Social Mobility and Education of Finnish Cohorts Born 1936–75

Succeeding While Failing in Equality of Opportunity?

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abstract: This is a study of the intergenerational occupational class mobility of cohorts born 1936–75 in Finland and of the role of the changes in educational attainment. The data are taken from the Finnish Census Panel, from which mobility tables for 5-year cohorts that have reached the age of 25 have been constructed at 7 time-points: 1970, 1975, 1980, 1985, 1990, 1995 and 2000. The period change in social fluidity appears to be towards greater openness for both men and women. However, the cohort differences are more significant. Class origins and destinations are more strongly associated with the youngest cohorts than with the cohorts born in 1951–65, suggesting a strengthening of social inheritance. The period change can be explained by the changes in educational attainment. However, although the changes in the origin–education association play some role in reducing cohort differences, controlling education-related variation does not change them very much. The findings suggest that, in order to explain the cohort differences, it might be worthwhile considering institutional factors other than education.

keywords: age ◆ cohorts ◆ education ◆ equality ◆ Finland ◆ occupational mobility ◆ period ◆ recession

Introduction

Social class mobility and its relation to education have been studied extensively in Europe and elsewhere in recent years. Finland has been one of the exceptions; detailed analyses of intergenerational class mobility have been missing since the 1980s. Despite a lack of empirical evidence, some researchers assume that the amount as well as the pattern of social mobility have changed in Finland in recent years (e.g. Blom et al., 2001).

This assumption is easy to understand given the other observations of societal change that have occurred in recent decades, especially those related to the economic recession of the early 1990s. Although many welfare states experienced fiscal problems during the 1980s and 1990s, the downturn of the economy in the early 1990s in Finland was exceptionally long and deep. It created an economy crash worse than that of the 1930s. The recession began in 1990 and peaked in 1993, followed by quick economic recovery and a boom lasting until 2000 (see Kiander, 2004).

Despite very positive economic development following the recession, it introduced persistent inequality into society. One sign of this was unemployment; in the three years after 1990,

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the unemployment rate rose from 3 to 17 per cent, and dropped back below 10 per cent only at the very end of the decade. Also poverty – in the form of relative income poverty as well as the number of people needing social assistance – and over-indebtedness increased (Riihelä et al., 2001; Erola, 2004; Kuivalainen, 2004). Just as with the increase in the other forms of inequality, inequality of opportunity – shown as a lower likelihood of occupational class mobility – was also assumed to be increasing.

In addition to the recession, there was also an additional reason for expecting changes in mobility. If it actually existed, however, this one should have had a positive rather than a negative effect on social mobility. In recent decades, the level of education has been increasing rapidly. In general, changes in educational systems are usually considered among the most efficient ways of altering social mobility. During the recession, the educational system was expanded in order to buffer unemployment and to foster social change. The deliberate expansion of the educational system could also be considered as having been a reason for expecting changes in social mobility in Finland.

So, was social mobility reduced or changed during the 1990s compared to previous decades? Recent detailed analyses from other Nordic countries much like Finland, e.g. Sweden and Norway (Jonsson, 2004; Ringdal, 2004), suggest that reduction at the societal level at least was unlikely. In these two countries, social mobility has more or less remained at the same level as in the 1970s and 1980s or has slightly increased.

However, a recent study by Breen and Jonsson (2007) suggests that the periodically increasing openness of society may not necessarily be the whole story. The opening up of society seems to be a cohort-specific process; for example, in Sweden it seemed to apply only to cohorts born before the Second World War.

The aim of this article is to study the occupational class mobility of cohorts born in 1936–75 in Finland. The period covered is 1970–2000. The data include all cases within these cohorts aged 25–64. A highly reliable register-based census panel is used in construct mobility tables. While the absolute is also considered, emphasis is on the analysis of relative mobility. The former refers to the absolute amount of mobility between positions, the latter to social fluidity, the chances for social mobility relative to the class of parents. Social fluidity is modelled using log-multiplicative layer effect models.[1] The research questions are: How has social mobility changed between the cohorts and during the period in Finland, and what is the role of education in these changes?

Social mobility in Finland according to previous studies

The previous thorough analyses of social mobility in Finland were conducted in the 1970s and 1980s. These studies suggested that, like elsewhere, in Finland social mobility was changing largely due to modernization or urbanization. The white collar and manual classes had their origins among the self-employed farmers and farm workers, classes, which at the time were rapidly diminishing. Contrary to many other Western societies, in Finland the change from an agrarian society to an industrialized one occurred quickly, within two decades after the Second World War (see Pöntinen, 1983; Erikson and Pöntinen, 1985).

According to Bell's late industrialization hypothesis, one could have expected that the next major change in class structure would be the growth of service classes at the expense of the size of the manual labour classes (Kortteinen, 1991). This, however, did not appear to be the only likely scenario. In the last Finnish article on social mobility before the recession, Pöntinen suggested that if any changes were to be expected to happen during the following years, it could be the closure of the service classes rather than their growth. The change was likely to be moderate, if observable at all (Pöntinen, 1991). But then the economic downturn occurred, following the above-mentioned, largely unexpected societal changes.

It took about 10 years before intergenerational social class mobility in Finland was analysed again with a nationally representative data set. Erola and Moisio (2002, 2005) compared the social mobility of the 31 to 35-year-olds between the years 1990 and 1995 using the older version of the census data that is being used in this article. The aim was to find out whether the economic recession of the early 1990s had had immediate effects on class mobility. This did not seem to be the case. Moisio (2006) analysed the change in social mobility by comparing mobility differences between different cohorts using survey data collected in 2005. The younger cohorts seemed to have stronger mobility than the older ones. The same was also suggested by a study of social mobility between three consequent generations by Erola and Moisio (2007). When social fluidity between two consequent generations was studied, it signalled a weakening of the social inheritance of status.

None of the studies conducted after the recession applied a longitudinal research setting with data on many cohorts and cross-sections. Thus, despite the results, it is still possible that social mobility has changed since the 1970s, and for the worse rather than the better.

Earlier studies suggest that social mobility in Finland is similar to that in Sweden and Norway, two other Nordic welfare states (Pöntinen, 1983; Erikson and Pöntinen, 1985). In these countries, the chances for social mobility are, comparatively speaking, high. Social change has slowed down rather than increased since the 1970s, but there has nonetheless been no decrease in social mobility at the societal level (Jonsson, 2004; Ringdal, 2004).

The case of Sweden is particularly worth considering, because it, too, suffered from the economic crisis of the early 1990s followed by employment problems. Earlier results indicated that in Sweden the recession was not followed by major changes in social mobility (Jonsson, 2004). This conclusion was given slightly differently in a recent article by Breen and Jonsson (2007) analysing the changes in more detail according to cohorts and period. The authors concluded that the overall change towards greater openness since the early 1970s in Sweden was due to a 'cohort replacement' process. It was not that all age-groups experienced improved mobility, but only the cohorts born during the first half of the twentieth century. The level of mobility remained similar across the cohort at whatever level age mobility was measured at. In fact, the authors argue that the opening of the entire society, regardless of what cohort people were born into, would be a rather unusual phenomenon, and that normally the changes would be targeted at specific cohorts only. Thus, it may be that it would be more appropriate to ask whether mobility between cohorts changes rather than whether social mobility in society changes in general.

In addition to Sweden, the effect of the recession on mobility has also been previously studied in Britain, where Goldthorpe and Payne (1986) studied social mobility of young men during the 1970s. They found that the impact of unemployment on mobility was quite small, even though unemployment was concentrated to persons with a working-class background. Thus, although inequality between the classes increased, it was due more clearly to current class positions than intergenerational class inequality. This finding can be contrasted with those of Breen and Jonsson (2007); if the social mobility of one cohort is stabilized within a fairly short period, it may be that it is only slightly affected by the period changes over time in a longer time-span.

According to these studies, it should be expected that structural change in Finland has been slowing down rather than increasing, but that whatever change there has been has been in the direction of a more open society. Furthermore, it may be expected, as shown by Breen and Jonsson (2007), that this change is a cohort-specific phenomenon, rather than applicable across cohorts.

The second issue to be addressed is the transmitting role of education in social mobility. There is a fair level of consensus that equal access to education is the key factor in maintaining or increasing social mobility (cf. Hauser, 1969; Hauser and Featherman, 1976; Hout, 1984; Müller et al., 1989; Shavit and Blossfeld, 1993; Ishida et al., 1995). However, if the level of

education increases within a short period, it may lead to the inflation of educational credentials as a key factor in the allocation of social classes. This phenomenon has been documented, for example, in The Netherlands and suggested in a number of other countries as well (Wolbers et al., 2001; Breen and Luijkx, 2004).

In Finland, the role of education in social class mobility has not been studied previously, except for the Nordic comparison by Pöntinen in 1983. The descriptive study suggested that, although the differences in education and mobility were smaller between men and women in Finland than in Sweden, Norway or Denmark, access to higher educational levels was more equal in other Nordic countries. Intergenerational educational mobility *per se* has been studied more recently (Kivinen et al., 2001, 2007), suggesting a diminishing of the correlation between the education of parents and children. Also the effect of the type of primary education system on income mobility has been studied recently (Pekkarinen et al., 2006). The findings suggest that the comprehensive school reform that took place between 1972 and 1977 increased income mobility in the cohort of men born 1960–66. This reform replaced the two-track primary school system with only six years of compulsory education with nine-year (free) compulsory schooling. A study of similar reform in Sweden suggests that comprehensive school reform affected mobility because it made access to higher education more equal according to social background (Meghir and Palme, 2005).

In Sweden, the analysis of Jonsson (2004) suggested that rising levels of educational qualifications partly explain the increase in social fluidity for women in Sweden 1976–99. For men, there was no significant change in social fluidity during that period. More detailed analysis by Breen and Jonsson (2007) shows that education was the main explanatory factor behind the increased fluidity between cohorts. Education was effective through two different routes: by providing increasing equality in educational access and through a compositional effect based on the changing educational distribution of succeeding cohorts. Given that the period to be analysed here also largely matches the Swedish studies, it could be expected that the changes in Finland would be largely similar.

The data set

The data came from the Finnish Census Panel (FCP) 1950–2000 by Statistics Finland. The main part of FCP, covering every fifth year from 1970 to 2000, is constructed from the census and other register data. A simple random sample of 58,205 individuals (around 5 per cent of the population in 1970) was drawn from the 1970 population register, and all individuals who lived in the same household as the initial sample person were included, resulting in a total sample of 242,469 individuals. Every individual was then followed to 2000, even if he or she moved to another household (Statistics Finland, 1996; Österbacka, 2004).

When using register-based census data, it is necessary to link children to parents when they still live at home. Most of the oldest children included in the data set no longer lived with their parents in 1970. That is why we use a stratified sample of the 1950 census covering every tenth household in Finland at that time and included in the data set, to match children to their parents. In order to qualify as one of the cases to be analysed in this article, one of the parents must be included in this older part of the data set. This way it can be ensured that the yearly sample size remains approximately at the same level at each compared time point and follows the overall population changes.[2]

The requirement of the possibility to link children to their parents while they still live at home means that we can accomplish that fairly reliably for all those under 15 years of age in 1950. As in previous research, we assume that the earliest age when it is useful to measure children's class status is 25. This leaves us 47,575 sons and 44,711 daughters, born in 1936–75, who can be matched with their own and parental class.

If the data were organized just according to year – as is usual in mobility analysis applying data from individual surveys from different years – the yearly mobility tables would be largely overlapping when younger cohorts entered the data but older ones still remain in it. The yearly mobility tables would not be independent. In order to avoid possible problems related to this, the yearly tables are further divided into 5-year cohorts. This allows us to compare cohort-specific and period-specific change at the same time. The data can also be easily rearranged into cohort-age-specific groups, allowing analysis of the career-specific changes in mobility. This feature is also utilized below. Table 1 shows how data are organized according to cohorts, period and age. All in all, the data include 172,212 observations for men and 159,727 for women.

The occupational data are classified according to the eight-class version of the EGP class classification. The distinguished classes for men are: I Upper service; II Lower service; III Routine non-manual; IVa+b Self-employed (non-farming); IVc Self-employed farmers; V+VI Technicians, Supervisors and skilled manual workers; VIIa Semi- or unskilled manual workers; and VIIb Semi- and unskilled manual workers in agriculture. For women, we distinguish classes IIIa (higher grade; routine non-manual in administration and commerce) and IIIb (lower grade; sales and services), as often suggested for the analysis of mobility for women (cf. Erikson and Goldthorpe, 1992: 44; Breen and Luijkx, 2004: 40).[3]

Contrary to a more commonplace approach, the class IIIb for women is not combined with VIIa. This combined class would include more than 45 per cent of all cases of women. Instead, in the case of women, all semi- and unskilled workers are combined as one class VII.

The last available occupation is used as the reference of class status. The social class of the parents is assigned according to the dominance principle, according to which the class of the parent with higher hierarchy status[4] is selected as the origin class (Erikson and Goldthorpe, 1992: 34; Breen, 2004: 14).

The applied educational levels, coded according to the five levels of the CASMIN educational classification, are: I Compulsory/Primary education or less; 2a+b Secondary, intermediate qualifications; 2c Secondary certificates, vocational qualifications; 3a Lower tertiary (Lower high degree); and 3b Higher tertiary (Higher university degrees) (cf. Shavit and Müller, 1998).

Class structure and absolute mobility

Let us first consider the overall change in the class structure. An estimate of this can be acquired by comparing each cohort at the age of 35–39 (shown in Table 2), including the six oldest cohorts who reached that age in 2000. The table indicates a similar structural change that has occurred elsewhere in the industrialized countries, and also previously reported in Finland, i.e. diminishing of the farming and working classes and growth of the service classes. The latter change has been more rapid for women than for men. The figures also indicate the fewer opportunities for women to access the upper service class. Class I of women has grown approximately as much as the upper service class of men, but is still less than half the size of the equivalent class for men, although the educational qualifications of women have exceeded those of men ever since the 1980s.

Table 3 shows absolute, vertical, upward and downward mobility in these cohorts at the same age. Absolute mobility refers to the percentage of the cohort in a class position different from that of their parents. Vertical mobility refers to the mobility across three hierarchy levels of the classes, as proposed by Erikson and Goldthorpe (1992), according to which classes I, II and IVa+b are most advantageous and classes VIIa and VIIb and IIIb for women the least advantageous, the other classes remaining between them. If a person has a more advantageous class position than his/her parents, he/she is considered as upwardly mobile, and, if less advantageous, downwardly mobile. For men, we can observe a decreasing absolute mobility up to the fourth cohort. In vertical mobility, there is some fluctuation but no obvious trend.

Table 1 *Structure of data according to period, cohort and age*

		Cohort								N	
		1936–40	1941–45	1946–45	1951–55	1956–60	1961–65	1966–70	1971–75	Men	Women
Period	1970	30–34	25–29							*5,970*	*4,075*
	1975	35–39	30–34	25–29						*10,717*	*8,904*
	1980	40–44	35–39	30–34	25–29					*16,597*	*14,837*
	1985	45–49	40–44	35–39	30–34	25–29				*23,592*	*21,813*
	1990	50–54	45–49	40–44	35–39	30–34	25–29			*31,165*	*29,216*
	1995	55–59	50–54	45–49	40–44	35–39	30–34	25–29		*38,512*	*36,780*
	2000	60–64	55–59	50–54	45–49	40–44	35–39	30–34	25–29	*45,659*	*44,102*
N	*Men*	*19,026*	*23,265*	*26,559*	*28,887*	*28,375*	*23,328*	*14,986*	*7,786*	*172,212*	
	Women	*17,628*	*20,461*	*24,567*	*25,996*	*27,296*	*21,932*	*14,415*	*7,432*		*159,727*

Table 2 *Class structure of 35–39 year-old Finns in different cohorts*

Men	1936–40	1941–45	1946–1950	1951–55	1956–60	1961–1965	Total
I	10.0	13.1	12.2	11.6	12.6	11.7	11.9
II	19.2	21.5	19.9	20.3	20.7	22.5	20.9
III	4.4	5.1	4.4	5.0	6.3	7.2	5.7
IVa+b	5.8	5.3	8.0	9.6	9.6	7.9	8.1
IVc	10.0	6.3	6.1	6.0	4.7	4.5	5.8
V–VI	26.8	25.7	27.4	27.1	24.9	23.4	25.6
VIIa	20.4	19.8	18.7	17.3	18.9	20.8	19.3
VIIb	3.5	3.2	3.3	3.0	2.4	2.1	2.8
Total	100	100	100	100	100	100	100
Women	1936–40	1941–45	1946–1950	1951–55	1956–60	1961–1965	Total
I	2.2	3.6	4.7	6.4	6.4	6.1	5.4
II	13.7	14.8	16.5	18.6	22.6	25.7	20.1
IIIa	9.8	12.8	12.3	15.4	16.6	16.3	14.7
IIIb	32.1	33.9	35.7	31.9	29.7	26.6	30.9
IVa+b	2.4	2.9	3.6	5.0	5.1	4.5	4.3
IVc	10.8	5.9	3.7	4.8	2.9	2.8	4.3
V–VI	6.7	6.5	6.2	4.0	5.2	5.5	5.5
VII	22.4	19.6	17.2	13.9	11.5	12.4	14.8
Total	100	100	100	100	100	100	100

However, when the direction of mobility is differentiated, it can be seen that the amount of downward mobility increases.

For women, we first see an increase in mobility, then a decrease between the last two cohorts included in the comparison. The level of absolute mobility for women is higher than for men, although this is partially a technical outcome of the classification differences between fathers' and daughters' occupations. Vertical mobility is less sensitive to classification differences. Accordingly, mobility for women fluctuates slightly – there is no obvious pattern – and in general women are less mobile than men. If upward mobility is considered, the pattern is quite clear: opportunities for upward mobility are increasing. The chances of downward mobility are slightly higher for cohorts born during the second half of the decade, but the difference is modest.

Table 3 *Absolute and vertical mobility of 35–39 year-old Finns in different cohorts*

Men	1936–40	1941–45	1946–50	1951–55	1956–60	1961–65	Total
Absolute mobility	77.6	76.8	75.3	73.9	73.8	74.2	74.8
Vertical mobility	53.3	52.8	54.0	52.9	52.8	54.5	53.4
Upward vertical	36.1	33.9	35.4	32.2	30.0	29.5	32.1
Downward vertical	17.2	18.9	18.6	20.6	22.9	24.9	21.3
Women	1936–40	1941–45	1946–50	1951–55	1956–60	1961–65	Total
Absolute mobility	83.7	85.8	85.8	85.8	85.2	83.0	84.8
Vertical mobility	43.7	45.4	45.7	50.4	50.1	51.8	48.9
Upward vertical	21.9	23.0	25.4	26.7	27.5	28.8	26.4
Downward vertical	21.8	22.4	20.2	23.8	22.5	23.5	22.5

The data from the year 2000 can be compared to the equivalent numbers for the absolute and vertical mobility of men in different European countries reported by Breen and Luijkx (2004). In order to match the age distribution and the version of EGP used in the book, the Finnish data now also include the cohort born in 1971–75 and classes I and II are combined. Also, a dissimilarity index is reported. This can be considered a reference to the smallest number of cases that need to be rearranged for perfect mobility to be gained.

From a comparative perspective, the figures for absolute and vertical mobility given in Table 4 appear to be reasonably similar to those of the Nordic counterparts, Sweden and Norway. However, the amount of upward vertical mobility seems fairly low and downward mobility correspondingly high. This is reflected by the dissimilarity index. It is fairly low if compared to the other Nordic countries, and at the level of Germany and Great Britain. It seems likely that this is at least partially a result of register-based census data being used rather than survey data.[5]

In order to argue more about the changes in the equality of opportunity, social mobility needs to be studied by modelling relative social mobility, i.e. social fluidity.

Table 4 *Absolute and vertical mobility of 25–64 year-old Finns in comparison to men in other countries*

	Absolute mobility	Vertical	Upward	Downward	Dissimilarity
Finland, men	68.3	54.0	27.8	26.2	16.9
Finland, women	78.1	50.1	25.3	24.8	12.5
Men in 1990s:					
Germany	60.3	46.3	33.3	13.0	16.9
France	67.0	46.3	29.9	16.4	20.1
Italy	72.1	46.3	35.9	10.4	24.7
Ireland	66.1	45.5	31.4	14.1	23.1
GB	60.8	50.7	31.7	19.0	17.1
Sweden	71.0	55.2	36.6	18.6	20.5
Norway	68.1	52.1	34.2	17.9	20.6
Poland	67.4	45.9	26.3	19.6	22.2
Hungary	71.6	50.3	35.9	17.8	22.6
Israel	74.3	50.4	35.0	15.4	30.5
Netherlands	65.7	54.0	37.7	16.3	23.1

Source: Breen & Luijkx, 2004 (for all countries except Finland)

Social fluidity according to cohort and period

When categorical class measures are used, social fluidity is usually analysed with different types of log-linear and log-multiplicative models, as shown in the examples of Erikson and Goldthorpe (1992), Breen (2004) and many others. This is also the strategy followed here. As explained above, however, rather than using more typical period–origin–destination tables, the analysis is conducted applying the four-way cohort–period–origin class–destination class (CPOD) tables.

Table 5 gives the model fit statistics for the log-linear and log-multiplicative models of social mobility according to cohort and period for men and women, This table reports degrees of freedom (d.f.), chi-squared values (G^2), the dissimilarity index (delta, Δ) and the Bayes Information Criterion (BIC) for each model. A well-fitting model will have a dissimilarity index close to zero and a negative BIC as low as possible. A model with a negative BIC is preferred to a saturated model. As described above, the dissimilarity index can be understood as the proportion of cases that would have to change cells in order for the fitted and observed frequencies

Table 5 *Log-linear models for OD-association according to cohort and period*

		Men			Women		
	df	G^2	Δ	BIC	G^2	Δ	BIC
1. *OD*	1666	3319.6	0.044	−16766.5	7007.2	0.071	−12953.5
2. $OD\beta_C$	1659	3223.3	0.043	−16778.4	5517.1	0.061	−14359.8
3. $OD\beta_P$	1660	3291.7	0.044	−16722.1	5787.3	0.065	−14101.6
4. $OD\beta_{C+P}$	1653	3195.1	0.043	−16734.3	4974.8	0.059	−14830.2

Note: O = origin class; D = destination class; C = cohort; P = period.
All models include terms: CPO, CPD.

to be identical; it roughly refers to the percentage of cases misclassified. Reflecting the recent critique (Weakliem, 1999, 2004) towards over-extensive use of BIC in model selection, the analysis relies on the usual approach of comparing models according to chi-squared tests.

Model 1 is the Constant Social Fluidity model, assuming that there is an association between origin and destination, but that this association does not vary according to cohort or period. This model, as well as the others reported in Table 5, includes the three-way interactions for cohort, period and origin (CPO) as well as cohort, period and destination (CPD). It can be seen that the fit of the model for men is already very good, dissimilarity indices being well under the often mentioned limit of 5 per cent for a well-fitting model. There is very little variation left to be explained after the OD association for men has been controlled for. In terms of the dissimilarity index, the model fit for women is slightly weaker, as usual in the similar comparisons.

Model 2 allows origins and destinations to vary according to the same pattern in all cohorts, but with a different strength, while Model 3 assumes that the strength of OD association varies according to period. The variation in the strength of association can be tested by modelling log-multiplicative (or *Unidiff*-) interaction between the multiplier (here cohort and period) and OD association, annotated with $OD\beta_n$ (see Erikson and Goldthorpe, 1992; Xie, 1992). The assumption is that a change between cohorts and period improves model fit in terms of the chi-squared tests for both men and women. In the case of men, the cohort changes reduce G^2 by 96.3 while using only 7 d.f., and the period changes reduce this by 27.9 with 6 d.f. The equivalent chi-squared reductions for women are much bigger, 1490.2 and 1219.9. The change according to cohorts seems to be stronger for both men and women, similar to the findings by Breen and Jonsson (2007) in the Swedish data. The dissimilarity index and BIC reveal that the model improvement gained by assuming variation in the strength of OD association is modest for men. In fact, according to the dissimilarity index and BIC, there is no improvement whatsoever if the period change for men is considered.

The next model (Model 4) assumes that the strength of the OD association varies according to both cohort and period. In contrast to the Swedish findings, this appears to improve the model fit if compared to the previous model, although again more clearly in the case of women than men (chi-squared improvement 28.2 versus 542.3 with 6 d.f. if compared to Model 2). Nonetheless, the results suggest that there is also a period change in mobility in Finland despite the stronger variation in it according to the cohorts.

What, then, is the pattern of cohort and period-specific change in mobility? Figures 1 and 2 show the *Unidiff* coefficients per cohort and period and their quasi-standard errors (Firth and De Menezes, 2004) from Models 2, 3 and 4.[6] The scales of figures have been set to the same level in order to compare the magnitude of the change. For men, we first see the strengthening of the OD association until the third cohort and weakening for the cohorts born in 1951–1965, then again an increase to the level of the pre-1950s cohorts. For women, we observe varying amounts of weakening until the cohort born in 1961–65, then almost equally strong growth.

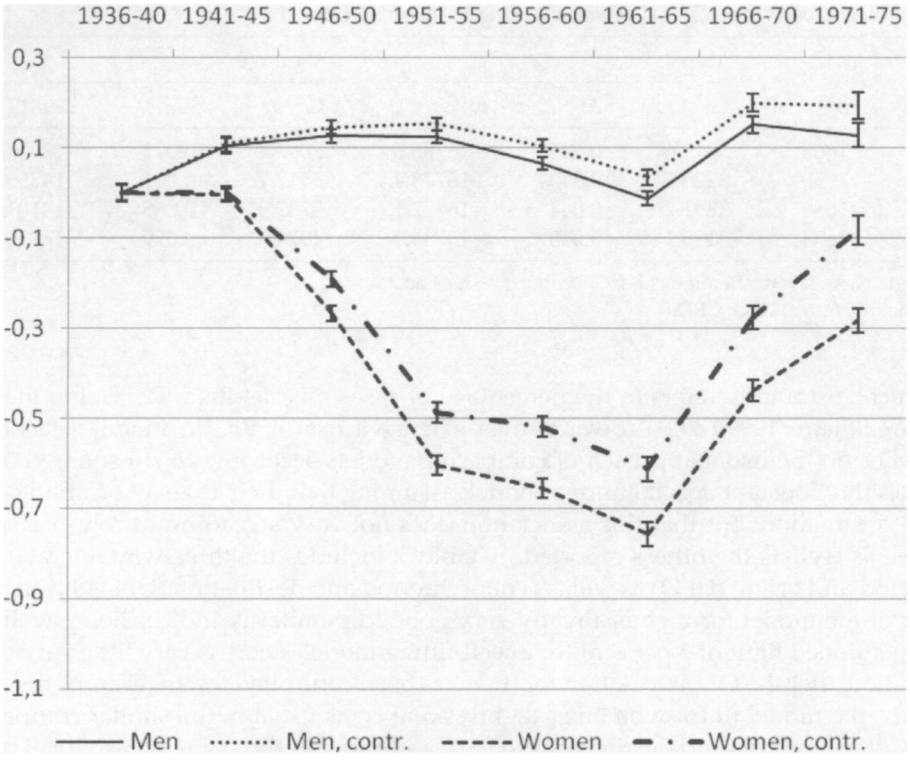

Figure 1 *Log-multiplicative estimates of OD-association according to cohorts with and without control for period change*

The period change appears to reduce the cohort differences more than for men, but for both sexes the pattern of cohort differences is more or less the same with or without taking the period effect into account.

The period change for men shows weak and steadily weakening OD association. For women, the overall change during the first two decades is quite strong but actually stopped in 1990. If the period effect was modelled as linear, the coefficient for men would be –0.02 and for women –0.09. In the case of men, the linearization would not weaken the model fit, which is not surprising given the pattern shown in Figure 2. Thus, it appears that in Finland there is indeed a period tendency towards greater openness, greater for women than for men, although the variation between cohorts in mobility plays a greater role.

Age–cohort specific differences in mobility

The results above raise the question of how they translate into the possible age-specific differences in OD association. Indeed, the period change could be reflected as the differences in OD association according to age in different cohorts. This may be studied by reorganizing the data as cohort–age–OD tables. The models are reported in Table 6. The first model assumes only the cohort-specific *Unidiff* variation, which is a duplicate of Model 2 in Table 5, while Model 2 in Table 6 assumes that this association also varies according to age. The latter model improves the model fit significantly for both men and women, if compared to the previous model (chi-squared change 23.1 for men and 389 for women with 7 d.f.). In the final model, we assume that the OD association varies depending on cohort and age and that the age-specific

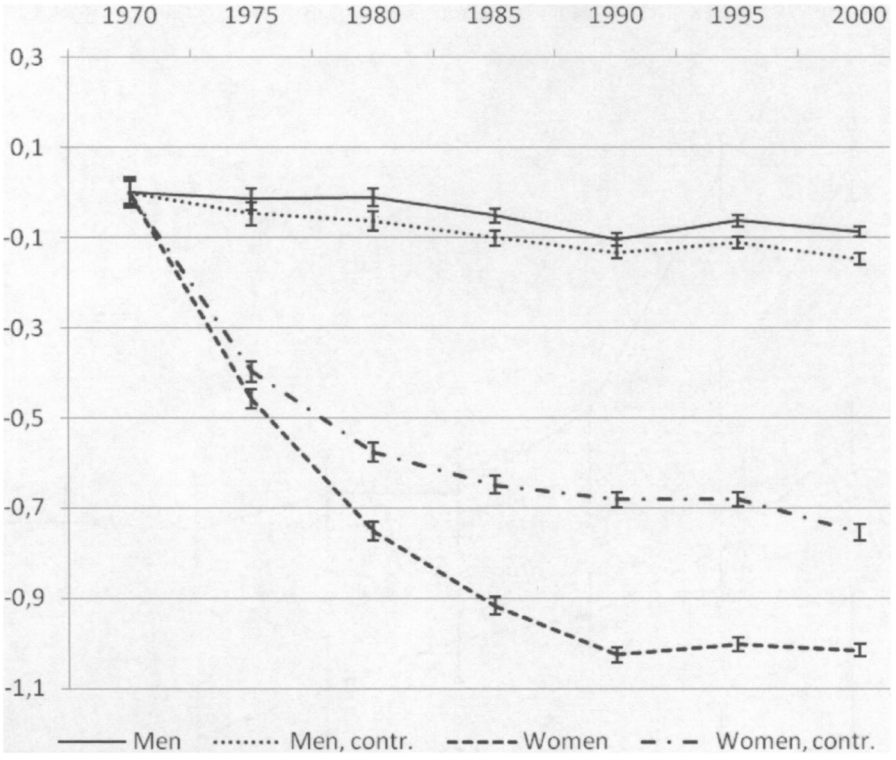

Figure 2 *Log-multiplicative estimates of OD-association according to period with and without control for cohort change*

variation in OD is different depending on cohorts; thus, the multipliers are interacting. This seems to improve the model fit for women but not for men (chi-squared change 16.8 for men and 188.8 for women with 20 d.f.).

If modelled as linear, the age-specific change in OD association for men would be –0.02, which is exactly the same as the period change; it can therefore be argued that the period change is the same as we observe as the weakening of OD association according to age. As the fit of Model 3 suggests, the situation is slightly different for women: OD association changes differently according to age in different cohorts. Figure 3 shows the age-specific change in OD association in each cohort for women, acquired from an omitted model including the age–cohort interaction in OD multiplier, but excluding the multiplicative main effects of Model 3 in Table 6. All multipliers are contrasted to the cohort born in 1941–45 at the age of 25–29. It

Table 6 *Log–linear models for OD-association according to cohort and age*

		Men			Women		
	df	G^2	Δ	BIC	G^2	Δ	BIC
1. $OD\beta_C$	1659	3223.3	0.043	–16778.4	5517.1	0.061	–14359.8
2. $OD\beta_{C+A}$	1652	3200.2	0.043	–16717.1	5128.1	0.059	–14664.9
3. $OD\beta_{C+A+C?A}$	1632	3183.4	0.042	–16492.8	4939.3	0.058	–14614

Note: O = origin class; D = destination class; C = cohort; A = age.
All models include terms: CAO, CAD.

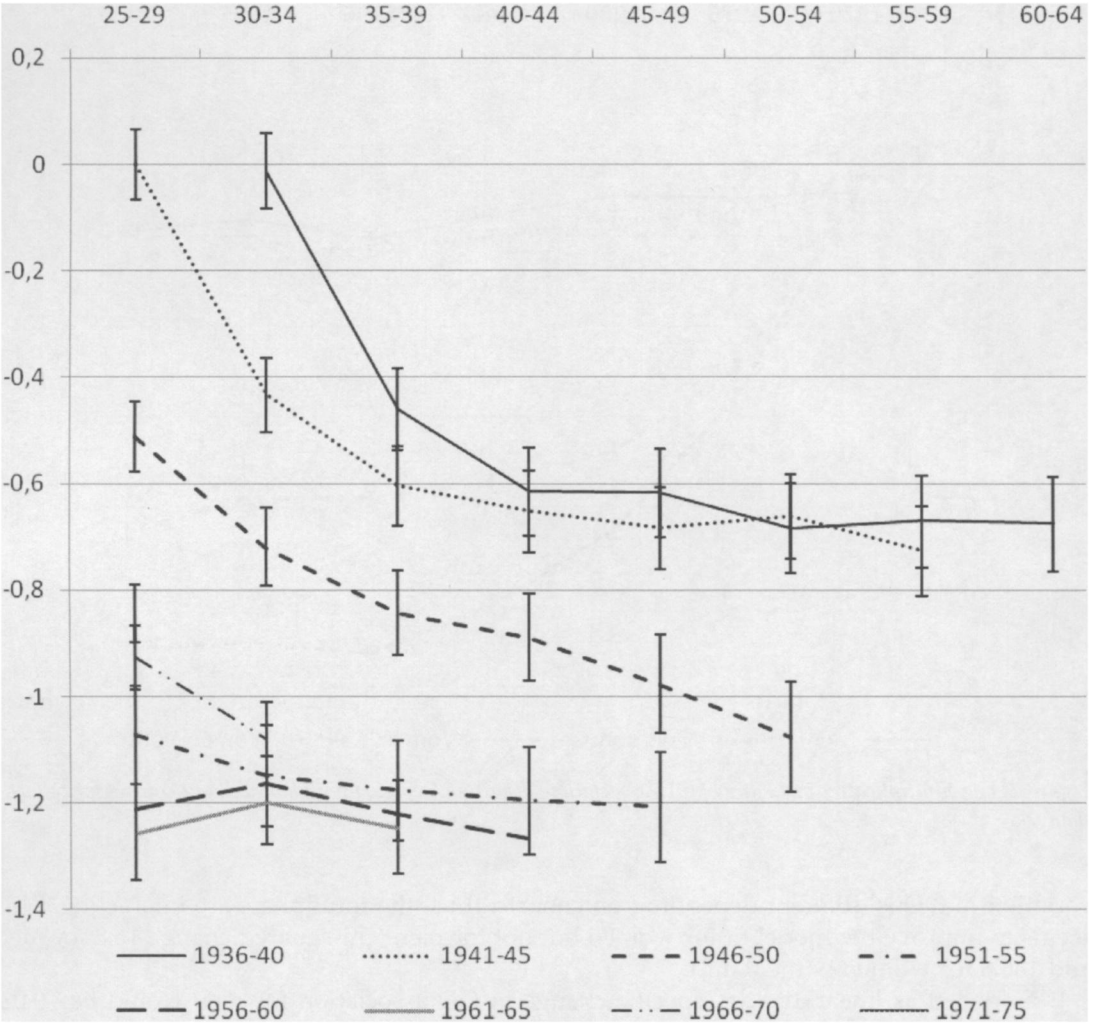

Figure 3 *Log-multiplicative estimates of OD-association according to combinations of age and cohort for women*

can be seen that the association between origin and destination appears to weaken gradually from the first cohort to the fourth, after which there are no particular differences in mobility. Although the greatest age-specific differences are observable before the age of 35, there appears to be a weak but steady reduction in OD association both before and after it. There are two exceptions. For the cohorts born in 1956–65, we observe a slight strengthening of OD association between the two youngest age groups, although this variation clearly remains within standard errors.

The analysis of cohort and age variation further underlines the importance of cohort differences. The tendency towards greater openness in Finnish society during the entire period for men and also for the last two decades for women appears to be based on the overall weakening of OD association according to age combined with the cohort-specific differences in it. Mobility at the age of entry into the labour market seems crucial for determining the level of mobility within each cohort.

Role of education in social mobility

The transmitting role of education on social fluidity is studied next. The above analysis suggests that there has been a modest period increase in social mobility in Finland that cannot be explained by cohort-specific log-multiplicative variation in OD. Yet cohort differences are stronger and actually show strengthening of the OD association for the youngest cohorts. The question is, then, how much these changes are influenced by educational differences. In the Swedish case, for example, the controlling OED association explained the cohort-specific differences in OD associations (Breen and Jonsson, 2007); the association between origin and education in particular seemed to become weaker over time.

In the Finnish case, we may consider the following: Are both cohort differences and the period change explainable through education? As education does not typically change over the life course, but rather each cohort reaches its educational level before entering the labour market, it may also be the case that OED association affects only cohort-specific associations. However, the advantage of receiving more education rather than less does not have to materialize only at a certain age; rather, it may be argued that education pays off differently in different prevailing societal conditions and at different ages. It is difficult to foresee which has been the case in Finland.

These expectations may be contrasted with the changes in the educational level of the population at the same time. Table 7 shows the educational structure in the data at the age of 30–34 in each cohort (excluding the youngest cohort that had not reached the age of 30 in 2000). In general, it appears that the level of education has more or less constantly increased. It can be seen that in the oldest cohorts men were still better educated than women, but in the youngest this has reversed; women are now clearly better educated than men. Although the expansion of higher education is often discussed in public, the change is more dramatic at the bottom of the educational scale. In the oldest cohort, about half have only basic education, in the youngest only 19 per cent of men and 14 per cent of women.

Table 8 gives the percentages of those with a university degree according to parental class – again in the same cohort/age groups. It is clear that improving educational achievement is not a universal trend based on social background; in fact, this only applies without exceptions to the sons of the lower service class. There is actually an opposite trend among the children of the semi- or unskilled working classes, the proportion of whom with higher tertiary education

Table 7 *Education of 30–34 year-old Finns in different cohorts*

Men	1936–40	1941–45	1946–50	1951–55	1956–60	1961–65	1966–70	Total
Basic	60.3	46.9	40.5	28.3	23.7	18.4	19.0	29.1
Low. sec.	19.4	28.1	34.9	43.8	48.1	51.4	48.2	42.7
Upp. sec.	9.2	10.2	11.3	13.5	14.2	16.0	15.1	13.6
Low. ter.	6.5	7.2	6.8	7.1	5.9	5.6	6.9	6.5
High. ter.	4.7	7.7	6.5	7.4	8.1	8.6	10.8	8.2
Total	100	100	100	100	100	100	100	100
Women	1936–40	1941–45	1946–50	1951–55	1956–60	1961–65	1966–70	Total
Basic	59.3	50.5	41.0	25.4	18.7	13.3	14.3	24.9
Low. sec.	21.5	25.8	33.8	41.6	44.7	45.2	37.8	38.9
Upp. sec.	9.9	13.9	15.1	19.8	23.4	28.6	28.7	22.6
Low. ter.	6.2	5.2	5.7	7.4	5.7	3.1	5.7	5.4
High. ter.	3.1	4.6	4.4	5.9	7.6	9.9	13.5	8.2
Total	100	100	100	100	100	100	100	100

Table 8 *Percentage of children with higher tertiary degree according to class of origin*

Men	1936–40	1941–45	1946–50	1951–55	1956–60	1961–65	1966–70	Total
I	17.6	21.1	17.9	19.5	26.1	23.8	30.9	24.4
II	16.0	25.2	26.4	31.3	32.0	32.5	36.6	31.4
III	13.7	9.4	7.8	7.1	8.4	12.4	7.4	9.1
IVab	9.9	7.9	9.5	6.7	5.5	4.4	6.4	6.4
IVc	23.7	14.7	16.6	13.8	11.9	9.1	7.1	11.5
V–VI	9.9	11.3	11.2	12.9	11.5	13.0	8.5	11.1
VIIa	7.6	8.3	9.5	8.7	4.1	4.7	3.0	5.6
VIIb	1.5	2.3	1.4	0	0.5	0.2	0.1	0.5
Total	100	100	100	100	100	100	100	100
Women	1936–40	1941–45	1946–50	1951–55	1956–60	1961–65	1966–70	Total
I	25.4	15.6	15.4	16.1	22.1	20.7	21.7	20.3
II	15.3	22.7	26.9	28.3	30.2	28.1	33.2	29.6
III	11.9	13.3	14.8	11.5	9.8	19.2	14.7	14.5
IVab	11.9	10.2	7.7	4.9	6.7	5.1	5.4	6.0
IVc	18.6	18.0	16.5	22.7	15.6	14.5	9.9	14.4
V–VI	6.8	11.7	7.1	10.2	10.8	8.5	11.8	10.2
VIIa	10.2	5.5	10.4	5.9	4.8	3.8	3.3	4.7
VIIb	0	3.1	1.1	0.3	0	0	0.1	0.3
Total	100	100	100	100	100	100	100	100

actually diminishes rather than grows. Also quite surprisingly, for the cohort born 1961–65 to the higher service class families we can observe a lower percentage of those with higher tertiary degree than among the cohort before it.

In order to save space, the associations between origin and education or education and destination are not modelled separately. Rather, we jump straight to the computationally most demanding models, adding education to the period–cohort–origin–destination tables.

The baseline model in Table 9 is a replication of the constant social fluidity model with the new data. The model includes all the two-way interactions as well as all the significant three-way interactions without OD associations, which are YCD, YCE, COE, CED and YED. Thus, to start with, the association between origin and education appears to vary only according to

Table 9 *Log–linear models for OD–association according to cohort, period and education*

		Men			Women		
	df	G^2	Δ	BIC	G^2	Δ	BIC
1. *OD*	10017	11232.9	0.072	–109536.9	14152.2	0.088	–105863.7
2. $OD\beta_E$	10013	10512.3	0.069	–110209.3	13413.9	0.085	–106554.1
3. $OD\beta_C$	10010	10957.6	0.070	–109727.8	12911.3	0.082	–107020.7
4. $OD\beta_P$	10011	11219.4	0.072	–109478	13198	0.085	–106746
5. $OD\beta_{E+C}$	10006	10157.2	0.067	–110480	12407.2	0.080	–107476.9
6. $OD\beta_{E+P}$	10007	10483.2	0.069	–110166	12585	0.082	–107311.1
7. $OD\beta_C$ – *(OE, COE)*	10206	12624.2	0.079	–110424.3	15371.4	0.095	–106908.9
8. $OD\beta_P$ – *(OE, COE)*	10207	12724.9	0.080	–110335.6	15822.2	0.097	–106470.2

Note: O = origin class; D = destination class; E = education; C = cohort; P = period.
All models include terms: all two–way interaction + YCD, YCE, COE, CED, YED, except Models 7 and 8 from which OE and COE are removed.

cohort, not according to period. In Models 2, 3 and 4, it is assumed that the strength of OD association varies log-multiplicatively according to education, cohort or year. In all models, the fit improvement is significant if compared to Model 1 according to chi-squared tests. Thus, variation in all of them seems to play a role in determining OD association.

Next, the log-multiplicative variation according to education is controlled along with the similar variation according to cohort (Model 5) and period (Model 6). In both cases, the terms together provide a better fit than controlling the log-multiplicative variation according to education alone in Model 2 (Model 5: chi-squared reduction 355.1 for men and 1006.7 for women with 7 d.f.; Model 6: chi-squared reduction 29.1 for men and 828.9 for women with 6 d.f.). It therefore appears that the variation in education does not explain the variation in strength of the OD association according to cohort or period.

In the final models, both origin–education and cohort–origin–education interactions are removed from Models 3 and 4. These models do not control the log-multiplicative variation in OD association according to education either, as was the case in Models 5 and 6. It is quite clear that the model fit is now considerably weaker than in the previous models. However, these models are fitted in order to get an idea of what role the variation in education according to background plays in the log-multiplicative variation of the OD association according to cohorts and period. Furthermore, if the multipliers for cohorts and period of these models are compared to the multipliers of the models reported in Table 5, we may also estimate the role of the education–destination association in OD change.

Figures 4 and 5 indicate the log-multiplicative variation in OD according to cohort from Models 3, 5, 7 and Model 2 from Table 5 for men and women. Correspondingly, Figures 6 and 7 show the variation according to period from Models 4, 6, 8 and Model 3 from Table 5.

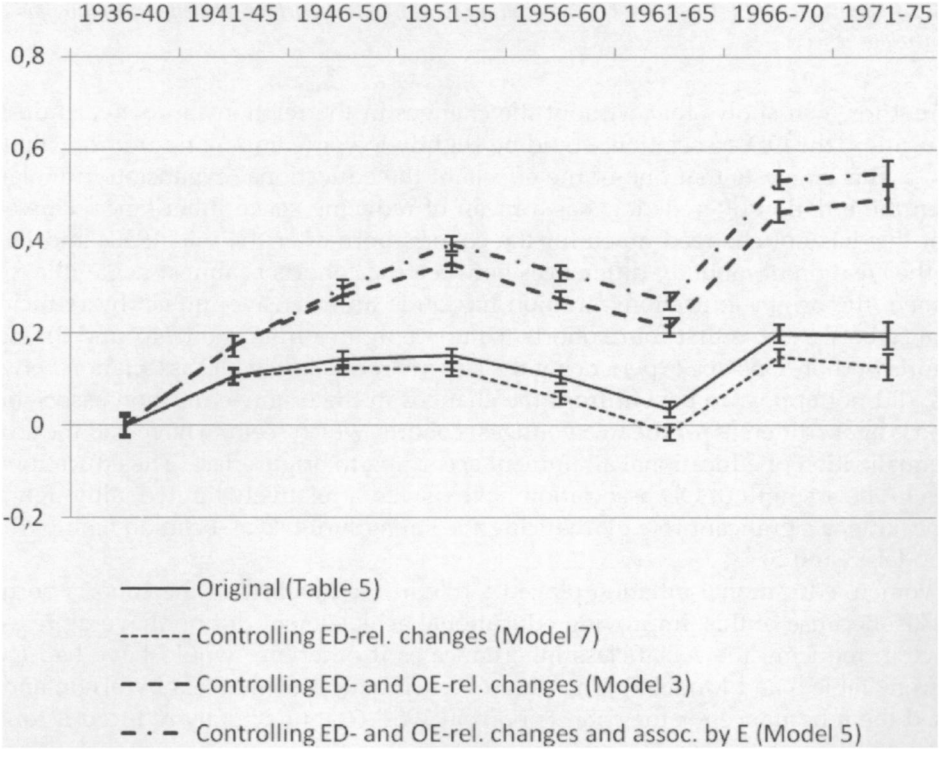

Figure 4 *Log-multiplicative estimates of OD-association according to cohort for men, controlling for education-related effects*

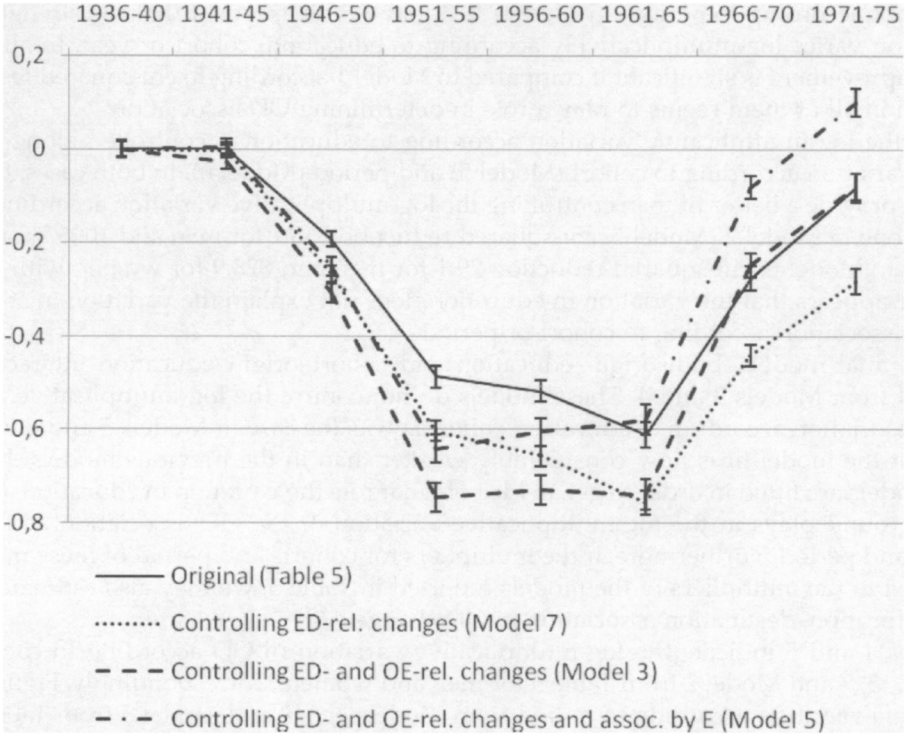

Figure 5 *Log-multiplicative estimates of OD-association according to cohort for women, controlling for education-related effects*

Figure 4 for men shows that without the changes in the relationship between destination and education, the OD association would be slightly lower (compare figure from Table 5 and Model 7). This suggests that one of the effects of the educational expansion in Finland, too, has been the inflation of credentials as a mean of reducing social inheritance. However, the effect of this has not changed much for the cohorts born after the mid-1950s and its overall role in the creation of mobility differences between the cohorts is almost negligible for men.

For men, the origin–education variation has quite an extensive impact by reducing class inheritance between the first four cohorts (compare figures from models 7 and 3). However, the cohorts born in 1956–65, experiencing the clearest reduction in OD association between the cohorts, did not appear to benefit from the changes in the origin–education association. The situation is again different for the two youngest cohorts, which seem to have had the advantage of the equalization of educational attainment according to origin–class. The education-related changes in the strength of OD association have played a relatively limited, although, statistically speaking, a significant role by reducing the strength of OD association (compare figures from models 3 and 5).[7]

For women, educational inflation played a role in the mobility of the cohorts born by the mid-1950s. Because of this, improving educational achievement did not have quite as big an influence in reducing the social class inheritance as it otherwise would have had (compare figure from Table 5 and Model 7). The differences in educational access by origin and cohort increased the inheritance for the cohorts born in 1951–60, but actually reduced it for the last two cohorts entering the labour market during or after the recession (compare figures from models 7 and 3). Most importantly, however, the inheritance in the cohort born 1961–65 was at the same level independently of the variation in OE association according to cohorts, if

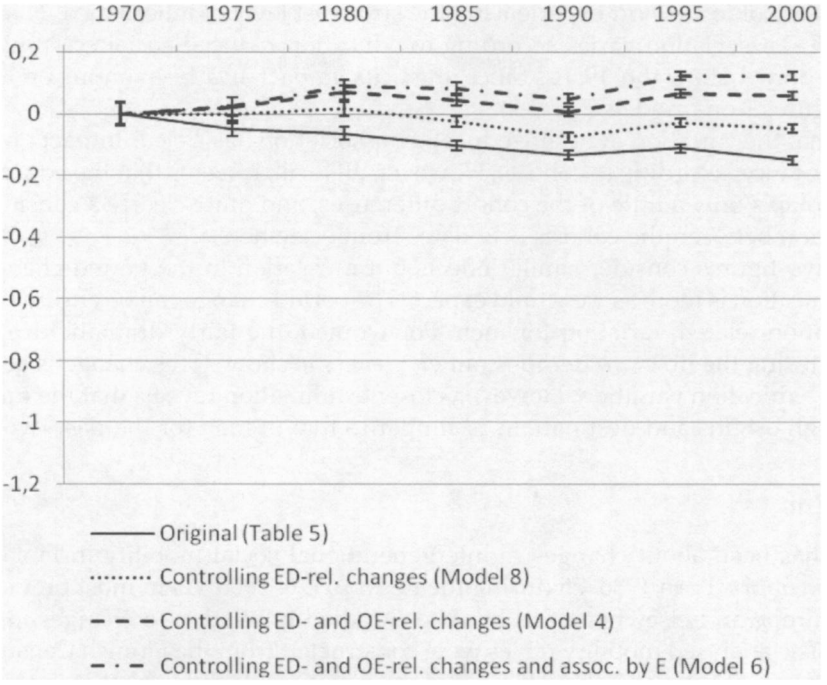

Figure 6 *Log-multiplicative estimates of OD-association according to period for men, controlling for education-related effects*

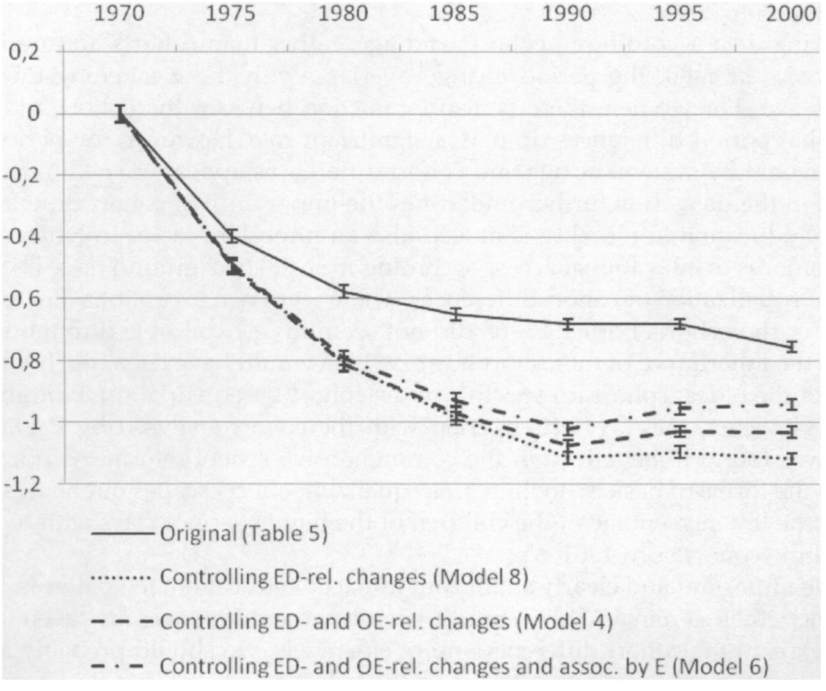

Figure 7 *Log-multiplicative estimates of OD-association according to period for women, controlling for education-related effects*

compared to the oldest cohort experiencing the strongest level of inheritance. The fact that the strength of OD association varies according to education reduced social class inheritance for the cohorts born before the 1950s. Since then, its impact has been more or less constant (compare figures from models 3 and 5).

It seems that the variation in origin–education association has a clear impact on the changes in class inheritance according to cohorts. However, all in all, it seems that the education-related variation explains only a little of the cohort differences, and quite clearly a considerable share of the variation between the cohorts originates from elsewhere.

The last two figures consider similar effects but in relation to the period change. Here the impact of education is more as we would expect. The period change can be effectively explained by an education-related variation for men. For women, the fairly dramatic drop in the OD association during the first two decades rather 'steals the show'. This change is best explained by an origin–education variation. However, closer examination reveals that the impact of education through origins and destinations is similar to that of men for the past two decades.

Conclusions

This article has been about changes in intergenerational social mobility in Finland between the five-year cohorts born 1936–75 during the period 1970–2000. As in most previous mobility studies in Europe and elsewhere, this has been studied in relation to changes in educational attainment. The analysed mobility tables were constructed from the Finnish Census Panel. The results of the mobility analysis show that there are considerable differences in mobility between the cohorts, but that controlling these differences alone does not make the period differences disappear. The period change is towards greater openness, stronger for women than for men. The effect is considerably weaker than the variation according to cohorts, however. Given the differences in the types of data, the results are more or less in line with the results from Sweden (Breen and Jonsson, 2007).

Restructuring data according to cohorts and age, rather than cohorts and periods, reveals that, in the case of men, the period change overlaps with the weakening OD association according to age. For women, there is also interaction between the cohort and age effects, suggesting that period differences do play a significant role. However, the period effect that cannot be covered by systematic age and cohort differences appears to be limited to the first four cohorts in the data. This further underlines the importance of cohort differences.

The role of education in mobility is indeed also an important factor in Finland. It appears that the differences in educational access according to social background have been important factors in the equalization of cohort differences. There were two exceptions. For men, reduced inheritance for the cohorts born 1956–65 did not seem to be explicable through these effects. For women, the inheritance of the cohort born 1961–65 would have been much lower than the inheritance of the oldest cohort irrespective of the cohort-based variation in origin–education association. However, these cohorts overlap with the cohort analysed by Pekkarinen et al. (2006) that was found to benefit from the comprehensive school reform. As our data do not differentiate the forms of basic schooling, this equalizing effect escapes our analysis. This may also explain the low percentage of the children of the higher service class with higher tertiary education in the cohort born 1961–65.

Despite the important and clearly significant impact of education, the patterns of the cohort differences nonetheless remain fairly similar, even if these differences are taken into account. In order to explain the cohort differences more effectively, we should probably also look for other equalizing factors in addition to the changes in education. This finding is important for the policy recommendations aiming at reducing the cohort differences in social mobility. To rephrase the main finding, equal access to education according to social background may

soften cohort differences. However, in order to iron them out more effectively, it seems necessary also to consider other institutional effects. What happens at the time of entry into the labour market appears to be the most crucial moment for this.

It was possible to explain the period effect for men with the changes in educational attainment. In the case of women, the strong weakening of the OD association during the first two decades compared is nonetheless only partially explicable by educational changes. Again, it could be argued that educational differences may be important, but that there could be other at least equally important factors explaining the change for women from 1970 to 1990.

The results suggest that whether we are witnessing the closing or opening of Finnish society really depends on whether we emphasize differences between the cohorts or periods. If the period change is considered, Finland still appears to be becoming a more open society than it has been previously. However, the two youngest cohorts have a higher level of social inheritance than the cohorts before them. This may be considered a sign of failure to increase openness in society between the cohorts. On the other hand, the youngest cohorts experiencing a higher level of inheritance entered the labour market during and after the recession and had the clear advantage of more equal educational attainment. Quite clearly this was not enough.

Notes

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1. All the analyses in the article have been computed with R2.8.1 using the gnm package (R Development Core Team, 2008; Turner and Firth, 2009).
2. The 1950 sample is a household panel which may make the data biased towards younger cohorts the further we move from the original sample. Using the earliest available data (see Österbacka, 2004) and splitting it into cohorts minimizes the practical effect of this.
3. Ganzeboom and Treiman's conversation tools (2007) were used as a reference to create a coding key from Finnish occupational classifications to EGP classification.
4. The hierarchy, starting from the most advantageous one, I+II, IVa+b, IVc, IIIa+b, V+VI, VIIa, VIIb).
5. Comparative studies on social mobility usually apply to survey data. The census data in 2000 can be compared to a Finnish survey data from 1999 (see Erola and Räsänen, 2000). The class structure of men appears to be remarkably similar in both data sets, except for self-employment, which is clearly under-reported in the survey (4 per cent lower than in the census). For women, the differences are bigger (8 per cent lower in III in the survey, while 7 per cent higher in VIIa), but nonetheless suggest that the greater validity of the census data, excluding the non-employed from both data sets, makes the distributions almost equal. The survey does not deal reliably with the previous occupations of the non-employed. Similarly, it is likely that the census reports parental class more accurately (and with less endogeneity) than the survey. This may explain the, comparatively speaking, high level of downward mobility.
6. Usually the *Unidiff* association for the reference category is scaled to 1. However, we wish to present quasi-standard errors for all categories that cannot be currently computed if the *Unidiff*-multipliers are rescaled.
7. According to the unreported coefficients from Model 2 in Table 9, the OD association becomes weaker as the educational level becomes higher. This applies in the case of both men and women.

References

Blom, R., Melin, H. and Pyöriä, P. (2001) *Tietotyö ja työelämän muutos* [Knowledge work and the change of working life]. Helsinki: Gaudeamus.

Breen, R. (2004) 'The Comparative Study of Social Mobility', in R. Breen (ed.) *Social Mobility in Europe*, pp. 1–6. Oxford: Oxford University Press.

Breen, R. and Jonsson, J. O. (2007) 'Explaining Change in Social Fluidity: Educational Equalization and Educational Expansion in Twentieth-Century Sweden', *American Journal of Sociology* 112: 1775–810.

Breen, R. and Luijkx, R. (2004) 'Social Mobility in Europe between 1970 and 2000', in R. Breen (ed.) *Social Mobility in Europe*, pp. 37–75. Oxford: Oxford University Press.

Breen, R. and Luijkx, R. (2004) 'Conclusions', in R. Breen (ed.) *Social Mobility in Europe*, pp. 383–410. Oxford: Oxford University Press.

Erikson, R. and Goldthorpe, J. H. (1992) *The Constant Flux: Study of Class Mobility in Industrial Societies*. Oxford: Clarendon Press.

Erikson, R. and Pöntinen, S. (1985) 'Social Mobility in Finland and Sweden: A Comparison of Men and Women', in R. Alapuro, M. Alestalo, E. Haavio-Mannila and R. Väyrynen (eds) *Small States in Comparative Perspective. Essays for Erik Allardt*, pp. 138–62. Oslo: Norwegian University Press.

Erola, J. (2004) *A Remedy with Rationalities. Improved Rational Action Theory with Empirical Content as a Solution to the Fallacies in Sociology*. Turku: Turku School of Economics and Business Administration.

Erola, J. and Moisio, P. (2002) 'Jähmettyikö Suomi? Sosiaalinen liikkuvuus ja pitkäaikaistyöttömyys Suomessa 1970–1995 [Did Finland stagnate? Social mobility and long-term unemployment in Finland]', *Sosiologia* 39: 185–99.

Erola, J. and Moisio, P. (2005) 'The Impact of the 1990s Economic Crisis on Social Mobility in Finland', in T. Wilska and L. Haanpää (eds) 'Lifestyles and Social Change – Essays in Economic Sociology', *Keskustelua ja raportteja 11:* 11–28. Turku: Turku School of Economics.

Erola, J. and Moisio, P. (2007) 'Social Mobility Over Three Generations in Finland 1950–2000', *European Sociological Review* 23: 169–83.

Erola, J. and Räsänen, P. (2000) 'Suomi 1999: aineistonkeruu ja tutkimusseloste [Finland 1999: collection of data and research report]', in J. Erola (ed.) 'Maksuhäiriöisyys laman jälkeisessä Suomessa', *Sosiologista keskustelua 36*. Turku: Turun yliopiston sosiologian laitos.

Firth, D. and De Menezes, R. X. (2004) 'Quasi-Variances', *Biometrika* 91: 65–80.

Ganzeboom, H. B. G. and Treiman, D. J. (2007) 'International Stratification and Mobility File: Conversion Tools.' Available at: http://home.fsw.vu.nl/HBG.Ganzeboom/ISMF/index.htm (accessed April, 2009).

Goldthorpe, J. H. and Payne, C. (1986) 'Trends in Intergenerational Class Mobility in England and Wales, 1972–1983', *Sociology* 20: 1–24.

Hauser, R. M. (1969) 'Schools and the Stratification Process', *American Journal of Sociology* 74: 587–611.

Hauser, R. M. and Featherman, D. L. (1976) 'Equality of Schooling: Trends and Prospects', *Sociology of Education* 49: 99–120.

Hout, M. (1984) 'Status, Autonomy, and Training in Occupational Mobility', *American Journal of Sociology* 89: 1379–409.

Ishida, H., Müller, W. and Ridge, J. M. (1995) 'Class Origin, Class Destination, and Education: A Cross-National Study of Ten Industrial Nations', *American Journal of Sociology* 101: 145–93.

Jonsson, J. O. (2004) 'Equality at a Halt? Social Mobility in Sweden 1976–1999', in R. Breen (ed.) *Social Mobility in Europe*, pp. 225–50. Oxford: Oxford University Press.

Kiander, J. (2004) 'The Evolution of the Finnish Model in the 1990s: From Depression to High_Tech Boom', *VATT Discussion Papers 344*. Helsinki: Government Institute of Economic Research.

Kivinen, O., Ahola, S. and Hedman, J. (2001) 'Expanding Education and Improving Odds? Participation in Higher Education in Finland in the 1980s and 1990s', *Acta Sociologica* 44: 171–81.

Kivinen, O., Hedman, J. and Kaipainen, P. (2007) 'From Elite University to Mass Higher Education: Educational Expansion, Equality of Opportunity and Returns to University Education', *Acta Sociologica* 50: 231–47.

Kortteinen, M. (1991) 'Kohti informaatioyhteiskuntaako?' [Towards information society?], in O. Riihinen (ed.) *Suomi 2017*, pp. 191–208. Jyväskylä: Gummerus.

Kuivalainen, S. (2004) *A Comparative Study on Last Resort Social Assistance Schemes in Six European Countries*. Turku: University of Turku.

Meghir, C. and Palme, M. (2005) 'Educational Reform, Ability, and Family Background', *American Economic Review* 95: 414–24.

Moisio, P. (2006) 'Sosiaalinen liikkuvuus ja mahdollisuuksien tasa-arvo 2000-luvun Suomessa' [Social mobility and equality of opportunity in the 21st century Finland], in M. Kautto (ed.) *Suomalaisten hyvinvointi 2006*, pp. 264–84. Helsinki: Gummerus.

Müller, W., Lüttinger, P., König, W. and Karle, W. (1989) 'Class and Education in Industrial Nations', *International Journal of Sociology* 19: 3–39.

Österbacka, E. (2004) *It Runs in the Family. Empirical Analyses of Family Background and Economic Status*. Åbo: Åbo Akademi.

Pekkarinen, T., Pekkala, S. and Uusitalo, R. (2006) 'Educational Policy and Intergenerational Income Mobility: Evidence from the Finnish Comprehensive School Reform', *Working paper 2006: 13*. Uppsala: IFAU – Institute for Labour Market Policy Evaluation. Available at: http://ideas.repec.org/p/hhs/ifauwp/2006_013.html (accessed April, 2009).

Pöntinen, S. (1983) *Social Mobility and Social Structure. A Comparison of Scandinavian Countries*. Commentationes Scientiarum Socialium 20 1983. Helsinki: Societas Scientiarum Fennica.

Pöntinen, S. (1991) 'Sukupolvien välinen liikkuvuus ja luokkien integroituminen' [Intergenerational mobility and integration between classes], *Työväen taloudellinen tutkimuslaitos/Katsaus* 19: 63–74.

R Development Core Team (2008) R: A Language and Environment for Statistical Computing. Vienna, Austria. Available at: http://www.R-project.org (accessed April, 2009).

Riihelä, M., Sullström, R., Suoniemi, I. and Tuomala, M. (2001) 'Income Inequality in Finland During the 1990s', in J. Kalela, J. Kiander, U. Kivikuru, H. A. Loikkanen and J. Simpura (eds) *Down from the Heavens, Up from the Ashes. The Finnish Economic Crisis in the Light of Economic and Social Research*, pp. 385–410. Helsinki: Government Institute for Economic Research.

Ringdal, K. (2004) 'Social Mobility in Norway 1973–95', in R. Breen (ed.) *Social Mobility in Europe*, pp. 251–68. Oxford: Oxford University Press.

Shavit, Y. and Blossfeld, H. (eds) (1993) *Persistent Inequalities: a Comparative Study of Educational Attainment in Thirteen Countries*. Boulder, CO: Westview.

Shavit, Y. and Müller, W. (eds) (1998) *From School to Work. A Comparative Study of Educational Qualifications and Occupational Destinations*. Oxford: Oxford University Press.

Statistics Finland (1996) *The Finnish Census Panel Data*. Helsinki: Statistics Finland.

Turner, H. and Firth, D. (2009) 'Generalized Nonlinear Models in R: An Overview of the GNM Package.' Available at http://CRAN.R-project.org/package=gnm URL (accessed April, 2009).

Weakliem, D. L. (1999) 'A Critique of the Bayesian Information Criterion for Model Selection', *Sociological Methods Research* 27: 359–97.

Weakliem, D. L. (2004) 'Introduction to the Special Issue on Model Selection', *Sociological Methods Research* 33: 167–87.

Wolbers, M. H. J., Graaf, P. M. D. and Ultee, W. C. (2001) 'Trends in the Occupational Returns to Educational Credentials in the Dutch Labor Market: Changes in Structures and in the Association?', *Acta Sociologica* 44: 5–19.

Xie, Y. (1992) 'The Log-Multiplicative Layer Effect Model for Comparing Mobility Tables', *American Sociological Review* 57: 380–95.

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