

Chapter 6

The Impact of Migration on Development in Developing Countries: A Review of the Empirical Literature



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6.1 Introduction

The migration-development nexus is not a new topic and has been studied for many decades. The debate about the development impacts of migration in countries of origin has, however, gone through different phases from more optimistic views to more pessimistic views while the reality is something more nuanced (de Haas 2012).

Perhaps the most direct link between migration and development is remittances. Remittances have not only grown steadily over time, but these inflows have displayed much more stability than other private capital inflows and Overseas Development Assistance (ODA). The development potential of money sent home by migrants has been extensively highlighted in the literature, with many studies pointing towards a positive effect on economic and social development. However, there are not only benefits but also costs to migration, for migrants themselves as well as their family members and the migrant communities. The costs can take on various forms, from mental health issues due to separation to additional work that has to be taken on when household members emigrate.

In the past decade, focus has also turned beyond remittances to consider a broader range of development processes, such as human capital investments, diaspora networks and transfers of more than money, such as technological developments, cultural norms and political ideas (Clemens et al. 2014).

The growing interest in the impact of migration on development has generated a large empirical literature. However, there is a lack of comprehensive literature reviews that provide an overview of the scope and evidence on the matter. The aim of this chapter is to bring together the empirical evidence on migration and development drawing on findings from quantitative studies from multiple research

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disciplines using a broad definition of both development and migration. By looking at different development aspects and outcomes, the chapter provides a general overview of the various effects of migration on development in developing countries, establishing what have been concluded so far, what is still inconclusive, and where there are research gaps. The focus of this chapter is how international migration affects development in the Global South, and more specifically in countries (places) of migrant origin. While migration most definitely also affects growth and development in developed (often destination) countries, this is outside of the scope of this particular chapter.

In this chapter, we take a wide view of migration (both voluntary and forced) as well as a holistic encompassing view of development (looking at different dimensions of development). We focus on four key development areas: economic, social, institutional and environmental. These effects can display themselves at the individual or household (micro), community (meso) and country (macro) level.

The chapter continues by first defining key concepts and the methodological approach. It then goes on to review the evidence on the impact of migration on the four development areas previously specified. Section 6.3 looks at the impact of migration on economic development. Section 6.4 covers the impact of migration on social development. Section 6.5 reviews institutional and political development impacts, and Sect. 6.6 investigates the impact of migration on environmental development. Finally, Sect. 6.7 provides a discussion on the findings of the review and implications for future research.

6.2 Key Concepts and Methodological Approach

This section begins with a discussion of the different forms of migration and their potential impact on development. It then goes on to define development and the multidimensional approach used in the chapter. The second half of this section then presents the methodology, search strategy and the sample of studies before and after the inclusion/exclusion criteria have been applied.

6.2.1 Different Aspects of Migration

Migration can affect development not only through the direct effect of people leaving their country, but also through remittances (economic and social), return migration and diaspora engagement. Migration may be long-term/permanent or short-term/temporary. Migration can take place for a variety of reasons, including but not limited to factors related to finding employment (better or more interesting jobs), education, family reunification, retirement, life-style, environment, war, conflict and persecution. Migrants may be young or old, male or female and come from a range of backgrounds, skills levels, religions and ethnicities. This chapter considers

development effects of migration through many different channels including but not limited to the absence or return of a household member, additional resources in the household and new information. The focus is on the emigration of people from low- and middle-income countries and the effects of this migration.

6.2.2 *Different Aspects of Development*

A significant part of the empirical migration literature is concerned with the impact of migration on various economic development outcomes, such as growth, poverty, employment, wages and productivity. In this chapter, we expand the definition of development and consider the impact of migration on a broad range of outcomes that in different ways contribute to development. Development is defined as the process of improving the overall quality of life of any given group of people, and the review considers four key development dimensions: economic, social, institutional or environmental. In Table 6.1 we describe in more detail the different aspects under each dimension. This is not meant to be an exhaustive list of possible development effects but rather to provide an overview of the possible outcome variables represented in the broader literature on the topic.

Table 6.1 Potential migration development outcomes, by development aspect

<i>Economic</i>	<i>Social</i>
Growth	Health
Poverty	Education
Inequality	Social protection
Investment	Social cohesion
Consumption	Gender equality/roles
Savings	Well-being
Assets	Happiness
Employment	Satisfaction
Wages/income	
Entrepreneurship	
Trade	
FDI	
<i>Institutional</i>	<i>Environmental</i>
Corruption	Urbanisation
Political participation	Water and sanitation
Knowledge transfers	Energy
Networks (scientific, Professional)	Climate change adaptation and resilience
Democratization	

6.2.3 Methodological Approach

A systematic literature search across a large set of databases was performed using Litoscope. The search was based on a number of inclusion criteria including published papers in English dating from 1990 and onwards that analyse the impact of migration on development. As discussed in the previous section, both migration and development were defined in a broad sense. The focus was on papers published in peer reviewed journals, other published work, such as working papers, book chapters and dissertations, were therefore excluded. In the first selection round, over 2000 papers were identified and registered, covering research from numerous disciplines (e.g. social science, natural science, medicine) and topics. The list was first narrowed down based on an initial review of all titles and abstracts, which revealed some titles related to a different topic (e.g. bird migration) and papers covering developed countries, which were not part of the inclusion criteria. This process narrowed down the number of papers to 432. These studies were more closely analysed and coded according to the type of development outcome, their regional coverage and the methodologies used, keeping only papers with a focus on the Global South (either studies of one single country, or studies covering a larger set of countries from one or several regions in the Global South), using a quantitative methodology with rigorous ways of measuring development impacts. The search strategy was finally complemented by an additional search with the help of key words directly related to the development outcomes, and a final selection of 114 empirical papers were included in the review in this chapter.¹ The final sample of papers represented studies undertaken in Africa, Asia and Latin America and the Caribbean (and in some exceptional cases Eastern Europe),² published in journals spanning various disciplines such as economics, human geography, medicine, migration studies, political science, psychology and sociology.

6.3 The Impact of Migration on Economic Development

Migration and remittances can affect economic development at different levels. At the macrolevel, migration and remittance flows can have a direct impact on key economic variables such as growth, productivity, financial sector development, poverty levels and inequality. Migration also affects economic development through microlevel effects on for example labor supply, employment and entrepreneurship.

¹These 114 papers are by no means an exhaustive list of all papers on the development impacts of migration in Global South, but provides a good overview of the main channels and outcomes discuss in this chapter.

²Countries in Eastern Europe were included when the topic was judged of particular importance, or when included in a cross-regional perspective comparing development impacts of migration across regions.

This section reviews both macro- and micro-level evidence of the effects of migration on economic development.

6.3.1 Impacts on Growth and Other Macroeconomic Outcomes

A growing empirical literature shows that remittances boost growth and other macroeconomic impacts. Remittances have shown to have positive effects on growth in studies covering a large set of developing countries (Giuliano and Ruiz-Arranz 2009), and in studies covering particular geographical areas such as North Africa (Zghidi et al. 2018), Latin America and the Caribbean (Mundaca 2009), South Asia (Cooray 2012) as well as individual countries such as Pakistan (Shahbaz et al. 2014), Kyrgyzstan (Kumar et al. 2018), and Ecuador (Pontarollo and Muñoz 2018). A study comparing the growth impact of remittances across regions found the largest effect in Eastern European economies, followed by Americas and Asia but no effect on African economies (Cruz Zuniga 2011).

Studies have also highlighted several factors that can enhance, or impede, the growth impacts of remittances. In some studies, remittances are shown to have a stronger influence on growth in a context where the financial sector is less developed and remittances can help overcome credit constraints and stimulate investments (Giuliano and Ruiz-Arranz 2009; Konte 2018), while other studies have shown that remittances are more likely to boost growth where financial services are available (Mundaca 2009). Furthermore, remittances tend to have a stronger influence on growth in countries with higher economic freedom (Zghidi et al. 2018), with sound policies and institutions (measured through indicators of corruption and political risk) (Catrinescu et al. 2009), with more social capital (Borja 2014), and higher levels of skilled human capital (Cooray et al. 2016). The remittance growth impact may on the other hand be sensitive to negative shocks such as climate variability: a study for West Africa showed no positive effect of remittances on growth in times of drought (Couharde and Generoso 2015).

Studies have further shown that remittances indirectly affect growth by reducing output growth volatility and macroeconomic risk, which boost the growth-enhancing direct effect of remittances (Bugamelli and Paternò 2011; Issahaku et al. 2016).

However, there are also factors that may lead to no or even negative impacts of remittances on growth. The inflow of remittances may cause a real appreciation of the exchange rate, so called “Dutch Disease”, which could decrease export performance and limit output and employment. It has also been argued that remittances can cause moral hazard problems that reduces the work efforts of household members receiving remittances. Some empirical studies have given support to the former concern in Latin America (Amuedo-Dorantes and Pozo 2004), while a cross-country study including 113 countries shows that remittances are countercyclical and negatively associated with GDP growth (Chami et al. 2005). A study of remittances in

Bangladesh found a U-shaped relationship between remittances and growth, where remittance effects initially hampered growth, but were shown to have a positive effect in the longer-run (Hassan et al. 2016).

While most of the empirical literature has looked at the link between remittances and growth, a few studies also investigate the link between migration *per se* and growth. Two studies investigating the impact of migration on per capita income in Africa found either no effect (Coulibaly et al. 2018), or a negative effect of migration rates on economic growth (Akanbi 2017).

6.3.2 Impacts on Poverty and Inequality

Migration may also affect poverty and inequality, which in turn can have implications for development. In theory, the effect on inequality will depend on several factors. If migrants are negatively selected, and the remittances they send home are spent on investments, remittances can have a reducing effect on both poverty and inequality. However, if remittances are spent on consumption rather than investment, there is a risk that poorer households become remittance dependent and remittances have an adverse effect on poverty and income equality. On the other hand, if migrants are positively selected, remittances will be directed towards high-income households and lead to increasing inequalities (and either positive or negative effects on poverty). The empirical evidence, using both macro- and micro-level data, in general tends to find a reduction in poverty levels from remittances (Acosta et al. 2008; Bang et al. 2016; Vacaflores 2018) while the evidence on distributional impacts are less conclusive. Existing evidence shows both decreasing inequality (Acosta et al. 2008; Garip 2014; Vacaflores 2018) and increasing inequality (Barham and Boucher 1998; Stark et al. 1988) following remittances.

6.3.3 Impacts on Savings, Investments and Financial Sector Development

Remittances can help households smoothing their consumption and overcome financial constraints, and allow them to make productive investments, especially in contexts with limited access to credit and underdeveloped financial markets. However, it has often been argued that households spend remittances on daily consumption rather than making long-term investments in productive assets and activities.

The empirical evidence is somewhat mixed. Several studies from different countries, such as Guatemala, Mexico, Morocco, the Philippines and Tajikistan, have shown that households use the remittances for investments in productive assets such

as land, non-land assets and business investments^{3,4} (Adams and Cuecuecha 2010; Buckley and Hofmann 2012; Carvajal Gutiérrez and Johnson 2016; de Haas 2006; Quisumbing and McNiven 2010; Taylor 1992; Yang 2008). Other studies show that remittances tend to be used primarily for consumption goods and satisfying daily needs (Chami et al. 2005; Fransen and Mazzucato 2014; Koc and Onan 2004). However, investments in consumption goods may still contribute to development and growth through an increase in demand for goods and services which generates an increase in production and employment (Durand et al. 1996). Remittances have also been shown to increase savings in Sub-Saharan Africa (Baldé 2011) and the possession of saving accounts in Mexico (Ambrosius and Cuecuecha 2016).

More recently, researchers have investigated the link between remittances and financial sector development. Two views emerge regarding the impact of remittances on access and use of financial services. Remittances can act as a catalyst for financial development by creating a demand for financial services. Migrants may also transfer knowledge about financial products along with the remittances. On the other hand, remittances can act as a substitute for credit and make up for the barriers to formal financial systems faced by many households in developing countries. Studies show that migration and remittances support financial development both at cross-country level using a sample of 113 countries in the Global South (Aggarwal et al. 2011), at regional level using a sample of Sub-Saharan countries (Gupta et al. 2009), and at national level in Mexico (Demirgüç-Kunt et al. 2011). However, there is also evidence that remittances have an adverse effect on financial development, a cross-country study found a negative relationship between remittances and financial deepening (Brown et al. 2013).

6.3.4 Impacts on Labor, Entrepreneurship and Employment Outcomes

Migration and remittances can influence labor supply and employment outcomes of both remaining members and migrants who decide to return to their origin countries. The emigration of a household member, and subsequent remittances, may affect the labor supply of other members of the household, but the direction is not clear.

In general, migration and remittances have found to negatively influence female labor supply, while the evidence for men is more mixed. Studies from Mexico and Nicaragua found reduced labor supply for women, while the labor supply patterns of men showed to either shift from formal to informal work (Amuedo-Dorantes and Pozo 2006), from wage employment to self-employment (Vadean et al. 2019) or to increased self-employment (Funkhouser 1992). A study from the Philippines found

³The impact of (return) migration on business development and entrepreneurship will be further discussed in the next section.

⁴It should be noted that what is defined as 'productive investments' varies across studies.

a decrease in both male and female labor supply from temporary migration, with a stronger negative impact for men (Rodriguez and Tiongson 2001). A study from Nepal showed a reduction in female labor supply from male migration (Lokshin and Glinskaya 2009). However, empirical evidence at aggregate level paints a different picture. Contrary to a decrease in labor supply, a study covering more than sixty developing countries shows that remittances increase aggregate labor supply, driven by an increase in male labor supply (Posso 2012). The author suggests three potential explanations for this increase: migrant household members need to increase their labor supply to defray the costs of migration; households without migrants in the community increase their labor supply to obtain funds to finance migration; and remittances overcome credit constraints and generate employment opportunities in the community.

When it comes to return migrants, evidence shows that well educated return migrants in Uganda are more likely to be employed than their peers who never emigrated (Thomas 2008), that past migration experience increases the likelihood of upward occupational mobility in Albania (Carletto and Kilic 2009), and that migration experience result in a wage premium in Egypt (Wahba 2015). Forced return migration, without time to plan the return back to the origin country, is however negative for labor market outcomes and makes migrants vulnerable on the labor market in the origin country, as shown by a study from the Maghreb (David 2017). Several studies have also shown that return migration spurs entrepreneurship and investments in businesses (Batista et al. 2017; McCormick and Wahba 2001; Piracha and Vadean 2010; Wahba and Zenou 2012). This effect is not only the result of accumulated savings, but can also stem from informal human capital transfers of new skills acquired abroad that facilitate business creation upon return, as shown by a study from Mexico (Maria Hagan and Wassink 2016). Furthermore, business creation by return migration has shown to positively affect employment and earnings of non-migrants in Albania (Hausmann and Nedelkoska 2018). However, a study from Senegal found that the higher rate of self-employment among return migrants was not necessarily associated with a choice but rather a necessity (Mezger Kveder and Flahaux 2013), and evidence from Mexico show that migrants are more likely to start informal businesses rather than formal ones (Sheehan and Riosmena 2013).

6.4 The Impact of Migration on Social Development

Besides economic impacts of migration, the effect on social development is an important part of the migration-development empirical literature. It is sometimes hard to distinguish social effects from economic ones since they are often interlinked and many outcomes simultaneously influence both social and economic aspects of development. For example, improvements in education and health could have important implications for both the economic and social development in a country. In this chapter social development outcomes are defined as measures related to

education, health, fertility, subjective well-being, decision power and social protection. The impacts of migration on these outcomes are discussed below.

6.4.1 Impacts on Education

Migration and remittances can affect education through multiple channels. One important channel is the ability of remittances to loosen household's budget constraints and allow households to spend more on education. Another strand of literature has addressed the impact of migration on educational incentives for those left behind.

Migration and remittances can both play a role for children's school enrolment and outcomes, but potentially in different directions. Existing empirical literature has shown that remittances tend to encourage household investment in education (Edwards and Ureta 2003; Yang 2008). However, the impact may not always be gender neutral. A study from Nepal found that the increase in educational spending from remittances was disproportionately spent on education of boys, while a positive effect for girls was only found in higher-income households (Giuliano and Ruiz-Arranz 2009).

Studies do not generally separate the effect of migration from that of remittances. However, a study using household data from Haiti showed that while remittances positively influenced education outcomes, as expected, an absent household head did not have any influence on children's schooling (Bredl 2011).

Migration of parents may cause an education lag among left-behind children, as they may suffer from psychosocial issues. However, a study looking at children with absent parents in Tajikistan found that having a migrant parent actually reduces the risk of an educational lag, especially for girls with a migrant mother. This effect is extra pronounced if the migration is short-term and if the migrant sends remittances. For boys, legal status of the parents who migrated and maternal migration have a positive impact on their education (Cebotari 2018).

Migration may also affect the incentives to attain education. If the returns on education when migrating are high, the prospect of future migration can raise the expected returns to education and lead to increased educational attainment in the country of origin (so called "brain gain"). However, in a setting where returns to education are higher in the origin country and migrants face barriers to more high skilled jobs in the host country labor market, this incentive effect may go in the opposite direction. A study from Mexico, a country with high- and low-skilled migrants, show that children in migrant households have a lower probability of completing high school (McKenzie and Rapoport 2011).

Another strand of the migration-education literature has investigated the impacts of emigration of the most highly skilled, often called "brain drain". The discussion on brain drain has largely been focused on the negative implications of the departure of the well-educated for the origin country in the form of poverty traps and stagnating economic growth. However, the effect of migration on human capital

accumulation in migrant origin countries is complex, and the emigration of the highly skilled have also shown to have beneficial effects on human capital accumulation, productivity and equality (Mountford 1997). The empirical literature on the “beneficial brain drain” or “brain gain” have shown that high-skilled migration can increase educational attainment if the returns to education are high abroad (Beine et al. 2001).

Furthermore, return migration of the highly skilled can generate positive effects in terms of knowledge transfers. The impact of migration on technological and scientific transfers is further discussed in Sect. 6.5.

However, other research highlights negative implications of the migration of the highly skilled, especially when it comes to medical brain drain (Bhargava and Docquier 2008; Chauvet et al. 2013). Evidence also shows that while some countries are benefiting in terms of increased human capital formation from highly skilled migration, others are not (Beine et al. 2008). Studies have also shown that highly skilled migrants tend to send less remittances (Faini 2007).

6.4.2 Impacts on Health

Migration and remittances can have both direct and indirect effects on health spending, outcomes and practices. First, migration can reduce household budget constraints and allow households to invest in health of the family members left behind in the origin country. Remittances have been found to increase household health expenditures in Mexico (Airola 2007; Amuedo-Dorantes and Pozo 2011) and Ecuador (Ponce et al. 2011), as well as on a broader scale analysing data for 122 developing countries (Azizi 2018).

The results are more ambiguous when it comes to impacts on child health. While remittances have shown to reduce child mortality in a large set of developing countries (Chauvet et al. 2013), migration has at the same time also been shown to have a negative influence on child survival in the short term in Mexico (Kanaiaupuni and Donato 1999), although the effect diminishes over time and is also counterbalanced by a positive influence on child survival from remittances. Furthermore, studies on the effects on anthropometric measurements show that migration has positive effects on length/height-for-age measures, but no impact on stature of children in migrant households in Guatemala (Davis and Brazil 2016). Migration can also act as an insurance to mitigate risks during crises, such as food price crises, and smooth the negative influence on anthropometric measures among children (de Brauw 2011). Community remittances and return migration have been shown to be associated with a lower risk of low birthweight but an increase in the risk of macrosomia (i.e. heavy birthweight) in Mexico. The opposite was however found for out-migration, which was linked to higher risk of low birthweight and lower risk of macrosomia. Finally, the positive influence of remittances on child mortality found by Chauvet et al. (2013) was partly counterbalanced by a negative effect of medical brain drain (emigration of physicians) on child mortality.

Other studies have looked particularly at the impact of parental migration on child health and psychosocial wellbeing. Results show that parental migration can have a negative influence on children's health, especially for children with parents who are divorced or separated in Ghana and Nigeria (Cebotari et al. 2017). Surprisingly, the migration of mothers in Nicaragua was shown to have a positive influence on child cognitive development (Macours and Vakis 2010), which may be explained by income and empowerment gains resulting from the migration of mothers.

Migration may also affect health outcomes, practices and behaviour of both migrants themselves (while abroad and upon return) and their families in the origin country. Migration has shown to reduce underweight of remaining household members in Indonesia (Lu 2013). On the other hand, there is evidence that migration may negatively affect diet habits and increase overweight (Lu 2013; Zezza et al. 2011) and the prevalence of heart disease, emotional/psychiatric disorders, obesity and smoking (Ullmann et al. 2011). Migration experience have also shown to increase the risk for anxiety and depressive symptoms (Familiar et al. 2011) and the drug and alcohol use among return migrants in Mexico (Borges et al. 2011). Migration of family members has been shown to lead to an increase in mental health disorders among family members left behind in Sri Lanka (Siriwardhana et al. 2015). On a positive note, migration experience has shown to increase knowledge of contraceptive methods among women in migrant households in Afghanistan, but the information transmission is dependent on the destination country context (Roosen and Siegel 2018).

6.4.3 Impacts on Gender and Decision-Making Power

Migration can affect gender norms, relations and behaviours among migrants and their family members in the host country. A study from Georgia distinguishes two types of effects: *migrant absence* and *migrant experience* effects. The former takes place when the migrant is still abroad and household tasks need to be reorganised among the family members left in the origin country, while the latter is focusing on effects that take place once the migrant has returned. The study finds that both types of effects can affect gender divisions of housework and leisure, but the link is not straightforward and affected by the gender of the migrant. Female migration seems to have a more favourable effect on gender differences in housework and leisure (Torosyan et al. 2016).

It has also been shown that the migration of men is positively associated with women's autonomy, and this effect can remain even after the return of the man (Yabiku et al. 2010). On the other hand, evidence from Burundi points to women being less likely than men to perceive that migration has improved their social status or given them more decision-making power (Ruiz et al. 2015).

6.5 The Impact of Migration on Institutional and Political Development

Migration can affect institutional and political development in the migrant origin country through multiple channels. The effect is largely dependent on the characteristics and the experiences of the migrants. The papers reviewed in this section are mainly looking at the influence on two main outcomes related to institutional and political development: institutional reform and democracy as well as technology and scientific knowledge diffusion.

6.5.1 *Impacts on Institutional Reform and Democracy*

The empirical literature on the links between migration and institutions is rapidly growing. There are in general three main strands of empirical literature in this field: studies looking at the impacts of institutions on migration decisions; the effect of migration on institutional reform; and the impact of migration on (social and informal) institutions in the host countries (Baudassé et al. 2018). This section gives an overview of the literature in the second category.

There could be multiple channels explaining how and why migration affects institutions and democracy in the migrant origin country. First of all, migrants may be inspired by observing a positive link between the level of institutional development and wellbeing in countries of destination, and wanting to influence institutions in the origin country while still in the destination country or upon return. Migrants may also want to improve institutions to secure the wellbeing for their family members left behind, and to improve the prospect of for example entrepreneurship or other types of investments upon return (Baudassé et al. 2018).

The empirical evidence on the impact of migration on institutional and political development is mixed. A large cross-country study has shown that skilled migration can lead to improved institutional quality (Li et al. 2017) and increase democracy levels (Spilimbergo 2009). In another cross-country study, Beine and Sekkat (2013) did not find any effect of low-skilled migration on institutional quality.

Some studies have specifically investigated election outcomes. A study from Mexico found that remittances seem to be negatively related to voter turnout rates in municipalities. However, the negative relationship was decreasing with a higher rate of return migrants in the municipality (García 2017). The increase in political participation stemming from return migration is supported by another study from Mexico that found that return migration positively influence electoral participation (Waddell 2015) and a study from Mali showing that voter turnout and electoral competitiveness increases with size of the stock of return migrants, particularly for return migration from countries outside Africa (Chauvet and Mercier 2014). The effect was shown to be larger in areas with a less educated population, which can be

interpreted as evidence that return migration diffuses political norms to the community members in the origin country (Ibid.).

Furthermore, migration can also influence political development through political leaders with migration experience. A study that investigated the correlation between political leaders with experience of studying abroad found a positive relationship between the country's democracy score and studies abroad, especially when it comes to student migration to high income OECD countries (Mercier 2016). Additionally, Batista and Vicente (2011) show that return migration increases the demand for political accountability in Cape Verde.

Finally, also remittances may play a role in institutional and political development, the direction of the effect is however not clear. Studies for Mexico have shown that remittances can reduce corruption and make policymakers more accountable (Tyburski 2012), and promote democratic consolidation and decentralisation of political decision-making (Waddell 2015). However, the latter study also showed a risk that collective remittance programmes can be used for political lobbying by policy makers. A study from Sub-Saharan Africa found that remittances positively affect democratic institutions through effects on schooling and poverty (Williams 2017).

6.5.2 Impacts on Technological Development and Knowledge Diffusion

Another channel through which migration can affect political and institutional development is through effects on technology and knowledge diffusion. Migration can bring back valuable technology and scientific knowledge to the country of origin, and help develop national scientific knowledge institutions and innovation.

Empirical evidence from China shows that both internal and international migration lead to rural technology diffusion, but that internal migration seems to play a more important role for such diffusion than international migration. However, the results also show that migration negatively affect household mobile phone ownership ("technology drain") (Hübler 2016). Other evidence shows that return migration can lead to more patent applications, and return migrants can act as a bridge for knowledge transfers between headquarters and employees working in other countries (Choudhury 2015). Furthermore, migration can bring back ideas and knowledge related to organisational practices from the host country (Dan Wang 2015). Hometown associations and return migrants have shown to transfer organisational practises from the United States to Bolivia (Strunk 2013).

Finally, migration can influence development through scientific networks and knowledge transfers by highly skilled migrants. Current migrants have proven to produce more research than their peers who never migrated, but also more than those who emigrated but returned to the origin country. Return migrants have shown to be a main source of research knowledge transfers between international and local

researchers (Gibson and McKenzie 2014), and emigration and return of researchers positively affect their collaboration and research output upon return (Jonkers and Cruz-Castro 2013; Velema 2012). International migration of researchers can hence strengthen research systems and outputs in the origin country and stimulate international scientific cooperation.

6.6 The Impact of Migration on Environmental Development

The empirical literature linking migration and the environment has so far mainly focused on the impact of natural disasters and climate change on migration decisions and flows. However, a small but growing literature is also concerned with the effect that migration can have on environmental development and resilience. The existing literature is however relatively focused on theoretical linkages and small-scale case studies, while empirical evidence from large-scale surveys is still scarce.

How countries and communities are affected by climate change and natural disasters depends on their vulnerability and ability to adapt. Low diversity of income-generating activities in areas that are exposed to natural disasters and climate change increases households' vulnerability to climate change, environmental stresses and market failure. Migration can in these circumstances both be a coping strategy and facilitate adaptation (Scheffran et al. 2012). From a theoretical point of view, migration reduces population pressure, facilitates risk reduction and removes constraints related to scarce resources and can thereby help households and communities cope with environmental stress. Furthermore, migrants can bring new resources, networks, technology and knowledge that help build capacity. At the same time, the loss of human capital, income and knowledge as a result of migration can negatively affect adaptive capacity and resilience. Remittances and return migration can also contribute positively to improved resilience through resources, knowledge and networks. Technology transmission, as discussed in the previous section, can support a more efficient use of resources, the introduction of new natural resources and crops, and sustainable energy supply. These different channels have been discussed in theory (Qin and Flint 2012; Scheffran et al. 2012), while the empirical evidence is scarce.

Agriculture practices are closely linked with environmental outcomes and development. A transformation of agricultural practices and land use due to financial resources or knowledge acquired abroad can promote sustainable livelihoods through for example changes in land use. However, a case study investigating the nexus between the environment, rural livelihoods and labor migration found that the use of remittances to buy livestock combined with current pasture practices risk leading to environmental degradation (Sagynbekova 2017).

Migration can indirectly affect environmental development through impacts on the choice and use of fuels. Collecting and burning firewood have potential negative

environmental consequences through deforestation, depletion of local resources and increased Co2 emissions. Migration to the United States has proven to decrease households' reliance on firewood collection in favour of stove and gas purchases in Mexico. These findings have potentially far-reaching environmental implications as labor moves off the farm (Manning and Taylor 2014).

Migration has also shown to have various effects on resilience in coastal Vietnam. Remittances can on the one hand enhance resilience through risk diversification and investment in human and physical capital. On the other hand, remittances may increase inequality, limit access to resources and erode social resilience, which in turn implies greater risk of unsustainable exploitation of natural resources and environmental degradation. The authors note that migration occurs alongside the expansion of unsustainable coastal aquaculture (Adger et al. 2002).

6.7 Discussion and Implications for Future Research

This chapter has reviewed a large amount of empirical evidence on the migration-development nexus, spanning multiple scientific disciplines and channels through which migration can affect different aspects of development.

The evidence shows that migration, though emigration, remittances and return migration, can have both positive and negative direct and indirect impacts on development.

The evidence related to economic and social development is relatively large, but not entirely conclusive. While remittances sometimes are assumed to mainly affect household consumption and have limited influence on long-term growth, a growing empirical evidence base shows that remittances indeed have the potential to stimulate economic growth. Evidence also points to rather unambiguous positive impacts at household level when it comes to investments in human capital such as education and health.

Much less evidence is available for effects on institutional and environmental development. The empirical literature on the impact of migration on institutions is small but growing. The evidence concerned with effects on environmental development is even more scarce, and builds mainly on small-scale, case studies. There is thus a need to develop better methodologies and more large-scale, cross-country empirical evidence on this topic to be able to draw more firm conclusions, especially when it comes to environmental development where migration can play an important role in facilitating coping and adaptation strategies.

The overview has also shown that although migration is beneficial for development in many ways, it also implies costs. Most striking is perhaps the negative health outcomes for migrants and their families in terms of increased prevalence of mental disorders and substance abuse. The evidence also highlights the complex relationship between migration and development, where findings often are context-specific, and where different aspects of migration (emigration, remittances and return migration) may have opposite impacts on development. Another striking feature in this

review is the concentration of papers to certain regional or country contexts. While some countries are very well studied, others have been overlooked. This highlights the importance for future research to sufficiently disaggregate the analysis of the migration-development nexus by migration outcome, and make sure that the evidence has a broad geographical coverage.

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