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DOES FINLAND SUFFER FROM BRAIN DRAIN?*

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TIIVISTELMÄ

- **Suomi kärsii ”jonkun verran” aivovuodosta.**

Suomesta muuttaa ulkomaille enemmän korkeasti koulutettuja suomalaisia kuin ulkomailta muuttaa takaisin. Ulkomailta asuvien korkeasti koulutettujen suomalaisten lukumäärä kasvaa siis koko ajan. Ilmiö ei kuitenkaan ole hälyttävän laaja, eikä ”aivovuoto” näytä kasvaneen viime vuosien aikana. Kokonaisuutena Suomeen muuttaa enemmän ihmisiä kuin Suomesta pois. Suomeen muuttavien koulutustaso on kuitenkin keskimäärin huomattavasti alhaisempi kuin Suomesta muuttavien. Voidaan sanoa, että Suomi korvaa laatua määrällä.

- **Suomen heikko tilanne on osittain näennäinen: tilastot ovat puutteellisia.**

Kansainvälisten tilastojen mukaan Suomeen muuttaa vain vähän korkeasti koulutettuja ihmisiä. Osittain tämä johtuu tiedon puutteesta: Suomessa maahanmuuttajien koulutusta ei yleensä rekisteröidä. Tunteamattoman koulutustason omaavat maahanmuuttajat tulevat sitten rekisteröidyiksi matalan koulutustason henkilöiksi, huolimatta oikeasta koulutuksestaan.

- **Suomeen muuttavien koulutustaso on todennäköisesti korkeampi kuin muiden pohjoismaiden maahanmuuttajien.**

Suuri osa maahanmuuttajista tulee Suomeen Venäjältä ja Virosta. Muissa Pohjoismaissa merkittävä osa maahanmuuttajista on kotoisin Lähi-idästä. Vaikka maahanmuuttajien koulutustasotiedot ovat puutteellisia, on hyvin todennäköistä että Venäjältä ja Virosta tulleiden keskimääräinen koulutustaso on huomattavasti korkeampi kuin Lähi-idästä tulleiden.

- **Suomen maahanmuuttajien työmarkkinamenestys on yhtä huono kuin muissa Länsi-Euroopan maissa.**

Suomessa sekä suurelta osin Länsi-Euroopassa maahanmuuttajien työttömyysaste on kaksinkertainen kantaväestön työttömyysasteeseen verrattuna. Tämä on hyvin vakava ongelma. Perinteisissä maahanmuuttomaissa, kuten Kanadassa ja Australiassa on onnistuttu työllistämään maahanmuuttajat huomattavasti paremmin.

- **Suomessa alueelliset erot ovat maahanmuuttajien työmarkkinamenestyksessä hyvin suuria.**

Jotkut alueet onnistuvat maahanmuuttajien integroitumisessa muita huomattavasti paremmin. Suomen työssäkäyntialueista esim. Lohjan työssäkäyntialueella maahanmuuttajien työttömyysaste oli vuonna 2006 2.6 prosenttiyksikköä korkeampi kuin kantaväestön, mutta Mikkelin työssäkäyntialueella peräti 21.5 prosenttiyksikköä korkeampi kuin kantaväestön.

- **Maahanmuuttajat kärsivät kantaväestön verrattuna enemmän huonosta alueellisesta työllisyystilanteesta.**

Mitä korkeampi kantaväestön alueellinen työttömyysaste on, sitä suurempi on erotus maahanmuuttajien työttömyysasteen ja kantaväestön työttömyysasteen välillä. Maahanmuuttajat ovat työmarkkinoilla haavoittuvampia kuin kantaväestö

- **Suurempi ulkomaalaisuus väestöstä korreloi positiivisesti alueen työllisyyden kanssa.**

Maahanmuuttajia on suhteellisesti enemmän alueilla, joiden työllisyystilanne on hyvä. Tämä johtuu mahdollisesti siitä, että maahanmuuttajat muuttavat sinne, mistä työtä löytyy. Toinen mahdollinen selitys on, että maahanmuuttajaväestö haluaa asua suurissa kaupungeissa, joissa työllisyystilanne on parempi.

- **Maahanmuuttajien alttius muuttaa ulkomaille on kymmenen kertaa suurempi kuin kantaväestön.**

Maahanmuuttajaväestön kasvaessa on siten hyvin mahdollista, että Suomen kokonais työvoiman kansainvälinen liikkuvuus kasvaa merkittävästi tulevaisuudessa.

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ABSTRACT: This paper examines the trends in immigration to and emigration from Finland during the period 1987-2006. The focus is on the “human capital content” of the migration flows, the key question being: Is Finland losing out in the international competition for highly educated individuals? International comparisons presented by the OECD give the impression that Finland perform very weakly in the global competition for talent, as the share of highly-skilled immigrants is very low. However, these comparisons are distorted by the lack of information with regard to the level of education of immigrants into Finland. It would be desirable that the Central Statistical Office could provide better information on this issue.

The results of this paper indicate that Finland’s emigrants are indeed better educated than its immigrants, and that brain-drain exists to a certain degree. However, the magnitude of the brain-drain phenomenon is not very large, and there is no statistical evidence of the well-educated to emigrate would have increased over time. Although Finland’s immigrants are more poorly educated than the Finnish population at large, they are apparently better educated than immigrants to, for instance, Sweden or Denmark, owing to the disproportionately large share of immigrants from Estonia and Russia to Finland. Nevertheless, the labour market performance of Finnish immigrants is as bad as for immigrants in most Western European countries, i.e. their unemployment rate is about twice as high as that of the native population. This amounts to a serious failure of assimilation policies.

1. Introduction

On a global scale, people have become substantially more internationally mobile during the last 20-30 years. Migration flows are increasing relative to previous decades but the picture is different in a longer time perspective; migration from Europe to other countries, notably the US, took place on a huge scale in the late 19th and early 20th centuries. For instance, in the mid 1970s, the net annual migration rate into the OECD was around 0.1%. This means that every year 1 person per 1000 OECD natives moved to the OECD. By 2003, this figure had increased to over 0.3% (OECD, 2007). An important explanation for this increase is that in most Western countries the demographic structure is such that the population, and particularly the population of working age, is ageing quickly. In some cases such as Germany and Hungary, the entire population is actually already decreasing. Understandably, increased immigration is seen as a potential remedy against problems caused by a shrinking labour supply.

Particularly within the EU, almost all countries have to deal with an ageing population. Just once during the last 15 years has an EU-15 country had a fertility rate exceeding 2.1 children per woman (Sweden in 1992, OECD Health Database). A fertility rate of at least 2.1 is required to keep the population from decreasing. In Finland, one has to go as far back as to the late 1960s to find a year when the total fertility rate was above 2.1. One of the consequences of the ageing of the population is that European countries increasingly want to attract foreigners, particularly highly skilled ones, while they prefer their own citizens not to be moving permanently abroad.

A country's economic institutions matter for the selection of individuals that want to migrate to or from that country. In a famous paper from 1987, George Borjas argued that if the correlation between the earnings capacity in the sending and the receiving countries of migration is positive, and the earnings distribution is less equal in the sending country than in the receiving country, immigrants will be chosen from the lower tail of the income distribution in the sending country (Borjas, 1987). Similarly, those who emigrate from a country with a compressed earnings distribution will tend to be selected from the upper tail of the income distribution. Furthermore, recent empirical evidence indicates that the relative stock of more educated migrants in a destination country is an increasing function of the difference in the earnings level between high and low skilled workers (Grogger and Hanson, 2008).

These arguments are of great importance for a country like Finland, which has a relatively compressed earnings distribution in an international perspective. This is particularly true in an after-tax sense. For this reason, it is important to ask whether Finland is losing out or will lose out in a global environment of increasing mobility of workers. Is it the case that those that immigrate to Finland are mostly low-skilled, whereas those that emigrate are highly skilled?¹

This paper aims to provide new information on this issue by analysing trends in Finnish emigration and immigration during the last 20 years. The focus is on the “human capital content” of the migration flows. Are emigrants better educated than immigrants, and if so, by how much? A major part of the paper is devoted to approximating the education level of immigrants to Finland, which is difficult because of the nature of the data which is available. For those born and educated in Finland, there exists ample information on degrees obtained, emigration destination countries etc. For immigrants, data on education is quite incomplete.

The paper is organised as follows. The next section gives a general overview of the migration flows to and from Finland during the last 20 years. Section 3 provides an estimate of the “human capital content” of the flows. The fourth section discusses issues related to the labour market performance of immigrants versus the native population. The final section provides discussion and some thoughts on the future trends of migration into and out from Finland.

2. Migration to and from Finland during the last 20 years

Traditionally, Finland has been an emigration country. In the early 20th century, emigration rates to the USA were high, and in the 1950s, 1960s, and 1970s, many emigrated to Sweden. However, during the last 20-30 years, Finland has been an immigration country (Chart 1). Owing to this migration, the stock of foreign born individuals has risen considerably. This is even more true for the population aged 15-64 (Chart 2) than for the overall population. Still, the share of foreign-born individuals within the total population residing in Finland is relatively low in an international perspective (Chart 3).

¹ See Pirttilä (2004) for an analysis of Finnish emigration in the 1990s.

Chart 1: Immigration to and emigration from Finland (Source: Statistics Finland)

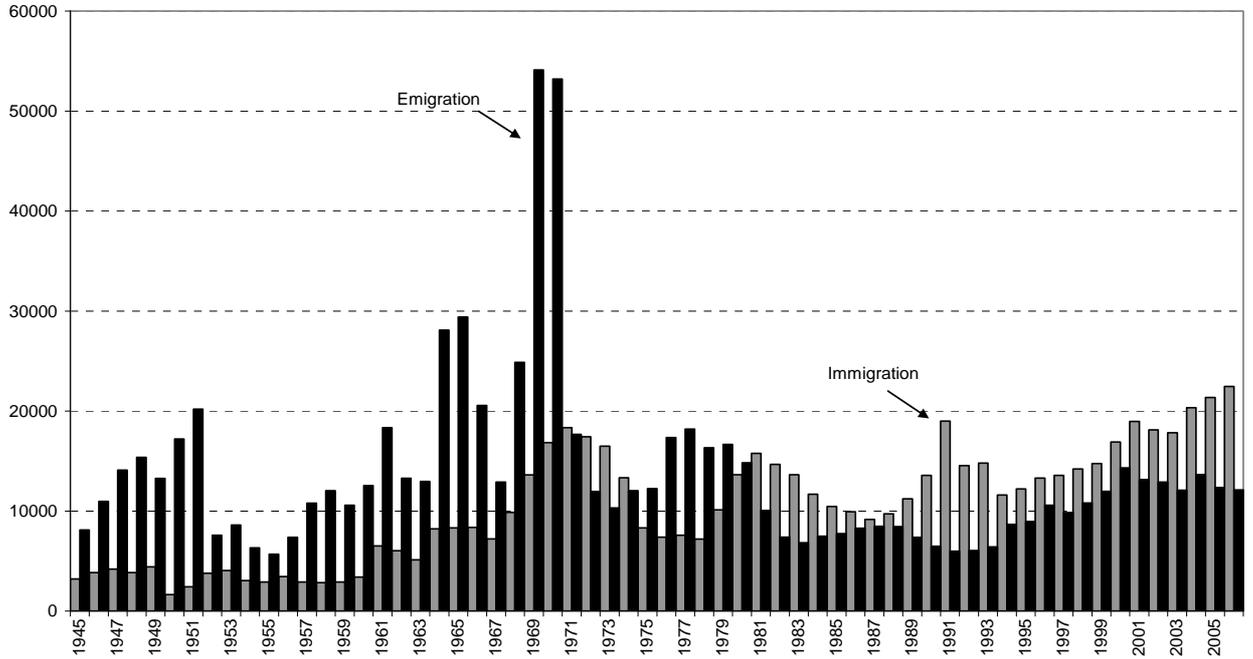


Chart 2: Share of population foreign born (%) (Source: Statistics Finland)

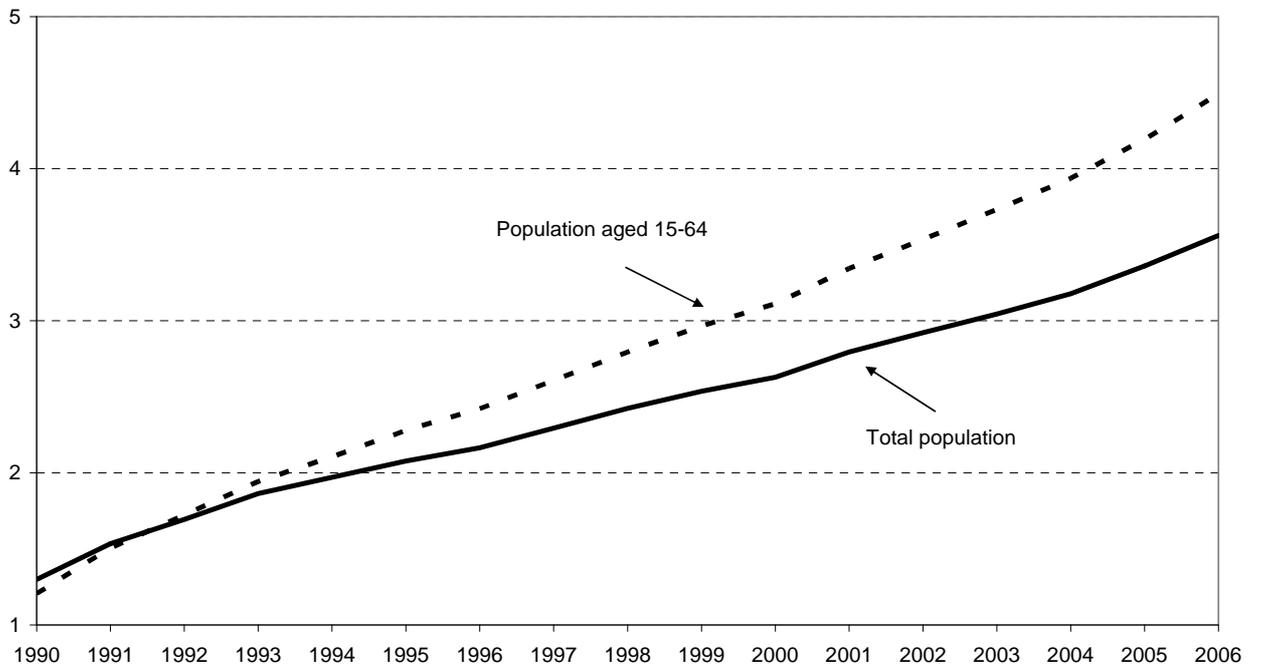


Chart 3. Prevalence of foreign-born population in selected OECD-countries 1995 and 2005 (Source: OECD)

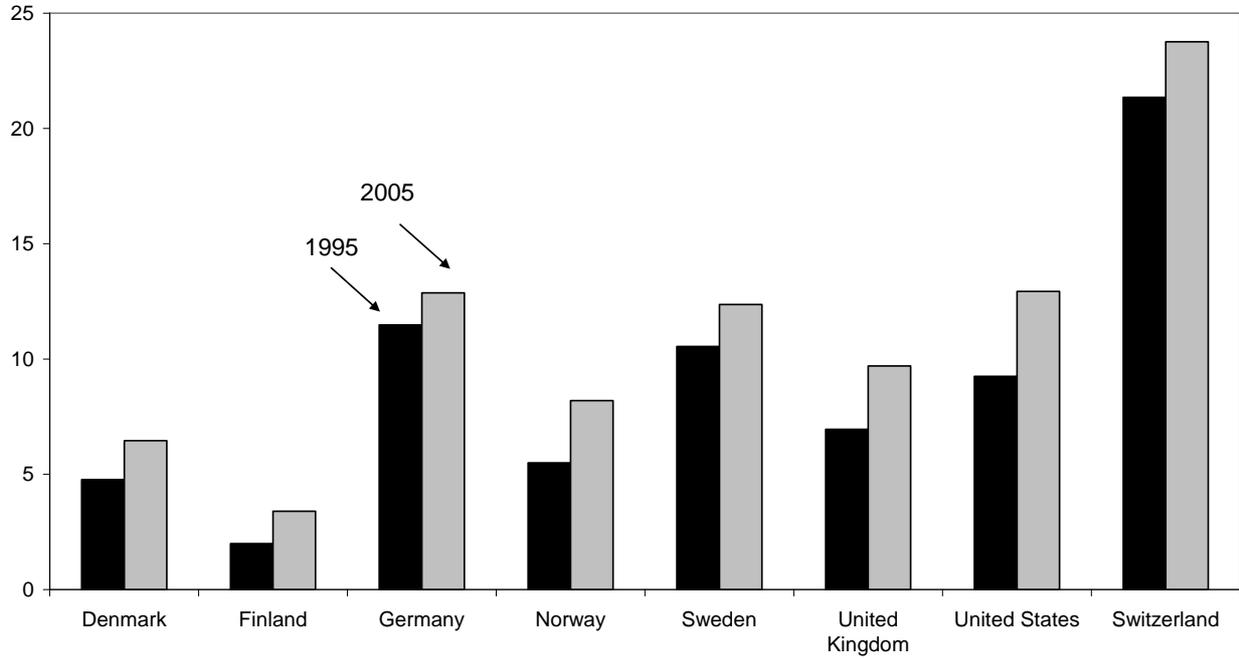
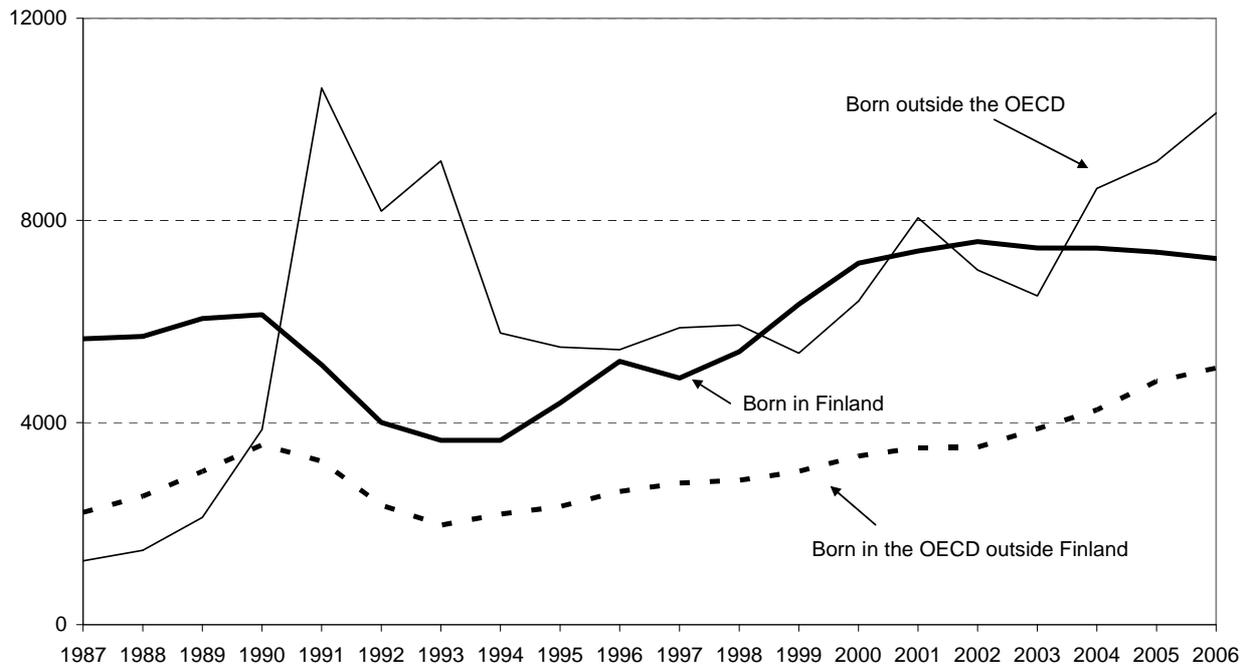


Chart 4: Immigration to Finland by place of birth (Source: Statistics Finland)



An interesting feature of migration to Finland is the relatively high proportion of return migrants (Chart 4). It is also interesting that the number of return migrants rose considerably around the year 2000, and has stayed at a level around 7,000 per year since then. It should be noted however, that this group includes both those who have resided abroad for a great number of years as well as those returning after a shorter spell².

Another interesting fact is that while those immigrating from countries outside the OECD are around twice as many as those immigrating from a country inside the OECD, there has been a slight increase in those immigrating from OECD countries during the last 6-7 years (Chart 4).

Table 1 lists the top departure countries for return migrants, immigrants from the OECD, and immigrants from outside the OECD during 2001-2006. Sweden is by far the most important country regarding return migration and immigration from OECD countries. This probably reflects some return migration from the large pool of people that emigrated to Sweden in the 1960s and 1970s, as well as the fact that quite a few individuals move between Finland and Sweden on a rather short-term basis for job-related reasons. The fact that Sweden tops the list for immigration from OECD countries may also be due to return migration, because some Finnish-born return migrants may bring with them spouses and children that are not Finnish-born.

Russia and Estonia completely dominate immigration from outside the OECD. This is of particular interest and will be discussed below in the section on the human capital content of the immigration to Finland. After these two countries, we find some of the population-rich countries of Asia, China, India, and Thailand. It is also worth noting that apart from Estonians, there are very few immigrants from the new East European members of the EU, such as Lithuania, Latvia, or Poland. This is in stark contrast to the situation, for instance, in the UK (Blanchflower et al. 2007).

² In this paper, an individual who comes from abroad and is registered in the Finnish population register is considered an immigrant. This definition is also used in OECD (2007). This entails an intention to stay in the country for more than one year.

Table 1: Distribution of immigrants to Finland 2001-2006 (Source: Statistics Finland)

Immigrants born in Finland		Immigrants born in the OECD		Immigrants born outside the OECD	
Country	Number	Country	Number	Country	Number
Sweden	15523	Sweden	5605	Russia	12551
Norway	4597	Turkey	2542	Estonia	9987
UK	3122	Germany	2389	China	2756
USA	2883	Ukraine	2315	Thailand	2650
Germany	2827	USA	2025	India	1737
Spain	2631	France	1064	Serbia*	1549
Denmark	1535	Norway	949	Iran	1471
France	868	Spain	889	Iraq	1037
Netherlands	826	Italy	810	Somalia	877
Belgium	800	Netherlands	701	Ukraine	794
Switzerland	704	Denmark	644	Ethiopia	739
Estonia	617	Poland	638	Egypt	694
Italy	554	Japan	617	Pakistan	669
Canada	485	Canada	507	Vietnam	607
Australia	455	Hungary	469	Kenya	538
China	446	Australia	430	Latvia	411
Ireland	445	Switzerland	428	Romania	390
Austria	344	Belgium	284	Philippines	387
Russia	284	Ireland	284	Lebanon	375
Luxembourg	220	Greece	279	Morocco	373

* Includes Kosovo and Montenegro

3. Brain drain and the human capital content of migration flows

3.1 Finnish-born individuals

There is, as already mentioned, a big difference between data availability regarding emigrants and return migrants that were born in Finland on the one hand and migrants that were not born in Finland on the other. For the first group, there exists good data. For the

second group, data on education is incomplete. I will therefore first analyse the two groups separately, and then provide an assessment of the overall situation. There are also other good reasons for analysing the two groups separately. In Finland, all education is free, and it is therefore of some interest (and concern) if the tax-financed investment in education is “lost”, because of those embodying the human capital taking up a career abroad.

At a first glance, the situation does not look good (Chart 5). Regarding individuals born in Finland with a tertiary education, there has not been a single year during the past two decades with as many return migrants as there have been emigrants. During the last 10 years the average “loss” has been above 1,000, although the numbers have been considerably smaller during the last few years. In all, the total net emigration of highly educated individuals was 17,184 individuals during the years 1987-2006. For PhDs, the highest education level, the situation is similar, although the figures are of course smaller, with an average “loss” of some 30-50 individuals per year (Chart 6). From the perspective of the Finnish taxpayer, this is not an ideal situation, as these individuals have obtained a tax-financed education in Finland, but then do not pay income taxes in Finland.

Chart 5: Migration of highly educated Finnish-born (Source: Statistics Finland)

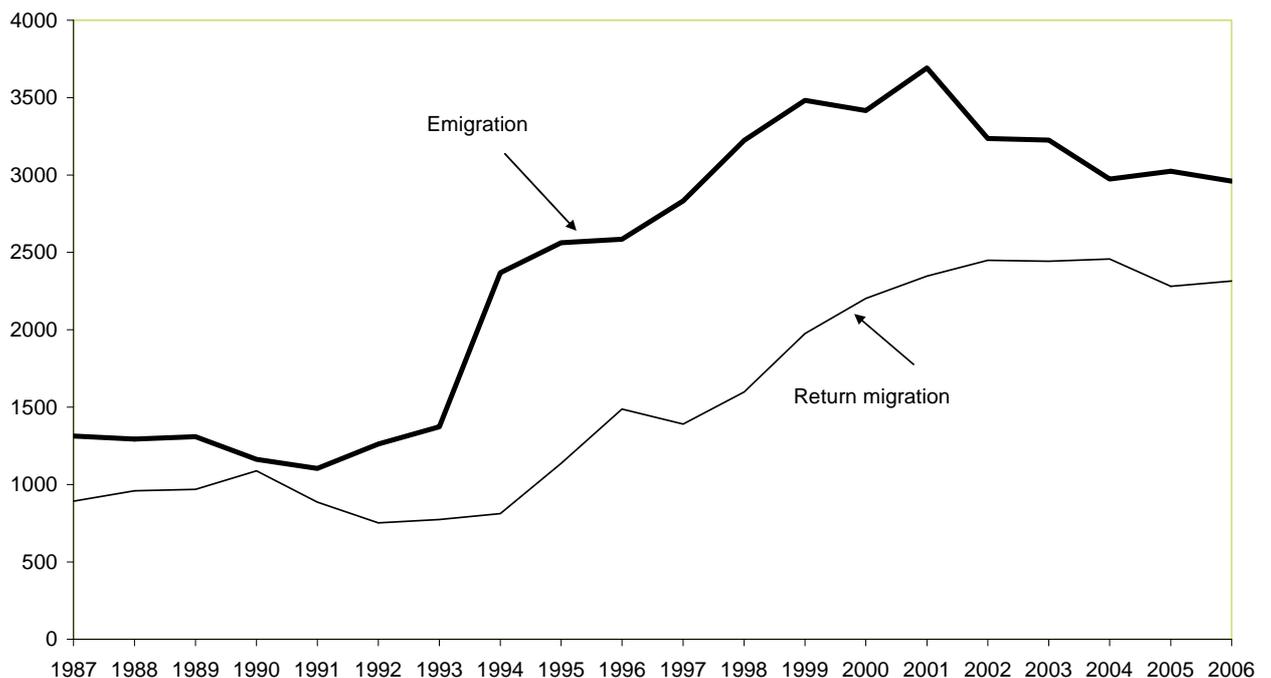


Chart 6: Migration of PhDs born in Finland (number)

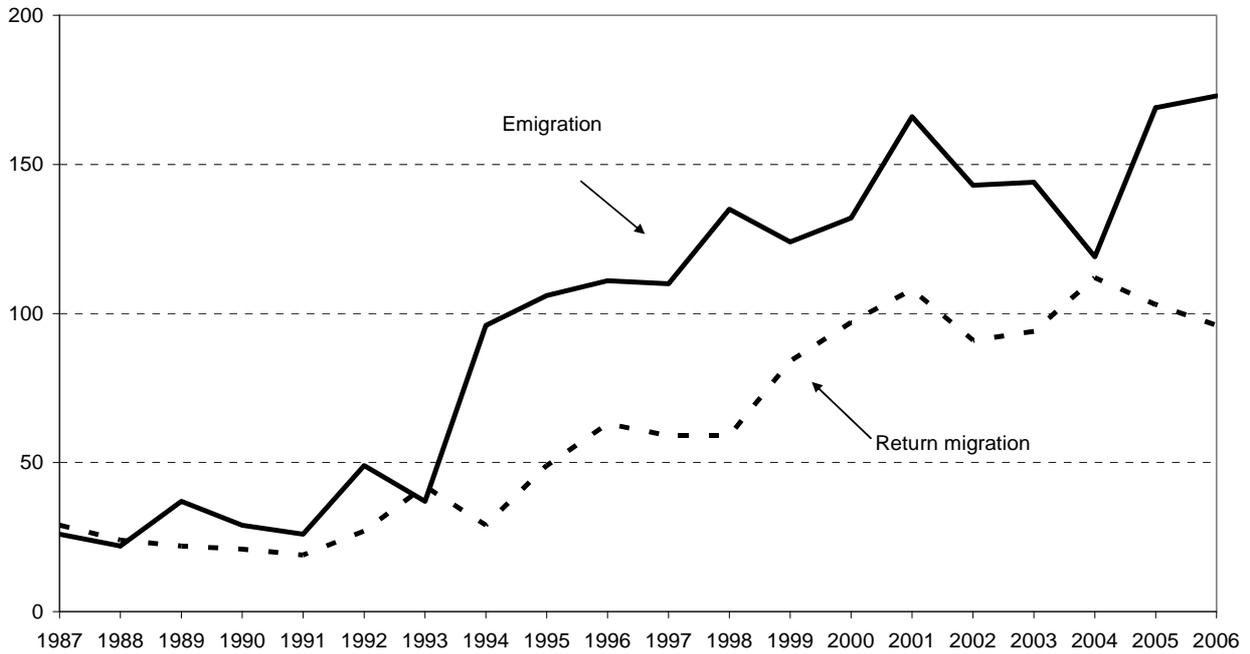
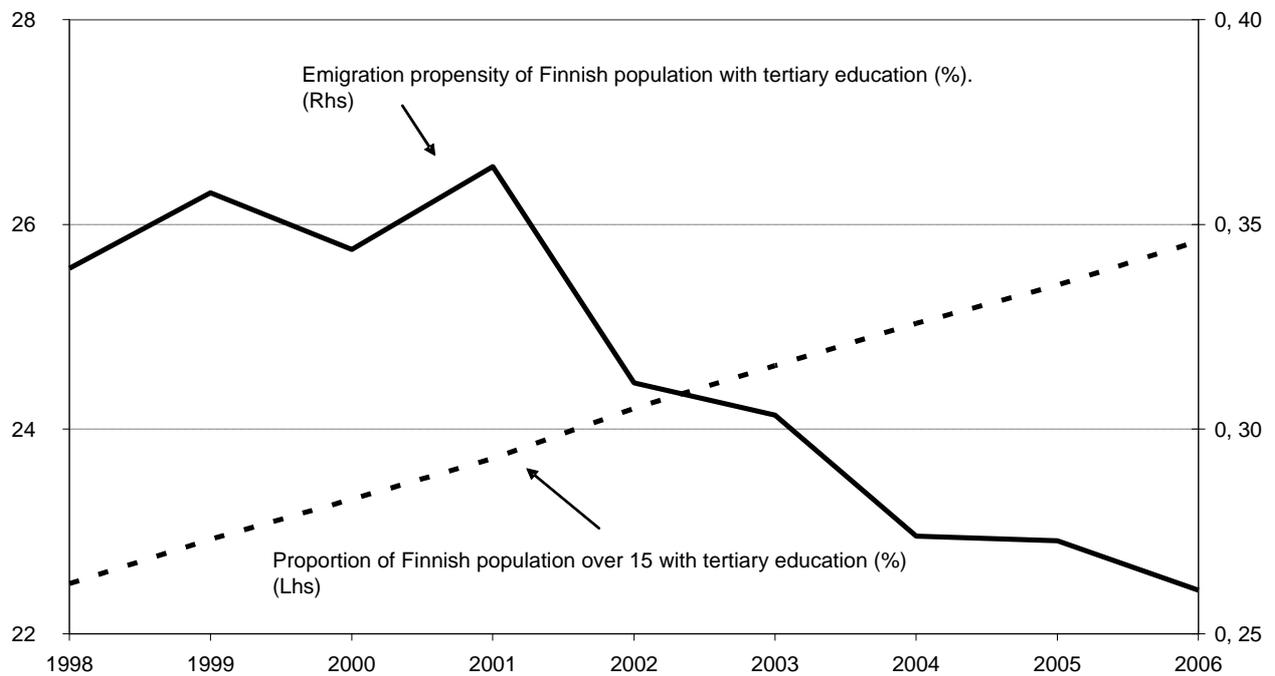


Chart 7: Emigration propensity and stock of Finns with tertiary education

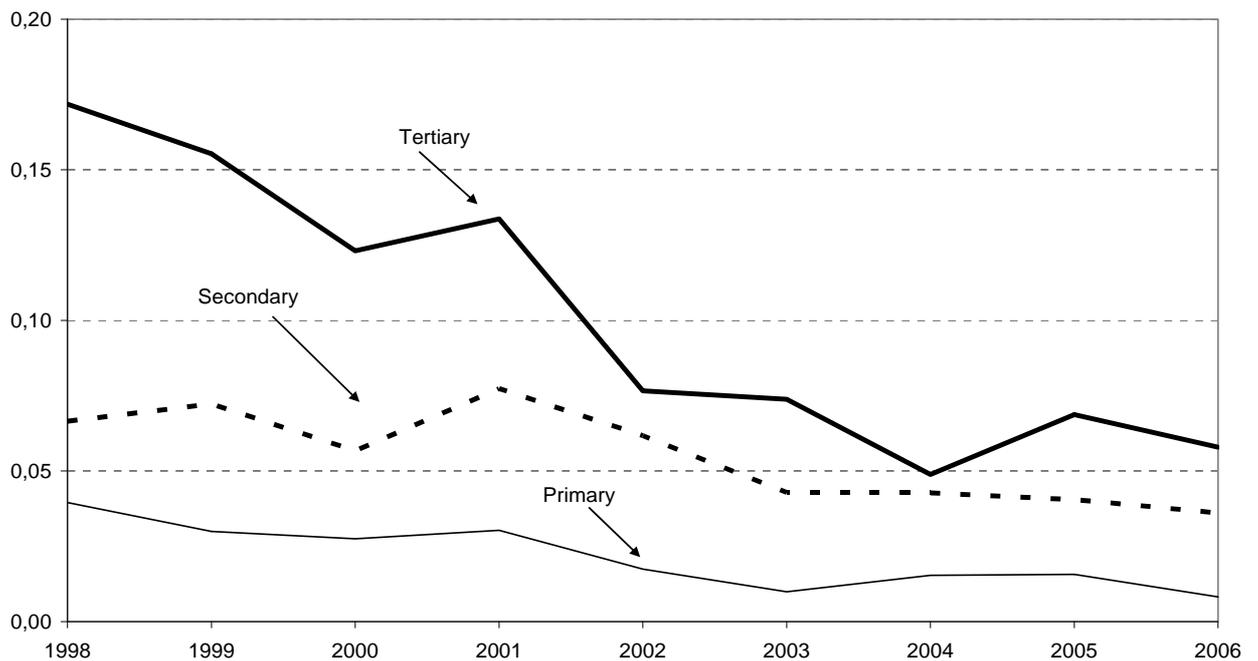


These figures should nevertheless be put into perspective. In 2006, almost 3,000 Finnish-born individuals with a tertiary education emigrated. However, the stock of well-educated individuals amounted to more than 1,1 million in 2006. Thus, the migration propensity was

around 0.26%. Interestingly, this propensity has not increased during the last few years; if anything, it has decreased (Chart 7). One reason for this is that the number of highly educated individuals in Finland has increased sharply. For instance, the number of individuals with a tertiary education has increased by 2.2% per year on average since 1998. In 2006, some 25.8% of the Finnish population above 15 had a tertiary degree. In 1998, the corresponding percentage was 22.5% (Chart 7).

Another way to look at the problem is to study net emigration by level of education as a proportion of the stock of individuals with that education residing in Finland (Chart 8). This propensity accounts simultaneously for emigration, return migration, and growth in the domestic stock of people. As can be seen from the chart, this propensity has clearly not risen recently, but rather seems to have stabilized at a reasonably low level.

Chart 8: Net emigration propensity by education level (%)



3.2 Individuals born abroad

From the previous section it is clear that Finland at least to some extent has suffered from brain drain insofar as a larger number of highly educated individuals have emigrated than

have moved back during the last 20 years. One may consider it a problem that these individuals have been educated for free in Finland but do not pay income taxes in Finland. However, account should also be taken of the fact that the inflow of individuals that have been educated abroad at no cost to Finnish taxpayers may match or even exceed the outflow from Finland.

The problem with measuring the education level of immigrants to Finland is that Finnish authorities do not register the education level of immigrants. Thus, the usual register data sets otherwise available in Finland are of less use. In many other countries, labour force data is often useful for gauging the education level of immigrants, as this data is based on interviews. In the Finnish case, this is not possible, because education data in the labour force surveys are also taken directly from registers, and are not based on interviews. Thus, Finnish labour force data suffer from the same problem as do the register data.

The education level of Finnish immigrants has therefore to be approximated with other types of data. In this paper I pursue two strategies. First, the education level of immigrants is approximated by the average education level in the country of origin. In the second approach, data compiled by the OECD, but originating from Statistics Finland, on the stock of foreign-born individuals of different education levels in Finland is used (Dumont and Lemaitre, 2005).

3.2.1 Approximation using sending countries' education level

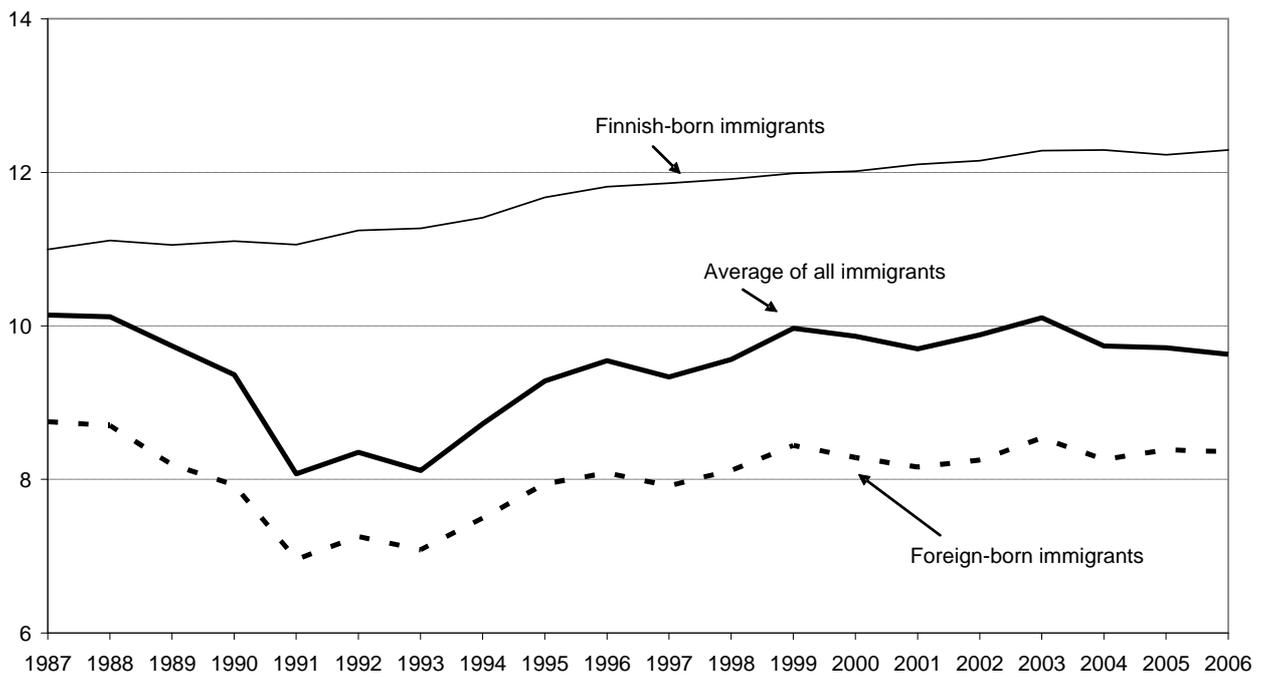
In the first approach, it is assumed that those emigrating to Finland from a certain country on average possess the average education level prevailing in the country of origin. The data for this analysis is taken from Cohen and Soto (2001). This data set is basically an area panel with average years of education for major regions of the world at different points in time (Table 2).

Table 2: Global comparison of average years of education per region (source: Cohen and Soto, 2001)

	1980	1990	2000	2010
Middle-East and North Africa	2,7	4,3	5,9	6,9
Sub-Saharan Africa	2,1	3	3,9	4,3
Latin America and Caribbean	5,3	6,7	7,6	8,2
East Asia and Pacific	4,3	5,4	6,4	7,3
South Asia	2,6	3,1	4,3	5,3
High Income Countries	10,9	11,6	12,1	12,5
Eastern Europe and Central Asia	6,5	7,1	7,8	8,4

Note: Share of total as a percentage in parentheses. Source: Statistics Finland, Statistics Sweden, Statistics Denmark.

Chart 9: Average education level of immigrants to Finland (years)



Unsurprisingly, there are huge differences in average number of years of education in various parts of the world. Average years of education are the highest in the High Income Countries, followed by Eastern Europe and Central Asia. Average years of education are lowest in Sub-Saharan Africa. Using this data I have calculated the average number of years of education for every country that has contributed to migration to Finland during the period 1987-2006. The different rates of growth of the education level in the various regions have also been taken

into account. Using the number of immigrants from each country as weights, I have then calculated the average number of years of education for immigrants not born in Finland for the years 1987-2006 (Chart 9). Using register information on education levels for Finnish born individuals, I have calculated the same average for Finnish-born immigrants³. With this information, I have also calculated a weighted average of all immigrants to Finland (Chart 9).

Three observations emerge from this analysis. First, the average education level of foreign-born immigrants is substantially lower than that of Finnish-born immigrants (and compared to the Finnish population as a whole, for that matter). It is also possible that the education level of the Finnish-born immigrants may be underestimated, as some may have acquired some further education while living abroad. The average education level of foreign-born immigrants is somewhat above 8 years, which is even less than the 9 years of compulsory Finnish education. Second, there was a substantial dip in the education level of immigrants around the years 1991 to 1993, because of, by Finnish standards, large inflow of refugees from Sub-Saharan Africa, mainly from Somalia. Third, although barely visible, there has been a slight decrease in the average level of education of immigrants since about 2003. This has occurred despite a rise in the average level of education for the return migrants and virtually no change in the education level of the foreign born. The reason is a composition effect; during the last few years the share of return migrants of the total pool of immigrant has decreased.

There are several weaknesses with this analysis. Although Borjas (1987) predicted that those who emigrate to a country with a compressed earnings distribution will be selected from the lower part of the sending countries' earnings distributions, the assumption that those immigrating to Finland have the same education level as the population as a whole in the sending countries may be an underestimation for several reasons.

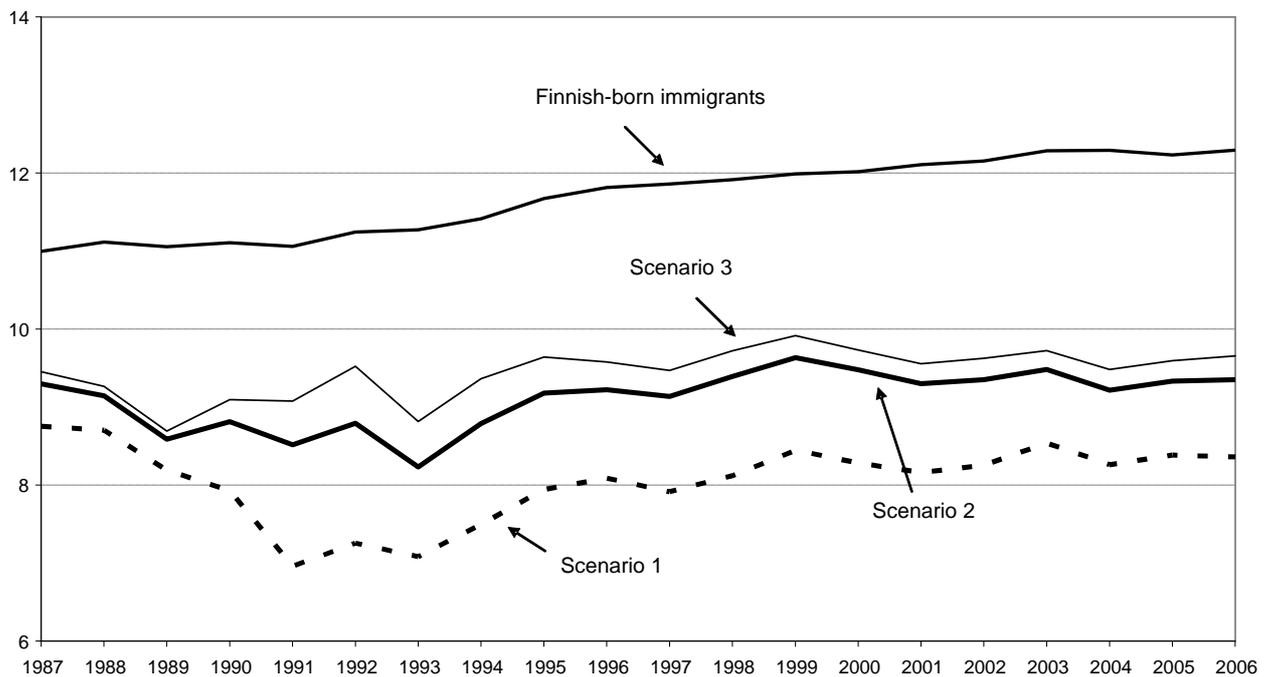
One reason for this has to do with age. Those who migrate internationally are on average substantially younger than the population as a whole and almost everywhere in the world the young are better educated than the old. Second, it is likely that the very poorest do not emigrate due to liquidity constraints (Belot and Hatton, 2008).

³ In the Finnish data, education information is not provided as average years of education, but as information on obtained degrees. In order to convert these into years of education I have used the following conversion rules: PhD equals 20 years of education, Master's 18 years, Bachelor's and other lower tertiary degrees 16 years, post secondary non-tertiary degrees 14 years, upper secondary schooling 12 years, and lower secondary degrees 9 years.

Third, the immigration by the foreign-born to Finland is dominated by immigration from Russia and Estonia with around 30% of foreign-born immigrant coming from those two countries in 2006. In the data compiled by Cohen and Soto (2001) these countries belong to the group Eastern Europe and Central Asia. However, it is possible that Russians and Estonians are on average better educated than this group in general. If this is the case, then the estimate of immigrants' education level is biased downwards.

In order to investigate the sensitivity of this result, I recalculated the average for the foreign-born immigrants with alternative measures for the education level of Russians and Estonians (Chart 10). First, I set the level of Russians and Estonians equal to the level of those immigrating from high income countries (Scenario 2). Second, I have used Russia's and Estonia's own census data for the average education level of their populations (Scenario 3). Scenario 1 is the same as the average level of education for the foreign-born reported in chart 9.

Chart 10: Sensitivity analysis with various assumption regarding Russia and Estonia



These recalculations have quite a strong positive effect on the average number of years of education for those immigrating. This is not surprising given the fact that a substantial part of the immigrants come from Russia or Estonia. Nevertheless, the average number of years of education for a foreign-born immigrant is still considerably lower than that of Finnish-born return migrants (Chart 10).

It is also interesting to compare these results to the situation in Finland's competitor or neighbour countries. Table 3 presents the number of foreign-born individuals by region of origin in Sweden, Finland, and Denmark in 2006. As was already clear from chart 3, the total number of immigrants is very different in the three countries, with Sweden having by far the largest population of foreign-born. Regarding the composition, we can see that Sweden has the highest proportion of immigrants from High Income Countries (i.e. OECD countries less Mexico, Poland, and Turkey) at 35.1 %, whereas Denmark has the lowest at 25.3%. Finland is in the middle with 30.5%. The large proportion in Sweden can to some extent be explained by the large pool of immigrants from Finland. Finland has by far the largest proportion of immigrants from the region Eastern Europe and Central Asia. The explanation for this is of course the disproportionately large share of Russians and Estonians in Finland. Both Denmark and Sweden have large percentages of immigrants from the region Middle East and Northern Africa, whereas Finland has a very low share coming from that region. This finding can to some extent be explained by the large number of refugees from Iraq and Iran residing in Sweden and Denmark.

Table 3: Distribution of foreign-born population by region of origin (2006)

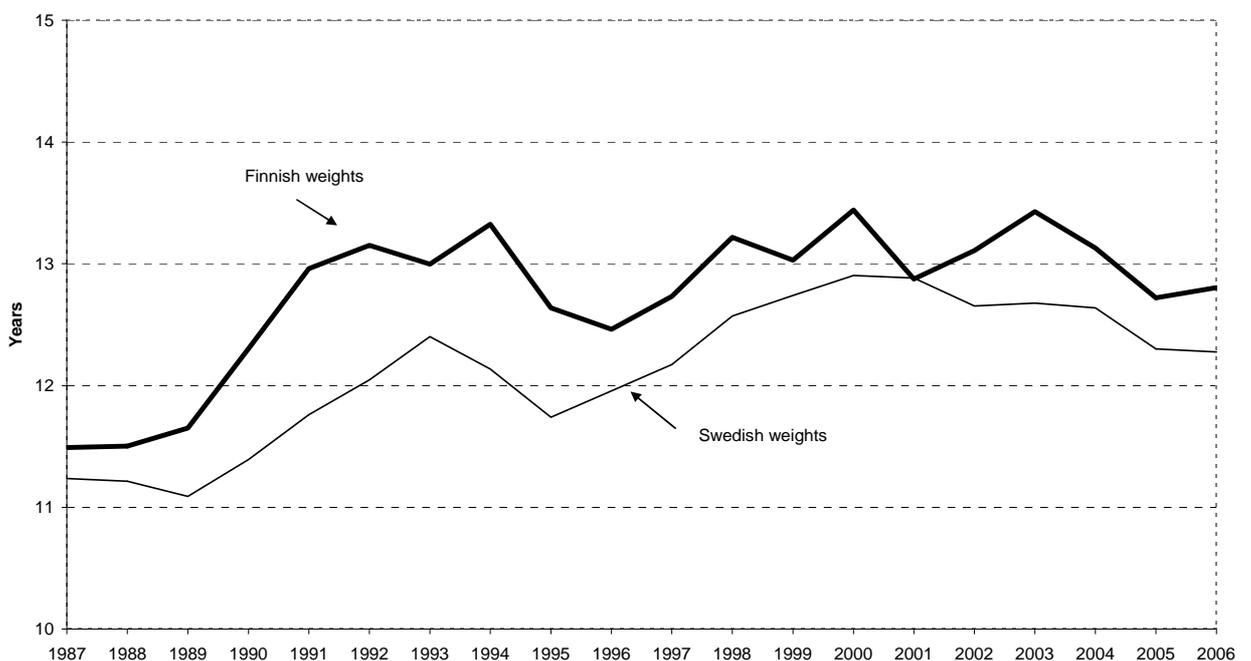
	Sweden	Denmark	Finland
High Income Countries	412 270 (35.1)	115 866 (25.3)	56 028 (30.5)
Eastern Europe and Central Asia	259 011 (22.1)	114 591 (25.0)	78 338 (42.6)
Middle East and North Africa	284 297 (24.2)	138 130 (30.1)	15 516 (8.4)
Latin America and the Caribbean	67 608 (5.8)	7 854 (1.7)	3 527 (1.9)
East Asia and the Pacific islands	26 031 (2.2)	9 044 (2.0)	4 866 (2.6)
South Asia	71 035 (6.0)	43 454 (9.5)	13 756 (7.5)
Sub-Saharan Africa	54 363 (4.6)	29 661 (6.5)	11 677 (6.4)
Total	1 174 615	458 600	183 708

Note: Share of total as a percentage in parentheses.

Based on this data, I have calculated the average number of years of education for the immigrant population in the three countries for 2006 in the same way as the education level of immigrants over time in Finland was calculated in charts 8 and 9. The result from this calculation is that the immigrant stock in both Finland and Sweden has on average 8.7 years of education, whereas immigrants to Denmark on average only have 8.0 years of education. Thus, although this type of analysis has its limitations, it suggests that immigrants to Finland do not have a lower level of education in general than immigrants to Sweden and Denmark. Furthermore, it is possible that the disproportionately large share of immigrants from Russia and Estonia to Finland actually biases the estimate for Finland downwards.

Further evidence along these lines may be obtained by using data from Sweden. In Sweden, the statistics office collects information on immigrants' education level in a different way as compared to Finland, and their data is therefore more complete. There exist annual Swedish data on the number of immigrants with different education levels for each country of origin. Assuming that immigrants from a certain country would have the same level of education on average regardless of whether they move to Finland or Sweden, it is possible to calculate how much of the difference in the average level of education of immigrants is due to the differences in countries of origin. First, I calculated the average education level for immigrants

Chart 11: Education level of foreign-born immigrants to Sweden



to Sweden as a weighted average of the education levels of every country of origin for the period 1987-2006 (chart 11, line “Swedish weights”). Second, I substituted the Swedish country weights with Finnish country weights while keeping the education levels unchanged (chart 11, line “Finnish weights”). The difference between the two lines is now due to the difference in the composition of the countries of origin. The result of the calculation is the same as the analysis presented above. The country of origin composition is such that immigrants to Finland have a higher level of education than immigrants to Sweden.

There is a substantial difference between the level of education in general depending on whether data from Cohen & Soto (2001) is used or whether data from the national statistical offices are used, with the education level on average being much higher using national data. The reason is that in the national data the information is stated in terms of degrees, and those degrees are converted to years of education in an uniform way regardless of the country of origin. This means that a primary education or lower is considered as 9 years of education. This is more or less correct for rich countries but for poorer countries this is likely to be an overestimation in terms of how well-educated the immigrants de facto are. As a general comment regarding the appropriateness of the two approaches, using data like that provided in Cohen & Soto (2001) is perhaps better in determining the level of education but information on degrees from national sources may be more accurate in describing trends over time.

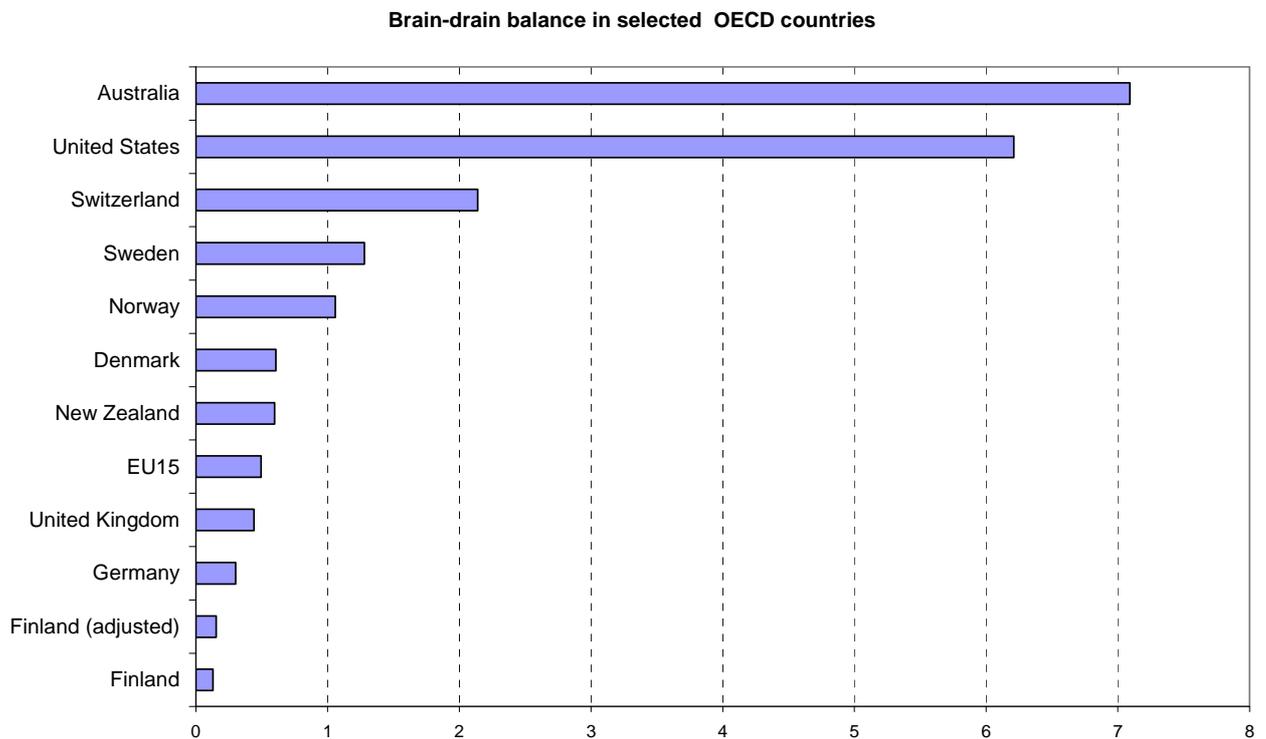
3.2.2 Calculating a brain-drain ratio using OECD’s database on International Migration

A measure of brain-drain that has occasionally been used in the debate is the ratio of the number of well-educated foreigners that reside in a certain country to the number of well-educated natives of that country residing abroad. A number above 1 means that the cumulative brain-drain has been positive, i.e. that a country has “imported” a greater number of highly educated individuals than it has “exported”. This is correct as far as it goes. However, a low value of this indicator does not necessarily imply a negative educational selection or bias in the migration flows.

Analysing data on Finnish-born individuals residing in OECD countries and individuals born in the OECD residing in Finland⁴, the Finnish situation does not look particularly good

⁴ The data is taken from the OECD’s database on International Migration. This dataset contains information on the number and education level of the foreign-born in the OECD countries. The data was collected in 2000 and 2001. The data for Finland is from 2000.

(OECD 2005, Raunio, 2005). In this comparison, Finland is amongst the worst performing countries (Chart 12). Finland's ratio, 0.13, is the result of 8,766 divided by 67,171. The numerator 8,766, is the number of highly educated (defined as having tertiary education) individuals that were born in the OECD but reside in Finland in 2000. The denominator 67,171 is the number of highly educated Finnish-born that resided in another OECD country in 2000. In other words, Finland has “exported” almost 8 times as many highly educated individuals than it has “imported” highly educated individuals from the OECD.



Note: Brain-drain balance calculated as the proportion of highly educated immigrants from an OECD country divided by the number of highly educated individuals from that country residing in other OECD countries.

For the case of Finland, this comparison is not entirely correct owing to the fact that information on the education level of the foreign-born is incomplete. Thus, the number of highly educated among the foreign-born is likely to be substantially bigger. The origin of the OECD data is Statistics Finland, and in that data, the education level for those having an unknown level of education is reported as if they would have only a primary education.

In order to gauge the magnitude of this data problem, I recalculated the share of immigrants to Finland from the OECD that has a tertiary education using the educational distribution of

immigrants from OECD to Sweden. The use of the Swedish distribution is of course a bit arbitrary but the analysis showed in part 3.2.1 that the educational distribution of the foreign-born in Finland and Sweden may not be too dissimilar.

In Sweden, 24% of immigrants from the OECD had a tertiary education. If 24% of immigrants from the OECD to Finland had a tertiary education, the number of highly educated individuals from the OECD in Finland would be 10,355 instead of 8,766. With this correction, the Finnish brain-drain ratio would increase to 0.15. Thus, despite this correction Finland remains well below for instance Sweden. Hence, the explanation for Finland's low ranking in terms of brain-drain is probably not due to a very unfavourable selection of immigrants from the OECD, but rather that total immigration has been very small. Indeed, if every immigrant from the OECD to Finland would have a tertiary education, the brain-drain ratio would still only be 0.68.

To further illustrate this point the case of Sweden is informative. Sweden's brain drain ratio, 1.28, is made up of the numerator 101,202 and the denominator 78,643. Thus, in the year 2000, 78,643 individuals born in Sweden with a tertiary education resided in the OECD outside Sweden. This number is not unlike Finland's 67,171. However, the number of OECD-born highly educated individuals residing in Sweden in 2000 was 101 202, some 10 times the Finnish number. But this high number is not due to a particularly favourable selection of immigrants, but rather because a total of 445,948 immigrants from the OECD of all education levels resided in Sweden at that time. Assuming that Finland in the future would be able to attract immigrants from the OECD with on average the same education as those moving to Sweden, it would require a net inflow of another 237,000 immigrants from the OECD to get Finland's "brain drain" ratio to become 1.

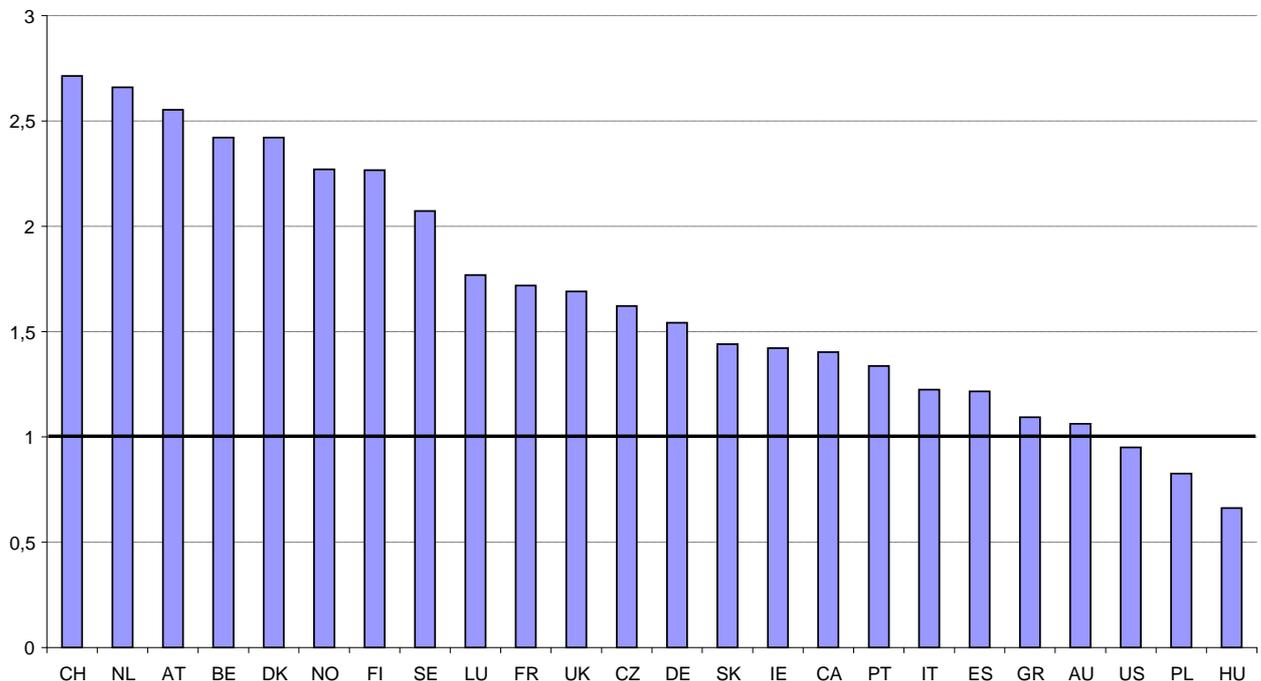
Using data from the Finnish population registers, it is also possible to assess what has happened to this ratio during the years 2001-2006. Remember that the OECD's snapshot of the immigrant population refers to the year 2000 in the case of Finland. During 2001-2006, the net outflow of Finnish-born of all education levels to the OECD amounted to 14,337 individuals, and the net inflow of individuals born in the OECD but not in Finland of all education levels amounted to 5 181 individuals.

4. The labour market performance of immigrants to Finland

The educational distribution of immigrants to Finland and emigrants from Finland is of great importance. However, the actual labour market performance of immigrants for Finland is also very important. If immigration is to have beneficial effects on, for instance, the public sector balance in a country, it is obviously important that immigrants actually are at work.

It turns out that many, if not most of the Western European countries have failed quite badly in integrating immigrants into the labour market. Finland, Sweden, Norway, Denmark, Belgium, the Netherlands, Austria, and Switzerland all had unemployment rates for the foreign-born that exceeded that of the native-borns by a factor of at least 2 (chart 13) in 2004-2005. In fact, only in very few OECD countries is the unemployment rate for immigrants comparable to that of the native workforce (Chart 13, OECD 2007).

Chart 13: Ratio of unemployment rates between foreign-born and native-born (Source: OECD 2007)

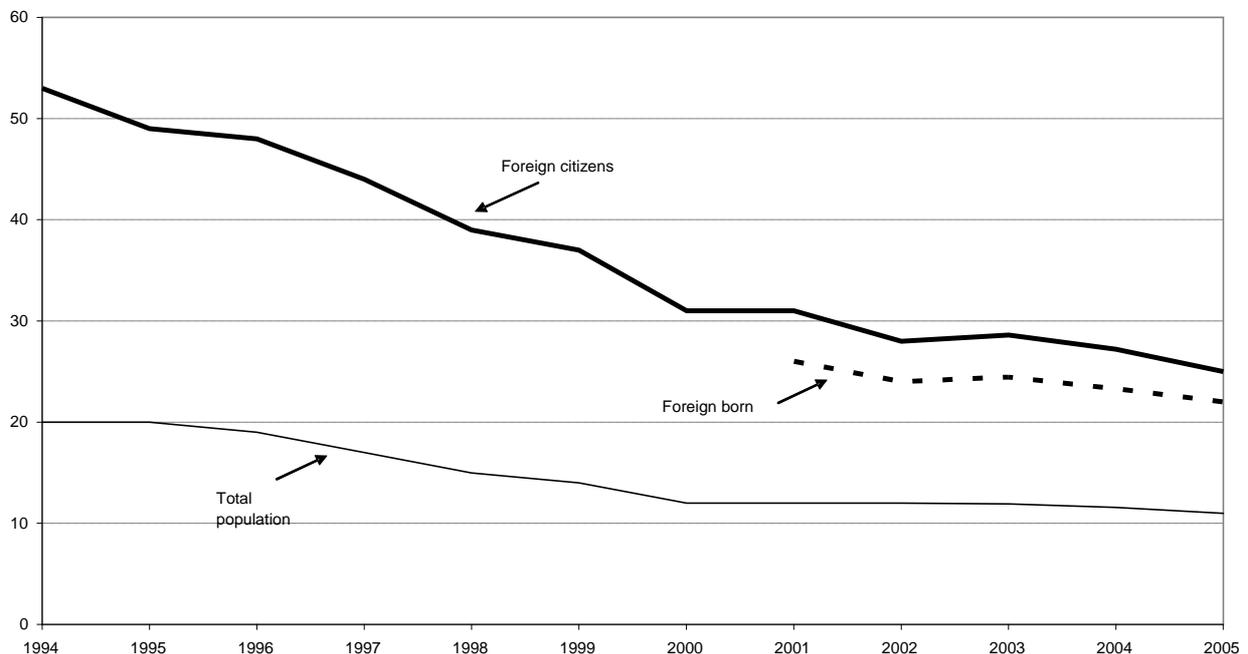


There are of course many factors that affect how well immigrants are assimilated into the labour market and there exists a very large international literature on this issue (e.g. Zimmerman, 2005, Bauer et al. 2000, and Hämäläinen et al. (2006) for a Finnish discussion). One very important insight from this literature is that the labour market performance of

immigrants is best in countries that have immigration policies that are explicitly designed to attract immigrants that migrate for work reasons. In the EU, immigration policy is not generally designed for this purpose. Immigration policy is instead generally designed to accommodate refugees, asylum seekers, and those immigrating for family unification purposes (Constant & Zimmermann, 2005). Countries that explicitly select immigrants according to their skills via some type of points system (e.g. New Zealand, Australia, and Canada) typically fare much better from a labour market perspective. Consequently, the immigration policies of Sweden or Denmark may not be the correct benchmarks when assessing the future of Finnish policy.

However, it should also be noted that the unemployment rate of immigrants to a country is very sensitive to the labour market conditions at the time of immigration. For the case of Finland, the unemployment rate of the foreign-born has fallen substantially during the last 10 years, along with the general improvement in the unemployment situation (Chart 14).

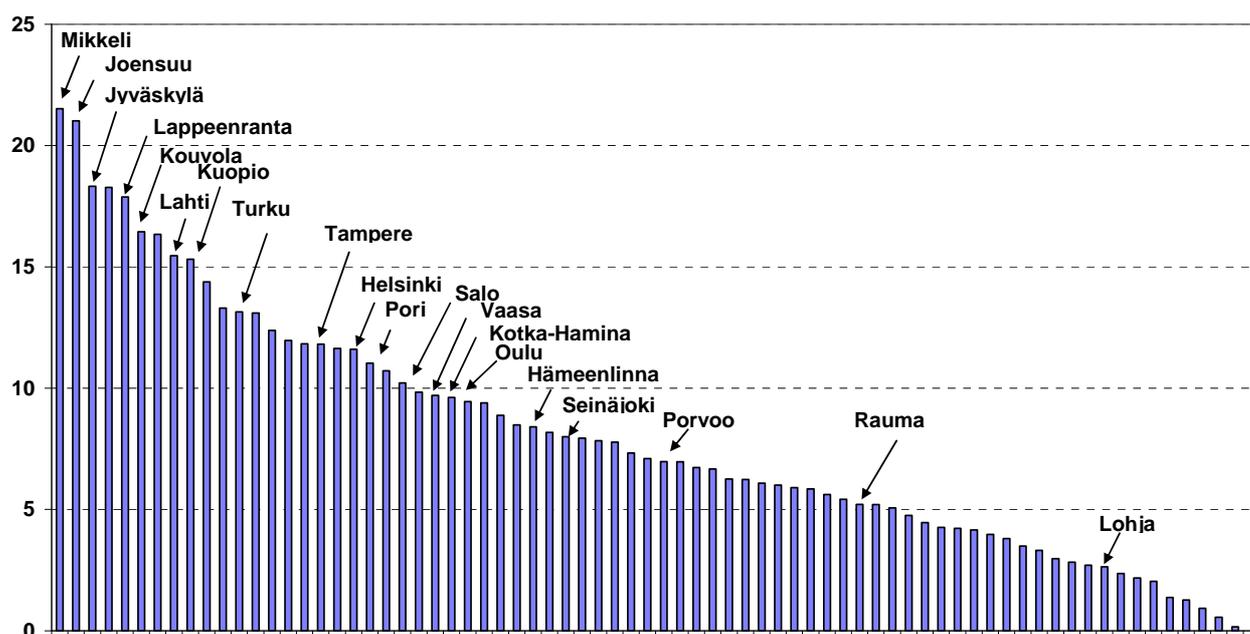
Chart 14: Unemployment rates by region of birth (%) (Source: Statistics Finland)



Furthermore, even within Finland, there are very large regional differences regarding the labour market performance of immigrants, with some areas faring substantially better than others (Chart 15). For instance, the unemployment rate for the foreign-born was some 12 percentage points higher than for Finnish-borns in the sub-regional unit including the capital

Helsinki in 2006. The unemployment rate for the Finnish-born population was 6% and that for the foreign born was 18%. However, in the sub-regional unit of Mikkeli, the unemployment rate for Finnish-born was 11,6%, but the unemployment rate for foreign-born was 33,1% (Chart 15).

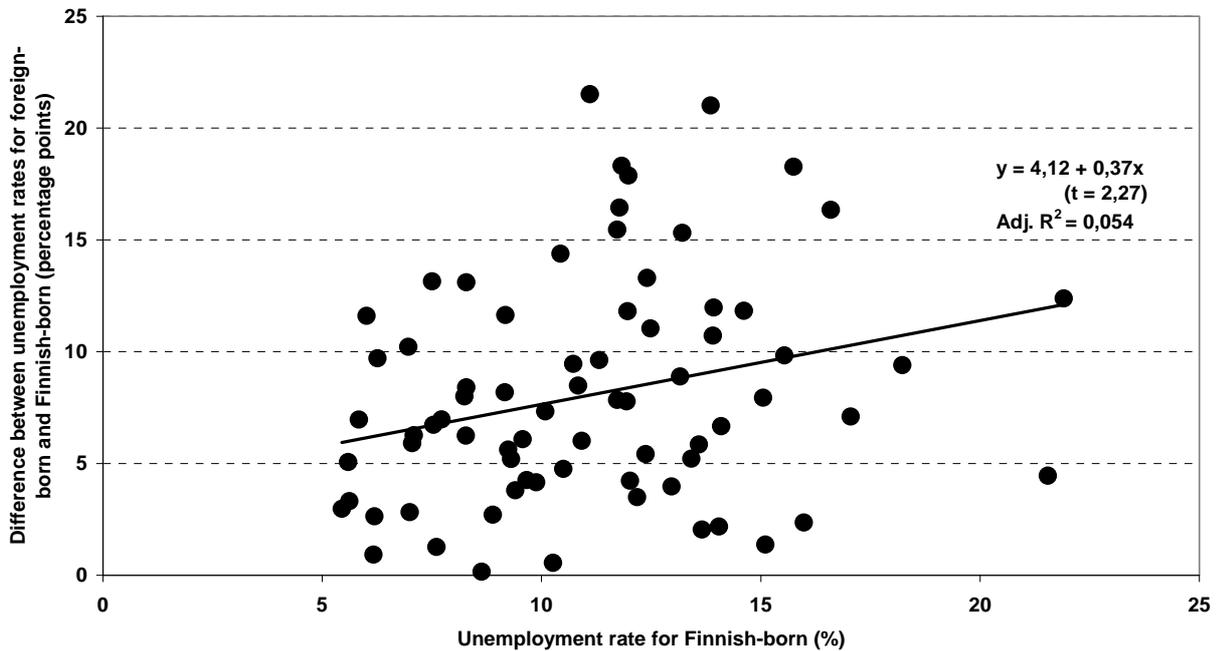
Chart 15: Difference between unemployment rate of foreign-born and Finnish born by sub-regional unit in 2006 (percentage points)



Note: The 20 biggest sub-regional units out of a total of 75 are mentioned by name in the chart. Sub-regional units are formed by groups of municipalities within the 20 regions of Finland. The sub-regions represent a LAU 1 level of division used in conjunction with the Nomenclature of Territorial Units for Statistics (http://ec.europa.eu/eurostat/ramon/nuts/splash_regions.html).

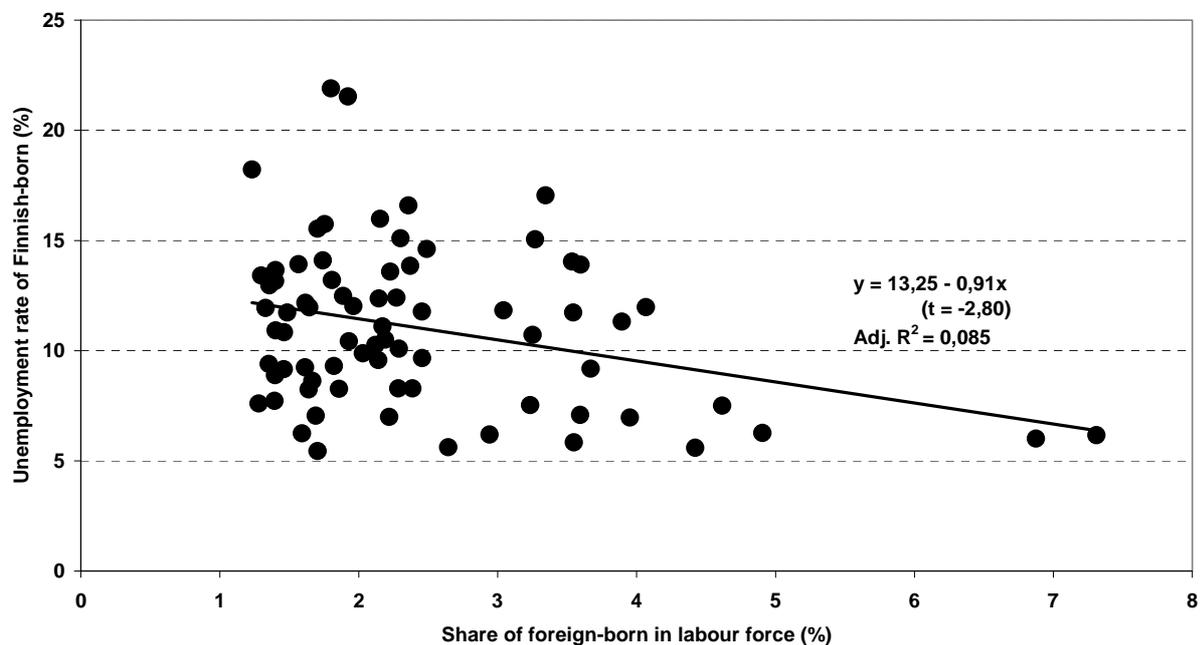
These differences are most likely due to several factors. One may be the local industrial structure. If a region is dominated by industries that require a lot of low-skilled labour such as agriculture, it is possible that there is less difference between the unemployment rates of foreign-born and Finnish-born. As already mentioned, the duration of stay in the new country is also of importance for the labour market success of immigrant. If there are differences in the average duration of stay in Finland for immigrants between regions, it will show up as differences in labour market assimilation rates. The local labour market situation is also important. A higher local unemployment rate is positively and statistically significantly associated with a greater difference in unemployment rates between the foreign-born and the Finnish born (Chart 16).

Chart 16: The relationship between unemployment rates for Finnish-born and foreign-born



However, a larger share of foreign-born in the labour force is not positively correlated with a higher local unemployment rate for the Finnish-born. In fact, the relationship is negative and statistically significant, with a higher share of foreign-born in the labour force correlating negatively with the local unemployment rate (Chart 17). Thus, it is possible that immigrants are migrating to regions where there are labour shortages. From an economic point of view, this is of course most welcome.

Chart 17: Unemployment of Finnish borns and share of foreign born in labour force



Clearly, this short list of potential explanations for the observed differences is likely not by far exhaustive. It remains however, an important task for future research to find out why some regions apparently better integrates their immigrants.

5. Concluding comments

Finland suffers from brain drain in the sense that the stock of highly educated Finnish-born individuals living abroad has been increasing every year during the last 20 years. There is insufficient information regarding the education level of immigrants to Finland, and it would clearly be desirable that the statistical authorities could provide better data on the educational level of immigrants. It is likely that immigrants are less educated than those emigrating from Finland or the Finnish population at large. Indeed, with Finland's population being one of the best educated in the world, the average immigrant from almost any country has a lower level of education than the average Finnish-born individual. Thus, as net immigration to Finland is positive on the whole, it is perhaps fair to say that Finland is educationally replacing quality with quantity.

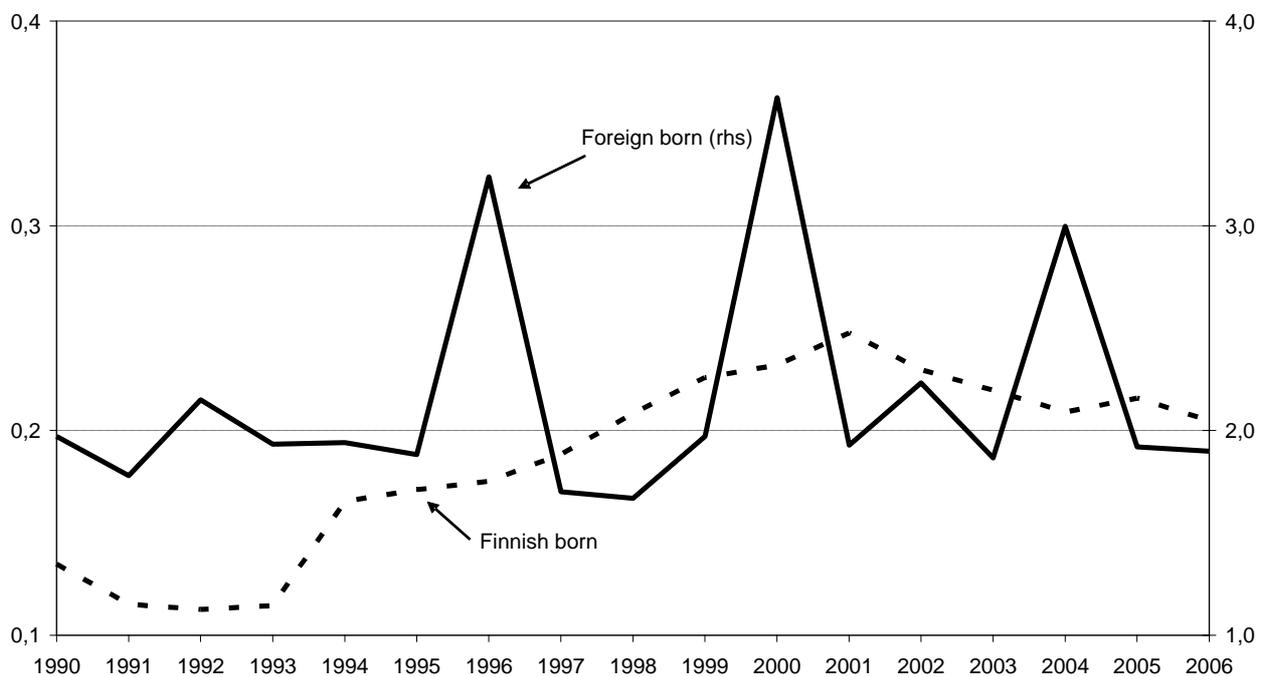
Having said this, it is not unlikely that the expected decrease in the labour supply in Finland in the coming years most of all will concern the supply of low skilled individuals. If this were the case, there is less reason to be worried about the trends in Finnish emigration and immigration.

The development in terms of brain drain during the last 5-6 years has been more favourable than during the last 20 years on average. Net emigration of well-educated individuals born in Finland has decreased, and immigration from the OECD has increased somewhat. Also, it is unlikely that those immigrating to Finland are equipped with a lower level of human capital than immigrants to, for instance, Sweden and Denmark. In fact, immigrants to Finland are probably better educated on average than immigrants to other Nordic countries owing to the very large share of Russians and Estonians in the stock of immigrants to Finland. Indicators may give the impression that Finland suffers seriously from brain drain, but what the figures reflect is the low level of immigration to Finland rather than a particularly negative composition of migration.

However, from a labour market performance perspective, neither the Nordic countries nor most of the Western European countries are good benchmarks for Finland's immigration success. In most EU-15 countries, immigrants fare much worse than the native population in terms of labour market performance. It is imperative that immigrants be more successfully integrated into the labour market.

Although there has been a reduction in the net propensity to emigrate from Finland during the last 5-10 years, it is by no means clear that this trend will continue. First, it is not unlikely that the positive migration development is to some extent a consequence of the relatively rapid rate of job creation in Finland during this time. Consequently, it is possible that the trend is broken if the job creation rate in Finland decreases compared to that in other economies. Second, both the absolute number and the relative share of foreign-born individuals are rising among the resident population in Finland. And as those not born in Finland are some 10 times more likely to emigrate (Chart 18), the result is an ever more internationally mobile population.

Chart 18: Migration propensities 15-64 years old (%)



Generally, it is likely that Finland will face an increasingly competitive situation regarding the labour supply in the future, as global labour mobility increases further. How attractive it is to live in Finland compared to living in other countries is likely to become increasingly important for the labour supply in the future.

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