The Influence of Education and Socioeconomic Background on Age-Specific Migration from Finland †

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Abstract: This paper explores the influence of educational attainment on the likelihood of migration from Finland. Annual hazard rates for migration in the late 1980s and 1990s are estimated using detailed micro data from the Finnish longitudinal population register. We show that the effect varies notably by age. Around age 20, the lowest educated people have the highest migration rates, whereas in higher ages the best educated are the most prone to migrate. We also find that people raised in the upper social classes have approximately twice the migration rates of those originating in the lower social classes. Socioeconomic background even turns out to have a stronger impact on migration than education has. The results highlight that making inference about the effect of education on migration can be highly sensitive to agespecific migration patterns, and that more attention should be directed towards the situation in the family home as a migration determinant.

1. INTRODUCTION

The multitude of theories developed to understand contemporary processes of international migration posit causal mechanisms that operate at widely divergent levels of analysis [1-2]. Sorting out the relative empirical support for each of them is difficult, but educational attainment is obviously a variable that generally is considered a fundamental migration determinant. The primary reason is that it reflects observable skills that affect earnings. Differences in the returns to education between origin and destination areas can consequently affect the migration decision [3]. Nonetheless, empirical evaluations of the effect have not reached consensus [4, 5]. Most studies on migration from Mexico to the United States [6-8], for instance, find a negative relationship between educational attainment and the likelihood of migration, but evidence for a positive interrelation has also been presented [9]. Analyses of migration from the Philippines also suggest a positive relationship [10], whereas those for Egyptian migrants report statistically insignificant correlation [11].

The inconsistency is apparently because data and methodological approaches vary across analyses, and the institutional framework differs across countries involved. To illustrate the complexity involved, we will focus on one particular country, namely Finland. The detailed micro data offered by the Finnish longitudinal population registers provide opportunities for sufficiently detailed analysis. There are some previous Finnish studies on the influence of education on migration [12-14], but they provide no consistent picture. The aim with this paper is to give more in-depth evidence.

The educational system in Finland implies that all persons aged 16 years have at least nine years of compulsory

schooling. After this primary level of education, there is an option for upper secondary education in terms of either vocational schooling or education leading to the matriculation examination (which is a prerequisite for entrance to universities). The secondary level of education generally takes three years to pass. All schooling above that level is here called tertiary level of education. Theoretically, it lasts for three to five years, but quite few university examinations are passed before 25 years of age. A cohort therefore reaches the ultimate level of education at ages after those when migration rates are the highest (see Fig. 1 in the next section). At present, approximately 15 per cent of the population in Finland remains at the primary level of education, whereas one third attains the tertiary level of education.

Migration rates from Finland generally peak when people are in their early twenties and have not reached the highest possible level of education [12]. At these ages, migration evidently works as a substitute for higher attained education in the home country. At somewhat higher ages, on the other hand, when people have finished their education, individuals who migrate are primarily those who are competitive in the labour market and view the move as part of their professional career [cf. 4]. The intuition is hereby that the effect of education on migration should be negative at ages around 20 years and positive for people aged 25+.

In light of this complex education-migration interrelation, the ambiguous evidence from previous studies is not too surprising. Since the correlation is likely to differ across age groups, it is appealing to study also the effect of another variable that interrelates with education, but which is age-invariant, namely socioeconomic background. Little is known from previous register-based research about the influence of socioeconomic conditions in the family home on individuals' migration decisions. We can study this issue with the Finnish data used here. If the decision to migrate reflects persons' ambition, drive and motivation, one should expect that individuals from the upper social classes have not only higher educational attainment, but also higher migration

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rates, than those from the lower social classes. This is because, in general, the selective influence of parents is stronger, the financial factors are larger, and the mental abilities higher in the upper social classes [15, 16].

Next, we describe the data and methodology used in more detail.

2. MATERIAL AND METHODS

The data available consist of a five per cent random sample taken from a longitudinal population register file, and an additional, identically constructed, 20 per cent sample of the Swedish-speaking population in the country. The Swedish speakers constitute barely six per cent of the total population, but they live geographically concentrated in Southern and Western Finland. Our analyses are therefore concentrated to these areas. The samples contain annual information for every person at the end of each year 1987-1999. There is information about basic socioeconomic and demographic characteristics, including the region of residence. If the person had migrated abroad (destination country is not known), or had died, we know the year of the event. Migration probabilities are analysed as one-year hazard rates with log-linear regression models. All persons under study were born in Finland.

As illustrated by Fig. (1), Swedish speakers have markedly higher migration rates than Finnish speakers. The agespecific hazard rate for migration increases immediately when people can make an autonomous decision, and peaks at around 25 years of age for the Swedish speakers and somewhat later for the Finnish speakers. As men are called up for compulsory military service, they migrate at somewhat later ages than women do.

During the past decades, most migration from Finland has been in the direction of other countries in Western Europe with similar economic and social standards. Since the early 1990s, the neighbouring country Sweden accounts for barely a third of all migration from Finland. Before that, the share was substantially larger [17], because of the agreement of a common Nordic labour market and the demand for labour in the Swedish industry. In the mid-1990s, when Finland entered the European Union and the process of globalisation took pace, other industrialised countries became increasingly more popular.

We can follow each person over time, and observe the first move abroad (see the left-hand Lexis diagram in Fig. (2)). The data contain also some information on socioeconomic background, because children aged under 15 years receives the socioeconomic position of the head of the household (which usually is the father in two-parent households). Measuring socioeconomic background in this manner has been proven useful in many studies from Finland [18, 19]. In these data, socioeconomic status is only available for the years 1990 and 1993. Socioeconomic background can therefore be measured for persons born 1976-1979, who can be observed until they become at most 23 years of age.

A complementary data set is used to investigate if any impact of socioeconomic background carries over to higher

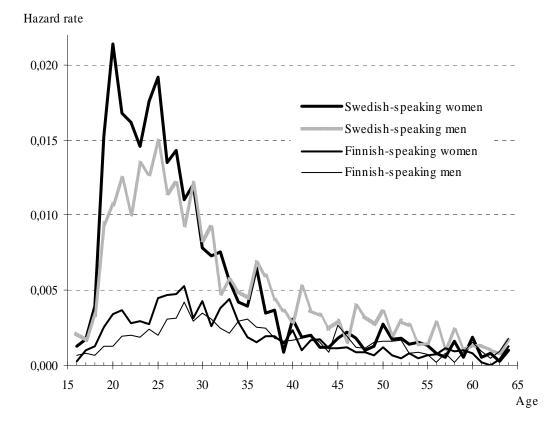


Fig. (1). Age-specific one-year migration risks by population group and sex, 1988-1999.

Source: [12].

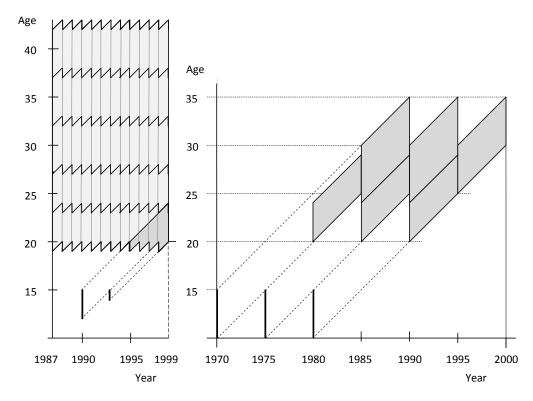


Fig. (2). Observation plans for the annual and quinquennial samples.

Notes: The Lexis diagram to the left shows the observation plan for the annual data. The vertical parallelograms give the age classification applied in the empirical analysis. The black bars illustrate how socioeconomic background is determined, and the dark grey parallelograms consequently the part of the observation plan where the variable can be included in analysis. The Lexis diagram to the right shows the observation plan for the census data with information for every fifth year, which are used to study the impact of socioeconomic background at somewhat higher ages. As indicated by the parallelograms in this diagram, we observe people aged 20-23 and 24-29 years at the beginning of each quinquennial, which implies that the vast majority of the migrants were approximately 23-26 and 27-31 years old at the time of migration.

age groups (see the right-hand Lexis diagram in Fig. (2)). These data are similar to those described above in terms of being longitudinal and at the individual level. In contrast, they contain information for only every fifth year between 1970 and 2000, based on the population censuses. In these data, migration should consequently be viewed as measured in a more long-term perspective. These files constitute a five per cent random sample of the Finnish speakers and an identically constructed 50 per cent random sample of the Swedish speakers. Migrants are persons who lived abroad at one or more of the censuses, after having been observed in Finland. The exact year of migration abroad is not known, but we can separate people who die from migrants. Since changes in individuals' educational attainment over time constitute an impediment for analyses on young individuals in these data, they are used to illustrate the situation in somewhat higher ages (for cohorts born 1956-1970).

Table 1 illustrates the distribution of educational level by age in each population group, and shows that Finnish speakers and Swedish speakers are very similar on this point.

People who remain at the primary level of education have reached their final educational attainment already at age 16, but in the registers, they cannot be distinguished from those with secondary level of education before age 19. It is more difficult to locate the relevant age for people who remain at the secondary level (and never reach the tertiary level). The choice of age intervals is therefore somewhat ambiguous on this point, but the proportion tends to stabilise quite well at age 27 years. In the empirical analyses, we use the age intervals 19-22, 23-26, 27-31, 32-36 and 37-41 years (as shown in Fig. 2).

Hence, in the youngest age group, where few have reached the tertiary level of education, the essential distinction is between primary and secondary levels of education. In the age group 23-26 years, which constitutes people who have reached their ultimate level of education, but also those who yet have not, it will be somewhat troublesome to interpret estimates for secondary and for tertiary levels of education. In ages 27+, all three levels of education can be studied without problem.

Increased possibilities for gaining education over cohorts explains why the proportion of people with primary level education seems to increase over age, and the apparent decrease in the share of people with tertiary level of education at higher ages.

Table 1. Distribution of Educational Level by Age in each Population Group (%)

Age in Years		Finnish Speakers		Swedish Speakers				
Age in Tears	Primary Education	Secondary Education	Tertiary Education	Primary Education	Secondary Education	Tertiary Education		
16	99.8	0.2	0.0	100.0	0.0	0.0		
17	99.5	0.5	0.0	99.3	0.7	0.0		
18	89.4	10.6	0.0	87.8	12.2	0.0		
19	34.1	64.7	1.2	29.5	68.8	1.7		
20	22.6	75.4	2.0	18.5	78.3	3.1		
21	20.4	75.6	4.0	16.2	78.1	5.7		
22	19.3	73.5	7.2	15.5	73.9	10.5		
23	19.0	69.6	11.5	15.5	68.7	15.7		
24	18.6	64.9	16.5	15.7	63.3	21.1		
25	18.1	60.2	21.6	16.0	57.8	26.2		
26	17.9	55.8	26.3	16.4	53.3	30.3		
27	17.5	52.4	30.1	17.1	49.9	33.0		
28	17.6	49.6	32.8	17.8	47.6	34.6		
29	17.8	47.8	34.4	18.7	46.2	35.1		
30	18.1	46.4	35.5	19.6	45.0	35.4		
31	18.6	45.3	36.2	20.6	44.1	35.3		
32	19.0	44.7	36.3	21.0	43.8	35.3		
33	19.9	43.9	36.2	21.9	43.0	35.1		
34	20.8	43.5	35.7	23.0	42.5	34.5		
35	21.9	43.1	35.0	24.1	41.9	34.0		
36	23.1	42.3	34.6	25.7	40.9	33.4		
37	24.7	41.5	33.8	27.5	39.8	32.7		
38	26.4	40.7	32.9	29.4	38.1	32.5		
39	28.0	39.8	32.2	30.9	37.4	31.8		
40	29.8	38.7	31.5	32.4	36.6	31.0		
41	31.0	38.2	30.8	34.0	35.5	30.5		

Primary level of education refers to the basic level, or nine years of schooling.

Secondary level of education refers to upper secondary education, or 11-12 years of schooling.

3. RESULTS

Finnish speakers and Swedish speakers are very much alike also in terms of educational distribution by socioeconomic background, as shown by Table 2. For all three age groups 19-22, 23-26 and 27-31 years, there is a strong link between socioeconomic background and educational attainment. Over 82 per cent of the Finnish speakers with an upper-level white-collar background have secondary level of education at age 19-22 years, as compared with less than 75 per cent for people with a lower-level white-collar background, and only 69 per cent for those raised in bluecollar families. The category "other" is heterogeneous in character, representing both economically inactive and selfemployed household heads, but it tends to lie at a level roughly similar to that of people from blue-collar families. The description for ages 23-26 years (and ages 27-31 years) is based on the census data with information for every fifth year. This taxonomy implicates that education cannot be determined annually. Attempting to separate people with tertiary level of education from those with secondary level would therefore result in validity problems. For the age group 23-26 years, we consequently had to merge the secondary and tertiary levels of education.

Table 3 reports hazard ratios of migration by educational level in the different age groups for Finnish speakers and for Swedish speakers. Numbers within parentheses are 95 per

Tertiary level of education refers to all schooling above the upper secondary level.

The description is based on the annual sample.

Table 2. Distribution of Educational Level by Socioeconomic Background in Each Population Group, Ages 19-22, 23-26 and 27-31 Years (%)

		Finnish Speakers	Swedish Speakers					
	Upper- Level Lower - Level White Collar White- Collar		Blue- Collar Other		Upper- Level White- Collar	Lower- Level White- Collar	Blue - Collar	Other
Ages 19-22 years								
Primary education	14.5	22.9	26.5	27.6	13.5	19.6	19.2	20.1
Secondary education	82.6	73.6	69.0	68.7	83.9	75.1	74.3	76.4
Tertiary education	2.9	3.5	4.5	3.6	2.6	5.3	6.5	3.5
Ages 23-26 years								
Primary education	11.6	21.0	27.2	25.2	11.4	20.1	31.0	24.7
Secondary or higher	88.4	79.0	72.8	74.8	88.6	79.9	69.0	75.3
Ages 27-31 years								
Primary education	8.6	16.0	22.9	21.3	8.3	16.2	28.3	22.5
Secondary education	46.5	50.9	55.6	55.7	44.8	46.7	47.5	49.4
Tertiary education	44.9	33.1	21.5	23.0	46.9	37.1	24.2	28.1

The description for ages 19-22 years is based on the annual sample, and that for ages 23-26 and 27-31 years on the quinquennial sample. For the two latter groups, age is consequently the approximative age of potential migrants (see Fig. 2).

cent confidence intervals for the estimated parameters. These summarised results highlight that the effect of education on migration differ across age groups, and that it is far from monotonous within age groups.

The migrants tend to be selected from both the left-hand tail and the right-hand tail of the educational distribution. At young ages, the lowest educated are the most prone to migrate, whereas in higher age groups, the most well educated have the highest migration rates. In ages 19-22 years, people with secondary level of education have 30 per

cent lower migration rates than those with primary level of education. People with secondary level of education have the lowest migration rates also in the older age groups (except for ages 37-41 years), but those with tertiary level of education have the highest. Finnish-speakers aged 23-26 years with tertiary level of education, for instance, have almost 50 per cent higher migration rates than those with primary level of education, and the differential across educational levels tends to increase over age groups. A similar, albeit less emphasised, pattern can be observed for the Swedish speakers.

Table 3. Hazard Ratios for Migration by Educational Level in Different Age Groups, Finnish Speakers and Swedish Speakers

	19-22 Years		2	23-26 Years		27-31 Years		32-36 Years		37-41 Years	
Finnish speakers											
Primary education	1		1		1		1		1		
Secondary education	0.70	(0.50-0.97)	0.92	(0.65-1.29)	0.89	(0.64-1.24)	0.77	(0.52-1.14)	1.10	(0.69-1.77)	
Tertiary education	0.44	(0.16-1.22)	1.46	(1.00-2.14)	1.80	(1.31-2.47)	1.89	(1.33-2.70)	2.55	(1.66-3.91)	
# person years		68,443		73,320		94,393		90,560		88,933	
# migrants		172		252		335		235		154	
Swedish speakers	•										
Primary education	1		1		1		1		1		
Secondary education	0.73	(0.59-0.90)	0.85	(0.66-1.09)	0.61	(0.46-0.81)	0.87	(0.61-1.26)	0.58	(0.36-0.91)	
Tertiary education	1.05	(0.71-1.55)	1.03	(0.78-1.36)	1.14	(0.87-1.49)	1.56	(1.10-2.20)	1.61	(1.11-2.34)	
# person years		33,150		33,770		42,775		43,732		47,410	
# migrants		480		492		384		227		149	

The models control for sex and age at the single-year level.

Numbers within parentheses give 95% confidence intervals.

The results are based on the annual sample.

Table 4. Hazard Ratios for Migration by Educational Level and Socioeconomic Background in Ages 19-22, 23-26 and 27-31 Years

	Upper-I	Upper-Level White-Collar		Level White-Collar]	Blue-Collar	Other	
Ages 19-22 years	·							
Primary education	1		0.73	(0.31-1.73)	0.51	(0.21-1.27)	0.47	(0.19-1.18)
Secondary education	0.61	(0.29-1.26)	0.37	(0.17-0.81)	0.38	(0.18-0.82)	0.39	(0.18-0.85)
Tertiary education	0.49	(0.10-2.30)	0.58	(0.18-1.93)	0.70	(0.19-2.64)	0.23	(0.03-1.81)
Ages 23-26 years								
Primary education	1		0.77	(0.51-1.16)	0.55	(0.38-0.80)	0.73	(0.50-1.07)
Secondary or higher	1.13	(0.81-1.58)	0.78	(0.55-1.09)	0.48	(0.34-0.68)	0.54	(0.39-0.76)
Ages 27-31 years					'			
Primary education	1		0.39	(0.24-0.64)	0.46	(0.30-0.71)	0.37	(0.24-0.57)
Secondary education	0.96	(0.64-1.43)	0.64	(0.43-0.96)	0.27	(0.18-0.41)	0.32	(0.22-0.49)
Tertiary education	1.21	(0.81-1.81)	0.78	(0.51-1.17)	0.62	(0.41-0.94)	0.47	(0.31-0.71)

The models control for sex, population group, age at the single-year level, and also time period for the age groups 23-26 and 27-31 years. Numbers within parentheses give 95% confidence intervals.

The results for ages 19-22 years are based on the annual sample, and those for ages 23-26 and 27-31 years on the quinquennial sample. For the two latter groups, age is consequently the approximative age of potential migrants (see Fig. 2).

Number of person years in each age group is 19,758, 319,425 and 480,913, and number of migrants 168, 1,377 and 1,608.

The estimation results summarised in Table 4 additionally incorporate the simultaneous effect of socioeconomic background. As the primary conclusions for Finnish speakers and Swedish speakers were the same, we have merged the two population groups.

The estimates show that socioeconomic background strongly affects the migration rate. In primary-level educated people aged 19-22 years, those who come from families where the household's head was a blue-collar worker had almost 50 per cent lower migration rates than people from upper-level white-collar families, and those from lower-level white-collar families almost 30 per cent lower. In same-aged people with secondary level of education, there is also a clear level difference between those with upper-level white-collar background and the other categories. Estimates for people with tertiary level of education are hazardous to interpret, as few belong to this category at these young ages.

In people aged 23-26 years, differences in migration rates by socioeconomic background are similar to those in the age group 19-22 years, whereas the variation is even larger for secondary or higher educated persons.

The same conclusions apply to ages 27-31 years. People raised in blue-collar families have approximately half the migration rate of those from upper-level white-collar homes, and those from lower-level white-collar families lie somewhere between. The only group that departs from this pattern is primary-level educated persons with lower-level whitecollar background, who have the same low migration rates as people in the mixed category with "other" background.

It is also essential to note that differences between the estimated parameters are larger across columns than across rows in the table, which indicates that socioeconomic background has a stronger impact on migration than education has.

4. CONCLUSIONS

This paper has shown that making inference about the effect of educational attainment on migration can be highly sensitive to age-specific migration patterns. The data used are from Finland and single estimates not necessarily applicable to other regions. Migration patterns from Finland do not deviate much from the rest of Western Europe [cf. 20, 21], however, and the overall methodological problems are the same.

We found that, around age 20, migration rates from Finland are highest among the lowest educated, whereas the impact of education changes with age, so that after the midtwenties well-educated people are the most prone to migrate. These findings, together with a strong impact of socioeconomic background on migration rates, conform to the overall idea of migration as occurring if there is a potential utility gain [1,4].

The migration rate of people raised in the upper social classes is approximately twice that of people originating in the lower social classes, and the overall influence of socioeconomic background on migration even turns out to be stronger than that of educational attainment. The driving forces behind population movements should consequently not be sought for only in individual-specific human capital factors such as education, but also in socioeconomic circumstances in the family home. People in the upper social classes generally promote their children to be ambitious, the families have more financial resources, and the children have often relatively high mental abilities. These are likely reasons to why education-specific migration rates are higher among persons who originate in the upper social classes as compared with those who come from the lower social classes.

Many of the migrants studied here returned home after only a few years abroad. Complementary analyses of ours, however, revealed that there were no major differences in the influence of education and socioeconomic background between people who returned early and those who stayed longer periods abroad (not shown here).

Noteworthy is also that the effects of the explanatory variables were roughly the same for Finnish speakers and Swedish speakers. The marked differences in overall migration rates between the two groups cannot consequently be related to educational attainment or socioeconomic background.

The implications of our findings are twofold. The first is that, when age intervals analysed are wide, it might be a risky methodological approach to use individuals' educational attainment as a variable that proxies observable skills, because education is highly age-dependent. Present results show that the interrelation between educational attainment and the likelihood of migration differs greatly across age groups within the same population under risk. Estimating the effect of education on migration in even such a relatively narrow age interval as ages 19-26 years, for instance, would clearly lead to ambiguous conclusions.

The second is that, understanding who migrates for policy and other reasons requires some information also on the situation in the family home. Socioeconomic background, which was used here, appears to have an effect on migration that goes beyond that of education. Hence, upbringing might not only affect children's decision to gain education, but also to migrate.

We know of no previous register-based study that has illustrated the relevance of these two crucial issues in an equally detailed manner as we have done here.

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