

Social class returns to higher education: chances of access to the professional and managerial salariat for men in three British birth cohorts

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(Received November 2010 Revised March 2011)

Abstract

In economics there is a well-established tradition of research into the earnings returns to education. We aim to make a sociological contribution by focusing on the social class returns: specifically, by examining the returns to higher education as indicated by chances of access to the professional and managerial salariat, while taking into account the effects of cognitive ability and class origins and also differences in access to professional and managerial positions. We draw on data for men from three British birth cohort studies covering children born in 1946, 1958 and 1970. We find that, while over the period covered the growth of the salariat ensured that absolute returns to both higher and lower tertiary qualifications were largely maintained, despite the growing numbers with such qualifications, returns relative to those to higher secondary qualifications diminished. Also, the advantages offered by lower tertiary qualifications as compared with higher secondary qualifications differ according to men's class origins. Overall, there is no evidence of any increase in education-based, meritocratic selection to the salariat. Rather, the growth of the salariat appears to be associated with some decline in its selectivity in terms of both qualifications and cognitive ability, with this decline being more marked in its managerial than in its professional components.

Introduction

In economics there is a well-established tradition of research into the earnings returns to education. Of late, attention has tended to focus on the earnings returns to *higher* education. In most advanced societies the issue has arisen of the balance between the supply of and the demand for higher-educated personnel. Does continuing 'skill-biased' technological change ensure a steadily rising demand for the higher educated so that, even with a growing supply, earnings returns are maintained or even increased? Or does the

expansion of higher education lead, at some point, to supply outstripping demand so that a problem of 'over-qualification' is created and earnings returns fall? Apart from their academic interest, such questions are ones of obvious policy relevance.

So far, sociologists have been little involved in the debates that have ensued. However, we believe - and this is the motivation for the present paper - that sociologists do have a worthwhile contribution to make, and especially by way of broadening the standard

approach from economics (Müller and Jacob 2008). In this respect, the following points may be made.

First, while it is understandable, given their disciplinary paradigm, that economists should concentrate their attention on the earnings returns to education, there is no reason, from either an academic or a policy point of view, why *only* earnings returns should be considered. In this paper we focus instead on social class returns: that is, on the returns to higher education *in the form of chances of access to the professional and managerial salariat*. We conceptualise class, in a way that is now becoming widely accepted, including in British official statistics (Office of National Statistics – (ONS) 2005a,b), in terms of positions defined by relations within labour markets and production units and more specifically by employment relations (Erikson and Goldthorpe 1992; Goldthorpe 2007, vol. 2: chs. 5-7; McGovern et al 2008; Rose and Harrison eds. 2010). Understood in this way, class can be shown to be related not only to individuals' earnings or current incomes, but further to their *income security*, their *short-term income stability* and their *longer-term income prospects* (see e.g. Elias and McKnight 2003; Goldthorpe and McKnight 2006; McGovern et al 2008; Lucchini and Schizzerotto 2010; Bihagen and Neramo 2010). In the case of access to the professional and managerial salariat, what is thus entailed is access to class positions whose holders are generally advantaged, relative to those in other class positions, as regards their levels of income and, *in addition*, as regards low risks of long-term or recurrent unemployment, low dependency on variable earnings (as resulting, say, from piece-rate or time-rate payment), and the expectation of rising earnings until late into working life due to incremental salary scales and relatively well-defined career opportunities.

Second, as regards the actual way in which the effect of education on earnings is exerted, economists mainly rely on human capital theory: through education, individuals invest in their human capital and then gain returns on

this investment from the earnings they obtain in the labour market. From a sociological standpoint, this approach appears unduly abstract (Granovetter 1981) in that it leaves out of account the social relations that the labour market involves: that is the fact that individuals' earnings come from the *jobs* they are offered by employers and which they take up via an employment contract (or, in the case of 'independents', that they create for themselves in relations with clients or customers). A focus on the class returns to education gives primacy to access to jobs, since it is through their jobs that individuals become situated in the social relations of economic life that define their class positions. Further, though, individuals in this way also enter into the different groupings of jobs that constitute *occupations*; and the possibility can then be raised that the importance that employers attach to educational qualifications in relation to different occupations may vary, and even across occupations that imply similar class positions (Jackson, Goldthorpe and Mills 2005). In considering access to the salariat, we will therefore ask whether differences are apparent in the part played by education, as between the two broad occupational groupings that the salariat comprises: that is, those of professionals and managers.

Third, a main concern of economists is to go beyond the empirical association existing between education and earnings to estimate the *causal effect* of education on earnings, where a causal effect is understood as the impact of some intervention or 'treatment'. This understanding of causation does, however, give rise to problems in that education is to a significant degree a matter of choice rather than simply a 'treatment' that is received, and also, in that this choice is likely to be influenced by factors that may have their own direct effects on earnings: in particular, ability or various resources - economic, cultural and social - associated with individuals' families of origin. In seeking to deal with these problems, economists are led to treat ability and social

origins as factors that have in some way to be statistically controlled so that the 'parameter of interest' - that taken to give the causal effect of education on earnings - can be estimated without bias (for an informative review, see Blundell, Dearden and Sianesi 2005). Our approach differs in two ways. First, we would regard the statistical analyses that we present as being no more than descriptive.¹ But second, we include measures of ability and of social class origins in these analyses not simply as controls but because they too are of substantive interest to us. We wish to know how these factors are associated with chances of access to the salariat, considered both independently of and in interaction with education.

Research questions, data and variables

The foregoing considerations lead us to focus our attention on three main issues as they arise in the British case.

(i) In a historical context in which the salariat has expanded and at the same time the numbers obtaining higher, or 'tertiary', education have increased, how, if at all, has the relationship between holding tertiary level qualifications and access to the salariat changed?

(ii) How far and in what ways does our understanding of this relationship - and of any changes in it - have to be modified when individuals' cognitive abilities and their social class backgrounds are brought into the analysis?

(iii) How far do differences arise in the importance of tertiary level qualifications and other factors as regards access to the professional and to the managerial divisions of the salariat?

A limitation of the paper is that we address these questions in the case of men only. Treating the same questions in the case of women would be clearly more complicated, as a result of problems arising from their selection into employment and, if only on grounds of space, calls for a separate paper.

Our data come from three British birth cohort studies: the Medical Research Council National Survey of Health and Development (NSHD), the National Child Development Study (NCDS) and the British Cohort Study (BCS). These studies aim to follow through their life-courses, children born in Britain in one week in 1946, 1958 and 1970 respectively (for further details, see Ferri, Bynner and Wadsworth eds. 2003: Appendix 1). It is by reference to the experience of men in these three birth cohorts, that we aim to assess the extent of changes over time in the social processes with which we are concerned.²

For each cohort, we have information, recorded in months, on respondents' employment histories, including details of occupation in each job coded to the 3-digit level of the OPCS SOC90 classification. In this paper, we focus on the employment histories of men up to age 34, the latest age for which, as of now, we have information for respondents in all three cohorts. Further, in the regression analyses through which we chiefly address the research questions we have set out, we restrict our attention to those men who, under a model developed in previous work (Bukodi and Goldthorpe 2009), may be regarded as having achieved a stage of 'occupational maturity': i.e. a stage in their working lives at which subsequent job changes have a declining probability of entailing occupational change. In this way, we believe, we can best compare 'like with like' across the three cohorts.³

We then determine men's class positions at age 34 on the basis of their current occupation and employment status (employer, self-employed, employee etc) according to the National Statistics Socio-Economic Classification (NS-SeC) which can be regarded as a new and improved instantiation of the Goldthorpe class schema (ONS 2005a,b; Goldthorpe 1997, 2007 vol 2, ch 5). We identify the salariat, access to which is the primary dependent variable of our analyses, with Classes 1 and 2 of the 7-class 'analytical' version of NS-SeC, as shown in Table 1.

Table 1. National Statistics Socio-economic Classification, seven-class version *

| | |
|---------|--|
| Class 1 | Higher managerial and professional occupations |
| Class 2 | Lower managerial and professional occupations |
| Class 3 | Intermediate occupations |
| Class 4 | Small employers and own account workers |
| Class 5 | Lower supervisory and technical occupations |
| Class 6 | Semi-routine occupations |
| Class 7 | Routine occupations |

* For the detailed composition of the classes by occupational group and employment status, based on SOC90, see ONS (2005b: Table 15).

When we move on to consider chances of access to the professional and managerial divisions of the salariat, we make this distinction on the basis of the 13-category 'operational' version of NS-SeC. The professional division is identified with categories L3 and L4 which cover all professional and also higher technical occupations (e.g. scientific, electronic and IT technicians), and the managerial division with categories L1, L2, L5 and L6, which cover all managerial and also higher administrative occupations (ONS 2005b: Table 2).⁴

The independent variables of our analyses are educational qualifications plus ability, social class origins and number of occupations held up to the stage of occupational maturity.

As regards qualifications, we work with the four following categories:

1. Lower secondary or below.
2. Higher secondary: 5+ O-Levels or A-levels, National Vocational Qualifications, Level 3.
3. Lower tertiary: university diplomas, National Vocational Qualifications, Level 4.
4. Higher tertiary: university degrees, National Vocational Qualifications, Levels 5 and 6.

We code men to these categories according to the highest level of qualification that they had achieved by occupational maturity.

Our measures of ability - in effect, of cognitive ability - derive from tests taken by members of the three cohorts while at school. For the 1946 cohort, the tests were administered at age 8, for the 1958 cohort at age 11, and for the 1970 cohort at age 10. It appears generally accepted that standardised scores on these tests (z-scores) give a good approximation to IQ scores (Schoon 2010). Their chief attraction for us is that they provide the best measures that we have available of ability as distinct from educational attainment, although we would recognise that performance on the tests is likely to have been in some degree influenced by education up to the point at which they were taken.

As our indicator of men's class origins, we take their father's class position, also as coded to NS-SeC, during their childhood. For men in the 1946 and 1958 cohorts, father's class is determined at age 11, and for men in the 1970 cohort, at age 10.⁵

Finally, number of occupations to maturity refers to all occupations held for at least three months, falling into different categories of the 3-digit SOC90 classification.

The historical context

In Britain, as earlier indicated, the historical period to which our research relates saw both an expansion of the salariat and a growth in the numbers of men with tertiary-level qualifications. At the beginning of the 1970s, the proportion of all men in employment who could be counted as members of the salariat was around 25% but by 2005 had risen to around 40%. This change is shown up in the proportion of men in the 1946, 1958 and 1970 cohorts who, at age 34, were found in NS-SeC Classes 1 and 2: that is, 32%, 38% and 49%, respectively - these figures reflecting the well-known tendency for changes in the occupational structure to be effected in large part through cohort replacement.

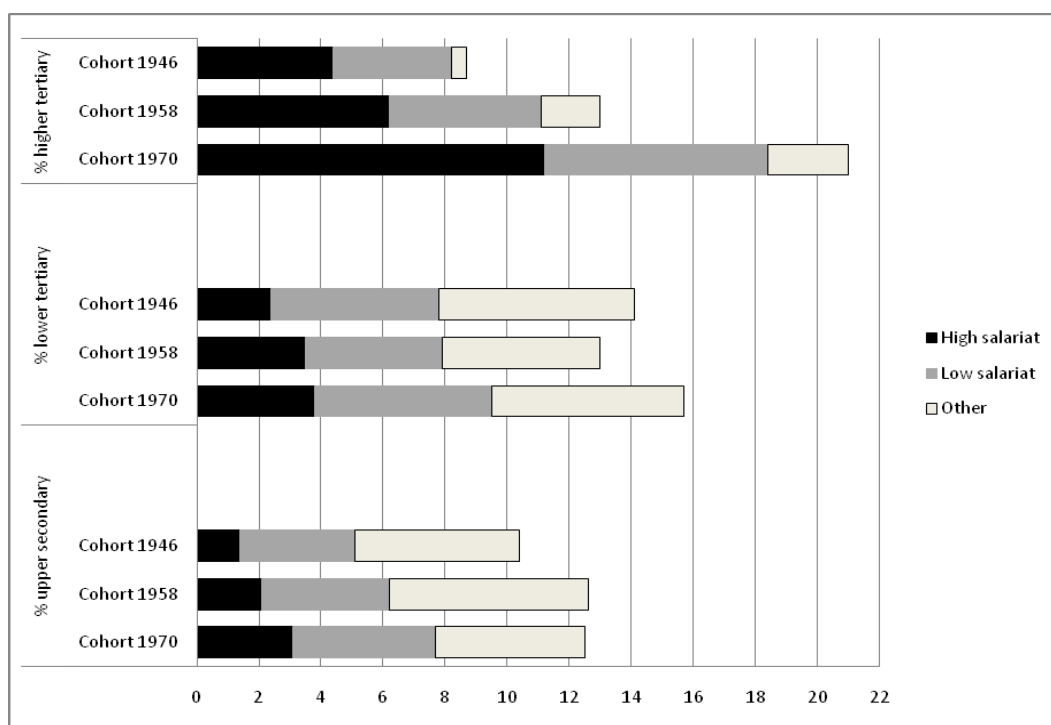
In 1963 the Robbins Report initiated a rapid growth in the provision of higher education in Britain, both through 'autonomous' universities and through polytechnics, colleges of further education and other public sector institutions - the so-called 'binary system'. The proportion of 18-19-year-olds in higher education was around 7% at the start of the 1960s but by 1990 had risen to 20%, while participation in higher education among older age-groups, especially on a part-time basis, also increased (Halsey 2000). In the 1946, 1958 and 1970 cohorts, the proportions of men with higher

tertiary qualifications were 9%, 13% and 21%, respectively, and with lower tertiary qualifications, 14%, 13% and 16%.

To give an initial indication of how these developments relate to each other, Figure 1 shows the proportions of men across the cohorts holding tertiary qualifications - together with, for purposes of comparison, the proportions with higher secondary qualifications - and at the same time the percentage of men with these differing levels of qualification who were found in the higher and lower levels of the salariat as represented by NS-SeC Classes 1 and 2.

It can be seen that for men in the 1946 cohort, higher tertiary (HT) qualifications provide a virtual guarantee of access to the salariat - only 6% of those with degrees or equivalent failing to achieve professional or managerial occupations. For men with HT qualifications in the 1958 and 1970 cohorts, access to the salariat is slightly less assured, but what remains notable is that even as the proportion of all men with such qualifications rises sharply, the very large majority - upwards of 80 per cent - still find positions within the salariat. Moreover, there is no decline across the cohorts in the proportion of men with HT qualifications obtaining positions in the higher salariat.

Figure 1: Percentage of men with differing levels of education and (as shown by boxes) proportions found in the higher and lower salariat, by cohort



As regards men with lower tertiary (LT) qualifications, the story is somewhat different, chiefly in that there is not, as with those holding HT qualifications, a sustained increase in their number across the cohorts. However, the proportion of men with LT qualifications being found in the salariat rises from the 1946 to the 1958 cohort and then holds constant - at around 60 per cent for the 1970 cohort, in which the proportion of all men with LT qualifications is highest. And at the same time, the chances of men with LT qualifications gaining access to the higher rather than the lower salariat are better for men in the 1958 and 1970 cohorts, than for those in the 1946 cohort.

What is then suggested is that, over the period covered, the growth of the salariat meant that demand for higher-educated personnel tended to run ahead of supply. Thus, while having a HT qualification continued to give very good chances of gaining a position in the salariat, even as the numbers of men with this level of qualification increased, the chances of access to the salariat for men with LT qualifications *also* improved. And further, as can be seen from the bottom panel of Figure 1, men with only higher secondary (HS) qualifications likewise had rising chances of entering the salariat as between the 1958 and 1970 cohorts - chances which in fact come to equal those of men with LT qualifications.⁶

Results: access to the salariat

In this section our main concern is with the chances of men being found in the salariat as opposed to other class positions in relation to their level of qualifications, cognitive ability, class origins, and number of different occupations held, up to occupational maturity - all measured as previously indicated. The results of binomial logistic regression analyses are reported in Table 2, in the form of average marginal effects. What the coefficients

show is the net effect on the probability of being found in the salariat of a unit change in an independent variable, when averaged over the populations represented by our birth cohorts. We see such population-averaged coefficients as appropriate since, as we earlier emphasised, we aim here essentially at description rather than at inferring the causal effects of educational qualifications or of other variables. At the same time, we do wish to make group comparisons within and across our cohorts, which would be problematic with the more usual subject-specific logit coefficients, on account of potential confounding with residual heterogeneity (Allison 1999; Mood 2010).⁷

In the case of the 1946 cohort, access to the salariat appears in some degree 'meritocratic'. A HT qualification gives a substantial improvement, of around 30%, in the probability of being found in the salariat as compared to a HS qualification, while ability is also a significant independent factor (i.e. over and above its effect via qualifications) and class background is not (i.e. over and above its effects on qualifications and also perhaps on performance on cognitive tests). However, it has at the same time to be noted that men in the 1946 cohort with LT qualifications have no better chances of accessing the salariat than those with only HS qualifications.

With the 1958 cohort changes are evident in various respects. An LT qualification does now give an advantage, of around 15%, over a HS qualification; but class origin effects also become significant, over and above those of ability and qualifications, and chiefly in that men of salariat - i.e. Class 1 and 2 - origins appear to have better chances of accessing the salariat themselves than do men of non-salariat origins. Further, number of occupations held prior to occupational maturity also has a significant, if small, effect.

Table 2. Probabilities of men being found in salariat versus non-salariat class positions by cohort, average marginal effects with standard errors estimated under binomial logistic regression models

| | Cohort | | | | | | | | |
|--|--------|-------|----|--------|-------|----|--------|-------|----|
| | 1946 | | | 1958 | | | 1970 | | |
| <i>Educational qualifications</i> | | | | | | | | | |
| lower secondary or less | -0.311 | 0.025 | ** | -0.175 | 0.020 | ** | -0.280 | 0.026 | ** |
| upper secondary (ref.) | | | | | | | | | |
| lower tertiary | 0.013 | 0.032 | | 0.149 | 0.027 | ** | 0.019 | 0.031 | |
| higher tertiary | 0.318 | 0.021 | ** | 0.299 | 0.022 | ** | 0.221 | 0.019 | ** |
| <i>Cognitive ability</i> | | | | | | | | | |
| score | 0.084 | 0.010 | ** | 0.086 | 0.007 | ** | 0.073 | 0.009 | ** |
| missing (dummy) | 0.025 | 0.027 | | 0.015 | 0.019 | | 0.026 | 0.015 | |
| <i>Class origins</i> | | | | | | | | | |
| class 1 (ref.) | | | | | | | | | |
| class 2 | 0.037 | 0.054 | | -0.033 | 0.029 | | -0.001 | 0.029 | |
| class 3 | 0.033 | 0.049 | | -0.058 | 0.029 | * | -0.015 | 0.039 | |
| class 4 | -0.040 | 0.048 | | -0.188 | 0.027 | ** | -0.065 | 0.030 | * |
| class 5 | 0.017 | 0.046 | | -0.112 | 0.027 | ** | -0.070 | 0.028 | * |
| class 6 | -0.008 | 0.047 | | -0.156 | 0.027 | ** | -0.074 | 0.032 | * |
| class 7 | -0.071 | 0.046 | | -0.149 | 0.026 | ** | -0.142 | 0.029 | ** |
| Missing | 0.043 | 0.064 | | -0.115 | 0.027 | ** | -0.075 | 0.028 | ** |
| <i>Number of occupations to maturity</i> | | | | | | | | | |
| | 0.004 | 0.003 | | 0.007 | 0.002 | ** | -0.005 | 0.004 | |
| N | 2457 | | | 4742 | | | 4005 | | |

* Significant at $p < 0.05$; ** significant at $p < .01$

In the light of previous research, focussing on occupational attainment as measured in terms of both earnings and status (Bukodi 2009; Bukodi and Goldthorpe 2009), we would interpret these results as reflecting in large part the distinctive experience of members of the 1958 cohort. These men entered the labour market at a time of severe economic recession, high rates of unemployment (double-digit from 1981 to 1988), and labour market turbulence. Adverse effects are in fact evident in the level of their first occupations and in the greater instability of their subsequent occupational careers, as well as in the occupational level they had attained at maturity. The greater advantage attaching to LT qualifications in this cohort and also the significant effect of occupational changes, we would therefore see as reflecting the fact that LT qualifications more often than either HT or HS qualifications, are acquired in the course of men's working lives and can then provide a basis for upward mobility into the salariat from perhaps quite low-level positions on entry into the labour market.⁸ At the same time, it could be expected that in difficult labour market conditions, when the comparative advantages of higher educational qualifications are likely to be reduced (Moscarini and Vella 2008), individuals at all levels of qualification will be likely to look more to their families of origin for support in their working lives, and thus, that the extent of family resources will become more important for individuals' chances of obtaining more desirable class positions.

With the 1970 cohort, it can then be seen that some reversion to the pattern of results with the 1946 cohort occurs. In accessing the salariat, LT qualifications no longer give any advantage over HS qualifications, nor is the effect of number of occupations to maturity significant. However, class origin effects still matter, if to a lesser extent than with the 1958 cohort, and in particular the effects of salariat origins. In this connection it may be noted that men in the 1970 cohort also experienced recession conditions in their early working lives - i.e. during the early 1990s - although with a less severe impact on the labour market than those of the 1980s. Finally, from the standpoint of the 1970 cohort, one important secular trend is suggested: as regards access to the salariat, the relative advantage of HT as against HS qualifications declines across the cohorts - i.e. from around 30% to 20% - even though HT qualifications remain more important than any other factor included in our model.

The question might at this point be raised of how far our findings would differ if we restricted our attention to access only to the higher-level salariat, as represented by NS-SeC Class 1. We have in fact carried out the appropriate analyses (available on request). While, not surprisingly, HT qualifications appear in absolute terms as yet more important than in regard to access to the salariat as a whole, their declining importance across the cohorts relative to HS qualifications is still clearly in evidence. Indeed, the most notable feature of the results we obtain is the extent to which, in their overall pattern, they follow those reported in the text above, including the specific '1958 effects' that we have noted.

We next go on to some elaboration of the results of Table 3, in terms of the probabilities of access to the salariat of different groups as defined by the main independent variables of our logistic regression model (Cox and Wermuth 1996, 115-9; Long 2009). The probabilities are calculated under a version of the model modified in the following ways: ability is treated in terms of quintiles rather than scores, class origins are dichotomised into salariat/non-salariat, and qualifications*ability and qualifications*class origins interaction terms are introduced (and prove to be significant). Number of occupations is evaluated at its mean for each cohort. In Figure 2 we show results for men of salariat origins and in Figure 3 for men of non-salariat origins. Three main points emerge.

First of all, Figures 2 and 3 taken together reflect results already indicated in Table 2. For men with HT qualifications the chances of access to the salariat do not increase from the high levels already existing with the 1946 cohort, while for men with LT qualifications these chances show an improvement between the 1946 and 1958 cohorts that largely holds up with the 1970 cohort. At the same time, for men with only HS qualifications, a decline in their chances of access to the salariat between the 1946 and 1958 cohorts is quite strongly reversed with the 1970 cohort. Overall, then, there is an increasing tendency for men who have only LT or HS qualifications to attain salariat positions. However, what can now further be seen from Figures 2 and 3 is that this tendency is, if anything, more marked among men in the lower ability quintiles. In other words, so far as both qualifications *and* ability are concerned, *the salariat would appear to become less selective over time.*

Figure 2. Predicted probabilities, with 95 % confidence intervals, of being found in salariat positions, by educational qualifications and cognitive ability quintiles, men of salariat background

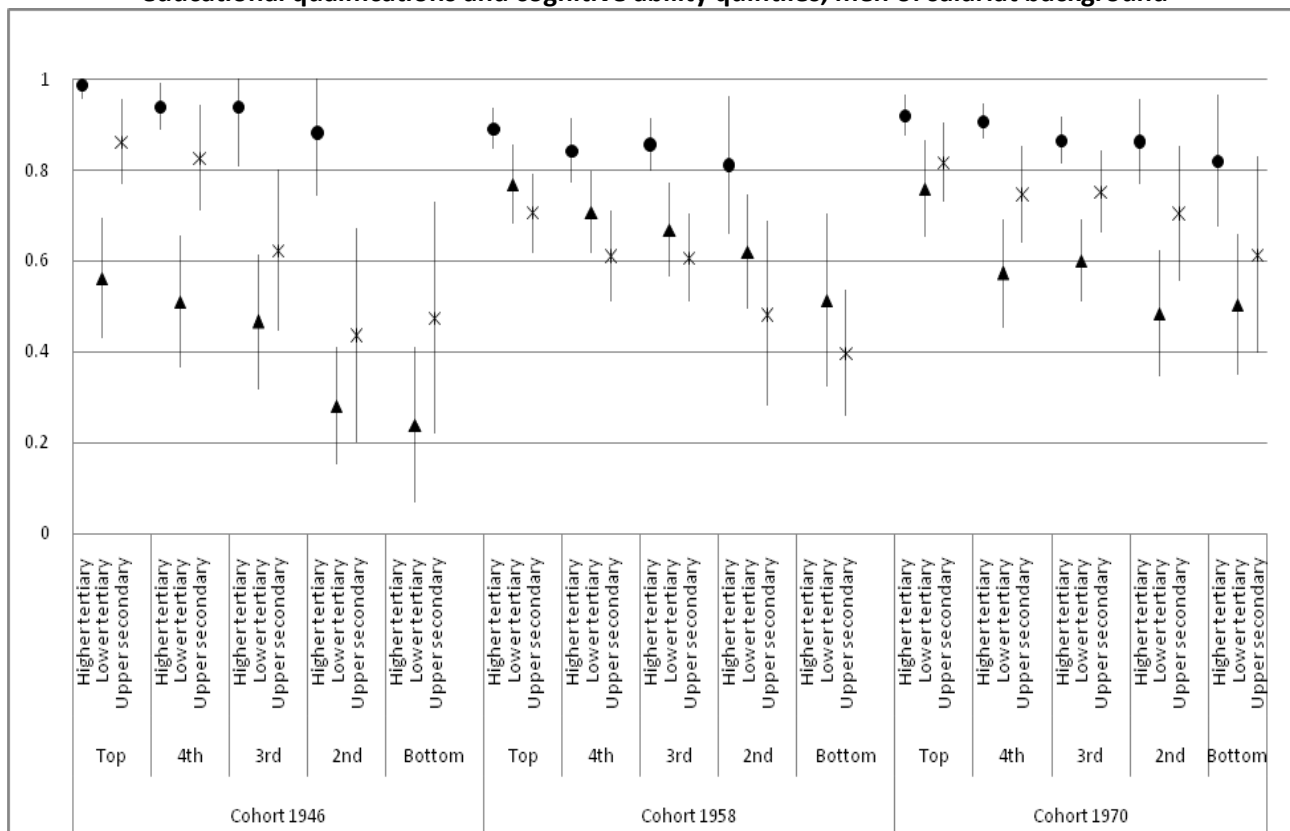
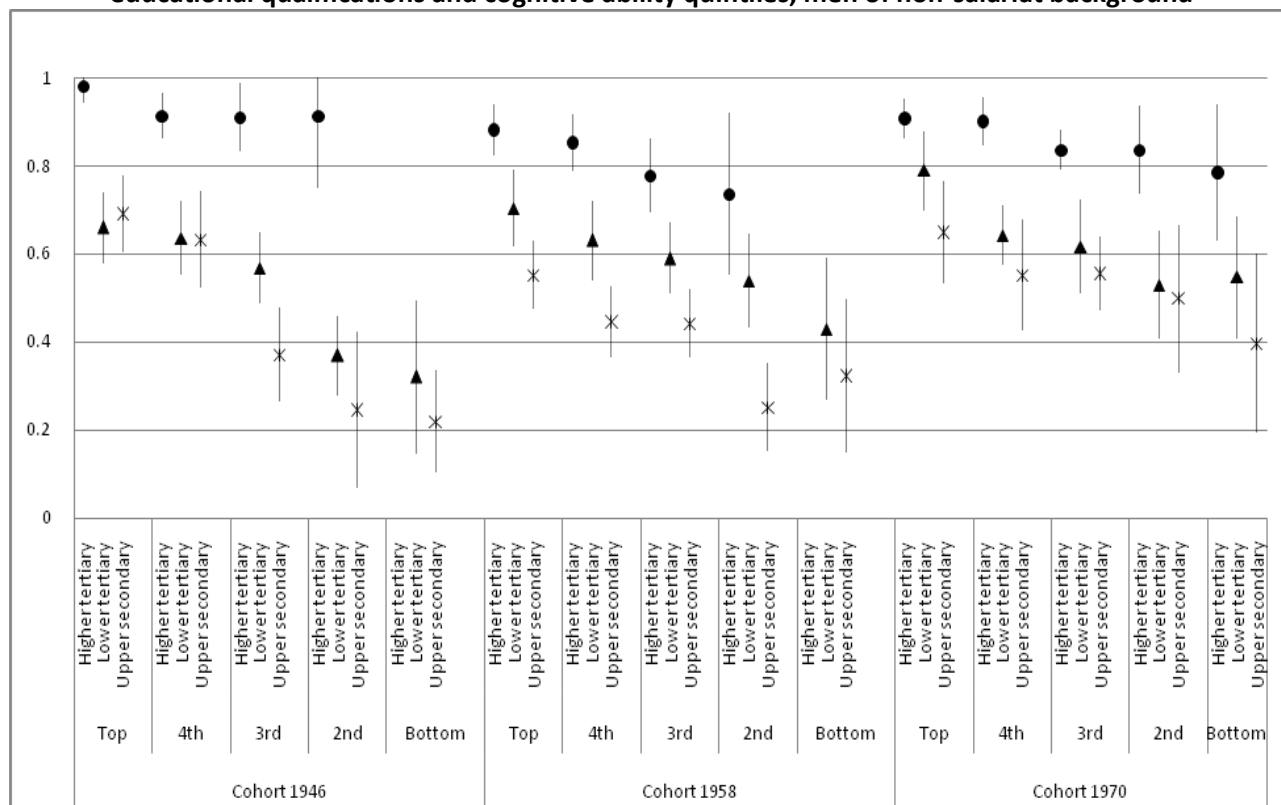


Figure 3. Predicted probabilities, with 95% confidence intervals, of being found in salariat positions, by educational qualifications and cognitive ability quintiles, men of non-salariat background



Second, focusing now on men with HT qualifications, it is evident that in all three cohorts, these men have very good absolute chances of access to the salariat, and that HT qualifications, if acquired, tend to offset the negative effects of both relatively low ability and disadvantaged class origins.⁹ HT qualifications are in fact generally associated with a probability of being found in the salariat in the range of 80% to virtually 100% - with the possible exception of men in the 1958 cohort who are in the lower ability quintiles and of non-salariat origins. As regards the relative advantage of having HT as compared to HS qualifications, this is substantial, although tending to be greater at lower ability levels and for men of non-salariat background.

Third, in the case of men with LT qualifications, it can be seen that while they have lower absolute chances of access to the salariat than men with HT qualifications, the difference notably narrows for the 1958 cohort and especially for men of salariat origins. LT qualifications do not appear to compensate for low ability to the same extent as HT qualifications but, as compared to HS qualifications, LT qualifications do appear to give more advantage to men of non-salariat background. Figure 2 shows that men of salariat origins with LT qualifications have in general a lower probability of being found in the salariat than their counterparts with HS qualifications, except in the 1958 cohort. But Figure 3 shows that men of non-salariat origins with LT qualifications have in general a higher probability of moving up into the salariat than their counterparts with HS qualifications in both the 1958 and the

1970 cohorts, and also in the 1946 cohort if they are in the lower ability quintiles.

In sum, one might say the following. In absolute terms, HT qualifications represent the dominant route into the salariat for men in all three cohorts alike, and are less modified in their effects than are LT or HS qualifications, by differences in either individuals' ability or class origins. However, in relative terms, the advantage of HT qualifications declines across the cohorts. For men without HT qualifications, the relation between qualifications and chances of access to the salariat is more complex. For men of non-salariat origins without HT qualifications, LT qualifications - often obtained, we know, in the course of their working lives - give generally better chances of upward mobility into the salariat than do HS qualifications. But for men of salariat origins without HT qualifications, HS qualifications always provide better chances of access to the salariat - i.e. in their case of inter-generational *immobility* within the salariat - than they do for corresponding men of non-salariat origins, and these chances are in fact better than those associated with LT qualifications, except in the case of the 1958 cohort.

Results: access to the professional and managerial divisions of the salariat

In Table 3 we show the results of fitting models analogous to those used in the previous section but with our attention now being limited to those men in the three cohorts who, at occupational maturity, were found in the salariat and with the dependent variable being access to its professional as opposed to its managerial division.

Table 3: Probabilities of men being found in professional rather than managerial positions, by cohort, average marginal effects with standard errors estimated under binomial logistic regression models

| | 1946 | | | Cohort 1958 | | | 1970 | | |
|--|--------|-------|----|----------------|-------|----|--------|-------|----|
| <i>Educational qualifications</i> | | | | | | | | | |
| lower secondary or less | -0.137 | 0.058 | * | -0.103 | 0.034 | ** | -0.111 | 0.037 | ** |
| upper secondary (ref.) | | | | | | | | | |
| lower tertiary | 0.142 | 0.043 | ** | 0.125 | 0.039 | ** | 0.014 | 0.042 | |
| higher tertiary | 0.139 | 0.047 | ** | 0.236 | 0.035 | ** | 0.184 | 0.035 | ** |
| <i>Cognitive ability</i> | | | | | | | | | |
| score | 0.002 | 0.021 | | 0.002 | 0.016 | | 0.041 | 0.015 | ** |
| missing (dummy) | -0.046 | 0.054 | | 0.037 | 0.039 | | 0.012 | 0.027 | |
| <i>Class origins</i> | | | | | | | | | |
| class 1 (ref.) | | | | | | | | | |
| class 2 | 0.137 | 0.061 | * | -0.094 | 0.043 | * | -0.018 | 0.038 | |
| class 3 | 0.218 | 0.053 | ** | 0.010 | 0.048 | | -0.012 | 0.055 | |
| class 4 | 0.086 | 0.064 | | -0.067 | 0.073 | | -0.043 | 0.045 | |
| class 5 | 0.202 | 0.049 | ** | -0.059 | 0.047 | | 0.000 | 0.042 | |
| class 6 | 0.111 | 0.061 | | 0.017 | 0.060 | | 0.017 | 0.052 | |
| class 7 | 0.190 | 0.048 | ** | 0.010 | 0.047 | | 0.012 | 0.048 | |
| Missing | 0.182 | 0.077 | * | -0.107 | 0.048 | * | -0.014 | 0.040 | |
| <i>Number of occupations to maturity</i> | -0.019 | 0.009 | * | 0.000 | 0.002 | | -0.008 | 0.007 | |
| N | 946 | | | 1733 | | | 1919 | | |

* Significant at $p < 0.05$; ** significant at $p < 0.01$

The positive coefficients across the cohorts for both HT and LT qualifications indicate that, for the men in question, higher educational qualifications in general increase the probability of their being found in professional rather than managerial positions - usually by upwards of 10% to upwards of 20%. However, some differences across the cohorts are also revealed. For the 1946 cohort, the coefficients for HT and LT qualifications are very similar, but for the 1958 cohort that for HT qualifications is clearly stronger, and for the 1970 cohort the advantage given by LT qualifications over HS qualifications is not significant.

Three other points may be noted as also suggesting some change between the professional and managerial divisions of the salariat as regards their patterns of recruitment. First, and perhaps most interestingly, it is only with the 1946 cohort that class origin effects are of

importance. In this case, all the coefficients except that for Class 4, that of small 'independents', are significantly positive with reference to Class 1, that of the higher salariat. That is to say, for men in this cohort who gained access to the salariat, coming from a *less* advantaged class background increased the probability - by, it appears, some 10-20% - of their being professionals rather than managers; or, alternatively put, coming from a Class 1 background distinctively favoured entry into management rather than the professions. That this effect is restricted to the 1946 cohort is the result, we would suspect, of falling numbers of family-run business enterprises or at all events of a declining tendency of sons to enter into the management of such enterprises. Second, in the 1946 cohort, number of occupations held has a significant negative association with becoming a becoming a

professional, or, in other words, is positively associated with becoming a manager, but this is not the case in the two later cohorts. This reflects, perhaps, an increasing ‘professionalisation’ of management and some decline in the chances of men ‘working their way up’ into managerial positions. And, third, with the 1970 cohort, ability, over and above qualifications, has a significant, even if not very large, positive effect on the chances of becoming a professional rather than a manager.

In Figures 4 and 5 we present probabilities of being found in professional positions for the different groups of men defined by our main independent variables under a model analogous to that used for Figures 2 and 3. The probabilities of being found in managerial positions will of course be the complements of those plotted here.

As might be expected from Table 3, the two figures, for men of salariat and non-salariat backgrounds, show much similarity: i.e. class origins do not appear to have any very large or systematic effects on the chances of men who access the salariat being found in one or other of its divisions. Insofar as a class origin effect is suggested, then, again as would be expected from Table 3, it is in the case of the 1946 cohort.

What of main interest emerges, from both figures alike, is the increase in importance, from the 1946 cohort to the two later cohorts, of HT relative to LT qualifications as regards entry into the professional division of the salariat, and the fact that this increase seems most marked among men in the higher ability quintiles. Thus, one finds that in the 1970 cohort men of salariat and non-salariat origins alike who have a HT qualification *and* who are in the top ability quintile have a very high probability - upwards of 70% - of being professionals rather than managers.¹⁰

Overall, then, we find various indications that the decline in selectivity into the salariat as a whole that we previously noted has tended to be more marked in its managerial than in its professional component. Over the period covered by our birth cohorts, management may have become more professionalised in the sense of recruitment becoming more dependent on higher level qualifications obtained prior to entry and less on worklife mobility. But similar tendencies are in fact evident among the professions themselves; and insofar as in this period the expansion of the salariat outran the supply of higher educated personnel, it would appear to be the managerial division that chiefly ‘took the strain’.

Figure 4. Predicted probabilities, with 95% confidence intervals, of men being found in professional positions by educational qualifications and cognitive ability quintiles, men of salariat background

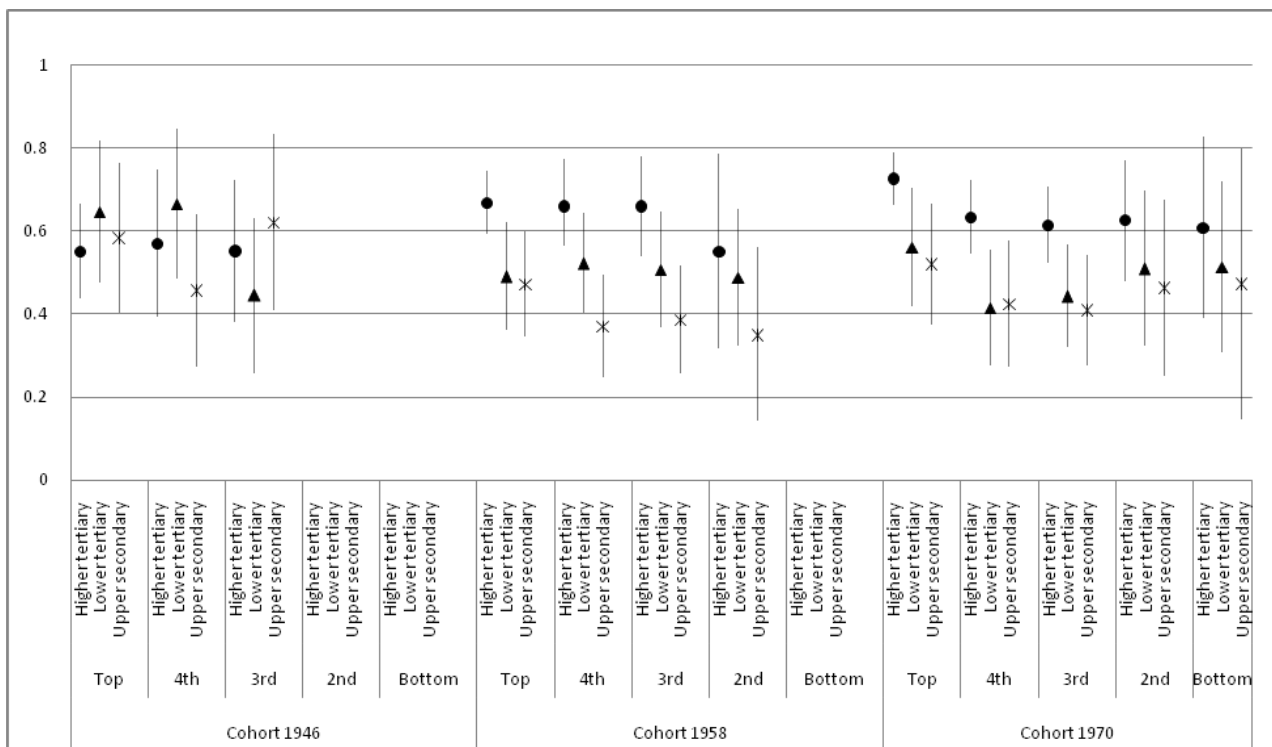
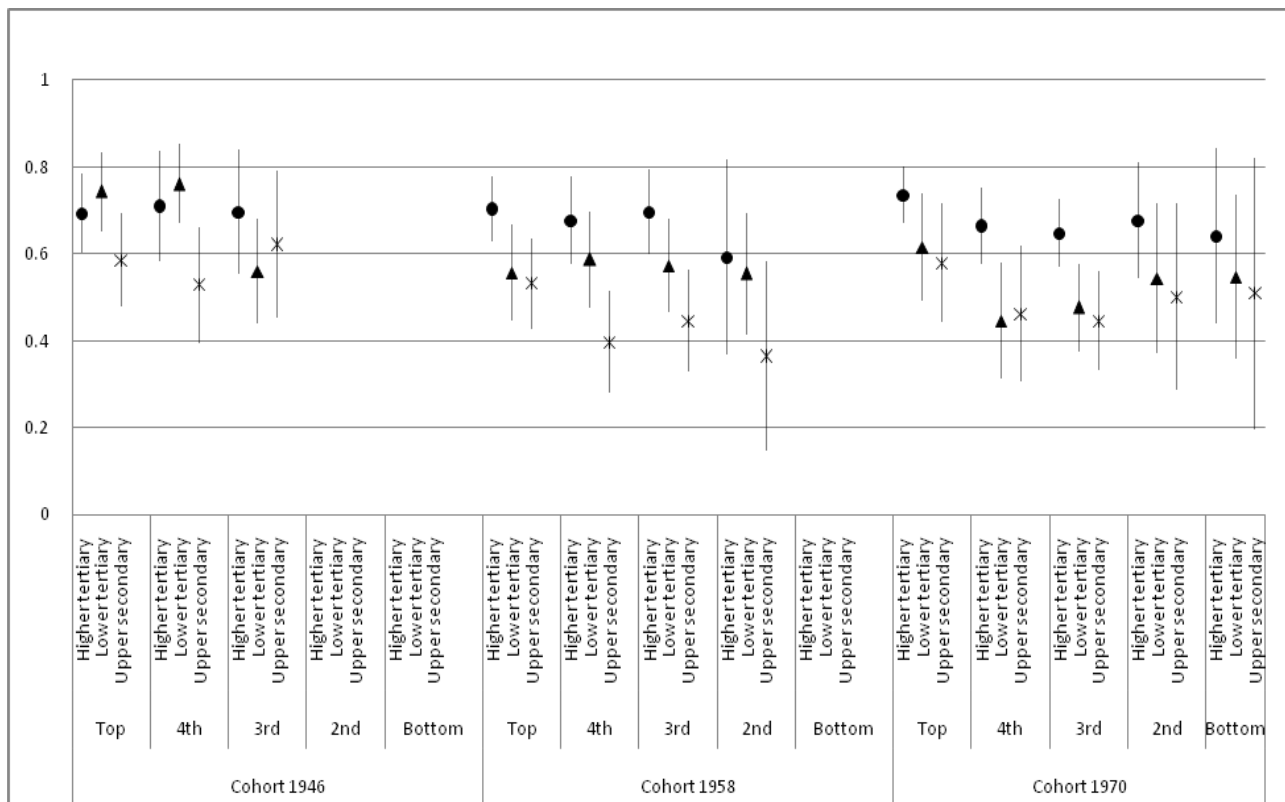


Figure 5. Predicted probabilities, with 95% confidence intervals, of men being found in professional positions by educational qualifications and cognitive ability quintiles, men of non-salariat background



Conclusions, implications and further research

We initially posed three specific research questions. In the light of the results we have reported, we would now sum up our answers as follows.

First, how far, for men in our three cohorts, has the relationship changed between holding tertiary level qualifications and gaining access to the salariat? In this regard, it is important to distinguish between absolute and relative returns. Across the cohorts, absolute returns to tertiary education in terms of access to the salariat generally increased. Men in the 1946 cohort with HT qualifications had a very high probability - virtually a guarantee - of entering the salariat, and for men in the two succeeding cohorts this probability declined only slightly, despite the growing numbers with such qualifications. Moreover, the probability of men with LT qualifications entering the salariat increased sharply between the 1946 and 1958 cohorts and did not then significantly decrease between the 1958 and 1970 cohorts.

The crucial underlying factor here is the growth of the salariat, as effected, one may suppose, in large

part by cohort replacement. This growth outran the supply of highly qualified personnel despite the expansion of higher education. Thus, we find that across the cohorts, men with only HS - or even lower - qualifications *also* show increased chances of moving into the salariat. However, since demand is here the driving force, a different story has to be told about the relative returns to tertiary level qualifications. While HT qualifications always give a clear advantage over HS qualifications in the chances of access to the salariat, this advantage declines - by about a third - from the 1946 to the 1970 cohort; and LT qualifications give a significant advantage over HS qualifications only for men in the 1958 cohort, whose distinctive experience under adverse labour market conditions we have emphasised.

Second, how far does our understanding of the - changing - relationship between holding tertiary level qualifications and accessing the salariat have to be modified when individuals' cognitive abilities and social class origins are brought into the analysis? In general, we find that the chances of access to the salariat of men who have achieved HT qualifications are only slightly modified by the independent effects of either ability or class origins. However, a different

situation obtains where lower level qualifications are involved. For men of salariat background, LT qualifications give an advantage over HS qualifications in accessing the salariat only in the case of the 1958 cohort; in the other two cohorts HS qualifications are more advantageous at all ability levels. In contrast, for men of non-salariat background, LT qualifications tend to be more advantageous in gaining access to the salariat than HS qualifications. This is generally the case for men in the 1958 and 1970 cohorts and also for those in the 1946 cohort with lower ability levels. In other words, the surest route into the salariat for all men is that via HT qualifications. But LT qualifications - often achieved in the course of working life - tend to give better chances than HS qualifications as regards upward mobility into the salariat, while the reverse applies as regards maintaining inter-generational stability within the salariat.

Further, we can say that there is no evidence of any secular trend across the cohorts in the direction of greater education-based meritocracy (Goldthorpe and Jackson 2008). Class origins do not have a significant independent effect on the chances of men in the 1946 cohort entering the salariat, but with the 1958 cohort, men of salariat background are advantaged over men of non-salariat background and this advantage persists, albeit at a lower level, with the 1970 cohort.

Third, how far do differences arise in the importance of tertiary qualifications and other factors, as regards access to the professional and to the managerial divisions of the salariat? If we focus our attention on those men who have in fact entered the salariat, we see that it is, in all three cohorts, the possession of HT and LT, rather than of lower level qualifications, that chiefly increases the probability of their being found in professional rather than in managerial positions. Class origins and worklife occupational mobility are of additional significance only in the case of men in the 1946 cohort, for whom higher salariat origins and also greater occupational mobility are associated with entry into management rather than the professions.

At the same time, we find that across the cohorts the probability of being a professional rather than a manager is increasingly associated with having an HT rather than an LT qualification, and especially in the case of men with higher ability levels. In other words, as over the period covered, excess demand for higher educated personnel led to some overall

decline in the selectivity of the salariat, in terms of both qualifications and ability, it would appear that it is among managers that this decline has been most marked.

The findings reviewed in the foregoing serve, we believe, to show that thinking in terms of the social class returns to higher education, rather than simply earnings returns, and treating ability and class origins as more than factors to be controlled, can provide a larger and more differentiated account of what is involved in the changing relationship between the demand for and the supply of higher-educated personnel. At the same time, though, we are aware that there are a number of ways in which the analyses we have presented will need to be extended in future work.

First, our analyses are obviously incomplete in being limited to men. In order to obtain a full picture of the class returns to higher education, in the context of changing demand and supply, women must be included, which will involve taking up the difficult problems that arise concerning their selection into employment.

Second, we need to widen the range of the independent variables of our analyses. For example, we would like to know more about the part played in access to the salariat, and its professional and managerial components, by different *trajectories* of worklife occupational mobility (Bukodi 2009), especially in conjunction with different kinds of qualification. And further we would think it important to include variables relating to other individual characteristics apart from cognitive ability, such as personality and life-style characteristics (Osborne-Groves 2004; Jackson 2006).

Third, and perhaps most importantly, it has to be recognised that the results we have reported, necessarily reflect conditions that obtained in Britain in a specific historical period - *but conditions that, we know, have subsequently changed in significant ways*. On the one hand, from the last decades of the twentieth century, the rate of growth of the salariat - and especially of its higher level as represented by NS-SeC Class 1 - would appear to have slackened off (Goldthorpe and Mills 2008). On the other hand, in the early 1990s the 'binary' system of higher education came to an end, and a further major expansion began, aimed at the creation of a 'mass' system (Halsey 2000). At the same time, women were increasingly realising their full academic potentialities. By the millennium, the proportion of

18-19-year-olds in higher education had risen to over 30 per cent. We would therefore wish to take our analyses forward in time, to cover men and women born from the 1980s onwards and their careers in a period in which, rather than the demand for higher-educated personnel being in excess of supply, the reverse could be thought more likely the case, with consequent problems of 'over-qualification' (Green and Zhu 2008) and 'bumping down', and in which in

turn, recession conditions may have yet more negative effects than previously. The series of birth cohort studies on which we draw in this paper was, unfortunately, interrupted between 1970 and 2000. However, possibilities exist for constructing at least a partially comparable 'quasi-cohort' from alternative data sources, such as the British Household Panel Study (Blanden and Machin 2004), that we are currently exploring.

Acknowledgements

Our research was supported by a small research grant from the British Academy (reference: SG090060). We are indebted to Diana Kuh for access to the MRC NSHD data-set. For helpful comments on earlier versions of the paper, we thank Colin Mills and Ian Plewis.

References

- Allison PD. (1999) Comparing logit and probit coefficients across groups. *Sociological Methods and Research*, 28, 186-208.
- Bihagen E and Nermo M. (2010) The effectiveness of ESeC and EGP in clustering occupations: a study of occupational wage growth in Sweden. In D. Rose and E. Harrison. eds. *Social Class in Europe*. Routledge/ESA, London.
- Blanden J and Machin S. (2004) Educational inequality and the expansion of UK higher education. *Scottish Journal of Political Economy*, 51, 230-49.
- Blundell R, Dearden L and Sianesi B. (2005) Evaluating the effect of education on earnings: models, methods and results from the National Child Development Survey. *Journal of the Royal Statistical Society, Series A*, 168, 473-512.
- Bukodi E. (2009) Education, first occupation and later occupational attainment: cross-cohort changes among men and women in Britain. *CLS Working Paper 2009/4*. Centre for Longitudinal Studies, Institute of Education, London.
- Bukodi E and Goldthorpe JH. (2009) Class origins, education and occupational attainment: cross-cohort changes among men in Britain. *CLS Working Paper 2009/3*. Centre for Longitudinal Studies, Institute of Education, London.
- Cox DR and Wermuth N. (1996) *Multivariate dependencies: models, analysis and interpretation*. Chapman and Hall, London.
- Despotidu S and Shepherd P. (1998) *1970 British Cohort Study: twenty-six year follow-up, 1996*. Social Statistics Research Unit, City University, London.
- Elias P and McKnight A. (2003) Earnings, unemployment and the NS-SeC. In. D Rose and DJ Pevalin. eds. *A researcher's guide to the National Statistics Socio-economic Classification*. Sage, London.
- Erikson R and Goldthorpe JH. (1992) *The constant flux: a study of class mobility in industrial societies*. Clarendon Press, Oxford.
- Ferri E, Bynner J and Wadsworth M. (2003) *Changing Britain, changing lives: three generations at the turn of the century*. Institute of Education, London.
- Freedman D. (1997) From association to causation via regression. In VR Kim and SP Turner. eds. *Causality in Crisis*. Notre Dame University Press, Notre Dame.
- Goldthorpe JH. (1997) The "Goldthorpe" class schema: some observations on conceptual and operational issues in relation to the ESRC review of government social classifications. In D Rose and K O'Reilly. eds. *Constructing classes: towards a new social classification for the UK*. ESRC and ONS, Swindon and London.
- Goldthorpe JH. (2007) *On sociology* (2nd ed). Stanford University Press, Stanford.
- Goldthorpe JH and McKnight A. (2006) The economic basis of social class. In SL Morgan, DB Grusky and GS Fields. eds. *Mobility and inequality: frontiers of research in sociology and economics*. Stanford University Press, Stanford.

- Goldthorpe JH and Jackson M. (2008) Education-based meritocracy: the barriers to its realisation. In A Lareau and D Conley. eds. *Social class: how does it work?* Russell Sage Foundation, New York.
- Goldthorpe JH and Mills C. (2008) Trends in inter-generational class mobility in modern Britain: evidence from national surveys, 1972-2005. *National Institute Economic Review*, 205, 1-18.
- Granovetter M. (1981) Toward a sociological theory of income differences. In I Berg. ed. *Sociological Perspectives on Labor Markets*. Academic Press, New York.
- Green F and Zhu Y. (2008) Overqualification, job dissatisfaction, and increasing dispersion in the returns to graduate education. *Department of Economics Discussion Papers*, University of Kent, Kent.
- Halsey AH. (2000) Further and higher education. In AH Halsey and J Webb. eds. *Twentieth century British social trends*. Macmillan, London.
- Hawkes D and Plewis I. (2006) Modelling non-response in the National Child Development Study. *Journal of the Royal Statistical Society, Series A*, 169, 479-91.
- Jackson M. (2006) Personality traits and occupational attainment. *European Sociological Review*, 22, 187-199.
- Jackson M, Goldthorpe JH and Mills C. (2005) Education, employers and class mobility. *Research in Social Stratification and Mobility*, 23, 3-34.
- Long JS. (2009) *Group comparisons in logit and probit using predicted probabilities*. Department of Statistics, Indiana University.
- Lucchini M and Schizzerotto A. (2010) Unemployment risks in four EU countries: a validation study of the ESeC. In D Rose and E Harrison. eds. *Social class in Europe*. Routledge/ESA, London.
- McGovern P, Hill S, Mills C and White M. (2008) *Market, class, and employment*. Oxford University Press, Oxford.
- Mood C. (2010) Logistic regression: why we cannot do what we think we can do, and what we can do about it. *European Sociological Review*, 26, 67-82.
- Moscarini G and Vella F. (2008) Occupational mobility and the business cycle. *IZA Discussion Paper* 3369.
- Müller W and Jacob M. (2008) Qualifications and the returns to training across the life course. In K-U Mayer and H Solga. eds. *Skill formation: interdisciplinary and cross-national perspectives*. Cambridge University Press, Cambridge.
- Nathan G. (1999) *A review of sample attrition and representativeness in three longitudinal surveys*. Governmental Statistical Service Methodology Series, 13, London.
- Office of National Statistics. (2005a) *The National Statistics Socio-economic Classification: origins, development and use*. Palgrave Macmillan, London.
- Office of National Statistics. (2005b) *The National Statistics Socio-economic Classification: user manual*. Palgrave Macmillan, London.
- Osborne-Groves M. (2004) Personality and the inter-generational transmission of earnings. In S Bowles and H Gintis. eds. *Unequal chances: family background and economic success*. Princeton University Press, Princeton.
- Rose D and Pevalin DJ. eds. (2003) *A researcher's guide to the National Statistics Socio-economic Classification*. Sage, London.
- Rose D and Harrison E. eds. (2010) *Social class in Europe*. Routledge/ESA, London.
- Schoon I. (2010) Childhood cognitive ability and adult academic attainment: evidence from three British cohort studies. *Longitudinal and Life Course Studies*, 1, 241-58.
- Wadsworth M, Kuh D, Richards M and Hardy R. (2005) Cohort profile: the 1946 National Birth Cohort (MRC National Survey of Health and Development). *International Journal of Epidemiology*, 35, 49-54.

Endnotes

¹ We do in any case have doubts about the approach to causation that the economists follow: specifically, about whether the 'parameter of interest' can be regarded as having 'a life of its own' outside of the data from which it is estimated (cf. Freedman, 1997).

² As with all longitudinal studies, the problem of missing data arises. However, a number of analyses of attrition and non-response have been undertaken and the results are generally

encouraging in suggesting that no major biases are being created (Despotidu and Shepherd 1998; Nathan 1999; Hawkes and Plewis 2006; Wadsworth et al 2006).

³ Kaplan-Meier survival estimates made under our model show that up to around age 30 very few men appear as having achieved occupational maturity but that, after this age, the proportion increases rather sharply. However, while at age 34 over 80 per cent of men in the 1958 and 1970 cohorts are treated as having reached occupational maturity, this is the case with only 60 per cent in the 1946 cohort (see further Bukodi and Goldthorpe 2009).

⁴ It should be noted that, in some contradiction with the term 'salarial', large employers - i.e. employers with over 25 employees but who are not employees of their own incorporated businesses - are included in the managerial division of Class 1; and that self-employed professionals are included in the professional divisions of Classes 1 and 2. However, such large employers, mainly proprietors of construction firms, garages, stores etc, are a very small minority - around 5 per cent - of all in Class 1, while in the case of professionals, self-employment is often, as, say, with GPs, Church of England clergy or some financial professionals, an essentially technical status reflecting legal or fiscal considerations.

⁵ The quality of information on fathers' occupations and employment status in the 1958 cohort is less good than in the other two cohorts. In this case, we therefore proceed by first taking their Socio-Economic Group codings which are available and from which a reasonable approximation to NS-SeC can be derived, and by then improving on this approximation as regards NS-SeC Classes 5 and 6 by cross-classifying SEG codings with codings to the Registrar General's Social Classes which are also available. Full details can be obtained from the authors on request.

⁶ In fact, if we look at men in our fourth, residual educational category (i.e. men with only lower secondary qualifications at best) the proportion entering the salariat can again be seen to increase across the three cohorts - from 18% to 21% to 27%.

⁷ If we were to use these latter coefficients as the basis for such comparisons, we would not, as it happens, be led to conclude anything very different from what is said in the text below - suggesting that, under the model we use, problems of residual heterogeneity are not severe.

⁸ For example, among men in the 1958 cohort the proportion holding LT qualifications increases from 8 per cent at age 24 to 12 percent at age 34, while the proportion holding HT qualifications increases from 10 per cent to 12 percent and the proportion holding HS qualifications stays constant at 17 per cent.

⁹ It may, however, be noted that in both Figure 2 and Figure 3 no points are recorded for men with HT qualifications in the lowest ability quintile since in both cases the numbers involved are negligible.

¹⁰ We have undertaken analyses restricted to higher-level - i.e. Class 1 - positions within both the professional and managerial divisions of the salariat, and again these show no distinctive features, apart from the yet greater importance for access of HT qualifications.