An early, and rightly celebrated, example was Saskia Sassen's analysis of the role of foreign direct investment from high-income countries in (i) uprooting and proletarianizing people in low-income countries; thereby (ii) opening their eyes to the wealth and well-being of people in the countries from which the investing companies came; leading (iii) to onward migration from the low-income country to the high-income one (Sassen 1988). A very recent example of the same theme is the 'Handbook of Migration and Globalisation' (Triandafyllidou 2018) where in only one of the 27 chapters (that by Andrew Geddes), by my calculation, is there any questioning either of the current success of neoliberal globalization and of its likely continuation into

the future, or of its positive relationship to international migration. Indeed, in the chapter by Hillel Rapoport, a theoretical economic argument is presented to explain the finding that ‘the empirical literature overwhelmingly agrees that (global) trade and migration are mutually reinforcing in most cases’ (Rapoport 2018: 189).

25.4 So, What then Is the Problem with All This?

Well, actually, there are at least three problems. The first is empirical: the facts of both migration and globalization do not fit comfortably into this story. As Czaika and de Haas (2015: 296) demonstrate, if one takes a rather longer-term view of migration trends using data on the proportion of the world population born outside their current country of residence, there is no simple increase in international migration over the post-World War II period; the figure was 3.06% in 1960, 2.86% in 1970, 2.70% in 1980, 2.67% in 1990 and 2.73% in 2000. So, the figure of 3.3% for 2015 reported above may turn out to be just a ‘blip’ (associated with the events in Southwest Asia and policies at that time in the EU—Mediterranean crossings in 2018, for example, are expected to be only a very small fraction of those in 2015). As for globalization, the upward trend in the global ratio of exports of goods and services to gross domestic product (GDP) which increased steadily through the 1980s and 1990s, peaked in 2008 (at 30.7%), and has since declined slightly (in 2015 it was 29.4%) (World Bank/UNCTAD WITS database accessed on 15/7/18). An even stronger picture of globalization halting or even going into reverse is provided by data on foreign direct investment (FDI). Global net outflows of FDI as a percentage of GDP were 1.06% in 1988, 2.51% in 1998, and 4.03% in 2008, before falling away to 2.66% in 2016 (IMF/UNCTAD data accessed on 15/7/18). So, the message from the data is that neither international migration nor globalization has experienced a simple growth trajectory in the recent period, nor were they as fully synchronic with one another as one might have expected.

The second problem is conceptual—what happened to the global political economy in 2008? For many commentators at the time, 2008 was just another cyclical downturn in the global economy (albeit one that was made more severe, perhaps, by having been delayed). It was widely thought that by curbing the wilder excesses of the investment bankers, printing money and lowering interest rates, all would be well. We now know that much more was happening than that. In many high-income countries median incomes have barely, if at all, regained their pre-2008 levels and gains in measured labour productivity have stalled. In addition, there is now a widespread feeling that standard measures of economic performance (such as GDP per capita) are, in any case, missing key aspects of our social and economic well-being, specifically, things such as a deteriorating global environment, or the diminished opportunities experienced by young people for independence and personal development. It is highly relevant to our argument about trends in globalization, that it was July 2008 when the Doha Round talks to bring about lower tariffs and new trading prospects for developing countries finally ‘hit the buffers’. Ten years later it is clear that economic

nationalism, undermining as it does efforts to liberalize trade and investment flows and thereby promote further globalization, is in the ascendancy. Trade wars rather than trade agreements are the order of the day.

The third problem is both empirical and conceptual. The political realm has recently been changing fast and in ways that are likely to severely limit both globalization and international migration. Despite protests against globalization (such as the ‘Battle in Seattle’ in 1999), the 1990s and early 2000s were very largely a period of advancing globalization and also of the ‘open’, liberal, democratic societies that so greatly facilitated it. Changes in the communist world, notably the shift towards a market economy in China and the collapse of the Soviet Union, seemed, at least initially, to imply a movement in the same direction—hence the ‘end of history’ view of the world (Fukuyama 1992). But now both ethnic nationalism and authoritarianism (two of the essential constituents of fascism) are back with a vengeance. This ‘fascist turn’ has occurred not just in small states, or in low-income countries or in those with a recent history of violent conflict, but, to the great surprise of advocates of ‘the end of history’ approach, it has happened in some of the world’s largest, most economically and politically powerful, and most highly-educated countries. Sharp shifts in governments towards patriarchal authoritarian rule, a re-invigorated nationalism, and intolerance towards minorities—racial, ethnic, immigrant, religious, linguistic, cultural, social and sexual—have occurred in the USA, China, India, Russia, Japan, Pakistan, Turkey, the Philippines, Hungary, Poland Typically, in these countries, ‘strong men’ in increasingly totalitarian regimes present themselves as the brave defenders of majority national and ethnic identities against the ‘foreign agitators’ for human rights and the rule of law. These strong men are not all as brazen as Presidents Duterte in the Philippines or Kim Jong-un in North Korea, but, in their dictatorial abuse of power and brutal suppression of subaltern voices, the Putins, Erdogans, Xis, Modis and the rest, represent a global re-emergence of fascism (or at least a strong trend in that direction). That the President of the United States appears to aspire to become a member of this club is truly frightening.

Alongside these developments, as the politics of class has been superseded by the politics of identity, there has been a decline in the political acceptance (let alone support) for multiculturalism—which empirically is the inevitable consequence of international migration and globalization (witness the rise of the Front National in France and the *Alternative für Deutschland* in Germany). This has coincided with a reversal or decline in steps towards regional economic and political integration (notably, of course, ‘Brexit’). More generally, with the rise of nationalism comes the weakening of the instruments of international cooperation and rule-setting—the UN and its agencies in particular, but also of regional bodies such as the European Union.

Do these political developments have significance for international migration? You bet they do! I used to subscribe to the idea that state policies and practices on migration matters had only a marginal influence on the flows of people across national borders. Migrants tend to be young, energetic, strong and healthy, ambitious, intelligent, resilient and flexible; they can usually find ways around the physical and legal barriers set up to deter them. But the borders between countries have become

very much ‘harder’, the legal and practical hurdles higher (witness the EU–Turkey deal of March 2016), and, in many cases, the welcome much less warm, even for refugees. To take just one example, the perception of a more hostile environment towards EU nationals living in the UK seems to have already influenced flows of migrants to and from the UK after the referendum vote to leave the EU in 2016 (Vidal 2018).

25.5 Two Further Reasons for Thinking that the ‘Age of Migration’ Might Be Over

Much of what has been written above is already known to migrationists even if they seem to have been slow to take the implications of these developments on board in their own research. I want, however, to add two further considerations that encourage us to expect less rather than more international migration now and into the near future. The first relates to the globalization of migration processes themselves; many of the relationships and processes that once operated at the sub-national level now seem to be operating at the international level. Take the case of East Asia: obtaining paid employment and escaping violence were key drivers of cross-border migration in the early post-World War II period. Both are still important, but they have been joined by migrations previously very largely confined within national borders—studying for a degree, marrying ‘up’, doing domestic work, working in a factory or on a construction site (rather than in a colonial mine or on a plantation). The significance of this shift of processes from internal migration to international migration is that we now know that within most high-income countries people are becoming much less migratory—gross inter-regional and intra-regional migration rates have been decreasing, often quite sharply (Champion et al. 2018). There are thought to be many reasons for this change but among them are some that are economic (changes in the organization of production and related spatial divisions of labour), and some that are socio-demographic (ageing, of course, but also lower mobilities associated with major life course transitions such as leaving home, marriage, forming dual-career households, moving to a larger house, raising children, etc.). The point is that if these lower mobility behaviours attach themselves to international migration, as might be expected on the basis of past trends, lower cross-border flows would result.

The second reason is related to shifts in global political economy. During the post-war period, the world was dominated politically and economically by a ‘settler colonial state’, the United States, while other settler states, Canada, Australia and New Zealand, were also significant players in the post-war order. These countries were immigrant societies, and they also had high rates of internal migration. There has, however, been a sharp shift of wealth and power since the 1970s, but especially since 2008, towards East Asia. The societies that make up this latter region are renowned for their settled rather than settler character—China’s ‘earthbound compulsion’ being emblematic of this feature. For most of their modern histories,

China (Ming and Qing dynasties), Korea (Joseon dynasty) and Japan (Tokugawa Shogunate) have been closed off or locked up (*sakoku* in Japanese); their governments have controlled migration within their territories, and acted very firmly to restrict migrations into and out of the country. Insofar, therefore, as there has been, is now, and potentially will be, a shift in political and economic influence from ‘western’ countries to eastern ones (as the US retreats from global leadership leaving a gap to be filled by China), it is a shift from predominantly high-mobility societies to predominantly very low mobility ones (notwithstanding the recent internal migrations in China brought about by its ‘turbulent transition’ to a market economy, see Fielding 2016: Chap. 6).

25.6 What About the Future?

In a book on internal migration in Britain (Fielding 2012), I attempted to set out the possible economic and political contexts that would influence patterns and levels of migration in the future. I came up with five scenarios: (i) a continuation and enhancement of neoliberal globalization: which I considered unlikely, but which would produce relatively high levels of migration (especially to and from London); (ii) a reversion to a purer form of production-oriented capitalism: which I thought more likely and also with fairly high levels of migration; (iii) the emergence of ‘third way’ forms of social market capitalism: which I considered to be moderately likely, but which would be accompanied by less mobility; (iv) the establishment of a form of ‘local socialism’: which was thought to be unlikely and would imply low levels of migration; and (v) a political economy characterized by an authoritarian regime sustained by, and promoting, ethnic nationalism: though considered very unlikely, this would be expected to provoke the resettlement of large numbers of people as cultural and ethnic un-mixing, consequent upon a loss of basic security took place.

To a significant degree these five categories map onto the scenarios developed by a team of researchers brought together by the FES, Global Future and IOM (Friedrich-Ebert-Stiftung and Global Future and International Organization for Migration 2017). While disagreeing with some of their judgements (see below), I consider their work to be a very significant contribution to the debate. Looking ahead to 2030, they propose four possibilities: the first they call ‘My Country First’; this has some similarities with my scenario 4 except that, given what is happening in the United States at the moment, it is surely much more likely. Such a scenario, implying a retrenchment from globalization towards a re-invigorated economic nationalism would result in ‘only limited potential for (international) migration’ (page 52); the second they call ‘World on Fire’. In many respects this equates with my scenario 5 in that it envisages ‘massive unregulated movements of people fleeing war and destruction’ (ibid.); the third they call ‘Opening Roads’ and envisages a (rather too optimistic) picture of continuing globalization combined with international cooperation on both development and migration matters (there is frequent reference, for example, to the sustainable development goals and to the global compacts for migration and refugees,

none of which seem to me to be likely to have much agency in the world we are entering today). They expect demographic pressures from high birth rate countries to decline due to rapid economic development (especially in Africa), resulting in turn in ‘reduced migration pressure’ (ibid.); the fourth and final scenario they call ‘Technopoly’. This does not match any of my scenarios; rather it reflects the current (? over-) enthusiasm for a view of technological change that revolutionizes our lives through high levels of internet connectivity, artificial intelligence, robotization etc. They anticipate ‘less labour migration through online connectivity and less potential for low-skilled workers, higher mobility for some of the highly skilled, (and) more returnees migrating back to their home countries’ (ibid.).

Please note that neither of these migration scenario exercises deals explicitly with climate change. But in cases where the migration effects of climate change have been directly addressed, the balance of opinion seems to be first that climate change ‘is equally likely to make migration less possible as more probable’ by trapping the poor in their current locations (Foresight 2011: 9), and secondly, that the displacements that do occur are likely to be overwhelmingly local and intra-national rather than international (Hugo 2008: 42).

How do these imaginings help us to think about migration and mobility in the near future? It is abundantly clear that in only one case (scenario 2 ‘World on Fire’) is there a strong expectation of high and possibly rising levels of cross-border migration. In all other cases (and in four out five of my scenarios), levels of migration are judged to be likely to be less, or at most the same, as today. At the very least, this does not lend support to the notion that the ‘Age of Migration’ is here to stay.

25.7 Conclusions

Globalization forces have not, of course, ceased (bi-cultural partnerships and marriages, for example, are still rising in many countries). But these forces are increasingly being opposed by powerful counteracting processes making for localization of politics and economics (especially the slowdown or reverse of economic globalization, and the rise of ethnic and cultural nationalism). Are these developments having an impact on migration? Yes, they are—especially through the hardening of international borders and the lower tolerance of ethnic diversity. Together with other fundamental changes such as the likely transfer to the international sphere of the low-mobilities of internal migration, along with the shift in global wealth and power from west to east (from settler societies to settled ones), a post-global era seems on course to witness an end to the ‘Age of Migration’.

Acknowledgements I wish to acknowledge the useful comments from two anonymous referees, and also from Tony Champion, Gavin Fielding and Ron Skeldon, on an early draft of this chapter.

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