

Working Paper in Economics No. 696

# **Outmigration and income assimilation during the first post-EU-enlargement migrants' first decade in Sweden**

**Joakim Ruist**

Department of Economics, March 2017

ISSN 1403-2473 (Print)  
ISSN 1403-2465 (Online)



**UNIVERSITY OF GOTHENBURG**  
**SCHOOL OF BUSINESS, ECONOMICS AND LAW**

## **Outmigration and income assimilation during the first post-EU-enlargement migrants' first decade in Sweden**

Joakim Ruist\*  
University of Gothenburg  
joakim.ruist@economics.gu.se

### **Abstract**

This study follows a random sample of 20% of the earliest post-EU-enlargement immigrants during their first decade in Sweden, studying their patterns of outmigration and income assimilation. The results show that outmigration is low: around 80% appear to be still present in Sweden during the full year 2013. Annual outmigration probabilities are near zero among migrants that earned an income that was at least high enough to live on in the previous year. Those leaving Sweden are thus mostly “failed migrants”, who did not manage to provide for themselves. Early income is far higher for male than for female migrants, with most females who live in couples initially earning zero income. Yet after less than one decade the gender gap in income is not larger than that in the total Swedish population of similar ages. Together with female migrants being better educated when migrating, this indicates strong male dominance in the migration decision, yet mostly so in the short term: For migration to happen, the short-term job opportunities of the male partner, and the longer-term prospects of the female, both needed to be favorable.

Key words: EU enlargement; migration; outmigration; income assimilation; family migration

JEL codes: J61, F22

\* The author is grateful for financial support for this research from Torsten Söderberg's foundation and Karl Staaff's foundation.

## 1 – Introduction

In 2004, as ten Eastern European countries (henceforth: “the A10 countries”) acceded to the European Union and its regime of free labor mobility, little could be guessed in advance about the migration patterns that would follow. It was the first case in modern history where such a large worker population gained free access to a labor market where average wages were so much higher than in their home countries, and to which migration costs were at the same time so low. Hence there was no antecedent on which to base predictions even on roughly how many would migrate and how good fit they would provide to the demands of receiving countries’ labor markets. Expectations were widely diverging, yet early evidence showed that migration turned out to be fairly high (Brücker et al., 2009, Blanchflower and Shadforth, 2009, Kahanec, 2013), and that migrants in general turned out to provide fairly good fits to labor market needs, as evidenced from their employment rates, incomes and distributions over sectors of the economy (see various chapters in the volumes edited by Kahanec and Zimmermann, 2010, 2016).

Likewise, little could be predicted in advance about these migrants’ outcomes over a longer time horizon. Would they only work for a few years and then return home, or commute back and forth, or would they settle? Would settlement be positively or negatively influenced by labor market success, and if so, then how strongly? How would those who settled assimilate into the economy? There is not much evidence on these questions to this date. Most macro-level evidence indicates that outmigration appears to have been fairly low, although this evidence is based on fairly imprecise data (Koehler et al., 2010, Holland et al., 2011, Barcevičius et al., 2012). Low outmigration in turn makes the question of income assimilation trends, on which no evidence yet exists, more important.

The present study provides a medium-term follow-up of the outcomes of the earliest wave of post-EU-enlargement migrants in Sweden, i.e. those who arrived in 2004-05. I use longitudinal data to follow a random sample of 20% of this group until 2013 or as long as they remain in Sweden, studying on their outmigration and income assimilation patterns. Building on evidence from earlier migrant groups, the time frame of 9-10 years is normally long enough to meaningfully characterize these patterns, since most of both outmigration and income assimilation normally happen within an even shorter frame (on outmigration see e.g. Borjas and Bratsberg, 1996, Dustmann, 2003, Constant and Massey, 2003, or in Sweden Edin, LaLonde, and Åslund, 2000, and Nekby, 2006; on income assimilation see e.g. Borjas, 1985,

Barth, Bratsberg, and Raaum, 2004, 2006, or in Sweden Hammarstedt and Shukur, 2006). The present is the first longitudinal follow-up of A10 migrants of this kind.<sup>1</sup> Sweden is suitable for this follow-up, since it is the only country that both did not impose transitional restrictions on of post-enlargement immigration, and provides longitudinal data that enables following the migrants over time.

The results reveal a fraction of migrants still present in Sweden in 2013 that, given the unclear expectations, must be seen as surprisingly high. Of all 2004-05 immigrants who lived in an economically active household in Sweden in the year after their immigration, 83% still do so in 2013. A full 77% live in a household whose disposable income appears large enough to live on, i.e. with high probability they live in Sweden the full year 2013. Outmigration is strongly negatively correlated with income, yet only up to the level where the income becomes high enough to live on. Already at that point, the probability of outmigration is near zero, and higher income can in consequence not reduce it much further. Outmigration is highest for low-earning males in single households. This is consistent with these to a larger extent being breadwinners for families still in the home country, an interpretation that is also supported by the observed gender differences in household formation in Sweden over time. Finally among those who remain in Sweden, the income assimilation of women is extremely strong. While male immigrants earned fairly high income already in their first year after immigration, and hence had less scope for further increases, the median female immigrant initially only earned an income around 20-30% of the median in the female reference group from the total population. Yet seven years later the female median, like the male, has reached 90% of that of its reference group. Large fractions of these gender differences are due to differences within migrant couples, where most females initially earn zero income in spite of have higher education on average than their male partners. The results are thus evidence of strong dominance of male short-term income opportunities in the migration decision. However they also indicate a highly important role for the longer-term prospects of the female partners, as evidenced by their education levels.

In sum, these results paint a fairly bright picture of most of the early migrants having found their place and stability, and a means of providing for themselves and contributing to the Swedish economy. However the first movers in a new migrant flow may be a special group.

---

<sup>1</sup> There exists one previous study, Bratsberg, Raaum, and Røed (2014), which follows post-EU-enlargement migrants over time in Norway (which applied rules similar to those in the EU countries at the time of the enlargement). Yet their study has a specific focus on benefit take-up and outmigration responses to negative income shocks associated with the economic crisis in 2009.

Potentially they are e.g. particularly able, or daring, or ill-informed about conditions in the receiving country, compared with later movers. Therefore, to the extent possible within the time frame, the outcomes of the 2004-05 cohorts are also compared to those of later movers. The only notable, yet small, difference then observed is that those who moved right before or during the economic downturn in 2009 appear to be somewhat more strongly affected by this downturn. This difference is thus plausibly due to the negative macroeconomic shock rather than to inherent cohort differences.

Section 2 of this paper provides a background overview of the expectations surrounding post-EU-enlargement migration and what is already known about subsequent outcomes. Section 3 characterizes the sample of 2004-05 immigrants in Sweden in the year after their arrival. Section 4 studies the same sample's subsequent trends in outmigration, household formation, and income assimilation up to the year 2013. Section 5 concludes.

## **2 – Post-EU-enlargement migration: Expectations and realizations**

The incorporation of the A10 countries into the EU in 2004 may have been historically unique in the theoretical potential for migration it created, and there was no historical antecedent to lean on in predicting the migration patterns that would follow. Previous cases of free mobility for large numbers of workers across similarly large or larger income differentials had existed in a few earlier cases, such as e.g. the free migration within the British Commonwealth prior to 1962, or at the EU accession of Spain and Portugal in 1986. Yet these experiences preceded the arrival of migration-cost-reducing factors such as cheap air travel and Internet communication, and few saw them as providing useful indications.

Early post-enlargement migration from the A10 countries to the old EU member countries (henceforth: “the EU15 countries”) turned out to be quite high. Numbers differ somewhat between sources, yet using those of Kahanec (2013) the net emigration from A10 to EU15 in five years 2004-08 equaled approximately 2% of the A10 countries' total population. Among these, emigration was highest from Lithuania, at 4-5% of the population.<sup>2</sup> Migrants also turned out to do quite well economically. Across EU15 countries, participation and unemployment rates of immigrants from A10/Romania/Bulgaria in 2010 were either roughly similar to or substantially better than those of natives (Kahanec, Pytliková, and Zimmermann,

---

<sup>2</sup> Even higher was emigration from Romania, which together with Bulgaria joined the EU in 2007, and which experienced a net outmigration to EU15 of 4-5% of the population in only three years 2007-09.

2016). The short-term fiscal impact of A10 immigration also appeared to be positive in both the UK (Dustmann, Frattini, and Halls, 2010), and Sweden (Ruist, 2014).

The purpose of the present study is to analyze A10 migrants' outcomes over a longer time horizon, focusing primarily on patterns of outmigration and income assimilation. These patterns are as yet little explored empirically, as available time series have until recently been short. It is clear however, that most post-EU-enlargement migrants did not think of their migration as permanent when moving. In Drinkwater and Garapich's (2015) survey of intended length of stay among recent Polish immigrants in England and Wales, one-third had short duration plans of less than one year, and one-third could not provide any answer at all on their intended length of stay. Only one-fifth believed they would stay more than five years or permanently. Although not similarly quantified, the results of e.g. Bygnes and Erdal's (2017) study of post-enlargement migrants in Norway also highlight the lack of definitive plans for permanent settlement, and so do even Piętko-Nykaza and McGhee's (forthcoming) study of migrants who had already lived at least six years in Scotland.

One interpretation of the absence of permanent settlement plans is that when costs of travelling between the destination country and the home country, or even between multiple destination countries, are low, migrants don't have strong incentives to settle permanently in one place. Instead it may be optimal for them to choose a pattern of repeated movements between the home country and different destination countries following seasonal and business-cycle variation in demand for their labor (Engbersen and Snel, 2013). However the importance of investments in country-specific human capital for economic success in each place puts question marks on whether this strategy would indeed be economically optimal. In addition, low migration costs may also theoretically be a factor that works in favor of permanent settlement, as they make settlement compatible with keeping close contact with relatives and friends in the home country.

Another interpretation is that many of the migrants would indeed be happy to settle permanently, yet that this decision is conditional on first achieving secure economic conditions in the destination country. In this interpretation, a central role of the low migration costs is that they make it feasible to move for an evaluation period, postponing the decision on permanent settlement. This interpretation provides a possibility of reconciling the lack of definitive settlement plans with the empirical evidence indicating that remigration rates have in fact been low. However most of this evidence is based on fairly imprecise data, estimates

differ strongly and error margins should be seen as large. Studies surveyed by Barcevičius et al. (2012) indicate that 75-95% of Polish emigrants remain in the destination country after five years (see also Koehler et al., 2010, Holland et al., 2011). The only study that uses high-quality registry data (Bratsberg, Raaum, and Røed, 2014, using data from Norway) also finds fairly low outmigration rates: approximately 5% of post-enlargement immigrants employed in the previous year outmigrate in each of the years 2007-09.

Given the backdrop presented here, what to expect of migrants' income assimilation trends over time is also uncertain. If migrants do not initially establish strong mental connections to their destination countries, possibly they will undertake less income-assimilation-enhancing investments (e.g. in knowledge about language and institutions) and their assimilation trends will therefore be weak. Yet if settlement is on the other hand conditioned on economic success, trends will be positive because those with positive trends will be predominant among those that remain. Previous empirical evidence on A10 migrants' economic success in their destination countries is only cross-sectional. This study will provide the first longitudinal evidence.

## **2.1 – Post-EU-enlargement migration to Sweden**

At the time of the EU enlargement in 2004, EU member countries were allowed to restrict the access of A10 citizens to their labor markets and social security systems for up to a maximum of seven years. This right was applied to some extent by all EU15 countries except Sweden, although restrictions in the UK and Ireland were limited. While the absence of restrictions in the UK and Ireland may be seen partly as a consequence of excess demand for workers in these countries, labor demand is likely to have played a smaller role behind the Swedish decision. Instead, the Swedish political debate against such restrictions centered more strongly on the moral arguments for equal treatment of citizens of all EU member countries.

As shown by the solid line in Figure 1, Swedish immigration from the A10 countries rose substantially with the EU enlargement. In the years preceding the enlargement it was approximately 2,000 per year, from which it increased gradually to a peak of slightly more than 10,000 in each of 2007 and 2008. It fell back slightly with the economic crisis, after which it appears to have stabilized around 8-10,000 per year. Poland is strongly dominant among source countries, and accounted for 50-70% of total immigration across years. The second most important source country is Lithuania. As the three dashed/dotted lines show, it is also immigration from Poland, where economic conditions at home did not deteriorate so

strongly, that drives the decrease in immigration following the economic crisis. By contrast, migration to Sweden from the more strongly affected Baltic countries was higher in 2009 and 2010 than in 2007 and 2008.

### **3 – Characteristics of the immigrant sample in the year after immigration**

I follow a random sample of 20% of all A10-born individuals who migrated to Sweden in 2004-05, using the immigrant sample from Statistics Sweden's *Linda* database, which contains information from various public registers. Individuals are included in the sampling frame if they are registered as living in Sweden. Obtaining such registration requires that an individual plans to stay in Sweden for at least one year, and meets the criteria for being allowed to stay for more than three months according to the right of free movement of workers within the EU. Hence migrants who arrive to work in Sweden for a shorter period than one year, and do not subsequently extend this period, are not included in the sampling frame.

However being registered as living in Sweden is not a guarantee that the individual is still present. Individuals are formally required to register emigration, yet in practice there are incentives not to do so. These relate to losing rights to future unemployment or sickness-related benefits, and also the burden of obtaining a residence permit anew if they should later return. I therefore consider an individual as not present in Sweden in a year if they live in a household whose registered disposable income in that year is exactly zero, i.e. the household has no registered income from any source and has not paid any tax.

*Linda* contains 1,823 individuals who were born in an A10 country and migrated to Sweden for the first time in 2004/05. Out of these, 1,700 individuals, or 93%, are still present in the year after their immigration: 734 of the 793 who immigrated in 2004, and 966 of the 1,030 who immigrated 2005. Table 1 characterizes these individuals in the year after their immigration, i.e. in 2005/06.

The gender distribution of the immigrant sample is fairly even, with 53% being female. The age distribution is heavily concentrated in younger working ages, with 69% of all immigrants being 20-45 years old in the year of immigration. In consequence, there are also large shares who are children: 22% are below 20 years old. Yet merely 9% are above 45 years old. This study will focus predominantly on the cohort that was 20-45 years old at the time of immigration. As older workers are rare, they are plausibly selected according to quite



different mechanisms and their outcomes may thus develop differently over time. The total sample is thus somewhat reduced with the purpose of being more homogenous. The female dominance is slightly stronger in this restricted sample, at 55%. Corresponding to what was seen in Figure 1, a large majority of 63% was born in Poland, and most of the rest in one of the three Baltic countries.

The picture of immigrants' education levels is incomplete: information on education is missing for 29% of the sample. Attrition is certainly non-random, since information on education is obtained from sources including e.g. the public employment office. However, the observations available are still enough to conclude that the education levels of migrants are considerably higher than those in the total populations of their home countries. Including the missing values, at least 37% of the sample has at least two years of tertiary education. By comparison, according to Barro and Lee (2013) the population shares aged 25 or above with any amount of tertiary education in 2010 were 21% in Poland and 29% in Lithuania. It is also clear that A10 immigrants are better educated than the total Swedish population in the same age interval, among whom 29% have at least two years of tertiary education (and values are missing for merely 2% of the observations).

In spite of their higher education, migrants' per-capita labor income in the year after immigration is considerably lower than that of the total population. Annual labor income is measured as the sum of salary and private business income. A full 28% of A10 immigrants earn zero labor income. These are predominantly female: 40% of all females vs. 13% of all males earn zero income. The median income is 74,000 kronor (1 euro exchanges for slightly less than 10 kronor throughout the study period), or merely 51% of the corresponding value in the total population. To make the comparison fairer, total population values in Table 1 are calculated over the total population aged 21-36 years, although the A10 immigrants are aged 21-46. This is because the immigrants' age distribution is strongly skewed to the right. The density is highest in the range 24-31 years, and only 17% are above 36.<sup>3</sup> The large difference between A10 and total population medians is of course heavily influenced by the large number of zero-earning females. For males the relative median income gap is smaller, with the A10 immigrants' median equaling 73% of the median in the reference group.

---

<sup>3</sup> It would have been possible to construct a reference group that exactly matches the age distribution of the immigrants. However due to outmigration this group would anyway not have remained an exact match when studying income assimilation. I therefore instead choose a reference group whose age composition is more transparent.

The low labor income for females indicates that many of these are initially supported by their higher-earning male partners. However there is likely to be more behind this number. When median income is calculated over single-adult households only, the female median rises from 22,000 to 64,000 kronor. This fairly large increase is consistent with the lowest earners mostly living together with a second adult. Yet it is also clear that 64,000 kronor is not enough to cover the costs of living during a full year in Sweden. Hence probably many single female households either finance the early stage of their time in Sweden with previously accumulated funds, or they are not present in Sweden the full year.

The distribution of positive-earning A10 immigrants across industries differs markedly from that of the reference group in the total population. Table 1 only includes the three most notable differences. The overrepresentation of immigrants is largest in the agriculture and forestry sector, where only 1% of the reference group but 8% of the A10 immigrants work. A10 immigrants are also heavily overrepresented in construction, with 12% of all workers compared with 5% in the reference group. This pattern is important evidence of the importance of labor demand in shaping the migration flow, as both the agriculture and construction sectors experienced labor shortages prior to the EU enlargement. On the other hand A10 immigrants are underrepresented in the health and social service sector, which employs 11% of immigrants yet 21% of the reference group. These differences are mostly driven by males, as was expected from their higher share in the sample earning positive income.

Looking finally at household composition, 52% of A10 immigrants live in single-adult households. The share is higher for males than females: 57% compared with 48%. To estimate the share living together with a partner, I classify a household as made up of an adult couple if the household has exactly one adult (i.e. at least 20 years old) man and one adult woman, and where the age difference between these two is not larger than 15 years. Households with two adult individuals of the same sex are excluded. There is much anecdotal evidence that A10 migrants in the EU15 often live together with colleagues or friends, and therefore such “households” may be more likely to contain friends rather than partners. This distinction does not matter much in practice, since 44% of all A10 immigrants live in a household that I define as consisting of two partners, i.e. leaving only 4% of all households consisting of two adults not classified as partners, or of more than two adults.

A larger share of females than males live in partner households: 47% versus 41%. Yet as can be seen on the next row, a slightly larger share of males has a partner that is also a post-enlargement A10 immigrant.<sup>4</sup> On the other hand, a larger share of females, 8% compared with 2%, has a partner who is Swedish-born. Finally, 31% of A10 immigrants have at least one child that is also a post-enlargement A10 immigrant, i.e. with high likelihood their own child, in the household. This share is approximately equal between males and females.

## **4 – Trends 2004-13**

This section is devoted to characterizing the outmigration, household formation and income assimilation patterns of post-enlargement immigrants. The analysis focuses on the sample of individuals that were characterized in Section 3, i.e. who were 20-45 years old in the year of immigration, and still present and active (i.e. had non-zero disposable household income) in the year thereafter.

### **4.1 – Outmigration**

I first consider patterns of outmigration. To get an immediate sense of magnitudes, I look first at the overall share of the sample that is still present and living in an economically active household in the last year in the data, i.e. in 2013. This share is 83%, or 973 of the original 1,170 individuals. This share is thus quite surprisingly high given the low share of migrants who indicated having plans on remaining for so long in studies of migrants' intentions. It also corresponds with the lower end of the range of remigration rate estimates surveyed by Barcevičius et al. (2012).

To get a sense of whether these individuals are present most of the year 2013 or not, I also calculate the share that lives in a household with a disposable income of at least 120,000 kronor in 2013. This value is intended a rough measure of a low value of the costs of living for one year in Sweden. It also requires working a large fraction of the year for a low-wage worker. The share that lives in such a household is 77%, i.e. not far below the previous 83%. Hence most of those classified as still present and active in 2013 appear to be so for most of the year.

---

<sup>4</sup> The numbers of males and females living with a partner who is also a post-enlargement A10 immigrant are not the same. The difference has several sources. Most important of these is that the partner may have immigrated in 2006 and is thus not included in the sample.

At the same time, a non-negligible fraction, or 21% of those classified as present in 2013 were not so in all previous years since their immigration. Hence there appears to have been some movements back and forth between Sweden and some other country. However in most cases these individuals are missing in one year only. Only 3% of those present in 2013 were missing in more than two years.

I proceed to investigate to what extent remaining in Sweden or not is determined by early labor market success. I do so by calculating probabilities of being present and active in 2013 separately for different household labor income intervals in the year after immigration. I also do this separately for those who initially live in single person households and those who live in what is defined as couples. The 4% of the sample who live in “unclear” household formations are not included in this analysis, as it is more uncertain whether these and their cohabitants really constitute households in the sense of sharing their economy.

The results are reported in Table 2. Looking first in the column with all individuals, the results clearly reveal that initial labor market success matters importantly for the probability of staying, yet only up to a fairly low level of income. The probability of remaining until 2013 is 74% for those who live in a household with a labor income of less than 100,000 kronor<sup>5</sup> in the year after their immigration. Yet in the intervals with earnings above 100,000 kronor the probabilities are 88-89%. It is thus quite clear that initially earning an income that is not necessarily much more than large enough to live on is sufficient to imply a very high probability of staying in Sweden for a long time. Once this threshold is reached, further increased initial income does not seem to have a large impact. One possible reason for this strong effect already at low income levels is that once individuals have established themselves on the labor market they are likely to experience further increased income and better margins in coming years.

Turning to the remaining columns of Table 2 we see that the probability of remaining in Sweden until 2013 is larger for those who initially live in couples, both in total and conditional on household labor income (although living costs are somewhat higher for a couple). This is also true whether both individuals in the couple are post-enlargement A10 immigrants or not, as can be seen in the column with separate results for this group. This result should not be surprising. Moving as a couple reasonably represents a higher level of

---

<sup>5</sup> This value is somewhat less than what was previously defined as “enough to live on”, although that referred to total after-tax income from all sources, whereas the present focus is on pre-tax labor income.

investment than moving as a single individual, and forming a household with an individual who was already present in Sweden of course represents an even higher level of attachment to Sweden. Once migration is made it is also more difficult to make a remigration decision feasible for two individuals in a household than for one single individual.

In the last two columns I look separately at single households by gender. These results reveal large differences, in particular in the lowest-earning interval where males are a full twenty percentage points less likely than females to remain in Sweden in 2013. For individuals who are initially more successful, the difference is markedly smaller, although the probability of remaining is higher for females throughout. These results can be interpreted as large shares of the males that appear to be single being in fact breadwinners for families that remain in the home country. It is more difficult for these to afford waiting for better opportunities in Sweden, and their attachment to the home country is strong. If they don't succeed economically already from the start they are therefore more likely to return home.

In Figure 2 I further explore the link between earning sufficient income to live on and outmigration by looking at yearly hazard rates. Each data point in Figure 2 is the probability that the year on the horizontal axis is the last year that an individual is active in Sweden and does not register emigration. The year 2012 is excluded, due to the fairly large number of individuals who appear to at some point leave Sweden for one year only and then come back. Separate lines are shown for the two immigration years, and for individuals who live in a household that earns a low and a high labor income (less or more than 100,000 kronor) in the same year. Especially in the early years these lines are quite far apart, with hazard rates above 6% for the low-earners but below 2% for the high-earners. Yet after a few years the lines mostly converge around the lower number. This result is much in line with the rough conclusion from most of previous literature that if an individual has stayed in the host country for a few years, they are more likely to continue staying (see references in the Introduction).

#### **4.2 – Household formation**

We may also obtain information on how immigrants' attachment to the host country develops by studying the household formation over time for those who initially lived in single-adult households. In Table 3 I summarize household composition in 2013 for those who were classified as single in the year after arrival and are still present in 2013. Fairly large shares, 55% of these still live in single-adult households 8-9 years later. The share is higher among men: 61% compared with 51% for women. At the same time, only four percentage points

more women than men live in households that are classified as couples. Hence the share of women that live in households classified neither as single nor couple households is as high as 9%. A closer look at these cases reveals that they appear to be due to a combination of single women with adult children at home (second adult is around 20-25 years old and more than 20 years younger than the woman), and women having formed couples with men who are more than 15 years older than themselves.

Although total rates of couple formation is similar for males and females, the distributions of their partners across origins are markedly different from each other. While 24% of the men have partners that are also post-enlargement A10 immigrants, this is only so for 13% of the women. Yet on the other hand, 18% of the women but only 4% of the men have Swedish-born partners (consistent with the pattern that this was more common for women also in the year after immigration). A further look at the female post-enlargement A10 immigrant partners to the initially “single” males reveals that their immigration years are highly concentrated to 2006/07, i.e. they have immigrated only 1-3 years after their male partners. A plausible interpretation of this pattern is again that many of the men initially in single households had partners in the home country, and that they first migrated alone to evaluate the situation. If they failed to find sufficient income opportunities, they returned to their partners. If they succeeded, their partners instead joined them. Finally the large share, in particular among men, who are still in single households in 2013 might indicate that quite a few of these still have partners remaining in their home countries.

### **4.3 –Income assimilation**

In this subsection I present the labor income assimilation trends of immigrants who remain in Sweden until 2013. This sample consists of 973 individuals, whereof 409 immigrated in 2004 and 564 in 2005. Occasionally an individual is not present in all years in between, but the number of missing individuals by immigration year is never larger than four, i.e. not large enough to have any noticeable effect on the estimates.

Figure 3 reports median individual labor income for this sample by number of years since immigration, separately by immigration year and gender. The median income is expressed as a fraction of the median income of the corresponding reference group by gender in the total population. Two patterns are immediately visible: There is little difference between the two immigration years, but vast differences between the genders. The male median starts out at approximately 80% of that of its reference group in the year after immigration. Thereafter it

climbs swiftly to approximately 90%, where it appears to stagnate. The 2004 cohort indeed reaches full assimilation, defined as a median that is equal to that in the reference group, in 2011, yet in the following two years it falls back to around 90%.

The female assimilation trend is much stronger. We saw in Table 1 that initial labor income for female immigrants was very low. A full 40% of the sample had zero labor income in the year after immigration, and the median was only around one-third of that of the female reference group. In Figure 3 we see that over the next 7-8 years the immigrant females close the large majority of this gap, reaching approximately 90% of the median of the reference group.

In Table 1 we saw that initial median labor income was considerably higher for women living in single-adult households, while those living in couples appeared to a large extent to initially live off their partners' income. We do not yet know whether these gender roles were voluntary or involuntary. Did these women wish to be housewives, or had they just not yet made their way into their labor market? We may find the answer to this question by separately studying these women's income assimilation over the following years. To what extent are they part of the steep upward-sloping curve that we see for all women in Figure 3? The answer is shown in Figure 4, which breaks up the female results from Figure 3 into separate results for women who were initially single versus living in couples. Here we see that the women initially living in couples are indeed the main driver behind the steep upward slope for women in Figure 3. In the year after arrival, the median income of women living in couples was zero. Seven years later it is around 90% of that of the female reference group. Perhaps more strikingly, these women have fully caught up with the immigrant women who initially lived in single households and earned substantially higher labor income.

The pattern in Figure 4 is confirmed if we look specifically at labor income gaps within households. This is done in Table 4. Among all households classified as partner households in the year after immigration, median male labor income is 175,000 kronor and median female income is zero, since a full 51% of these females earn no labor income. Yet even stronger testimony to the dominance of male income opportunities in the migration decision is the fact that these values are almost the same on the next row, which includes only those 93 households where the female has a longer education than the male.<sup>6</sup> Finally the third and

---

<sup>6</sup> Among the 297 households where the education levels of both partners are known, the female has a longer education in 93 and the male in 30. Education is measured in six levels: less than nine years; at least nine years

fourth rows include only individuals from the 264 couples who are still in Sweden and still live in the same couples in 2013. This group also looks like the total group in the year after immigration. Yet in 2013 female median income has risen from 3,000 to 217,000 kronor, and the share of females earning no income has fallen from 47% to 12%. At the same time, male median income has risen by little more than half as much: from 180,000 to 309,000 kronor.

All results reported in this subsection change very little if those aged 20-24 at immigration, i.e. that are in many cases quite likely to be students, are excluded.

#### **4.4 – Short- vs. long-term discounting of female income gains from migration**

The results reported here on the income assimilation of female migrants living in couples are strongly indicative of female income gains from migration being discounted in the migration decision. The large majority of these couples appear to have migrated in response to the income opportunities of the man. The rationale for such discounting is that social norms of males being the breadwinners of the family make it socially difficult to undertake a migration decision that is motivated by the implied income gains of the female and not the male partner (Bielby and Bielby, 1992). Recent empirical research has shown that female gains appear to be significantly discounted in family migration decisions within the US also in recent years (Tenn, 2010), yet not within or out of Denmark (Foged, 2016).

According to the results reported here, discounting of female income gains appears to be very strong in the case of post-EU-enlargement migration to Sweden. In the year after migration, the male was the dominant income earner in the vast majority of the households, and the only one in approximately half of them, including in the large number of households where the female was better educated. However this result comes with a caveat. The fact that females were generally more educated than their males partners, and the spectacular income increases of these females over the subsequent decade, indicate that while households were ready to importantly sacrifice female income in the earliest phase of the migration, they were generally not so in the longer term. In the vast majority of cases, the migration decision appears to have been driven predominantly by the immediate employment opportunities of males. Yet in cases where these immediate male opportunities were not accompanied by good female employment prospects even in the longer term, migration appears not to have happened, or at least the female partner appears to have stayed behind (cf. the high share of males still living

---

but no upper secondary degree; upper secondary degree; less than two years of tertiary; at least two years of tertiary; doctoral degree.



in single-adult households in 2013). We thus see that males are often equipped with specific skills relating to work in specific sectors with high labor demand (see Section 3), while females are often equipped with higher education; the former skills being more associated with immediate employment opportunities, and the latter with good probabilities of employment in the longer term.

#### **4.5 – Comparison to later cohorts**

To sketch longer-term outcomes of post-EU-enlargement migrants, this study focuses on those who migrated during the first two years, since longer time series can be constructed for these. However a potential concern relating to external validity is that the earliest migrants are in some respect different from their later followers. They might e.g. be more able, or willing to take risks, or less well informed about conditions in the destination country, making their outcomes either more positive or more negative compared with those of later cohorts. To investigate this possibility, I compare outmigration and labor income assimilation patterns of immigrants who arrived in 2004 and 2005 to those who arrived in each of the following four years, for as many years after immigration as this is possible for each cohort.

Starting with outmigration, Figure 5 replicates the outmigration hazard rates that were shown in Figure 2, respectively for those earning below (low income) and above (high income) 100,000 kronor in a given year. It also adds corresponding lines for 2006-09 immigrants. The only substantial difference can be seen in the high income panel of the figure. Here hazard rates in the year after immigration are substantially higher for each of the 2006-09 cohorts compared with each of the 2004-05 cohorts. Yet after the first year, there are no more notable differences.

Likewise Figure 6 compares the male and female income assimilation patterns from Figure 3 with those of the later cohorts. In the male panel there is some indication of a pattern that plausibly represents an effect of the economic crisis on the most recent arrivals. The crisis began to have an important effect on unemployment in Sweden starting in December 2008, i.e. 2008 incomes should be more or less unaffected. In 2009, we see a significant drop in median incomes for males who immigrated in 2007 (i.e. for whom 2009 is year 2). Yet we don't see similar drops for 2004-06 arrivals. Probably these earlier arrivals had already become strongly enough attached to the labor market in 2009 not to be hit harder than the reference group by the crisis. We also see that 2008-09 arrivals start out below earlier arrivals in year 1. This is plausibly also an effect of the crisis, especially since year 1 results are again

better for 2010-12 arrivals. These are not shown in the figure, but their initial values are in the range 76-89% of the medians of their reference groups. For female immigrants on the other hand, there are no clear patterns. Assimilation seems to be largely similar for all six cohorts.

The results reported here are also consistent with those reported by Bratsberg, Raaum, and Røed (2014), that A10 immigrant men were particularly affected by the corresponding economic downturn in Norway, with an unemployment rate increase from 2% to 14% from 2008 to 2009. The same study also showed that the downturn increased outmigration, but only to a minor extent.

#### **4.6 – Fiscal contribution**

The fiscal impact of post-enlargement migration was a highly contentious issue at the time of the enlargement. It was feared that, since also welfare income in EU15 countries was in many cases higher than salaries in A10 countries, the former countries would receive large numbers of migrants with high probabilities of ending up dependent on welfare, burdening public finances. Subsequent studies have shown that this outcome did not materialize in the short term. The early net contributions of post-enlargement immigrants to public finances were found to be positive both in the UK (Dustmann, Frattini, and Halls, 2010), and Sweden (Ruist, 2014). Although migrants typically earned fairly low wages and hence paid fairly low taxes, this was more than balanced by their favorable age structure, which implied lower public costs related to old age per capita.

Whether the net fiscal contributions will be positive also in the longer run is more unclear. If migrants stay in the host country, which this study indicates that large shares of them will, they will also eventually become old and hence costly for public finances. The key question is then whether their tax payments will have been high enough before that to cover this deficit. This question is particularly difficult to answer. Due to the unique nature of this migrant flow, there is no previous group that is obviously appropriate to lean on in forecasting how public revenues and costs relating to A10 immigrants will develop over time. Dustmann, Frattini, and Halls (2010) therefore refrain from doing any such exercise at all. Ruist (2014) presents a range of estimates. Assuming that immigrants' tax payments increase by 1-2% annually relative to the total population for their first five years in Sweden, and then remain fixed relative to the total population until their retirement, the estimated net present value of immigrants' lifetime net contributions per capita is found to be between -90,000 and +100,000 kronor with a 3% discount rate, depending on whether defense costs are assumed to

increase with immigration or not. These values are approximately equal to +/- one-half of the public sector's annual turnover per capita, and should thus reasonably be seen as quite small when accumulated over a migrant's lifetime.

I have estimated the fiscal net contribution per A10 immigrant in 2013 by number of years since immigration. The details of the calculation are given in the Appendix. The results are shown in Figure 7, with separate bars for total public revenues, total public costs, and the difference between the two, i.e. the net contribution. We see that the net contribution rises gradually over time, from around 20,000 kronor for those who immigrated the year before to slightly above twice that number for those who immigrated nine years before. Both revenues and costs rise over time, yet revenues rise faster and thus the net contribution rises.

These results are quite well in line with the assumption of a 1-2% revenue increase per year for the first five years applied in Ruist (2014). The public revenue increase depicted in Figure 7 is on average 3.7% per year for the first eight years. Yet if we subtract the cost increase, which was assumed to be zero in Ruist (2014), (i.e. we calculate the increase in the net contribution relative to initial revenues) it is instead 1.7%. Based on the decreasing rate of income increases shown in Figure 3, it is also quite likely that the average net contribution will stagnate over the coming years. Hence the pattern reported here indicates that the assumptions used by Ruist (2014) in calculating the lifetime net contributions were plausibly quite reasonable.

## **5 – Conclusion**

When ten new countries, the A10 countries, joined the generally much richer countries in the European Union in 2004, there was much uncertainty and quite some fears regarding the consequences that would follow related to migration from new to old member countries. Yet early empirical evidence painted a mostly bright picture of post-enlargement migrants being generally quite successful in their destination countries, with fairly high employment rates and positive net contributions to public finances. In this article I have complemented this picture with a medium-term follow-up of the first migrant cohort's first decade in Sweden. Also in the medium term, most of the results are fairly bright. Most migrants appear to have found their place, in the sense that income assimilation is strongly positive (especially for female migrants), and outmigration is low and dominated by those that did not manage to secure an annual income large enough to live on. Net fiscal contributions are small but increasingly

positive, and from the best guess that can be made they will likely be small, whether positive or negative, also over the migrants' lifetimes in Sweden.

Hence also in the medium term it is reasonable to conclude that the experiment of allowing free movement of workers across the wide income gap between the old and the new EU has been a success. This experiment has allowed several million individuals to greatly increase their economic wellbeing through migration, and not so, at least not to any large extent, at the expense of others.

## References

- Barcevičius, Egidijus, Krystyna Iglicka, Daiva Repečkaitė, and Dovilė Žvalionytė (2012), *Labour mobility within the EU: The impact of return migration*, European Foundation for the Improvement of Living and Working Conditions
- Barro, Robert, and Jong-Wha Lee (2013), “A new data set of educational attainment in the world 1950-2010”, *Journal of Development Economics*, 104: 184-198
- Barth, Erling, Bernt Bratsberg, and Oddbjørn Raaum (2004), “Identifying earnings assimilation of immigrants under changing macroeconomic conditions”, *Scandinavian Journal of Economics*, 106: 1-22
- Bielby, William, and Denise Bielby (1992), “I will follow him: Family ties, gender-role beliefs, and reluctance to relocate for a better job”, *American Journal of Sociology*, 97: 1241-1267
- Blanchflower, David, and Chris Shadforth (2009), “Fear, unemployment, and migration”, *Economic Journal*, 119: 136-182
- Borjas, George (1985), “Assimilation, changes in cohort quality, and the earnings of immigrants”, *Journal of Labor Economics*, 3: 463-489
- Borjas, George, and Bernt Bratsberg (1996), “Who leaves? The outmigration of the foreign-born”, *Review of Economics and Statistics*, 78: 165-176
- Bratsberg, Bernt, Erling Barth, and Oddbjørn Raaum (2006), “Local unemployment and the relative wages of immigrants: Evidence from the Current Population Surveys”, *Review of Economics and Statistics*, 88: 243-263
- Bratsberg, Bernt, Oddbjørn Raaum, and Knut Røed (2014), *Labour migrant adjustments in the aftermath of the financial crisis*, IZA Discussion Paper No. 8291
- Brücker, Herbert +27 (2009), *Labour mobility within the EU in the context of enlargement and the functioning of the transitional arrangements*, European Integration Consortium
- Bygnes, Susanne, and Marta Bivand Erdal (2017), “Liquid migration, grounded lives: considerations about future mobility and settlement among Polish and Spanish migrants in Norway”, *Journal of Ethnic and Migration Studies*, 43: 102-118
- Constant, Amelie, and Douglas Massey (2003), “Self-selection, earning, and out-migration: A longitudinal study of immigrants to Germany”, *Journal of Population Economics*, 16: 631-653
- Drinkwater, Stephen, and Michał Garapich (2015), “Migration strategies of Polish migrants: Do they have any at all?”, *Journal of Ethnic and Migration Studies*, 41: 1909-1931
- Dustmann, Christian (2003), “Return migration, wage differentials, and the optimal migration duration”, *European Economic Review*, 47: 353-369
- Dustmann, Christian, Tommaso Frattini, and Caroline Halls (2010), “Assessing the fiscal costs and benefits of A8 migration to the UK”, *Fiscal Studies*, 31: 1-41

- Edin, Per-Anders, Robert LaLonde, and Olof Åslund, "Emigration of immigrants and measures of immigrant assimilation: Evidence from Sweden", *Swedish Economic Policy Review*, 7: 163-204
- Engbersen, Godfried, and Erik Snel (2013), "Liquid migration. Dynamic and fluid patterns of post-accession migration flows" in Birgit Glorius, Izabela Grabowska Lusiska, and Aimee Kuvik (eds): *Mobility in transition. Migration patterns after EU enlargement*, Amsterdam University Press
- Foged, Mette (2016), "Family migration and relative earnings potentials", *Labour economics*, 42: 87-100
- Hammarstedt, Mats, and Ghazi Shukur (2006), "Immigrants' relative earnings in Sweden – a cohort analysis", *LABOUR*, 20: 285-323
- Holland, Dawn, Tatiana Fic, Ana Rincon-Aznar, Lucy Stokes, and Pawel Paluchowski (2011), *Labour mobility within the EU – The impact of enlargement and the functioning of the transitional arrangements*, National Institute of Economic and Social Research
- Kahanec, Martin (2013), "Labor mobility in an enlarged European Union", in Amelie Constant and Klaus Zimmermann (eds): *International handbook on the economics of migration*, Edward Elgar
- Kahanec, Martin, Maria Pytliková, and Klaus Zimmermann (2016), "The free movement of workers in an enlarged European Union: Institutional underpinnings of economic adjustment", in Martin Kahanec and Klaus Zimmermann (eds): *Labor migration, EU enlargement, and the Great Recession*, Springer Verlag
- Kahanec, Martin, and Klaus Zimmermann (eds, 2010), *EU labor markets after post-enlargement migration*, Springer Verlag
- Kahanec, Martin, and Klaus Zimmermann (eds, 2016), *Labor migration, EU enlargement, and the Great Recession*, Springer Verlag
- Koehler, Jobst, Frank Laczko, Christine Aghazarm, and Julia Schad (2010), *Migration and the economic crisis in the European Union: Implications for policy*, International Organization for Migration
- Nekby, Lena (2006), "The emigration of immigrants, return vs onward migration: evidence from Sweden", *Journal of Population Economics*, 19: 197-226
- Piętka-Nykaza, Emilia, and Derek McGhee (forthcoming), "EU post-accession Polish migrants trajectories and their settlement practices in Scotland", *Journal of Ethnic and Migration Studies*
- Ruist, Joakim (2014), "Free immigration and welfare access: The Swedish experience", *Fiscal Studies*, 35: 19-39
- Tenn, Steven (2010), "The relative importance of the husband's and wife's characteristics in family migration, 1960-2000", *Journal of Population Economics*, 23: 1319-1337

## Tables

Table 1. Descriptive characteristics of 2004-05 A10 immigrants in the year after arrival

	Total	Male	Female
Full sample			
Observations	1,700	793	907
Age at immigration			
--- median	27	27	27
--- share 0-19 (%)	22	26	20
--- share 20-45 (%)	69	66	71
Sample aged 20-45 at immigration			
Observations	1,170	522	648
Immigrated 2005	673	320	353
Origin			
Poland	732	356	376
Baltic countries	307	112	195
Education			
share missing	29	36	23
share not completed upper secondary (%)	4	5	3
share exactly upper secondary (%)	25	30	21
share 2+ years of tertiary (%)	37	24	48
Annual income from salary & business			
share zero income (%)	28	13	40
median labor income (thousand kronor)	74	152	22
corresponding total population value 21-36 years	144	209	96
single adult households only	96	134	64
Industry (if income > 0)			
share agriculture & forestry (%)	8	9	5
corresponding total population value 21-36 years	1	2	1
share construction (%)	12	20	3
corresponding total population value 21-36 years	5	9	1
share health and social service (%)	11	5	17
corresponding total population value 21-36 years	21	8	33
Household composition			
share single adult (%)	52	57	48
share 1 adult "partner" of opposite sex (%)	44	41	47
...who is post-enlargement A10 immigrant	31	34	29
...who is earlier A10 immigrant	5	4	5
...who is Swedish-born	5	2	8
share 1+ post-enlargement A10 immigrant child (%)	31	29	33

Note: Values for the sample of A10 immigrants who are 21-46 in the year after their immigration are compared to the total population aged 21-36, due to the strongly skewed age distribution of the immigrant group. See further in text.

Table 2. Individual probability of being still active in Sweden in 2013 (%) by household status and household labor income range in the year after immigration

Income range (kronor)	Post-enlargement					
	All	Couple	A10 couple	Single	Single male	Single female
All	83	88	90	79	73	84
0–100,000	74	76	79	74	61	81
1–200,000	89	93	94	86	83	90
2–300,000	88	91	94	82	80	85
300,000+	88	90	89	82	78	87

Note: The individuals in the column “All” is the sum of those in the columns “Couple” and “Single”. The 4% of the sample where it is more uncertain whether their households are indeed households in the sense of sharing economy are excluded from this analysis. “Post-enlargement A10 couple” refers to couples where both individuals are post-enlargement immigrants.



Table 3. Household composition in 2013 for those who were “single” in the year after immigration

	Total	Men	Women
Share single adult (%)	55	61	51
Share 1 adult “partner” of opposite sex (%)	38	36	40
...who is post-enlargement A10 immigrant	18	24	13
...who is earlier A10 immigrant	3	4	2
...who is Swedish-born	11	4	18
Number of observations	503	235	268

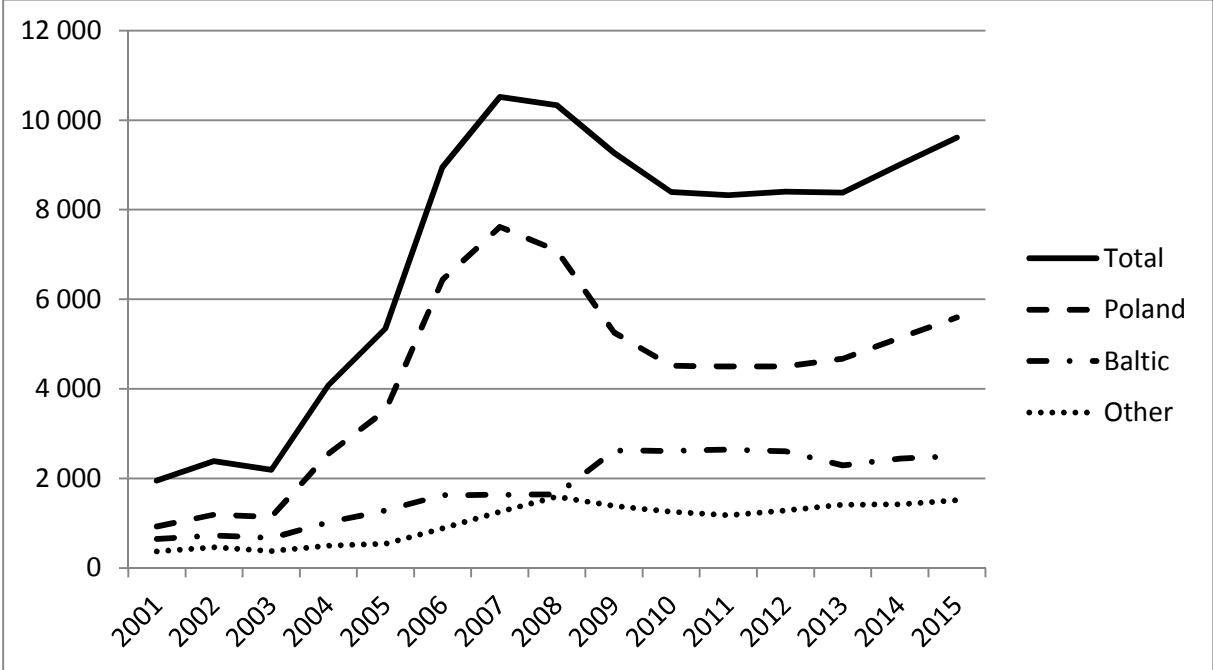
Table 4. Median labor income of individuals living in couples

	Median income male (1,000 kr)	Median income female (1,000 kr)	Share no income female (%)	Number of households
Immigration year + 1				
All	175	0	51	414
Female education highest	187	1	48	93
Identical in 2013	180	3	47	264
Year 2013				
All	309	217	12	264

The first three rows show labor income statistics in the year after immigration for individuals who live in couples. The last row shows the same information for individuals who still live in the same couples in 2013. These same individuals are represented in the third row. The second row contains only the individuals who live in a household where the woman has a longer education than the man.

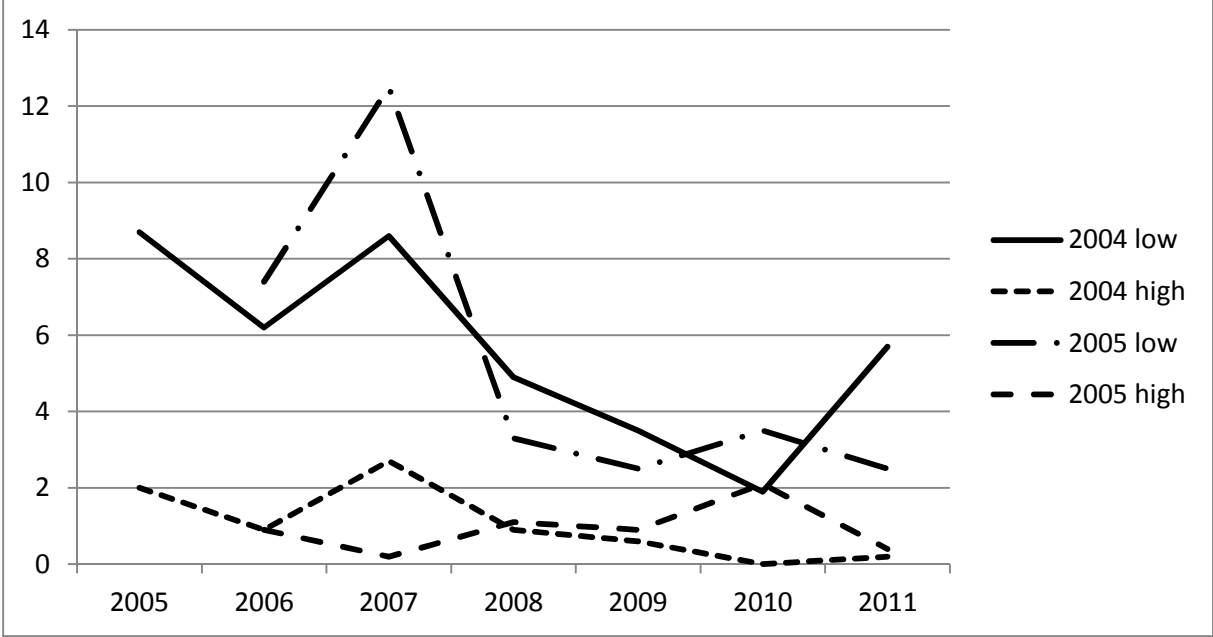
**Figures**

Figure 1. Swedish annual gross immigration from A10 countries



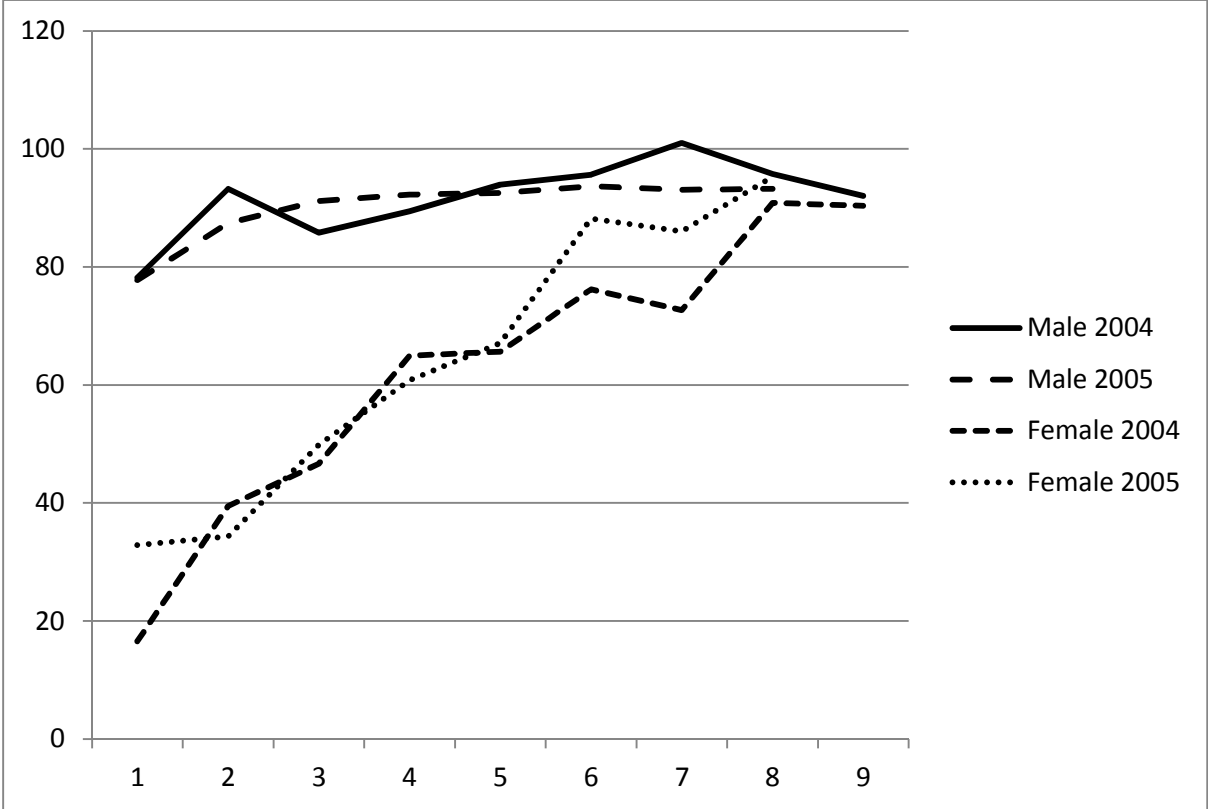
Note: Data source: Statistics Sweden

Figure 2. Hazard rates: Probability of outmigration in year+1 by immigration year and income range (%)



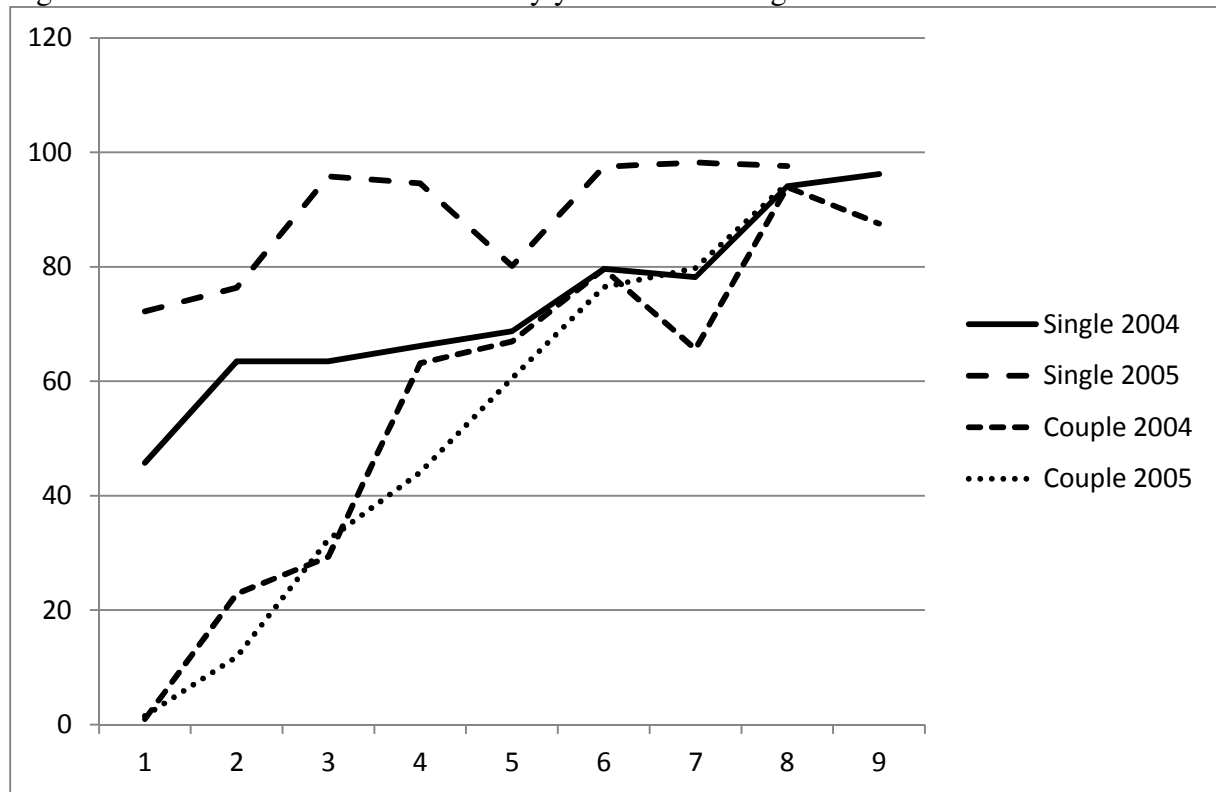
Notes: Each observation by year shows the probability that an individual will outmigrate in the next year. “Low” and “high” are household labor income in the year of observation below and above 100,000 kronor respectively.

Figure 3. Median labor income by years since immigration



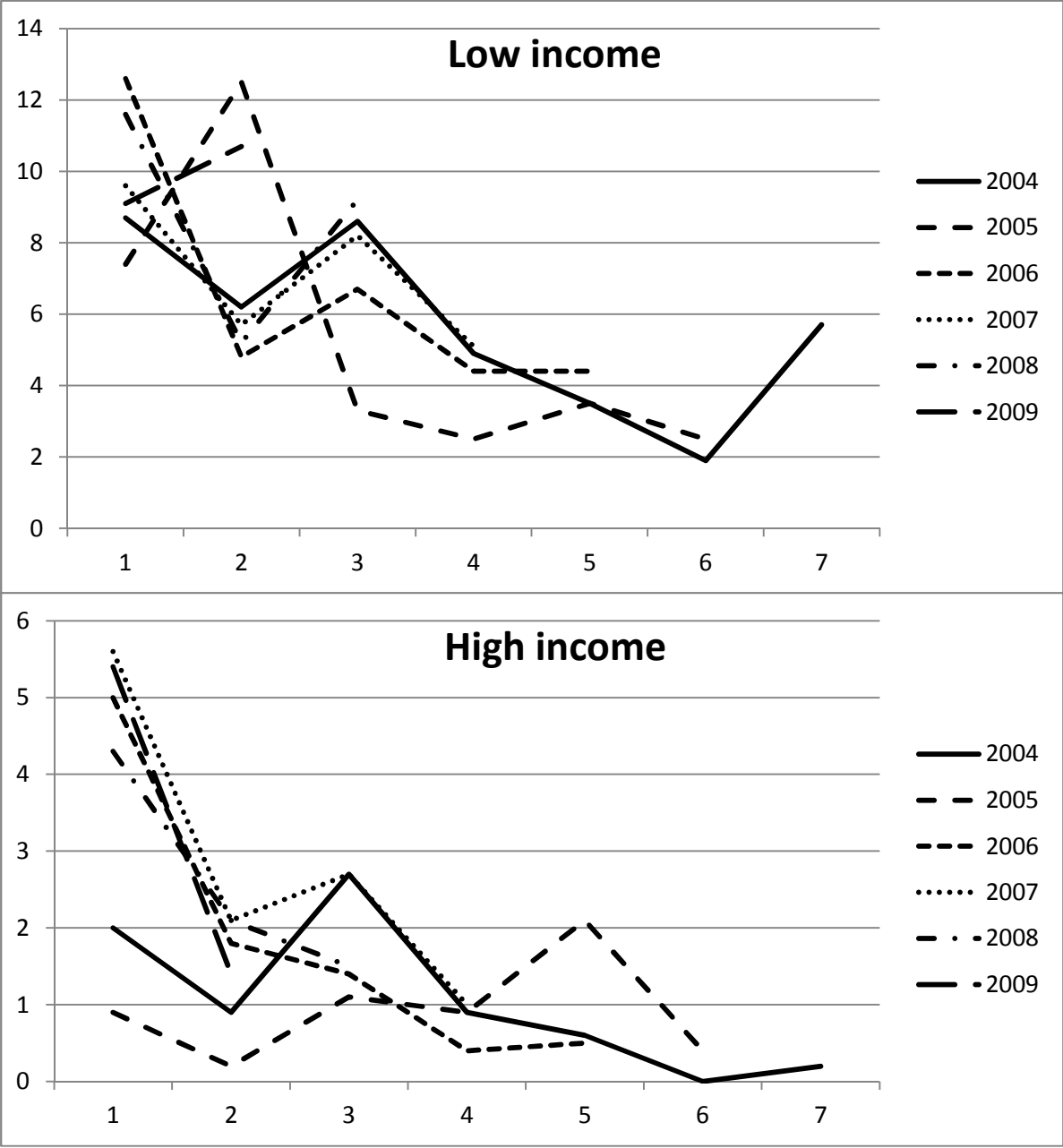
Each observation represents the median labor income in the immigrant sample, by gender, immigration year, and number of years since immigration, as a fraction (%) of the median from the corresponding reference group by gender in the total population.

Figure 4. Female median labor income by years since immigration



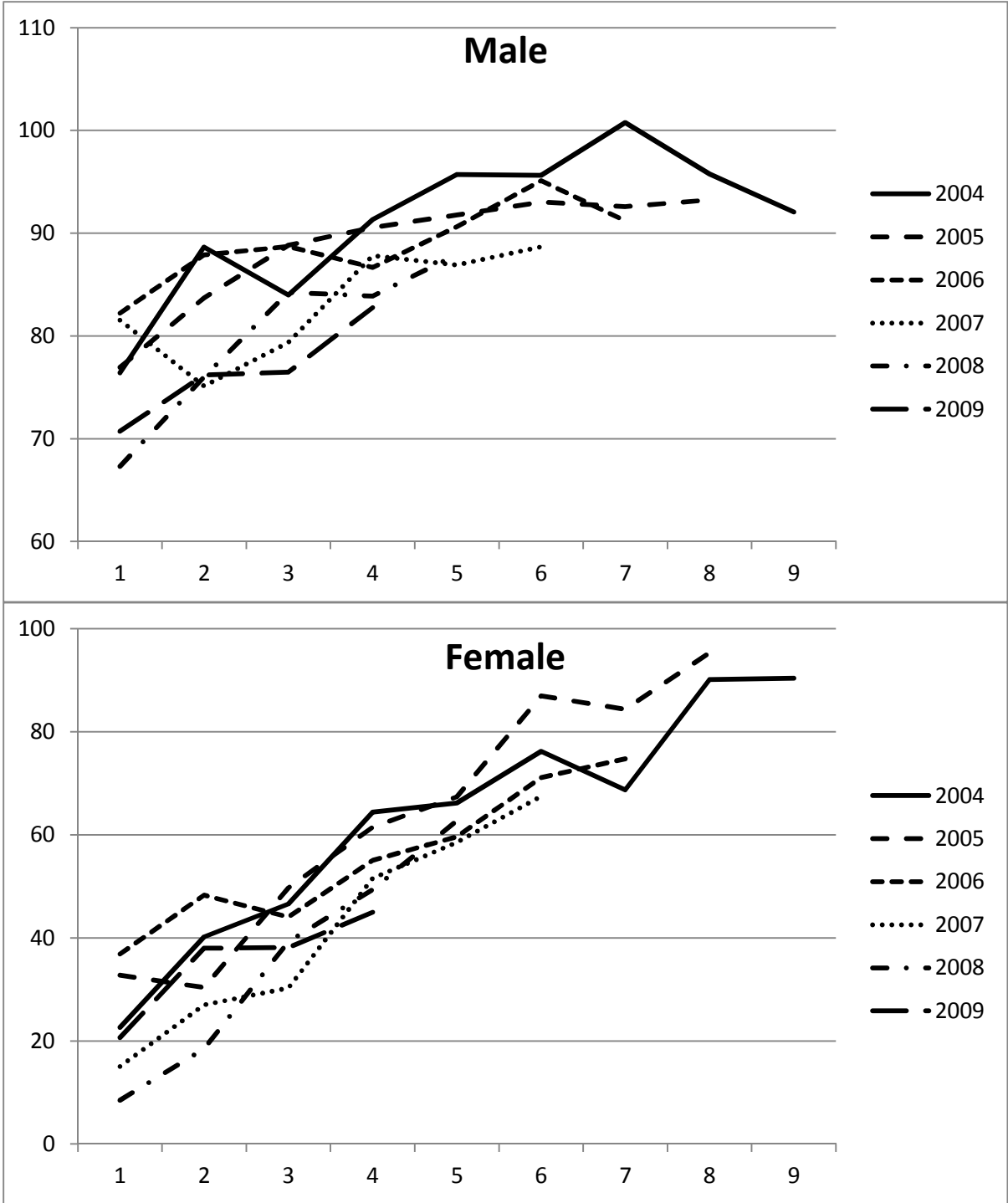
Each observation represents the median labor income in the female immigrant sample, by immigration year, initial household composition, and number of years since immigration, as a fraction (%) of the median from the reference group in the total female population.

Figure 5. Hazard rates: Probability of outmigration in year+1 by immigration year and income range (%)



Notes: Each observation by year shows the probability that an individual will emigrate in the next year, with separate lines by year of immigration. “Low” and “high” are household labor income in the year of observation below and above 100,000 kronor respectively.

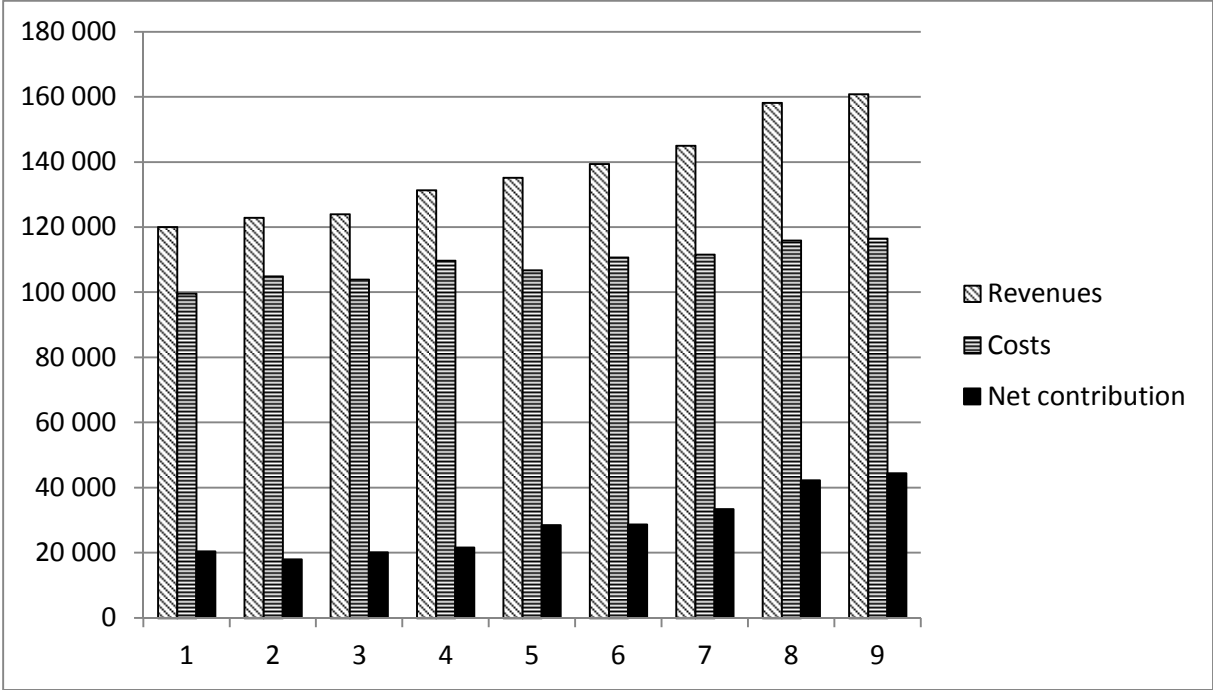
Figure 6. Median labor income by years since immigration



Notes: Each observation represents the median labor income in the immigrant sample, by gender, immigration year, and number of years since immigration, as a fraction (%) of the median from the corresponding reference group by gender in the total population.



Figure 7. Post-enlargement immigrants' net fiscal contributions per capita in 2013 by number of years since immigration



Notes: “Revenues” and “Costs” are all public revenues and costs relating to the A10 immigrant population in 2013, by number of years since immigration. The “Net contribution” is the difference between the two.

## **Appendix: Details of calculation of net fiscal contribution**

Post-EU-enlargement immigrants' net fiscal contributions per capita are calculated as the difference between public revenues and costs that relate to this group. How these have been calculated is described item by item below. For more details, see similar calculations in Ruist (2014).

### **Revenues**

**Direct taxes:** Information is directly available in *Linda*.

**Payroll taxes:** These are taxes paid by employers in proportion to the employee's wage. These are calculated based on information on individual labor income, multiplied by the relevant tax rate depending on the individual's age. Finally the values are calibrated to match reported total revenues.

**Consumption taxes:** These include VAT and also taxes e.g. on fuel and alcohol. Taxes are assumed to be proportional to consumption, which is in turn a concave function of the household's disposable income. The relationship between income decile and consumption was reported by Statistics Sweden until 2009. The functional form is assumed to be the same in 2013, and the sum of total taxes thus calculated is finally calibrated to match reported total revenues.

**Other revenues:** Residual revenues are distributed equally across the total Swedish population.

### **Costs**

**Individual transfers:** Information is directly available in *Linda*.

**Public consumption:** I use estimates from Statistics Sweden of public consumption on child care, education, health, social protection, and culture/leisure, by age, gender, and region of origin.

**Other costs:** Residual costs, including the public sector's deficit, are distributed equally across the total Swedish population.