ESRC Research Project
Education and Social Mobility in Scotland in the Twentieth Century

Working Paper 5

EDUCATION AND SOCIAL MOBILITY IN SCOTLAND

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September 2005

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Abstract

The role of education in promoting social mobility is a central issue in sociological and political debate. This paper investigates the role of education in the process of intergenerational social mobility in Scotland. Over the past half century in Scotland there has been a significant increase in participation in education and radical changes in its schooling system, transforming it from a selective system to a comprehensive one. We use data from the 2001 Scottish Household Survey to analyse differences among birth cohorts in the extent to which the association between origin and destination is mediated by education. Our results show that education plays an intermediary role between origin and destination but it does not account for most of their association. Moreover, in the youngest cohorts its mediating effect has weakened which means that other ways are emerging through which middle-class parents transmit class advantages to their children.

Keywords: educational attainment, social mobility, Scotland, cohort, educational policy.

Acknowledgements

Cristina Iannelli's work was undertaken as part of the project 'Education and Social Mobility in Scotland in the 20th Century', funded by the UK Economic and Social Research Council (grant number R000239915). The questions on parental occupation in the 2001 Scottish Household Survey were partly funded by the British Academy (grant number SG32371)

Education and Social Mobility in Scotland

Introduction

The extent to which the social structure is fluid and whether education offers opportunities to move through it are among the central issues in contemporary sociological and political debate. In the 1960s and 1970s much of the American sociological literature was dominated by the belief that modern economies would have led to more meritocratic societies (Kerr, Dunlop, Harbison and Myers 1960/73; Treiman 1970; Parsons in Grusky 1994). According to this theory the continual and rapid changes in technology that characterise modern capitalist economies require highly specialised and skilled work forces. For the efficiency of industries, workers' recruitment cannot be based on consideration of individuals' ascriptive factors (such as sex, social class or race) but need to be based on an evaluation of workers' abilities and skills. In this context educational credentials become a very powerful indicator in the choice of a good worker. From the individuals' point of view education also becomes an instrument for social mobility rather than for the maintenance of status over generations.

This belief in an equalisation process led by modern economic developments has been put in doubt by numerous empirical studies which showed no evidence of this happening. In their well-known study, *The Constant Flux*, Erikson and Goldthorpe (1992) showed that relative differences among social classes have not substantially changed over time in nine industrialised countries (among them Great Britain and the US). In other words, the relative advantage of belonging to a middle class family compared to a working class family in acquiring higher occupational positions has remained constant. In a more recent study Breen and Luijkx (2004) found that, among the twelve countries analysed, in five (France, Sweden, the Netherlands, Hungary and Poland) there has been an increase in social fluidity. The authors, however, pointed out that these findings have to be read in a context of substantial commonality across time and countries in men's and women's fluidity.

A weakness of modernisation theories lies in the inadequate attention paid to the association between social origin and educational attainment that ultimately affects the relation between social origin and occupational destination. In 1967 in the United States Blau and Duncan's pioneering work *The American Occupational Structure* did clearly show that most of the effect of social class of origin on individuals' labour market destinations was mediated by education. They found that there was a strong association between father's position and son's educational attainment which in turn affected son's occupational destinations. Blau and Duncan's study inspired a series of other studies addressing the same issues. In Great Britain Halsey (1977) reported similar results to the ones presented by Blau and Duncan and these results induced Halsey to conclude that "ascriptive forces find ways of expressing themselves as achievement" (p.184). More recently Marshall *et al.* (1997) explored how educational attainment mediates the relationship between social class of origin and social class of destination. They found that, even when controlling for the effect of education, class differences in the chances of gaining higher occupational status persist. Moreover, over time, class effects have been increasingly mediated by educational attainment.

Various explanations have been proposed to illustrate the mechanisms by which social class of origin affects the distribution of educational credentials (Marshall *et al.* 1997). Pupils from higher social classes have more economic and cultural support (Bourdieu and Passeron 1977), and they are encouraged by parents and teachers to continue in education, obtain higher grades and form higher aspirations for their future (Haller and Portes 1973; Sewell and Hauser 1980). This ultimately results in a clear advantage when they enter the labour market. Families' desire to ensure that their children enter a higher social class, or at least maintain their social class of origin, leads parents to push their children to stay on in education beyond the compulsory stage and to acquire higher educational credentials (Breen and Goldthorpe 1997; Goldthorpe 1996). Facilitated by the larger availability of economic and cultural resources, middle class families tend to invest in their children's education more than other families. Indeed, the maintaining of the social advantage of origin by their offspring depends more and more upon the acquisition of high educational qualifications.

Comparative research on the effect of family background on children's educational outcomes (Shavit and Blossfeld 1993) has demonstrated that in many countries the association between social origins and educational opportunity is still strong: people from more advantaged social classes have higher chances of embarking on a long educational career than those from less advantaged classes. Moreover, this research found that class inequalities in educational attainment have remained substantially unchanged over time in many countries including England and Wales. Another cross-country comparative study has shown that "education is a crucial intervening link between the social background of individuals and their later class destination" (Müller and Shavit 1998: 1) and this may reinforce social inequalities and reduce social mobility.

This paper aims to investigate these issues further by analysing the role played by education in the process of intergenerational social mobility in Scotland. Scotland is a particularly interesting case to study because, even though it has similar labour market structure to the rest of Great Britain, it has a distinct education system. The Scottish education system is more comprehensive than the those in England or Northern Ireland (McPherson and Raab 1988; Kerckhoff *et al.* 1996, Raffe *et al.* 1999; Smith and Gorard 2002) and educational participation is generally higher in Scotland (Paterson 1997; Tinklin 2000; Croxford 2001). These differences may have shaped in a different way the patterns of social mobility.

Previous studies on Scotland

In Scotland the most recent social mobility studies date from the 1980s and analyse data from the 1970s. Results from these years show large amounts of absolute mobility, especially upward mobility, which also benefited non-manual classes (Payne 1987). In the same years, research on education (McPherson and Willms 1987) found that the gap between pupils from middle class and working class families in educational attainment in public examinations reduced over time. This decline in social inequalities in education has been mainly attributed to the reorganisation of the

Scottish secondary education system along comprehensive lines. This type of research, however, does not tackle the issue of whether in Scotland the equalisation process in education has also promoted an equalisation process in the occupational distribution of people from different social classes. Interestingly in Payne's work, upward mobility of sons from manual social classes towards non-manual occupations was found to be largely independent of the acquisition of high levels of education. However, the effects of comprehensive reorganisation of secondary education started to emerge only in the 1970s and 1980s and Payne uses data from the Social Mobility Survey which refer, as the last point in time, to the beginning of the 1970s.

Since then further research has shown the positive effect of the introduction of the comprehensive system in Scotland. Gamoran (1996) focused on the introduction of the Standard Grade (replacing O-grades), which expanded access to a core academic curriculum at age approximately 14-16. He demonstrated that this reform reduced the connection between family background and attainment within schools and increased students' educational achievement. He argued that the increased access to academic study is beneficial for students from lower social classes because it opens the door to more advanced studies and increases the pressure for access to post-secondary education. Croxford (2001) has shown that the proportion of young people who left school without achieving at least one Scottish Certificate of Education (SCE) O-grade/Standard grade award (at A-C/1-3) has declined over time, especially in the years after comprehensive reorganisation. Moreover, the rates of entry to higher education have also increased dramatically (Tinklin 2000; Croxford 2001).

The above mentioned studies point towards an equalisation process in educational outcomes but they do not go further in investigating individuals' subsequent occupational outcomes. Yet the link among social class of origin, educational attainment and class of destination is of central concern to social mobility studies. This paper investigates this link.

In a previous paper we used data from the 2001 Scottish Household Survey to analyse changes over time in the association between class of origin and destination. We found that rates of absolute mobility in Scotland have grown (Iannelli and Paterson *forthcoming*). Moreover, even though upward mobility has always been greater than downward mobility, upward mobility has declined in the youngest cohorts. We argued that two processes have been underway. From at least the middle of the twentieth century, labour market changes characterised by a contraction in manual jobs and an expansion of the service sector have offered higher opportunity for people who come from various social backgrounds to enter non-manual occupations. More recently, however, the rate of expansion of non-manual employment has slowed down, and so the children of parents who had been upwardly mobile between the 1950s and the 1970s now have less chance to be upwardly mobile or even to maintain their middle-class status than their parents had. But neither of these two processes involved a change in patterns of inequality. The results related to social fluidity showed that the association between social class of origin and social class of destination has not changed in the last fifty years. In accordance with studies of other countries, we found

that changing patterns of social mobility were due to changes in the occupational structure and not to changing patterns of social inequalities.

These results cast doubts on an equalisation process which would have occurred as a consequence of recent developments in education in Scotland. If educational expansion and the introduction of a more comprehensive system in Scotland have had a positive effect in reducing inequalities in reaching different social classes of destination we would have found increased social fluidity, which is not the case. Does it mean that educational expansion has equally benefited middle class children and working class children (ie class inequalities in education have not reduced), or possibly even mainly benefited the middle class (so that inequalities would have widened)? How could we reconcile such a conclusion with the findings noted above that inequalities in attainment at school had declined?

An alternative explanation of stability in social fluidity in Scotland may derive from the analysis of the association between education and class of destination. It may be possible that even though there has been an increase in educational opportunities, the importance of educational credentials in the labour market has reduced over time. If an increasing proportion of people acquire higher educational qualifications but job opportunities do not increase at the same pace, credential inflation may occur. Thus, a possible explanation of stability in social fluidity may be related to a weakening in the association between education and class of destination. This may bring the offspring of middle class families to rely on alternative resources (such as social capital), which are not equally available to other social classes. Or differently, as a result of credential inflation, employers may decide to recruit on the basis of workers' characteristics other than formal attainment (Jackson *et al. forthcoming*), such as communication ability or capacity to work in a team, which may be more likely to be acquired in a middle class family than in less advantaged families (Goldthorpe 1996).

A third explanation of the stability in social fluidity in Scotland could be that both the association between class of origin and education and the association between education and class of destination have remained unchanged. This would be a scenario of complete stability. This scenario would be equally interesting since it would testify that the educational changes of the last decades have had little or no effect in reducing social class inequalities.

Research questions, data and definitions

Using data drawn from the 2001 Scottish Household Survey (SHS) we first investigate the relationship between social origin and educational attainment (OE), then we examine the relationship between education and destination (ED) and finally we investigate the extent to which the association between social class of origin and social class of destination is mediated by education (OED). We will try to answer the following questions:

1. *Has the association between class of origin and education changed over time?*
2. *Is education more important in determining who gets which job in more recent times?*
3. *To which extent is the association between class of origin and destination mediated through education?*
4. *Are there gender differences in the associations between O and E, between E and D and in the mediating effect of E in the OD association?*

The 2001 Scottish Household Survey is a cross-sectional survey commissioned by the Scottish Executive since 1998 (and running annually to date) to provide reliable and up-to-date information on the composition, characteristics and behaviour of Scottish households, both nationally and at a sub-national level. A module of questions on parental occupation was included in the Survey of the year 2001 which allows us to study social mobility in Scotland. For the purposes of this paper we will analyse three main variables: social class of origin, social class of destination and education. We will also distinguish between men and women and different birth-cohorts.

Social class is defined by the individual's own current occupational status. In 5% of the cases in which respondents declared themselves to be employed, the information on respondents' social class was missing. In the case of inactive people without previous employment (mainly full-time housewives) their social status is associated with the status of the highest income householder (eg husband or parent), when information on the highest income householder is available; otherwise they were excluded from the sample. In the case of unemployed and retired people the most recent occupation in which they were employed is considered. In the SHS data respondents who retired or were unemployed for more than 5 years from the date of the survey have not been asked their latest occupation. So we could not refer to their own social class before becoming unemployed or retired. We have decided to attribute the occupational status of the highest income householder to the retired people for whom this information was available and to exclude the other cases from the sample.

Information on mother and father's employment and occupational status refers to the time in which respondents were 14 years old. To construct a synthetic measure of social class of origin we have applied the method of dominance (Erikson and Goldthorpe 1992). In the cases in which one parent is unemployed or inactive the social class of origin is determined by the occupational status of the employed parent. If both parents are employed the parent with the higher occupational status is considered. We have excluded from the sample people whose parents were employed in the armed forces or were deceased or inactive (when both parents were deceased or inactive).

The definition of class used in this paper for both parents' and respondents' occupations is the EGP class schema (Erikson and Goldthorpe 1992: 38-9). We have distinguished 5 classes: service class professionals (Classes I and II), routine non-manual workers (Class III), petty bourgeoisie (Class IV), skilled workers (Classes V and VI) and non-skilled workers (Class VII). The small sample sizes for Classes IVc

(farmers) and VIIb (agricultural labourers) prevented us from using the 7-class EGP schema.

Respondents' educational attainment is their highest certificate achieved and is classified in five levels of education: 0) no educational qualifications; 1) lower-secondary qualifications (ie School Leaving Certificate, O grades and Standard Grades GSVQ and SVQ level 1-2, and other similar qualifications); 2) upper-secondary qualifications (ie Higher Grades, A level, GSVQ and SVQ level 3, ONC, OND, City and Guilds and other similar qualifications); 3) tertiary sub-degree level qualifications (ie HNC and HND, SVQ level 4-5 and other similar qualifications); and 4) tertiary degree level qualifications (ie First degree, Higher degree, professional qualifications and other similar qualifications).

Four birth-cohorts have been selected to analyse trends in rates and patterns of social mobility during the 20th century in Scotland. The cohorts have been chosen in relation to different periods of educational reforms but also to changing labour market opportunities. Regarding the educational changes, Scotland has experienced three main periods in the history of its post-primary school system: the period before the late 1930s in which the principle of secondary education for all was being established, although the resulting system was divided into long (5/6-year)- and short (2/3-year)-courses; the period between about 1940 and 1965 when that system was consolidated and formalised; and the period after 1965 in which the dual system was replaced by a comprehensive, non-selective system. The intention here is to see whether the different eras of reform and consolidation correspond to different patterns of opportunity. The main interest is in whether any changes emerged in the post-1965 period.

Thus the four cohorts analysed are:
Cohort 1: individuals born between 1937 and 1946. They experienced a stable dual education system and the years of post-war reconstruction;
Cohort 2: individuals born between 1947 and 1956. They experienced a mature dual education system and the period of the post-war economic boom;
Cohort 3: individuals born between 1957 and 1966. They experienced a comprehensive education system and the last years of the post-war economic boom.
Cohort 4: individuals born between 1967 and 1975. They experienced a comprehensive education system and the period of de-industrialisation.

There is no doubt that a cohort analysis may produce some problems when analysing social mobility patterns. Heath and Payne (1999) point out two of them: differential mortality and migration and the different stages of respondents' occupational career. We discuss the first problem in Iannelli and Paterson (*forthcoming*), and conclude that broadly our analyses may not be too seriously affected by it. This is for two main reasons: first, the highest rates of early mortality are probably among working class people who come from working class families. This means that we may have an under-estimation of people from working class origin in the oldest cohort and consequently we may have higher mobility in the oldest cohort than there was in reality. So our analysis would be biased in a conservative direction when absolute

mobility is increasing, finding lower changes in mobility rates across cohorts than there has been in reality. For the period when absolute mobility may have been contracting (people born since the late 1960s), respondents in 2001 would still have been young enough for mortality rates in all classes to have been very low. The second reason is that migration of Scottish people was often a "meritocratic" migration, in the sense that the most educated left to find work in England or abroad (e.g. Australia and Canada) in professional or skilled jobs. Among the well-educated, there is some evidence that such migration was more likely among people from middle class families who held connections with the place of destination. This, too, would lead us to overestimate mobility rates for the oldest cohort and hence to underestimate changes in the mobility patterns. The second problem, that of respondents of different ages being in different working career phases, is a more serious one. However, in our case it may only affect the last cohort, the youngest one, composed of people aged 26-34. For the other three cohorts respondents have already a certain occupational maturity and this problem should be less relevant.

We analyse mobility tables by means of odds ratios, log-linear modelling and logistic regression. The modelling was carried out by the statistical package LEM (Vermunt 1997).

The association between social origin and education

As is well documented by the official statistics, educational attainment has grown considerably over time. In our sample the percentage of people who did not acquire any qualification has sharply declined from 40% in the oldest cohort to 12% in the youngest cohort (table 1). With the exception of the youngest cohort, a decline is also visible in the percentage of those who achieved only the basic compulsory education (O grades and Standard grades and similar qualifications). On the other hand, the proportions of people acquiring the highest educational qualifications have increased. Thus, those with degrees, advanced degrees and professional qualifications have risen from 15% to 26%.

Differences between men and women in educational attainment which characterised the oldest two cohorts have almost disappeared in the younger cohorts (table 2). Moreover, the increase in the proportion of people with only compulsory education in the youngest cohort appears to be mainly due to the increase in the number of men who fail to achieve better educational qualifications [1].

The odds ratios of gaining different educational levels show that, except in a few cases, compared to the offspring of people employed in non-skilled manual occupations (class III), the offspring of the higher social classes were always more likely to achieve the higher educational levels (educational levels 3 and 4 in table 3). However, the gap between the children of service class professionals (class I-II) and the children of non-skilled workers in the chances of gaining a degree has first reduced and then increased from the second to the third cohort and finally reduced again in the youngest cohort. This may be due to the different phases of expansion which characterised different tertiary institutions. At the beginning of the 1980s there

was a contraction in the people who could enter Colleges of Education and a restriction in the funding granted to the Universities (the old Universities) which may have halted the expansion of tertiary graduates at university level. At the same time participation in the polytechnics and other technological colleges expanded. In our data the odds ratios of gaining educational level 3 (i.e. acquiring a sub-degree level of education) go in the opposite direction from those for degrees: social inequalities increase in the cohorts in which there is a decline in social inequalities at educational level 4. (We discuss in more detail immediately below the comparison of degree and sub-degree tertiary attainment, and how this interacts with gender.)

To measure the association between class of origin and education and whether this association has changed over time we fit a log-linear model which includes origin, education and cohort. We start from a model which includes only the main effects of the three variables (model 1 in table 4) and then includes the two-way interactions between origin and cohort and education and cohort (model 2 in table 4). The tests measuring the goodness of fit of these two models show that the models do not fit the data. However, when the third interaction between social origin and education is introduced, the model fit the data very well (model 3 in table 4). This last result shows that there is no need to include a three-way interaction which would saturate the model, indicating that the association between social origin and education has remained constant across cohorts [2]. We did not find any gender difference: these results equally apply to men and women (table not shown).

From the odds ratios presented in table 3, it emerges that some changes in the origin-education association across cohorts may have occurred at tertiary level (educational levels 3 and 4). However, our log-linear model does not seem to pick up these changes. To check whether the changes showed by the odds ratios are not apparent we re-run model 3 for the sub-sample consisting only of tertiary graduates; thus the model is testing whether there are cohort, class and gender effects on gaining a degree, conditional on gaining at least a sub-degree. The results show that the association between origin and the two types of tertiary education (sub-degree and degree) has changed over time for women but not for men (table 5). Model 3 still fits the data for men, but for women it has a chi-square value of 23.2 on 12 degrees of freedom, which has a p-value of 0.03, and so does not fit. The remaining variation for women can be captured by a Unidiff model: the p-value is now 0.12. The Unidiff model (Erikson and Goldthorpe 1992) measures changes in the strength of the average association of origins and education across cohorts, rather than modelling each individual cell of the origins-by-education-by-cohort table; if it fits the data (as it does here), it is thus a parsimonious representation of the changes over time. The difference in chi-square between model 3 and the Unidiff model is 9.2 for women with a difference in the degrees of freedom of 3. This makes the difference in chi-square significant at the 0.03 level.

There are two possible explanations of these results on gender and class. One is linked to changes that happened in the non-university sector which may have affected women (especially from working class backgrounds) more than men. In general a higher proportion of women and working class people attended the non-university

sector than the universities. As a whole, this sector expanded in the 1980s more than the university sector and started to award proportionately more degrees than before, thus providing degree courses for working-class women to an unprecedented extent: for example, most of the teacher-education qualifications in the colleges of education were redefined as degrees. The colleges of education did contract between the mid-1980s and mid-1990s, but that too had the effect of pushing women onto degree courses, because many of those who would previously have attended these colleges moved to the degree courses of the universities.

The other possible explanation interacts with the first. Girls seem to have benefited more than boys from the introduction of comprehensive secondary education (Croxford 1994; McPherson and Willms 1987). Even if class differences within genders did not change, that would mean that working-class girls improved their position relative to working-class boys. If, in that sense, working class girls 'displaced' working-class boys from degree courses, we might expect a change in the association of class and gaining a degree for women but not for men.

The association between education and destination

Has any change occurred in the association between education and destination class? Table 6 presents the percentages of people who entered different classes of destination with various levels of education over time. The data show some clear trends. On the one hand there is a reduction across cohorts in the percentages of people who entered service class occupations with no educational qualifications or only basic compulsory education (education level 1). On the other hand, in the youngest cohorts, as compared to the first two cohorts, people with only compulsory education are more likely to end up in manual occupations (Class V-VI and Class VII). A higher proportion of people with upper-secondary education (level 2) and tertiary non-university degree education (level 3) fills routine non-manual occupations (Class III) in the youngest cohorts than in the oldest ones. This partly reflects the decrease in the proportions of them entering service class occupations (class I-II). A similar pattern is visible in the case of degree holders. The percentages of people who entered the service class with tertiary degrees (education level 4) are always very high; however, while from the oldest cohort to the following one their percentage grows, in the third and fourth cohorts (the youngest ones) these percentages fall. This may be explained by a credential inflation, that is nowadays there are more people with tertiary qualifications than top occupational positions available to them.

We next test whether it is possible to find statistical evidence of changing patterns of association between education and destination using log-linear models. The results (table 7) suggest that the education-destination association has not changed over time. Model 3 fits the data well and no three-way interaction among education, destination and cohort is needed.

However, the analysis of gender differences in the association between education and destination shows a more complex picture. When gender is included in the analysis, model 3 does not fit the data. Also a model with all three-way interactions involving

education does not fit the data (table 8, model 4). A significant improvement in the fit of the data is given by model 5 which assumes that the strength of association between education, destination and gender changes over time in the manner specified in the Unidiff model. According to the Unidiff parameters the association becomes weaker from the oldest to the youngest cohort (the Unidiff parameters are equal to 0.76 in cohort 1937-46, 0.39 in cohort 1947-56, 0.09 in cohort 1957-66, the reference category with value 1 being the youngest cohort 1967-76). However, the model to be preferred is model 6 which assumes that the strength of the association between education, destination and cohort is different for men and women; the Unidiff parameters show that the EDC association is weaker for women than for men (–1.63 compared to 1). To understand better this result we have measured the association between education and destination in the four cohorts for men and women separately using the much simpler index known as Cramer's V. The values of this indicate that the ED association for men increased between cohort 1937-46 (0.28) and cohort 1947-56 (0.33), then declined in cohort 1957-66 (0.27) and finally increased again in cohort 1967-76 (0.31). For women the ED association was more constant across time (values of 0.28 and 0.29) apart from the youngest cohort where it decreased (value of 0.26). Overall the values of Cramer's V confirm that the ED association is generally weaker for women than for men and that patterns in this association vary across cohorts and gender.

Education as a mediating factor between origin and destination

We finally investigate to what extent the association between social class of origin and social class of destination is mediated by education. We proceed as before, starting from the main effects model of origin, education, destination and cohort. Then all two-way interactions are included in the model except the interaction between class of origin and destination. The aim is to establish whether the educational attainment achieved by our sample could explain all the association between class of origin and destination. The third model therefore includes the association between origin and destinations to analyse whether this association has a significant effect.

As expected the first model does not fit the data (table 9). The second model does not fit the data either while the third does, showing that there is a need to include in the model the association between class of origin and destination. Thus, education does not explain all the association between origin and destination. Most importantly the model now fits the data well and this means that we do not need to include in the model the three-way interactions (that is cohort changes in the association between origin and education, origin and destination and education and destination, or the interaction ODE). Interestingly, we did not find any gender difference. Model 3 is a satisfactory model for both men and women.

We have also tested whether the association between class of origin and class of destination is weaker for more highly educated people. Following Vallet (2004) we have run a Unidiff model in which the OD association varies over education (table 9, model 4). This model, which measures the strength in the association OD over education, significantly improves the fit of the data and shows a declining strength of

association from the least educated to the most educated people. Even though this Unidiff model improves the fit of the data, the improvement is minor compared with the improvement between model 2 and 3. The difference in chi-square between model 3 and the Unidiff model 4 is only 11.2 (4 degrees of freedom of difference). Note that we have concluded that there is this partial form of ODE interaction even though we have already concluded that the full ODE interaction is not needed because model 3 fits the data.

To have a better understanding of the role played by education in social class reproduction we have also run for each cohort a multinomial logistic regression in which class of destination is the dependent variable and class of origin and education are the independent variables. We have also included gender among the independent variables to take into account a possible differentiated effect of gender on respondents' class of destination. The first model includes only gender and social class of origin. As expected, the effect of social class of origin on entry into the service class is always high and significant (table 10). The second model controls for the effect of education. Once education is included in the model the effect of social origin drops but does not disappear. This confirms that education does not explain all the association between origin and destination.

Moreover, we have calculated variations across cohorts in the extent to which education explains the association between origin and destination through a comparison of the odds ratios derived from models 1 and 2 (table 11). For access to the service class (the first segment of table 11), the trend over cohorts is similar for each class of origin apart from the small class IV: the percentage reduction associated with education rises from the first cohort to the second, does not fall substantially in the third, and then falls in the fourth. This suggests that education may have become increasingly important in mediating origins and destinations for people entering the labour market between the early 1950s and the 1980s, thus confirming and continuing the trend which Halsey noticed in 1977. But for people entering after that, there may have been a decline. Within each cohort, the role of education also appears to be greatest for the highest classes of origin; however, this might partly be due to the simple technical point that odds ratios are non-linear, and so that larger ratios tend to change proportionately more when education is added than small ones. Close inspection of the table shows that that technical point could not explain the patterns across cohorts, because, within each row, the largest percentage reductions associated with education are not systematically for cohorts where the odds ratios in model 1 are large.

By contrast with a possibly rising and then falling importance for education in mediating entry to the service class, there is no clear trend of this sort for entry to class III, from any class of origin. There is no clear pattern for entry to Class IV either, but it, being smaller, offers a less reliable basis for analysis. Overall, then, we could say that ostensibly meritocratic recruitment to the service class – in the sense of being based on acquired credentials – may indeed have been growing for the four decades after the middle of the century, but that we might now be seeing a reduction in this.

Conclusions

The paper has investigated the role played by education in the process of intergenerational social mobility in Scotland. It benefited from the use of new data on social mobility (more specifically mother's and father's occupation) contained in the 2001 Scottish Household Survey data. We analysed first the association between social class of origin and education; secondly the association between education and destination; and finally the mediating role of education in acquiring the highest occupational positions. The results have shown a large amount of stability over time.

Educational attainment has increased overall. However, the association between social origin and educational attainment has not significantly changed over time. The only changes were found in the case of women and in relation to different types of tertiary qualification (sub-degree and degree). We suggested that the different phases through which the non-university sector passed (expansion and increasing the proportions of degrees awarded) were likely to have affected women to a larger extent than men. This is because women (especially from working class origin) were more likely to attend the non-university sector than men. It may also have been because girls of all classes benefited from the introduction of comprehensive secondary education, and so that working-class girls benefited more from this reform than working-class boys.

There was an important gender difference in the change over time in the association between education and destination; the association was found to be generally weaker for women than for men, but to vary across cohorts more for men than for women.

In relation to the ideas which we cited in the Introduction, we can conclude that, as in the earlier research by Halsey (1977) and by Blau and Duncan (1967), there is still no evidence to support the claims of modernisation theory. Even in an economy dominated by services, and in which service-class employment has grown to embrace around 40% of the population (Iannelli and Paterson *forthcoming*), it is still not the case that meritocratic recruitment dominates, at least in the sense of routes into employment primarily determined by acquired educational credentials. It may further be the case, now, that education is not even the means by which class advantage and disadvantage are inherited. Our analysis has shown evidence that, for people born since the 1960s, the direct influence of class of origin has started to become more important again, after a post-war interlude in which acquiring credentials seemed to be emerging as the main way in which middle-class children acquired middle-class jobs. The role of education is still strong, but it is not getting stronger, and may be weakening.

If this is because employers are now using a wider range of criteria than credentials when recruiting people for jobs – criteria such as certain kinds of inter-personal skills or 'emotional intelligence' that may inadvertently favour people of middle-class origin – then that has rather serious implications for education policy. For over a century, the goal of reducing class inequalities in educational attainment has been based at least in part on the belief that this would help to equalise life chances. We

have found some evidence to confirm other research that class differences in attainment may have narrowed after the 1970s, especially for women; and there is no doubt that overall levels of attainment have increased a great deal, for all classes. But none of this has translated into any break with the patterns of inherited class advantage so far as class destinations are concerned.

There are, of course, more intrinsically cultural reasons to favour the widening of access to educational opportunities: a better-educated population will probably, for example, be more civic and hence a better basis for democracy (eg Bynner *et al* 2003; Nie *et al* 1996). But findings of the kind we have produced here, although not yet definitive, do tend to suggest that the social democratic project of using education to equalise life chances has been a failure. Education cannot be used, on its own, to eradicate social inequalities, and is relatively powerless to counter the middle-class strengths of effective networks, self-confident aspirations and sheer wealth.

Notes

[1] In UK there is a growing literature on the worsening of men's educational performance and on the better academic performance of women.

[2] This lack of any narrowing of the class differences in attainment in our data seems to contradict the results of earlier studies, cited above. However, we believe that differences in data and methodology used may have caused this. We look at people who were born during a very large time span and we analyse their highest educational level achieved. Previous studies, instead, analysed school leavers or young people born in the 1960s and at the beginning of the 1970s. Moreover, they focused on one specific stage of education (ie compulsory education). In our data only the youngest cohort would have been affected by a narrowing of inequalities which has been documented by these studies. This may mean that we have probably not enough statistical power to detect it.

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Table 1: Educational attainment by cohort

Birth-cohorts	Education level 0	Education level 1	Education level 2	Education level 3	Education level 4
1937-1946	39.6	28.3	13.0	3.8	15.2
1947-1956	24.2	25.4	18.9	7.1	24.4
1957-1966	19.0	23.8	23.5	9.2	24.4
1967-1976	11.9	26.9	23.0	12.1	26.2
Total No. of cases (unweighted)	*2257*	*2418*	*1890*	*761*	*2129*

Note: Education level 0 = no educational qualifications;
Education level 1 = lower-secondary qualifications;
Education level 2 = upper-secondary qualifications;
Education level 3 = tertiary sub-degree level qualifications; and
Education level 4 = tertiary degree level qualifications.

Table 2: Educational attainment by cohort and sex

Birth-cohorts		Education level 0	Education level 1	Education level 2	Education level 3	Education level 4
1937-	M	37.1	22.7	17.8	5.1	17.3
1946	F	41.7	33.1	8.9	2.7	13.6
1947-	M	22.2	17.6	26.1	7.9	26.3
1956	F	25.8	31.6	13.2	6.5	22.8
1957-	M	19.1	18.8	28.1	9.7	24.2
1966	F	19.0	27.6	20.1	8.9	24.4
1967-	M	11.6	24.7	24.2	13.0	26.6
1976	F	12.1	28.6	22.2	11.3	25.8

For meaning of education levels, see footnote to table 1.

Table 3: Odds ratios of gaining different educational levels

	Education level 0	Education level 1	Education level 2	Education level 3	Education level 4
Cohort 1937-1946					
Class I-II/ Class VII	0.17	0.65	1.47	2.06	11.37
Class III/ Class VII	0.31	1.00	1.95	0.81	5.07
Class IV/ Class VII	0.67	0.87	1.21	1.78	2.63
Class V-VI/ Class VII	0.63	1.12	1.25	1.70	1.87
Cohort 1947-1956					
Class I-II/ Class VII	0.12	0.50	0.95	3.51	7.53
Class III/ Class VII	0.35	0.61	1.46	2.01	3.71
Class IV/ Class VII	0.33	0.74	1.26	2.24	3.58
Class V-VI/ Class VII	0.65	0.71	1.16	2.57	2.04
Cohort 1957-1966					
Class I-II/ Class VII	0.12	0.33	1.07	1.06	12.43
Class III/ Class VII	0.25	0.86	1.50	1.07	3.92
Class IV/ Class VII	0.35	0.72	1.38	0.95	4.42
Class V-VI/ Class VII	0.57	0.91	1.34	0.93	2.30
Cohort 1967-1976					
Class I-II/ Class VII	0.11	0.29	1.12	1.43	7.82
Class III/ Class VII	0.35	0.56	1.30	1.57	3.15
Class IV/ Class VII	0.27	0.62	1.18	1.61	3.38
Class V-VI/ Class VII	0.55	0.75	1.35	1.23	1.94

For meaning of education levels, see footnote to table 1.

Table 4 – Results of the log-linear model testing the association between origin and education

	Chi-square	Df	Sig.
Model 1: O + E + C	2469.7	88	0.0000
Model 2: OC + EC	1351.9	64	0.0000
Model 3: OC + EC +OE	52.5	48	0.3041

O = Class of origin; E = Education; C = Cohort.

Table 5 – Results of the log-linear model testing the association between origin and type of tertiary education achieved (people with sub-degree and degree level qualifications)

	Chi-square	Df	Sig.
Total population	18.7	12	0.0961
Model 3: OC + EC +OE			
Unidiff model*	9.9	9	0.3554
Men - Model 3	14.4	12	0.2743
Women - Model 3	23.2	12	0.0264
Unidiff model*	14.0	9	0.1237

O = Class of origin; E = Education; C = Cohort.

Table 6: Class distribution by education and cohort (percentages by row)

Class of destination

Birth-cohorts	Class I-II	Class III	Class IV	Class V-VI	Class VII
Education level 0					
1937-1946	18.1	16.2	6.6	23.0	36.1
1947-1956	14.9	23.7	7.3	22.2	31.8
1957-1966	16.3	19.5	3.0	24.4	36.9
1967-1976	11.8	22.4	4.3	24.2	37.3
Education level 1					
1937-1946	23.8	33.2	7.8	14.9	20.3
1947-1956	24.5	36.1	8.7	13.7	17.0
1957-1966	21.7	33.1	6.4	17.0	21.8
1967-1976	21.0	28.3	6.2	21.4	23.1
Education level 2					
1937-1946	35.5	20.2	7.1	26.2	11.0
1947-1956	36.1	23.9	6.4	22.4	11.2
1957-1966	38.7	27.9	6.2	17.5	9.7
1967-1976	32.7	29.5	4.6	21.3	11.9
Education level 3					
1937-1946	54.7	24.5	7.5	11.3	2.0
1947-1956	55.5	23.8	5.5	8.5	6.7
1957-1966	48.9	26.2	3.4	11.0	10.5
1967-1976	44.0	28.6	5.2	14.5	7.7
Education level 4					
1937-1946	80.3	8.6	3.8	2.1	5.2
1947-1956	87.8	6.1	2.0	2.3	1.8
1957-1966	83.1	9.4	2.6	3.2	1.7
1967-1976	79.7	13.7	0.6	3.4	2.6

For meaning of education levels, see footnote to table 1.

Table 7 – Results of the log-linear model testing the association between education and destination

	Chi-square	Df	Sig.
Model 1: D + E + C	2927.8	88	0.0000
Model 2: DC + EC	2357.7	64	0.0000
Model 3: DC + EC +DE	60.3	48	0.1100

D = Class of destination; E= education; C = Cohort
Note: the Unidiff model does not improve the fit of the data.

Table 8 – Results of the log-linear model testing the association between education and destination by gender

	Chi-square	Df	Sig.
Model 4: DC + EC + ED+ GC+ DG+ EG+ DCG + ECG+ EDG+EDC	74.9	48	0.0077
Unidiff Model 5: DC + EC + ED+ GC+ DG+EG+DCG+EDC+ECG+ EDG changes over time	59.0	45	0.0785
Unidiff Model 6: DC + EC + ED+ GC+ DG+EG+DCG+EDC+ECG+ EDC changes by gender	55.3	47	0.1888

D = Class of destination; E= education; C = Cohort; G=gender.

Table 9 – Results of the log-linear model testing the association between origin, education and destination

	Chi-square	Df	Sig.
Model 1: O + E + D + C	4445.6	484	0.0000
Model 2: OC + EC + DC + OE +DE	575.9	416	0.0000
Model 3: OC + EC + DC + OE +DE + OD	364.3	400	0.8993
Model 4: Unidiff model, OC + EC + DC + OE +DE +OD changes over education	353.1	396	0.9404

O= Origin; D = Class of destination; E= education; C = Cohort

Table 10: Multinomial logistic regression of the chances of entering different social classes of destination

	Cohort 1937/46		Cohort 1947/56		Cohort 1957/66		Cohort 1967/76	
Class of origin *(ref. Class VII)*	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Access to Class I-II								
Class I-II	2.23*	1.38*	2.37*	1.31*	1.86*	0.91*	2.21*	1.47*
Class III	0.83*	0.29	1.34*	0.75*	1.11*	0.61*	1.27*	0.87*
Class IV	1.28*	1.30*	1.01*	0.50	0.89*	0.55*	1.37*	0.89*
Class V-VI	0.58*	0.41	0.91*	0.62*	0.45*	0.12	0.75*	0.48
Access to Class III								
Class I-II	0.97*	0.60	1.24*	0.87*	0.84*	0.46	0.96*	0.62*
Class III	0.41	0.14	0.78*	0.62*	0.77*	0.49*	0.91*	0.72*
Class IV	0.33	0.36	0.43	0.28	0.55	0.45	0.52	0.30
Class V-VI	0.35	0.24	0.72*	0.65*	0.37	0.18	0.50*	0.38
Access to Class IV								
Class I-II	0.79	0.47	1.50*	1.24*	1.15*	0.83*	0.57	0.36
Class III	0.09	-0.08	1.10*	0.97*	0.37	0.17	0.57	0.49
Class IV	1.62*	1.65*	2.20*	2.03*	1.52*	1.37*	1.37*	1.25*
Class V-VI	0.04	-0.02	1.12*	1.05*	0.48	0.35	-0.25	-0.16

*significant at 0.05 level.

Note 1: Model 1 controls for the effect of gender. Model 2 also controls for the effect of education.

Note 2: The coefficients of the third part of the multinomial logistic regression which compares access to Class V-VI versus Class VII are not reported because they are never significant.

Table 11: Percentage of reduction in the odds ratios measuring the chances of entering different social classes of destination after controlling
for the effect of respondents' education (derived from table 10)

	Cohort 1937/46	Cohort 1947/56	Cohort 1957/66	Cohort 1967/76
Class of origin *(ref. Class VII)*	% red. between model 2 and model 1	% red. between model 2 and model 1	% red. between model 2 and model 1	% red. between model 2 and model 1
Access to Class I-II				
Class I-II	57%	65%	61%	52%
Class III	42%	45%	39%	32%
Class IV	-2%	40%	29%	38%
Class V-VI	16%	25%	28%	24%
Access to Class III				
Class I-II	31%	31%	32%	29%
Class III	24%	15%	24%	17%
Class IV	-3%	14%	10%	20%
Class V-VI	10%	7%	17%	11%
Access to Class IV				
Class I-II	27%	23%	27%	19%
Class III	16%	12%	16%	8%
Class IV	-3%	16%	14%	11%
Class V-VI	6%	7%	12%	-9%