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The emigration of immigrants, return vs onward migration: evidence from Sweden

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Abstract This study analyzes emigration propensities for natives and immigrants delineating among immigrant emigrants between return and onward migration. Results indicate that emigrants are positively selected in terms of upper education. Well-educated immigrants have a higher probability of leaving for third-country destinations than returning to countries of origin. Predicted age–income profiles for immigrants show that return migrants have higher adjusted mean income levels than non-emigrants up to the age of 40. Onward migrants have lower predicted income levels across the age distribution due to this group’s composition and relatively low employment levels in Sweden. Separate estimations by region of origin indicate that within each group, onward migrants are more positively selected than return migrants in terms of income.

Keywords Emigration · Return migration · Onward migration

JEL Classification J61 · J15

Introduction

Much empirical work has been aimed at the study of non-random out-migration and more specifically on the emigration of immigrants (see, for example, Andersson et al. 2000; Borjas 1987, 1989; Borjas and Bratsberg 1996; Constant and Massey 2003; Constant and Zimmermann 2003; DaVanzo 1983; Devortex and Ituralde 2000; Dustmann 2000, 2003; Duleep 1994; Edin et al. 2000; Jasso and Rosenzweig 1982; Klinthäll 1998, 1999; Lindstrom and Massey 1994; Longva 2001; Pedersen et al. 2001; Ramos 1992; Røed 2002a,b; Schröder 1996 and the references therein). These studies recognize that migration from one country to

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another is not permanent and that non-random out-migration can bias cohort-based measurements of earnings and employment assimilation (Borjas 1985, 2000; Chiswick 1978; Dustmann 1993; Hu 2000; Lalonde and Topel 1992; Longva and Raaum 2003; Lubotsky 2000). In addition, labor migration to compensate for aging populations and low fertility is becoming increasingly relevant to many European countries, implying that an understanding of the determinants of out-migration and the selection of immigrants who emigrate is of crucial importance in establishing relevant labor migration policies.

The studies to date have analyzed emigration propensities generally or with particular focus on return migration (for studies focusing on return migration, see Borjas 1989; Constant and Massey 2003; Dustmann 1996a,b, 2003; Galor and Stark 1991; Klinthäll 1998, 1999, 2000, 2003; Reagan and Olsen 2000 and the references therein). The contribution of this study is to delineate between return and onward migration, where the former is defined as migration back to source countries and the latter as migration to third-country destinations. Although recent work has looked into the dynamics of repeat migration, that is to say frequent migration between source and host country, few empirical studies have specifically addressed the determinants behind onward migration or studied the composition of this group of migrants.¹

Early migration theory posed that migration decisions are based primarily on an evaluation of expected incomes in host countries relative to source countries, taking into account migration costs (Hicks 1932; Borjas 1999). Cross-country differences in earnings opportunities, however, determine only the size and the direction of migration flows, not who expects to benefit from migration. Selection is the key issue behind the Roy model, comparing expected earnings for migrants in the source and host country (Roy 1951; Heckmann and Honoré 1990; Borjas 1999). Given a positive skill correlation across countries, the model predicts a positive selection when migrants have above-average earnings in both source and host country and a negative selection when migrants have below-average earnings in both countries. If, however, skill correlations between countries are small or negative, migrants may have below-average earnings in the source country and above-average earnings in the host country.

A potential negative skill correlation across countries is of particular interest when studying the emigration of immigrants from Sweden. Many immigrant groups, and especially those of non-European origin, have documented difficulties in attaining employment commensurate with educational levels but are simultaneously protected by extensive welfare programs aimed at insuring marginalized workers. Income differentials between immigrants and natives in Sweden have been documented in numerous studies (Aguilar and Gustafsson 1994; Edin and Åslund 2001; Edin et al. 2000; le Grand and Szulkin 2000; Österberg 2000). These studies find that a large proportion of income differentials are driven by differences in employment levels between immigrants and natives (Arai et al. 2000a,b; Bevelander and Skyt Nielsen 1999; Ekberg 1991; Lundborg 2000; Nekby 2003; Rashid 2002; Rosholm et al. 2000; Wadensjö 1997).

¹ Hammarstedt (2004) analyzes emigration of immigrants from Sweden, with a separate analysis for return and onward migrants. This study focuses on the influence of unemployment and welfare pick-up on emigration probabilities. DaVanzo (1976), (1983) studies return and onward migration between US counties. See also Constant and Zimmermann (2003) for a study on repeat migration.

Immigrant emigrants are characterized by below-average employment and income levels in Sweden but also by relatively high education levels. These migrants may be motivated to emigrate by higher expected incomes abroad if better matches between skills and employment are realized. This may especially be true for onward migrants who, by definition, are not emigrating due to preferences for living in the source country. Given the relatively high standard of living at the lower end of the earnings distribution, which characterizes Sweden, without an expectation of higher incomes or better employment opportunities in third-country destinations, immigrants have little economic incentive to emigrate.

The theoretical work on immigrant emigration has been focused on return migration. Borjas and Bratsberg (1996) attribute return migration to an optimal residential location plan over the life cycle where immigrants return to source countries due to the realization of pre-determined savings goals or due to erroneous information about the savings/earnings potential in the host country. Other theories attribute return migration to region-specific preferences (DaVanzo 1976; Hill 1987; Djajic and Milbourne 1988), higher purchasing power of host country currency in source countries (Dustmann 1996a, 2001) or to greater returns for human capital acquired in the host country (Borjas and Bratsberg 1996; Dustmann 1996b; Røed 2002a,b). Borjas and Bratsberg (1996) also show that the selection of emigrants from a particular area reinforces the initial selection of immigrants to that area. If a cohort of immigrants is selected from the lower end of the source country income distribution, emigrants will be a positive selection of this migration cohort and vice versa. For refugee migrants, return migration may, in addition, be due to non-economic factors, such as changes in the political climate of source countries.

Within this theoretical context, onward migration may be a consequence of the same optimization process that characterized the original migration decision. Initial migration to a host country increases the information available concerning employment and earnings opportunities of other previously unconsidered regions. Individuals then continue migrating to new areas as part of an optimal life-cycle location plan. DaVanzo (1976) theorizes that non-return migration is expected to be in the direction of higher earnings opportunities, whereas return migration is expected to be less sensitive to pecuniary returns (and more sensitive to non-pecuniary returns). In addition, erroneous information on the employment and earnings opportunities available to immigrants in Sweden may lead to onward migration. Within the European context, attained citizenship in one country opens up employment opportunities in other European Union countries. Finally, as initial destinations may have been limited for refugee migrants, onward migration for this group may be more economically motivated than the original refugee-based migration.

As shown in Fig. 1, Sweden has, since the end of WWII, been a nation of net immigration. The exception being in the early 1970s due to this period's economic crisis together with expanding employment opportunities in Finland, as well as a change in the registration system leading to more rapid registration of migration between the Nordic countries. A majority of the migration to Sweden during this period has been and continues to be from other Nordic countries, primarily from Finland. Formally, a common Nordic labor market was established in 1954, but migration legislation was, until the late 1960s, non-restrictive and aimed at attracting foreign labor to an expanding export industry. Sweden signed the Geneva Convention in 1954, opening for refugee migration. Until the mid 1970s, 90% of immigration

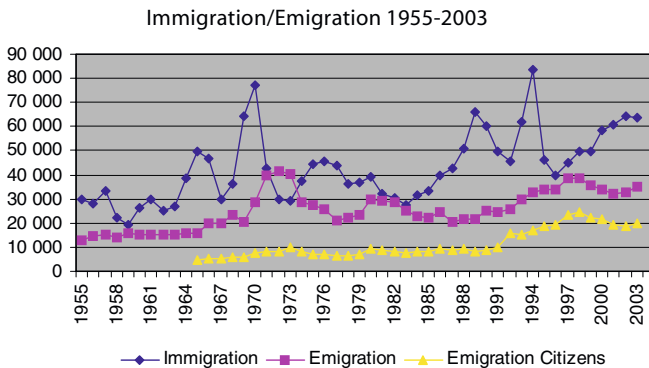
stemmed from other European countries. Thereafter, non-European immigration increased and now constitutes approximately 50% of total immigration.

The majority of emigration during this period is due to the out-migration of the foreign born. Since 1964, approximately 60% of total emigration is due to the out-migration of foreign citizens. Note that the proportion of emigrants with Swedish citizenship has increased over time, but that naturalized immigrants are then included in the measure. In 2003, Swedish citizens constitute 57% of total emigration. Much of the early emigration of foreign citizens was in the form of return migration; however, onward migration is becoming increasingly important. The data used in this study indicate that during the 1990s, onward migration constitutes approximately 28% of the total out-migration of immigrants in Sweden among working age emigrants. This proportion has increased over time from 12% of total emigration in 1991 to 32% in 2000.

The early empirical work on Sweden indicates that emigration propensities increase with education, decrease with age, and are u-shaped in terms of income with high emigration probabilities for those with little or no income, as well as for those with high incomes (Pedersen et al. 2001; Andersson et al. 2000). These studies are primarily based on Swedish citizens or those born in Sweden.

Studies focusing on immigrant emigration have focused on return migration. Edin et al. (2000) find that immigrants that emigrate within 5–10 years of emigration have systematically low or zero income levels. Klinthäll (1998), (1999) looks at the return migration patterns of male immigrants from Germany, Greece, Italy, and the United States and finds that emigration patterns vary by source country. Both studies indicate that economic performance in Sweden is an important determinant of return migration. Hammarstedt (2004) investigates the effect of welfare pick-up and unemployment on emigration probabilities and finds that unemployment is a positive indicator for both return and onward migration, while welfare participation lowers emigration propensities for non-European immigrants but is positively associated with return migration for Nordic immigrants.

Results presented in this paper confirm that emigration is positively associated with education, for natives monotonically so, while for immigrants in general, from university education upwards. For immigrant emigrants, the positive correlation between higher education and emigration is driven by onward emigration.



Source: Statistics Sweden

Fig. 1 Immigration and emigration flows, 1955–2003. Source: Statistics Sweden

Predicted age–income profiles show that among native men, emigrant incomes surpass non-emigrant incomes among 45- to 55-year-olds. Among immigrants, return migrants surpass non-emigrants up to the age of 40. Higher mean incomes for emigrants vis-à-vis non-emigrants is a notable finding, as emigrant incomes are likely to be biased downwards. Onward migrants indicate lower mean income levels across the age distribution. This is a likely consequence of the overrepresentation of non-Europeans among onward emigrants with known income penalties in Sweden, all else being equal. However, separate income predictions by region of origin indicate that onward migrants are generally more positively selected than return migrants within each immigrant group.

The remainder of the paper is as follows. The next section describes the data including an overview of descriptive statistics and an introduction of the empirical set-up. The [Empirical results](#) section presents the results and is followed by concluding remarks in the [Conclusions](#) section.

Data and empirical set-up

The data on emigrants come from Statistics Sweden (SCB), identifying all individuals 16 years and older who have emigrated from Sweden during any given year between 1991 and 2000. Included is information on year of emigration, destination, and the full migration history to and from Sweden backwards in time for this population of emigrants. The emigrant data have been matched to the Longitudinal Database on Education, Income and Employment from Statistics Sweden (LOUISE), a longitudinal dataset covering the entire population of Sweden over the age of 16 from 1990 to 2000. These data contain a rich set of variables on education, employment, income, family, marital status, workplace, as well as region of origin and year of immigration for immigrants to Sweden. From the original LOUISE dataset, a representative sample of non-emigrants is drawn for comparative purposes. Non-emigrants are defined as individuals not registering emigration from Sweden up to and including the year 2000.

To be registered as an emigrant, an individual must intend to stay abroad for at least 1 year and is registered as an emigrant on the actual day of emigration or, if registration occurs later, at the time authorities receive notification of emigration. This study, therefore, focuses on registered emigration. Individuals may, however, leave the country without officially registering emigration to maintain various insurance benefits as well as the eligibility to return to Sweden. As such, reported income for emigrants may be underestimated and reflect income transfers after emigration. This issue is discussed in greater detail below.

The estimated sample is restricted to the working age population, i.e., individuals between 26 and 64 years of age. To separate onward migration from repeat migration, i.e., migrants who repeatedly migrate to and from Sweden, repeat migrants are dropped from the sample. To be specific, individuals who have emigrated and re-immigrated to Sweden before the observation period are dropped from estimation. Some 10,567 observations ($N \cdot T$) of natives are dropped due to repeat migration (0.5% of the original native data) and 11,423 observations for immigrants (3% of the original immigrant data). Repeat migrants are predominantly of Nordic origin, male, single, in the 36–55 age category. If repeat migrants are, as suspected, migrating to and from Sweden for work-related reasons,

dropping this group may negatively bias income results for emigrants. On the other hand, mean income and employment levels for repeat migrants in the data do not significantly vary from that of emigrants in general. The final data set covers the period 1991–2000 and has 248,033 observations on immigrants and 1,470,203 observations on natives.

The primary purpose of this study is to examine emigration propensities for immigrants, delineating between return and onward migration, as well as to compare emigrant earnings. Initially, native and immigrant emigration propensities are estimated separately to study if the determinants of emigration differ between native and immigrant emigrants. Emigration probabilities are then estimated for immigrants only, delineating between return and onward emigration. The probability of emigrating is estimated using a linear probability model based on variations of the following basic model:

$$\Delta P(y = 1|x) = \beta_{jt} \Delta X_{jt} \quad (1)$$

The conditional probability of emigrating is assumed to be linear in the parameters β_j and the coefficients measure the change in the probability of success, $P(y=1)$, when X_j changes, all else being constant. Logit, multinomial logit, and probit models are also estimated as a check of robustness.

Emigrants are identified by year of emigration; y is, therefore, a binary dependent variable indicating whether or not an individual has emigrated during year t . Estimations control for income, age, education, marital status, the prevalence of small children (0–3 years old) and common time effects. In the linear probability models of emigration, age is categorized into three groups: 26–35, 36–55, and 55–64, the reference group is 26- to 35-year-olds. Estimations on immigrants, in addition, include controls for region of origin and duration of residence in Sweden.

Income is measured as gross labor income and/or gross income from business activities. Included in the measure are a number of work-related insurance benefits, such as compensation for sick leave and parental leave. The income measure uses the longitudinal feature of the data by tracking individuals backwards from the year of emigration and averaging over the available (lagged) observed years.² For comparison, mean lagged income for non-emigrants is also computed. Income is in 1990 prices, deflated by the consumer price index. Real (lagged) mean income is factorized into four categorical variables where the first category measures zero income and the highest category measures real mean income over 300,000 Swedish kronor in 1990 prices.

As emigrants may delay registration of emigration to receive various insurance benefits, emigrant income, although measured as a lagged average from the registered year of emigration, may include income transfers after actual emigration from Sweden. As such, the income of emigrants before emigration is likely to be underestimated in comparison to non-emigrants. In addition, income may be underreported, as emigrants may decrease work efforts before leaving the country, thereby biasing downwards measures of average (lagged) income. Income

² Traditional panel estimation techniques are not used, as a sample of non-emigrants is compared to the full population of emigrants for each available year, implying non-trivial weighting problems.

comparisons, therefore, primarily focus on differences between return and onward emigrants, assuming that the probability of registering emigration does not significantly differ between the two types of emigrants. Income comparisons to non-emigrants are also performed, keeping in mind that emigrant incomes before registered emigration are likely to be underestimated.

The immigrant data contain information on region of birth where region is divided into eight categories. These are Africa, Asia, East Europe, North America, the Nordic countries (excluding Sweden), South America, and West Europe. Note that Turkey, Cyprus, and the Middle Eastern countries are classified in the Asian category. The available data do not allow for a finer categorization of origin. Controlling for region of origin is of interest to evaluate push/pull factors of emigration. Immigrants with high levels of education but low employment levels may be pushed to emigrate to seek better employment opportunities elsewhere. Non-European emigrants, for example, have low average employment and income levels, but also relatively high mean education levels and may, therefore, be overrepresented among emigrants due to push factors. An analysis of emigration probabilities and income differentials between onward and return migrants is performed separately for each region of origin.

Estimations on immigrants include a control for duration of residence (quadratic). Duration of residence is measured from year of latest immigration and, therefore, underestimates the number of years an individual has resided in the host country for repeat migrants. As full migration histories are available for our population of emigrants, this problem is eliminated for the emigrant population, as repeat migrants have been identified and dropped from estimation. Underestimation of duration of residence is a potential problem only for our sample of non-emigrant immigrants where migration histories are not available. In particular, Nordic immigrants may have biased estimates of duration of residence due to low migration costs and an open Nordic labor market since 1954. As a check of robustness, separate estimations on immigrants include a full set of dummy variables for immigration year to check for potential cohort differences in emigration propensities.

Education is measured as highest completed degree and is coded into four categorical groups measuring completion of primary, secondary, university, or Ph. D. degrees. Dropped from estimation are those with missing information on attained educational levels. Missing information on education is a problem primarily for immigrant emigrants as 34% of foreign-born emigrants from Sweden have no registered information on education. The percentage with missing information on education varies by region of origin; South America 25%, Asia, Africa, and Eastern Europe 33%, Nordic countries 36%, Western Europe 37%, and North America 52%. Only 2% of native emigrants have no registered information on education. Characteristic of those with missing information on education is a low duration of residence in Sweden. It is likely that these individuals have simply not been caught up by surveys aimed at gathering information about education. As a check of robustness, all regressions were re-estimated, including individuals with missing information on education in a fifth categorical group.

In a second stage of the analysis, emigrant earnings are examined. Separate income regressions are estimated for both types of emigrants as well as stayers, controlling for age (quadratic), education, gender, marital status, children and among immigrants, for duration of residence in Sweden and region of origin. Based

on these income regressions, in-sample age–income profiles are predicted for emigrants and stayers. Despite the lagged measure of income, 25% of immigrant emigrants and 10% of native emigrants register zero-mean income (in comparison, 15% of immigrant stayers register zero-mean income and 3% of native stayers). Zero mean lagged income for emigrants may be due to a delay in the registration of emigration after leaving Sweden or to a lack of employment before emigration.

The age–income predictions are based on income regressions using log income as the dependent variable but calculated even for those registering zero mean (lagged) income. Predicted age–income profiles can, therefore, be seen as an experiment measuring incomes for emigrants if remunerated as emigrants with positive income and similar characteristics, before registration of emigration. This is done to more closely approximate what emigrants potentially earn in Sweden, had incomes not been biased downwards due to emigration, and to evaluate the potential fiscal implications of emigration. For comparative purposes, age–income predictions based only on those with positive incomes are estimated, as well as unadjusted age–income profiles, including those with zero income levels. The focus of income comparisons is on differences between return and onward emigrants.

In total, 28% of working-age emigrants are onward migrants. As shown in Fig. 2 above, this percentage varies by region of origin. Emigrants from Asia are more likely to be onward as return migrants, whereas emigrants from Africa are more likely to move to third-country destinations than return to source countries.³

Descriptive statistics shown in Table 1 indicate that emigrants are more highly educated than non-emigrants. This is true for both the native and immigrant population. Fifty-five percent of native emigrants have a university education compared to 28% of native stayers. Forty percent of immigrant emigrants have a university education compared to 27% of immigrant stayers. Differences in attained education levels are also noted for immigrant emigrants by type of emigration. Only 37% of return migrants have a university degree compared to 47% of onward migrants. As expected and due partially to delayed registration, emigrants in general have lower average income levels than non-emigrants. Onward emigrants have lower average income levels than return emigrants. Emigrants are overrepresented in the zero-income category but somewhat more heavily concentrated in the highest income group, more than 300,000 Swedish kronor (1990 prices), in comparison to non-emigrants. Emigrants are, on average, younger than stayers and, to a much larger degree, single and without small children. In terms of region of origin, return migrants are more heavily concentrated among those with Nordic heritage, while onward migrants are more heavily drawn from East European, African, and Asian backgrounds.

³ An equal or higher probability for Asian, African, and East European emigrants to migrate to third-country destinations is found when younger age groups are included in estimation (16+). Note that emigration propensities vary by region of origin. Information from Statistics Sweden (SCB) for the year 2000 indicate that 0.2% of natives emigrate, 1.9% of the Nordic born, 1.2% of Europeans, 1.6% of Africans, 3.9% of North Americans, 1.3% of South Americans, and 1.0% of Asians.

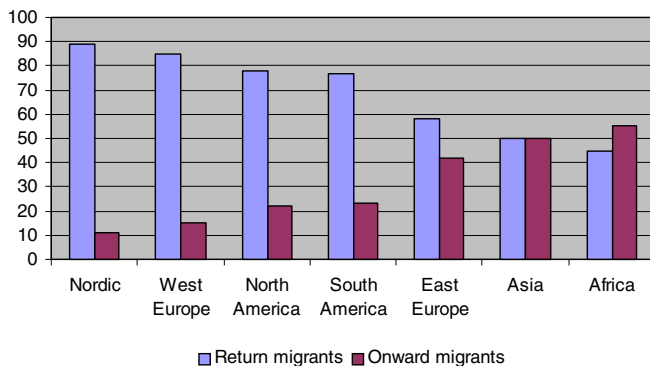


Fig. 2 Percentage of return/onward migrants, working age emigrants (26–64 years old)

Empirical results

Emigration propensities

Initially, the probability of emigrating is estimated separately for natives and immigrants using linear probability models and controlling for education, income, age, small children, marital status, and common time effects and for immigrants, region of origin and duration of residence in Sweden. The results presented in Table 2 (columns 1 and 2) show, in line with previous studies on Swedish data (Andersson et al. 2000; Pedersen et al. 2001; and Klinthäll 1998, 1999), that the probability of emigrating increases with education, monotonically so for natives and for those with at least a university education for immigrants. A university degree increases the probability of emigration, relative to those with a primary school education, by 5.6 and 5.1 percentage points, respectively, for natives and immigrants, all else being equal. A greater quantitative difference between immigrants and natives is found for Ph.D. education. Immigrants with doctoral degrees have an 18-percentage point higher probability of emigrating than immigrants with only primary school education. In comparison, Ph.D.-educated natives only have a 10-percentage point higher probability of emigrating than primary-school-educated natives.⁴

Emigration propensities are u-shaped with respect to positive (lagged) income, implying a higher probability of emigration for individuals in low- and high-income groups, all else being equal. A positive correlation with zero-mean income is also found for both immigrants and natives, which may simply be a reflection of the lag in registration of emigration noted previously. Individuals with zero-mean income may have emigrated before registration of emigration, or have been unemployed or out of the labor force (due to educational purposes or military service, for example) before emigration. Individuals between the ages of 26 and 35 have the highest emigration probabilities, relative all other working-age

⁴ All models were reestimated, including individuals with no information registered on attained educational levels. In these estimations, a separate categorical variable was created for those with missing education. Reported results are robust to the inclusion of these individuals. Missing information on education was found to be associated with a higher probability of emigration.

Table 1 Sample means^a

	Natives		Immigrants			
	Non-emigrants	Emigrants	Non-emigrants	Emigrants	Return migrants	Onward migrants
Education:						
Primary	0.24	0.09	0.29	0.26	0.29	0.18
Secondary	0.48	0.36	0.44	0.34	0.34	0.35
University	0.27	0.52	0.26	0.36	0.34	0.41
Ph.D.	0.01	0.03	0.01	0.04	0.03	0.06
Employment	0.84	0.62	0.61	0.44	0.48	0.36
Income (100 SEK):	1,322.08	1,169.39	890.71	692.83	742.87	588.87
Zero	0.03	0.10	0.15	0.25	0.24	0.26
1–1,499	0.60	0.62	0.64	0.61	0.61	0.62
1,500–2,999	0.34	0.22	0.20	0.11	0.12	0.09
3,000 and above	0.03	0.07	0.01	0.03	0.03	0.03
Age (years):	43.5	36.7	42.9	39.2	39.5	38.6
26–35	0.28	0.56	0.30	0.43	0.43	0.42
36–55	0.56	0.39	0.56	0.48	0.47	0.52
55–64	0.16	0.05	0.15	0.08	0.10	0.05
Women	0.49	0.47	0.51	0.44	0.45	0.43
Married	0.64	0.02	0.59	0.03	0.03	0.02
Children	0.13	0.01	0.14	0.01	0.01	0.01
YSM	–	–	17.4	10.5	9.8	11.8
Region of origin:						
Nordic	–	–	0.34	0.37	0.49	0.14
West European	–	–	0.10	0.17	0.18	0.13
East European	–	–	0.23	0.11	0.08	0.16
North American	–	–	0.01	0.04	0.04	0.04
South American	–	–	0.05	0.08	0.08	0.09
African	–	–	0.04	0.05	0.03	0.10
Asian	–	–	0.24	0.18	0.11	0.34
No. of Obs.	1,407,415	62,788	198,561	49,472	37,429	12,043

^aEmployment percentages, calculated as lagged averages, are based on Statistics Sweden November analysis (Årsys) measuring employment status in November of each year. Income is deflated to 1990 prices (in 100 SEK)

individuals. Women have a lower probability of emigrating than men. The difference is small, but significant, for natives where women indicate a 0.2-percentage point lower probability of emigrating relative to men. In comparison, immigrant women indicate a 3-percentage point lower probability of emigrating than immigrant men. Marriage and small children are associated with lower emigration probabilities. Again, the quantitative effect is larger for immigrants.

Table 2 Linear probability model of emigration, return migration and onward migration^a

	Probability of emigration		Prob. of return migration	Prob. of onward migration
	Natives (1)	Immigrants (2)	Immigrants (3)	Immigrants (4)
Education:				
Primary	Ref.	Ref.	Ref.	Ref.
Secondary	0.011 ^b (0.000)	-0.020 ^b (0.002)	-0.027 ^b (0.002)	0.003 ^b (0.001)
University	0.056 ^b (0.000)	0.051 ^b (0.002)	0.024 ^b (0.002)	0.057 ^b (0.002)
Ph.D.	0.099 ^b (0.003)	0.178 ^b (0.006)	0.111 ^b (0.006)	0.199 ^b (0.007)
Income:				
Zero	0.071 ^b (0.001)	0.068 ^b (0.002)	0.053 ^b (0.002)	0.052 ^b (0.002)
1–1,499	Ref.	Ref.	Ref.	Ref.
1,500–2,999	-0.008 ^b (0.000)	-0.044 ^b (0.002)	-0.038 ^b (0.002)	-0.019 ^b (0.001)
3000 and above	0.055 ^b (0.001)	0.093 ^b (0.006)	0.088 ^b (0.006)	0.056 ^b (0.006)
Age:				
26–35	Ref.	Ref.	Ref.	Ref.
36–55	-0.046 ^b (0.001)	-0.050 ^b (0.002)	-0.044 ^b (0.002)	-0.028 ^b (0.002)
55–64	-0.067 ^b (0.001)	-0.091 ^b (0.003)	-0.068 ^b (0.003)	-0.064 ^c (0.002)
Women	-0.002 ^b (0.000)	-0.029 ^b (0.001)	-0.026 ^b (0.001)	-0.013 ^b (0.001)
Married	-0.096 ^b (0.000)	-0.342 ^b (0.001)	-0.260 ^b (0.001)	-0.169 ^b (0.001)
Children	-0.039 ^b (0.000)	-0.113 ^b (0.002)	-0.083 ^b (0.001)	-0.070 ^b (0.001)
Years in Sweden (YSM)	-	-0.007 ^b (0.0002)	-0.009 ^b (0.0002)	0.0005 ^b (0.0001)
YSM2	-	-0.00002 ^b (0.0000)	0.00002 ^b (0.0000)	-0.00004 ^b (0.0000)
Region of origin:				
Nordic	-	-0.034 ^b (0.003)	-0.011 ^b (0.003)	-0.059 ^b (0.002)
West European	-	Ref.	Ref.	Ref.
East European	-	-0.172 ^b (0.003)	-0.185 ^b (0.003)	-0.049 ^b (0.002)
North American	-	0.070 ^b (0.006)	0.069 ^b (0.007)	0.084 ^b (0.008)
South American	-	-0.063 ^b (0.004)	-0.088 ^b (0.004)	0.006 ^d (0.004)
African	-	-0.125 ^b (0.005)	-0.230 ^b (0.005)	0.063 ^b (0.005)
Asian	-	-0.163 ^b (0.003)	-0.217 ^b (0.003)	-0.002 (0.003)
No. of obs.	1,475,722	240,008	221,946	202,120
R-squared	0.10	0.34	0.31	0.26

^aAll estimations control for common time effects. Standard errors were corrected for heteroscedasticity

^bDenotes significance at 1% level

^cDenotes significance at 5% level

^dDenotes significance at 10% level

Marriage, all else being equal, reduces the probability of emigration by 34 percentage points for immigrants, compared to only 10 percentage points for natives.

Immigrant emigration propensities decrease with duration of residence, which may be a sign of integration into the Swedish labor market.⁵ In terms of differences by region of origin, immigrants from North America have, relative to West Europeans, higher probabilities of emigrating from Sweden. Individuals born in the other identified regions have lower relative probabilities of emigrating.⁶

As shown in Table 2, columns 3 and 4, delineating immigrant emigration into two groups reflecting return or onward migration yields interesting differences. Note that the reference category in both cases is non-emigrant immigrants. In terms of the effect of education on estimated emigration propensities, estimations on return migration continue to show a lower probability of emigration for immigrants with a secondary school education, relative to those with primary school education. This is not the case for onward migrants. Higher education monotonically increases the probability of emigration for onward migrants. Quantitative differences are also noted. In comparison with the reference group (primary-school-educated immigrants), a university education increases the probability of emigration by 2 percentage points for return migrants and by 6 percentage points for onward migrants. A Ph.D. education increases the probability of emigration by 11 percentage points for return migrants and by 20 percentage points for onward migrants.

Other notable differences include duration of residence to be positively correlated with onward migration probabilities but negatively correlated with return migration probabilities. This may suggest greater transferability of human capital accumulated in Sweden for onward migrants but also a lack of integration into the Swedish labor market. Results for return migrant suggest assimilation over time and are similar to those found by Reagan and Olsen (2000) for the United States. Relative to West Europeans, only North Americans indicate higher emigration probabilities when emigration is back to source countries. Onward migration probabilities, and again in comparison with West Europeans, are higher for North Americans, South Americans (weakly significant), and Africans, all else being equal. Asians have insignificantly different onward migration probabilities than West Europeans.

To summarize the results this far, natives and immigrants have very similar determinants for emigration. The results for education indicate clearly that the highly skilled are more likely to emigrate from Sweden. This is contrary to results reported by Edin et al. (2000) for Sweden. This study, however, does not control for education but instead infers skill levels from relative income levels. In terms of immigrant emigration, emigration propensities differ with respect to destination at emigration. Return migration probabilities are positively correlated with education only for those with at least a university degree, while onward migration

⁵ As a check of robustness, linear probability models of emigration are reestimated for immigrants, including a full set of dummy variables indicating year of immigration with no notable change in results. Results are available upon request.

⁶ Linear probability models on emigration were run separately for each available year, 1991–2000. The only notable differences in results were the following: The probability of emigrating for immigrant Ph.D. degree holders was lower in comparison to primary-school-educated immigrants but still positive and significant for the earlier period (1991–1994). Duration of residence was found to have a stronger negative impact on emigration probabilities in the early 1990s. Finally, immigrants from other Nordic countries were found to have a higher probability of emigrating from Sweden, relative to West Europeans during 1991–1992. Results for natives were quantitatively similar for each respective year.

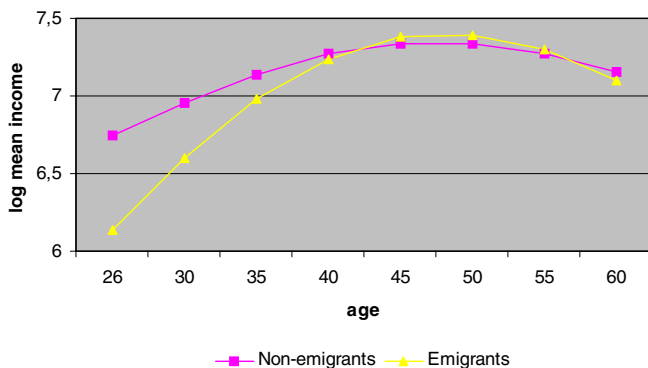


Fig. 3 Predicted age-income profile, native men

probabilities monotonically increase with education. Quantitative differences in the effect of upper education on emigration propensities indicate a greater probability for highly educated immigrants to emigrate to third-country destinations. This result is in line with DaVanzo (1976), suggesting that non-return migration is more motivated by labor market factors than return migration. Multinomial logit estimates of return and onward migration do not alter reported results.

Separate estimations by region of origin indicate some heterogeneity in the determinants of emigration between immigrant groups. Table 3 shows the results for education on return and onward migration probabilities in estimations that control for age, income, children, marital status, and duration of residence (full results by region of origin in Appendix, Tables A1, A2, and A3). Generally, the coefficients for higher education are larger for onward migrants than return migrants, indicating a higher propensity for the well-educated immigrants to migrate to third-country destinations. The exception is North American immigrants who show small differences between onward and return migrants.⁷

Another interesting result concerns the effect of duration of residence on emigration, which varies not only between immigrant groups but also by type of emigration. For Nordic and North American immigrants, duration of residence lowers emigration propensities for both types of emigration. For Western and Eastern Europeans, duration of residence lowers the probability of return migration but has no effect (Western Europe) or increases onward migration probabilities. For South Americans, Africans, and Asians, the duration of residence increases or has no effect (Asian return migration) on emigration probabilities, regardless of the type of emigration, which suggests a general lack of integration into the Swedish labor market for these immigrant groups.

⁷ Due to the nature of the data, estimations in the paper are unable to specifically control for unobserved ability. Reagan and Olsen (2000) find a positive effect on return migration for college graduates but no separate affect for ability, as measured by the Armed Forces Qualifying Test.

Table 3 Linear probability model of return and onward migration for immigrants, by region of origin^a

Region	Type of migration	Education			
		Primary	Secondary	University	Ph.D.
Nordic	Return	Ref.	-0.029 ^b (0.002)	0.034 ^b (0.003)	0.151 ^b (0.014)
	Onward	Ref.	0.005 ^b (0.001)	0.051 ^b (0.002)	0.148 ^b (0.019)
West European	Return	Ref.	-0.062 ^b (0.006)	-0.004 (0.006)	0.032 ^c (0.015)
	Onward	Ref.	0.000 (0.004)	0.041 ^b (0.006)	0.105 ^b (0.016)
East European	Return	Ref.	-0.002 (0.003)	0.032 ^b (0.003)	0.083 ^c (0.012)
	Onward	Ref.	-0.001 (0.003)	0.050 ^b (0.003)	0.150 ^b (0.014)
North American	Return	Ref.	0.057 ^c (0.026)	0.130 ^b (0.024)	0.203 ^b (0.029)
	Onward	Ref.	0.047 ^d (0.027)	0.096 ^b (.025)	0.213 ^b (0.033)
South American	Return	Ref.	-0.067 ^b (0.009)	-0.000 (0.010)	0.062 ^c (0.032)
	Onward	Ref.	-0.026 ^b (0.008)	0.047 ^b (0.009)	0.185 ^b (0.032)
African	Return	Ref.	-0.006 (0.009)	0.046 ^b (0.011)	0.186 ^b (0.034)
	Onward	Ref.	-0.000 (0.010)	0.063 ^b (0.012)	0.217 ^b (0.031)
Asian	Return	Ref.	-0.013 ^b (0.003)	0.020 ^b (0.003)	0.147 ^b (0.013)
	Onward	Ref.	0.003 (0.003)	0.052 ^b (0.004)	0.253 ^b (0.013)

^aAll estimations control for income, age, duration of residence, gender, marital status, and small children. See Table A1, A2, and A3 in Appendix for full results per region. Standard errors were corrected for heteroscedasticity

^bDenotes significance at 1% level

^cDenotes significance at 5% level

^dDenotes significance at 10% level

Emigrant income

The unadjusted emigrant income gap, i.e., the unadjusted differential between non-emigrant and emigrant mean income levels, shows that emigrants have significantly smaller mean (lagged) income levels (see “Sample means” in Table 1). As mentioned previously, lower mean incomes among emigrants are expected due to a delay in the registration of emigration after leaving Sweden to continue receiving income transfers post-migration and to maintain the option of

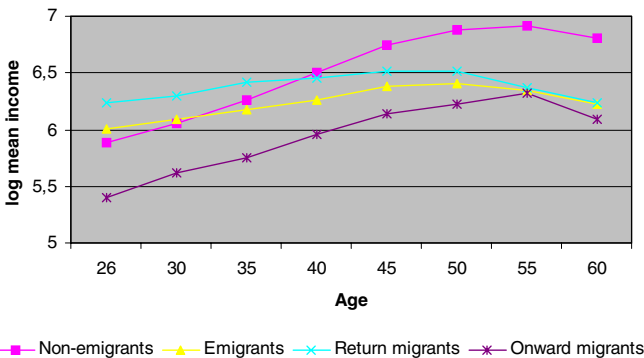


Fig. 4 Predicted age-income profile, immigrant men

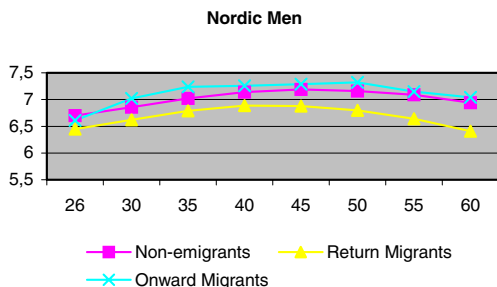


Fig. 5 Predicted age-income profiles by region of origin, Nordic men

returning to Sweden. As hourly wages are not available in the data, the focus is on annual income. Native emigrant income levels are approximately 88% of non-emigrant income levels and immigrant emigrant mean income levels approximately 78% of (immigrant) non-emigrant income. As emigrant incomes are downward biased, income comparisons focus on differences between return and onward migrants. Onward emigrants earn, on average, 20% less than return migrants.

Based on separate income regressions (log income) for natives and immigrants, as well as for stayers and emigrants, in sample, age-income profiles are predicted for each group. This is done to approximate the income of emigrants with zero-mean income if remunerated as emigrants with positive income and similar characteristics, i.e., to adjust for differences in education, age, marital status, duration of residence, and region of origin.

Income regressions yield expected results for education, age, gender, and marital status (results shown in Appendix, Table A4). Duration of residence is positively correlated with income for all immigrant groups. Individuals originating from different regions, all else being equal, are, however, remunerated differently. In comparison with immigrants from Western Europe, non-emigrants from Eastern Europe, South American, Africa, and Asia experience an income penalty, *ceteris paribus*. Results for emigrants indicate that even North Americans experience an income penalty relative to Western European emigrants. This is found in separate regressions for emigrants (in general) and return migrants. North American and Eastern European onward migrants, however, indicate insignificant income differences to Western European onward migrants. Income regressions were reestimated, including individuals with missing information on education (included as a separate categorical variable for education). Results indicate that the effect of missing education varies by both immigrant and emigrant status.

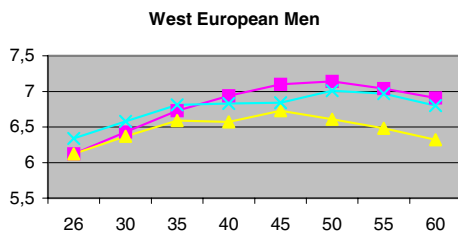


Fig. 6 Predicted age-income profiles by region of origin, west European men

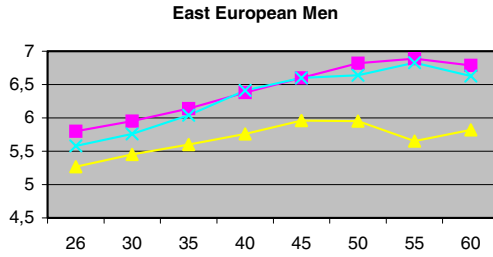


Fig. 7 Predicted age–income profiles by region of origin, east European men

Missing information on education is negatively correlated to income for natives and positively correlated to income for immigrant emigrants. Results in Table A4 are otherwise robust to the inclusion of individuals with missing information on education.

Predicted age–income profiles are shown separately for natives and immigrants, as well as for men and women (results for women are presented in the Appendix, Figs. A1, A2, A5, A6, A7, A8, A9, A10, A11, A12, and A13).

Figure 3 above indicates that among native men, emigrant incomes surpass those of stayers between the ages of approximately 45- to 55-year-olds. This is found despite the expected negative bias on emigrant incomes due to delayed registration of emigration. Income predictions for emigrants reflect the average predicted income in Sweden before emigration. Results for native women indicate that emigrants have lower predicted incomes across the entire age distribution (see Fig. A1 in Appendix).

Predicted age–income profiles for immigrants indicate that male emigrants have higher predicted income levels than stayers up to the age of 30 and for return migrants approximately up to the age of 40 (Fig. 4). Over and beyond inherently lower incomes for emigrants due to delayed registration, lower relative mean income levels to stayers after the age of 40 may be a consequence of the changing composition of immigrants due to non-random out-migration and potentially higher proportions in early retirement or on disability among elderly emigrants. Onward migrants have lower predicted income levels than non-emigrants and return migrants over the entire age range. This is largely due to the fact that onward migrants are more heavily composed of African and Asian immigrants with known income penalties, ceteris paribus. Reestimating age–income profiles only for those with positive incomes changes the results for older onward migrants who surpass the mean income levels of return migrants after the age of 50 (results available

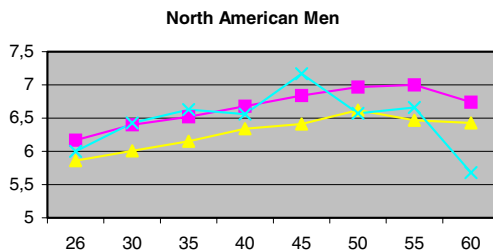


Fig. 8 Predicted age–income profiles by region of origin, North American men

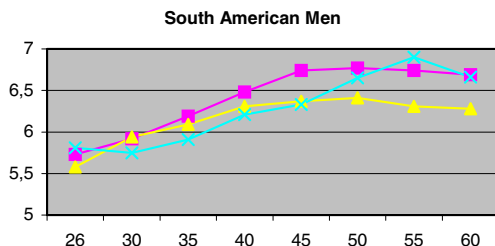


Fig. 9 Predicted age–income profiles by region of origin, South American men

upon request). Results for immigrant women indicate a higher adjusted income level than stayers for return emigrants up to the age of 30. Female onward migrants indicate higher mean incomes than return migrants after the age of 50 (see Fig. A2 in Appendix).

For comparison, unadjusted age–income profiles are also calculated for each group (see Figs. A3 and A4 for men and Figs. A5 and A6 for women in the Appendix). These income comparisons include those with zero registered income. Results show clearly that emigrants are positively selected where in comparison to the average income levels of non-emigrants; male native emigrants have higher unadjusted average income levels after the age of 35 (native female emigrants, however, have lower unadjusted mean incomes across the age distribution). For immigrants, return migrants surpass non-emigrant and onward migrant incomes approximately up to the age of 45. Differences between onward migrants and immigrant non-emigrants are smaller than indicated in the adjusted age–income predictions. In addition, onward migrants indicate higher unadjusted mean income levels than return migrants and non-emigrants after the age of 45. Female onward migrants, similar to their male counterparts, have higher average unadjusted incomes than return migrants after the age of 45.

Separate adjusted age–income profiles are estimated for each immigrant group based on their region of origin.⁸ Results for immigrant men, shown in Figs 5, 6, 7, 8, 9, 10, and 11, indicate that onward migrants have higher adjusted mean incomes than return migrants in all regions with the exception of South American onward emigrants between the ages of approximately 27 to 45 and elderly Asian and North American onward emigrants. Note that the number of observations for older emigrants, by region of origin, is small. Predicted mean incomes for onward migrants tend to surpass even that of non-emigrants for Nordic, West European (up to the age of 35), and Asian (up to the age of 45) men. Results for women yield a similar picture where income levels for onward emigrants tend to dominate that of return migrants for each region of origin (see Appendix, Figs. A7, A8, A9, A10, A11, A12, and A13).

These income experiments show clearly that onward migrants have higher potential income levels than return migrants before emigration, reinforcing the picture that although both types of emigrants are positively selected in terms of

⁸ Income regressions by region of origin are not shown but are available from author by request. Duration of residence is found to be positively associated with income for all regions, with the exception of West Europeans emigrants (both return and onward migrants) and Nordic onward emigrants.

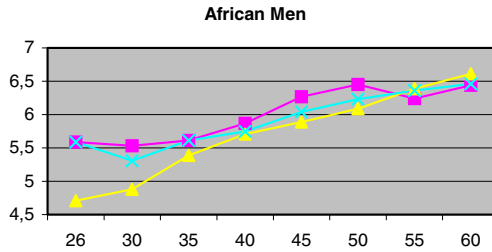


Fig. 10 Predicted age-income profiles by region of origin, African men

education, onward migrants are more highly skilled than return migrants. This result is in line with the idea that onward migration is based on pecuniary goals and that the motivation for return migration is more heterogeneous. Both types of emigration imply a skill loss and, therefore, a potential fiscal loss provided that this labor is productively used in Sweden.

Finally, to circumvent the problem that the income of emigrants is endogenous due to delayed registration of emigration, a final age-income prediction is calculated for emigrants and stayers who registered being employed in Sweden during each observable year before registered emigration (for non-emigrants, estimations are based on those registered as employed during the years before the observation year). Naturally, there is a likely positive bias in these estimations, as they are based on the fully employed, but the estimations circumvent the problem of underreported incomes for emigrants and are, therefore, of interest. The results for men, shown in Figs. A14 and A15 in Appendix, indicate not only that fully employed emigrants have higher mean income levels than fully employed non-emigrants, across the age distribution, but also that onward migrants have higher mean income levels than return migrants.⁹ This reinforces the picture that onward migrants are a particularly positively selected group of emigrants, which is expected, as non-return migration is likely to be in the direction of higher earnings opportunities.

Conclusions

This study has analyzed the determinants of emigration for both natives and immigrants in Sweden, delineating among foreign-born emigrants between return and onward migration. Return migration implies emigration back to origin countries, while onward migration indicates emigration to third-country destinations. Results show that emigrants are positively selected in terms of education, for natives monotonically for all education categories, while for immigrants, in general, for university education only.

In terms of immigrant emigration, onward emigrants are more positively selected in terms of education. Results indicate that higher education mono-

⁹ Results for women, shown in Figs. A16 and A17, indicate that income levels for native emigrants surpass that of native non-emigrants after the age of 30. For immigrant women, average adjusted incomes for employed onward migrants surpass that of return migrants across the age distribution and surpass that of non-emigrants after the age of 30. Return migrants have similar or slightly lower incomes than non-emigrant (fully employed) immigrant women.

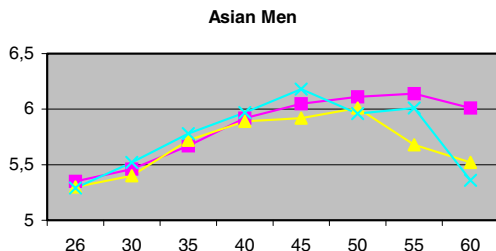


Fig. 11 Predicted age–income profiles by region of origin, Asian men

tonically increases emigration probabilities for onward migrants, while only university education increases emigration probabilities for return migrants. Quantitative differences in the effect of upper education on emigration indicate a greater probability for highly educated immigrants to leave for third-country destinations. The composition of emigrants also varies by region of origin where, controlling for human capital differences and in relation to Western Europeans, only North Americans indicate a higher probability of return migration. In terms of onward migration, immigrants from North and South America, as well as from Africa, are more likely to leave for third-country destinations. Immigrants from Asia indicate insignificant differences to Western Europeans in terms of onward migration probabilities.

Predicted age–income profiles for immigrants show that emigrants have higher adjusted mean income levels than non-emigrants up to the age of 30. Return migrants have higher mean incomes than non-emigrants up to the age of 40. These results indicate a positive selection of emigrants from Sweden among young immigrants, especially given that incomes for emigrants are likely to be biased downward due to delayed registration of emigration. In general, onward migrants have lower mean predicted income levels than return migrants. This is due to the higher composition of Asian and African immigrants among onward migrants, with known income penalties, *ceteris paribus*. Separate income predictions for each region of origin indicate that onward migrants tend to have higher predicted incomes than return migrants within each group, confirming the picture that onward migrants are more positively selected than return migrants.

These results imply that skilled immigrant emigrants are pushed to migrate with the expectation of higher earnings opportunities in third-country destinations where, by definition, preferences for home country living are a less decisive factor. Due to Sweden's relatively compressed wage distribution and extensive welfare benefits, low-skilled immigrants have incentives to stay in Sweden where the standard of living is high in an international perspective. Highly skilled immigrants, but with more limited employment opportunities in Sweden, may be driven to try their luck elsewhere.

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Appendix

Table A1 Linear probability model of return migration and onward migration, by region of origin: Nordic Countries, Western and Eastern Europe^a

	Nordic		Western Europe		Eastern Europe	
	Return	Onward	Return	Onward	Return	Onward
Education:						
Primary	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Secondary	-0.029 ^b (0.002)	0.005 ^b (0.001)	-0.062 ^b (0.006)	0.000 (0.004)	-0.002 (0.003)	-0.001 (0.003)
University	0.034 ^b (0.003)	0.051 ^b (0.002)	-0.004 (0.006)	0.041 ^b (0.006)	0.032 ^b (0.003)	0.050 ^b (0.003)
Ph.D.	0.151 ^b (0.014)	0.148 ^b (0.019)	0.032 ^c (0.015)	0.105 ^b (0.016)	0.083 ^c (0.012)	0.150 ^b (0.014)
Income:						
Zero	0.062 ^b (0.004)	0.036 ^b (0.003)	0.166 ^b (0.008)	0.160 ^b (0.008)	0.059 ^b (0.004)	0.032 ^b (0.003)
1–1,499	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
1,500–2999	-0.050 ^b (0.003)	-0.004 ^b (0.001)	-0.034 ^b (0.005)	-0.029 ^b (0.004)	-0.021 ^b (0.002)	-0.013 ^b (0.003)
3,000 and above	0.074 ^b (0.009)	0.087 ^b (0.010)	0.128 ^b (0.013)	0.053 ^b (0.013)	-0.009 (0.010)	0.007 (0.011)
Age:						
26–35	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
36–55	-0.135 ^b (0.004)	-0.039 ^b (0.003)	-0.097 ^b (0.007)	-0.069 ^b (0.007)	-0.010 ^b (0.004)	-0.048 ^b (0.004)
55–64	-0.173 ^b (0.004)	-0.050 ^b (0.003)	-0.136 ^b (0.008)	-0.130 ^b (0.007)	-0.022 ^b (0.005)	-0.081 ^b (0.004)
Women	-0.040 ^b (0.002)	-0.004 ^b (0.001)	-0.003 (0.005)	-0.020 ^b (0.004)	-0.030 ^b (0.002)	-0.015 ^b (0.002)
Married	-0.242 ^b (0.002)	-0.058 ^b (0.001)	-0.358 ^b (0.005)	-0.186 ^b (0.004)	-0.162 ^b (0.003)	-0.152 ^b (0.003)
Children	-0.158 ^b (0.004)	-0.042 ^b (0.002)	-0.136 ^b (0.006)	-0.099 ^b (0.004)	-0.049 ^b (0.002)	-0.057 ^b (0.002)
Years in Sweden (YSM)	-0.022 ^b (0.0003)	-0.002 ^b (0.0002)	-0.003 ^b (0.0006)	0.0003 (0.0005)	-0.003 ^b (0.0003)	0.002 ^b (0.0003)
YSM ²	0.0002 ^b (0.000)	0.00002 ^b (0.0000)	-0.0001 ^b (0.0000)	-0.0001 ^b (0.0000)	0.0000 ^b (0.0000)	-0.0001 ^b (0.0000)
No. of obs	84,965	68,567	24,541	20,406	43,167	43,007
R-squared	0.31	0.17	0.35	0.27	0.23	0.23

^aAll estimations control for common time effects. Standard errors were corrected for heteroscedasticity

^bDenotes significance at 1% level

^cDenotes significance at 5% level

Table A2 Linear probability model of return migration and onward migration, by region of origin: North and South America^a

	North America		South America	
	Return	Onward	Return	Onward
Education:				
Primary	Ref.	Ref.	Ref.	Ref.
Secondary	0.057 ^b (0.026)	0.047 ^d (0.027)	-0.067 ^c (0.009)	-0.026 ^c (0.008)
University	0.130 ^c (0.024)	0.096 ^c (0.025)	-0.000 (0.010)	0.047 ^c (0.009)
Ph.D.	0.203 ^c (0.029)	0.213 ^c (0.033)	0.062 ^b (0.032)	0.185 ^c (0.032)
Income:				
Zero	0.107 ^c (0.019)	0.143 ^c (0.027)	0.085 ^c (0.012)	0.154 ^c (0.012)
1–1499	Ref.	Ref.	Ref.	Ref.
1,500–2,999	-0.048 ^c (0.017)	-0.019 (.017)	-0.029 ^c (0.010)	-0.036 ^c (0.008)
3,000 and above	0.106 ^c (0.024)	0.166 ^c (0.030)	-0.012 ^b (0.048)	0.092 ^d (0.051)
Age:				
26–35	Ref.	Ref.	Ref.	Ref.
36–55	-0.038 ^c (0.014)	-0.047 ^c (0.017)	0.009 (0.008)	-0.022 ^c (0.008)
55–64	-0.162 ^c (0.030)	-0.147 ^c (0.028)	0.014 (0.016)	-0.093 ^c (.014)
Women	0.017 (0.012)	0.020 (0.014)	-0.012 ^d (0.007)	-0.030 ^c (.006)
Married	-0.533 ^c (0.014)	-0.403 ^c (0.015)	-0.366 ^c (0.006)	-0.250 ^c (0.006)
Children	-0.099 ^c (0.016)	-0.073 ^c (0.013)	-0.088 ^c (0.007)	-0.059 ^c (0.005)
Years in Sweden (YSM)	-0.021 ^c (0.003)	-0.013 ^c (0.002)	0.004 ^b (0.002)	0.008 ^c (0.001)
YSM ²	0.0003 ^c (0.0000)	0.0002 ^c (0.0000)	-0.0003 ^c (0.0000)	-0.0003 ^c (0.0000)
No. of obs.	3,562	2,604	12,483	11,058
R-squared	0.36	0.35	0.38	0.32

^aAll estimations control for common time effects. Standard errors were corrected for heteroscedasticity

^bDenotes significance at 5% level

^cDenotes significance at 1% level

^dDenotes significance at 10% level

Table A3 Linear probability model of return migration and onward migration, by region of origin: Africa and Asia^a

	Africa		Asia	
	Return	Onward	Return	Onward
Education:				
Primary	Ref.	Ref.	Ref.	Ref.
Secondary	-0.006 (0.009)	-0.000 (0.010)	-0.013 ^b (0.003)	0.003 (0.003)
University	0.046 ^b (0.011)	0.063 ^b (0.012)	0.020 ^b (0.003)	0.052 ^b (0.004)
Ph.D.	0.186 ^b (0.034)	0.217 ^b (0.031)	0.147 ^b (0.013)	0.253 ^b (0.013)
Income:				
Zero	0.100 ^b (0.012)	0.107 ^b (0.012)	0.059 ^b (0.004)	0.053 ^b (0.004)
1–1,499	Ref.	Ref.	Ref.	Ref.

Table 3 (continued)

	Africa		Asia	
	Return	Onward	Return	Onward
1,500–2,999	-0.094 ^b (0.012)	-0.120 ^b (0.014)	0.003 (0.004)	-0.017 ^b (0.005)
3,000 and above	-0.010 (0.053)	0.134 ^c (0.057)	0.203 ^b (0.030)	0.099 ^b (0.032)
Age:				
26–35	Ref.	Ref.	Ref.	Ref.
36–55	0.084 ^b (0.008)	0.043 ^b (0.010)	0.022 ^b (0.003)	0.002 (0.003)
55–64	-0.003 (0.025)	-0.110 ^b (.026)	-0.004 (0.006)	-0.053 ^b (0.006)
Women	-0.029 ^b (0.008)	-0.041 ^b (0.009)	0.010 ^b (0.003)	-0.001 (0.003)
Married	-0.207 ^b (0.007)	-0.307 ^b (0.007)	-0.217 ^b (0.003)	-0.289 ^b (0.003)
Children	-0.045 ^b (0.005)	-0.088 ^b (0.007)	-0.013 ^b (0.002)	-0.023 ^b (0.002)
Years in Sweden (YSM)	0.007 ^b (0.002)	0.014 ^b (0.002)	0.000 (0.001)	0.010 ^b (0.001)
YSM ²	-0.0001 ^b (0.0000)	-0.0004 ^b (0.0000)	-0.0001 ^b (0.0000)	-0.0003 ^b (0.0000)
No. of obs.	7,227	8,204	46,001	48,274
R-squared	0.32	0.38	0.26	0.30

^aAll estimations control for common time effects. Standard errors were corrected for heteroscedasticity

^bDenotes significance at 1% level

^cDenotes significance at 5% level

Table A4 Income regressions (log average lagged income)^a

	Natives		Immigrants			
	Non-emigrants (1)	Emigrants (2)	Non-emigrants (1)	Emigrants (2)	Return migrants (3)	Onward migrants (4)
Education:						
Primary	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Secondary	0.197 ^b (0.002)	0.382 ^b (0.021)	0.179 ^b (0.007)	0.209 ^b (0.018)	0.217 ^b (0.020)	0.192 ^b (0.038)
University	0.397 ^b (0.002)	0.749 ^b (0.020)	0.346 ^b (0.009)	0.517 ^b (0.019)	0.473 ^b (0.022)	0.590 ^b (0.038)
Ph.D.	0.673 ^b (0.007)	0.840 ^b (0.033)	0.645 ^b (0.030)	0.672 ^b (0.044)	0.678 ^b (0.056)	0.684 ^b (0.071)
Age	0.113 ^b (0.001)	0.227 ^b (0.005)	0.089 ^b (0.003)	0.108 ^b (0.007)	0.109 ^b (0.008)	0.100 ^b (0.014)
Age-squared	-0.001 ^b (0.000)	-0.002 ^b (0.000)	-0.001 ^b (0.000)	-0.001 ^b (0.000)	-0.001 ^b (0.000)	-0.001 ^b (0.000)
Women	-0.376 ^b (0.001)	-0.510 ^b (0.010)	-0.300 ^b (0.006)	-0.424 ^b (0.014)	-0.454 ^b (0.016)	-0.367 ^b (0.027)
Married	0.117 ^b (0.002)	0.081 ^c (0.034)	0.129 ^b (0.007)	0.082 ^d (0.048)	0.051 (0.056)	0.133 (0.090)
Children	0.088 ^b (0.002)	0.175 ^b (0.056)	-0.029 ^b (0.010)	0.158 ^c (0.067)	0.118 (0.075)	0.288 ^c (0.140)

Table 4 (continued)

	Natives		Immigrants		Return migrants (3)	Onward migrants (4)
	Non-emigrants (1)	Emigrants (2)	Non-emigrants (1)	Emigrants (2)		
YSM	–	–	0.045 ^b (0.001)	0.022 ^b (0.003)	0.018 ^b (0.004)	0.043 ^b (0.005)
YSM-squared	–	–	–0.001 ^b (0.000)	–0.0002 ^c (0.000)	–0.0003 ^b (0.000)	–0.0003 ^b (0.000)
Origin:						
Nordic	–	–	0.147 ^b (0.010)	0.452 ^b (0.022)	0.375 ^b (0.025)	0.622 ^b (0.052)
West European	–	–	Ref.	Ref.	Ref.	Ref.
East European	–	–	–0.216 ^b (0.012)	–0.376 ^b (0.032)	–0.599 ^b (0.044)	–0.071 (0.053)
North American	–	–	–0.037 (0.028)	–0.197 ^b (0.046)	–0.268 ^b (0.052)	–0.001 (0.095)
South American	–	–	–0.171 ^b (0.016)	–0.186 ^b (0.030)	–0.150 ^b (0.035)	–0.200 ^b (0.059)
African	–	–	–0.411 ^b (0.022)	–0.684 ^b (0.039)	–0.752 ^b (0.064)	–0.446 ^b (0.057)
Asian	–	–	–0.615 ^b (0.012)	–0.604 ^b (0.027)	–0.670 ^b (0.039)	–0.385 ^b (0.046)
No. of Obs.	1,358,927	61,823	156,603	42,112	28,875	13,237
R-squared	0.14	0.14	0.20	0.16	0.14	0.15

^aAll estimations control for common time effects. Standard errors were corrected for heteroscedasticity

^bDenotes significance at 1% level

^cDenotes significance at 5% level

^dDenotes significance at 10% level

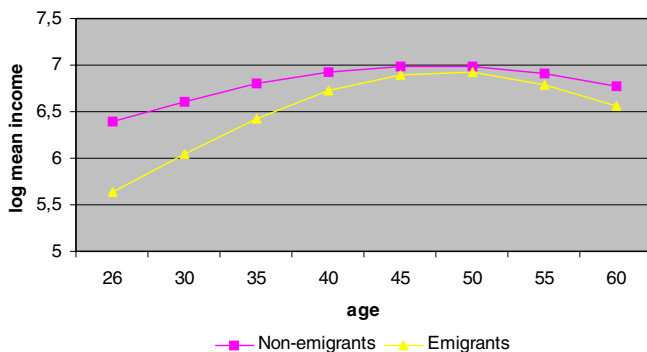


Fig. A1 Predicted age-income profile, native women

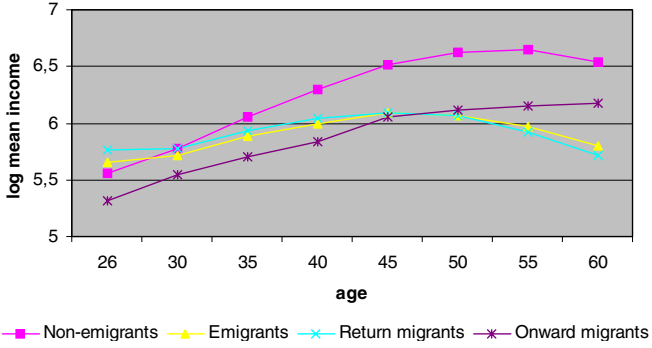
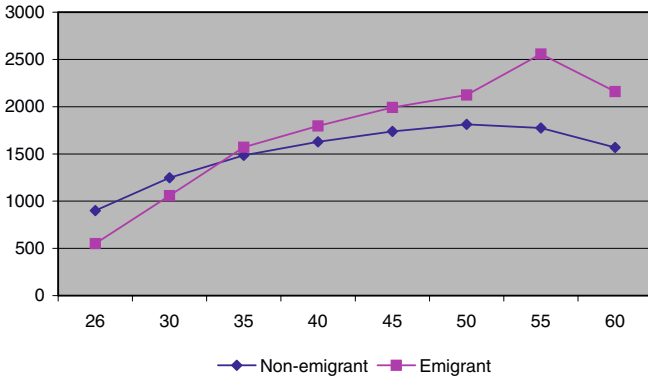
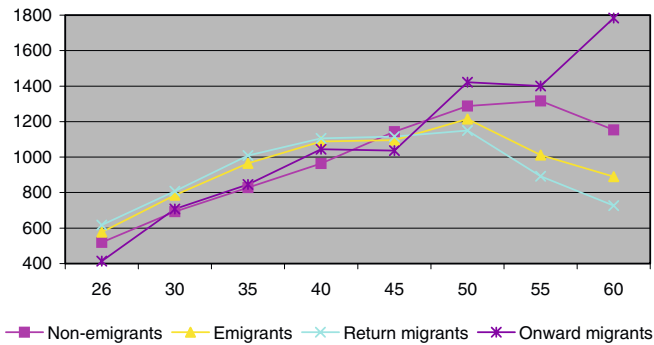


Fig. A2 Predicted age-income profile, immigrant women



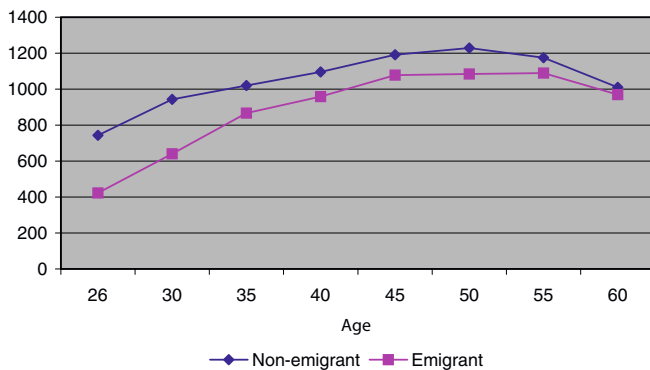
^a Mean Income in 1990 prices (in 100 SEK).

Fig. A3 Unadjusted age-specific mean income, native men^a



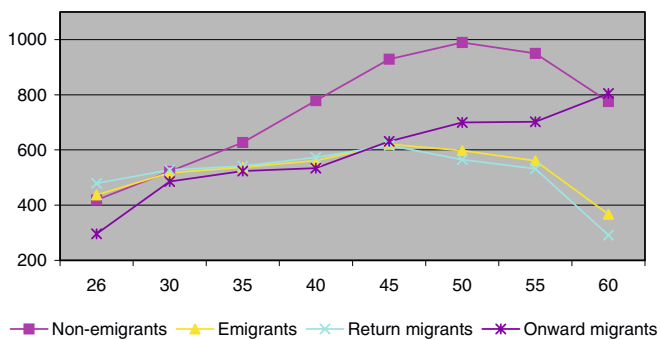
^a Mean Income in 1990 prices (in 100 SEK).

Fig. A4 Unadjusted age-specific mean income, immigrant men^a



^a Mean Income in 1990 prices (in 100 SEK).

Fig. A5 Unadjusted age-specific mean income, native women^a



^a Mean Income in 1990 prices (in 100 SEK).

Fig. A6 Unadjusted age-specific mean income, immigrant women^a

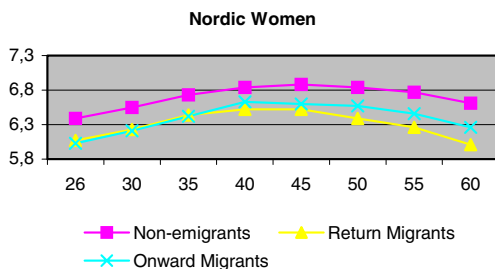


Fig. A7 Predicted age-income profiles by region of origin, Nordic women

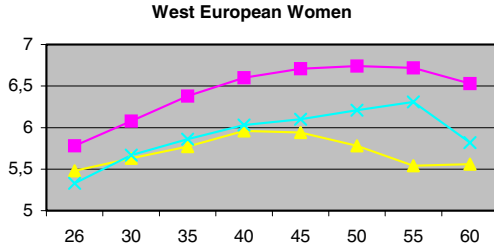


Fig. A8 Predicted age-income profiles by region of origin, west European women

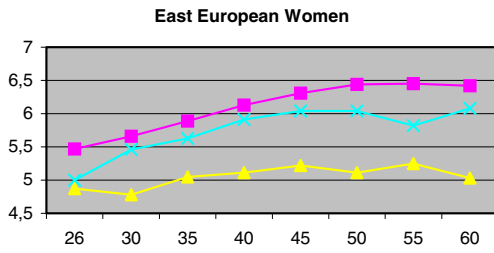


Fig. A9 Predicted age-income profiles by region of origin, east European women

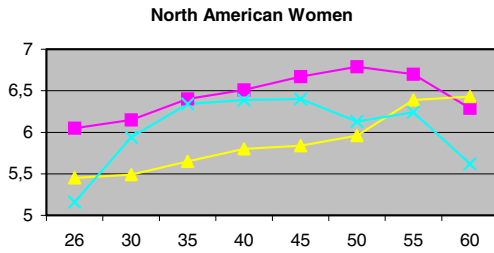


Fig. A10 Predicted age-income profiles by region of origin, North American women

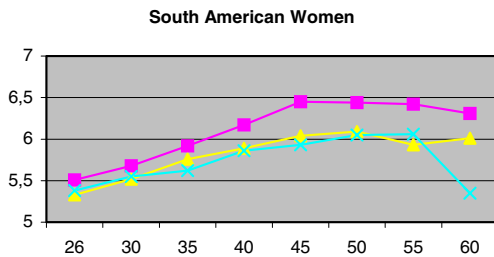


Fig. A11 Predicted age-income profiles by region of origin, South American women

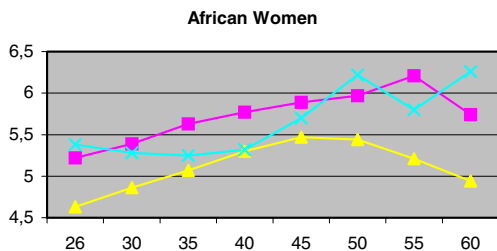


Fig. A12 Predicted age-income profiles by region of origin, African women

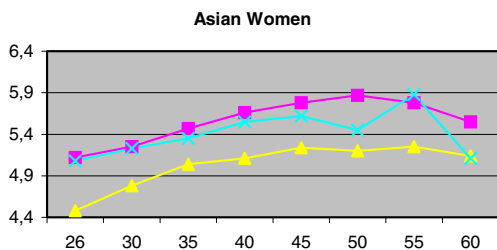


Fig. A13 Predicted age-income profiles by region of origin, Asian women

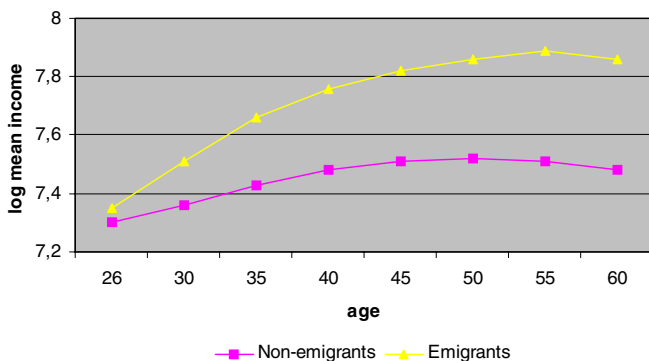


Fig. A14 Predicted age-income profiles for fully employed, native men

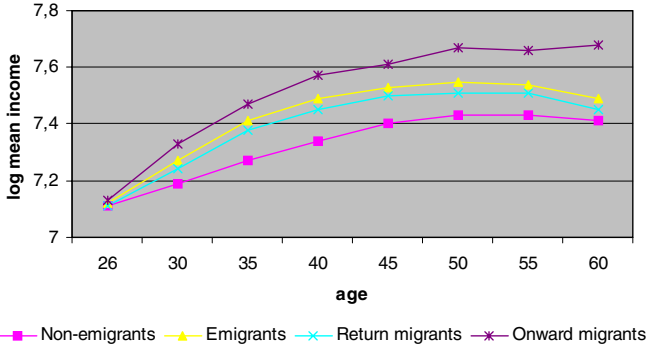


Fig. A15 Predicted age-income profiles for fully employed, foreign-born men

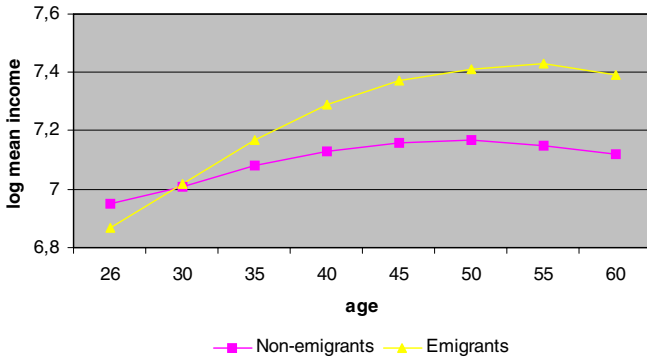


Fig. A16 Predicted age-income profiles for fully employed, native women

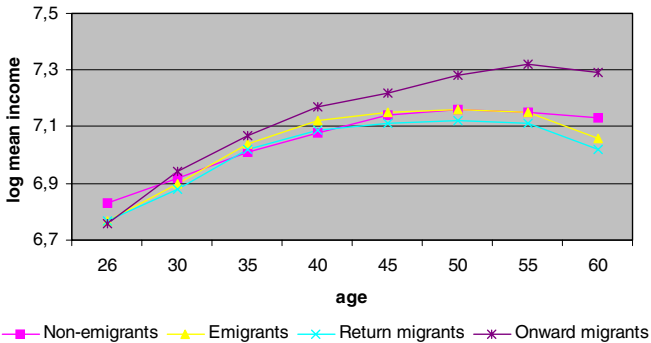


Fig. A17 Predicted age-income profiles for fully employed, immigrant women

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