

The Direct Effect of Social Origins on Social Mobility Chances: ‘Glass Floors’ and ‘Glass Ceilings’ in Britain

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Abstract

In this article we pursue, using appropriate British birth cohort data, various issues that arise from recent research into the ‘direct’ effect of social origins on individuals’ social mobility chances: i.e. the effect that is not mediated by education and that can be seen as giving rise to non-meritocratic ‘glass floors’ and ‘glass ceilings’. We show that if educational level is determined at labour market entry, class destinations are significantly associated with class origins independently of education. However, we go on to investigate how far the direct effect may be underestimated by an insufficiently comprehensive treatment of social origins, and also how far it may be overestimated by a failure to take into account the effects of later-life education and resulting changes in individuals’ relative qualification levels. Finally, having arrived at our best estimates of the extent of the direct effect, we seek to identify factors that mediate it. While individuals’ cognitive ability and sense of locus of control prove to play some part, reported parental help in the labour market does not appear to be of any great importance. Some implications of our findings both for further research and for the ideal of an education-based meritocracy are considered.

Introduction

The role of education in social mobility has for long been a focus of research interest, and it is by now well established that individuals’ levels of educational attainment are a major factor in determining their chances of mobility or immobility. However, of late, increasing attention has been given to the extent to which in economically advanced societies individuals’ social origins still exert a direct effect on individuals’ social destinations: that is, an effect that is direct simply in the sense that it is *not* mediated through

education. Insofar as an effect of this kind continues to be present, grounds exist for questioning the idea of an emerging ‘education-based meritocracy’ in which education *alone* would mediate the association between social origins and destinations.

In this regard, a recent collection of papers (Bernardi and Ballarino, 2016) is of particular importance. On the basis of broadly comparable analyses of data from 14 advanced societies, the editors reach the following conclusions (Ballarino and Bernardi, 2016).

1. In all 14 countries a direct effect of social origins on destinations (DESO)—in the sense indicated above—does occur and to a non-negligible extent; this result holds good whether origins and destinations are defined in terms of socio-economic status or income or in terms of social class in those cases where this approach is taken.
2. In only two countries—the Netherlands and Sweden—is there evidence of DESO weakening over time; in two other countries—France and Israel—DESO actually strengthens, and in the remainder, it persists at a constant level or merely fluctuates.
3. DESO is stronger when individuals' destinations are considered later in their working lives rather than at entry into the labour market: i.e. social origins tend to count for more over the course of individuals' employment histories.

In the present article we pursue several further issues that arise, concentrating on the British case where data appropriate to our purposes exist. We seek, first of all, to confirm, following the British paper in the collection cited (Vandecasteele, 2016), that DESO is in fact present. But, secondly, we consider, and to try to allow for, certain ways in which DESO might be either under- or overestimated. And then, third, we attempt to 'unpack' DESO by introducing into our analyses certain factors that could statistically account for this effect: that is, factors that mediate DESO and that in turn mediate the origins destinations association in addition to education.

We would also wish to situate our work in the context of recent discussion by economists in Britain, and in the United States, of restricted rates of *downward* social mobility (for Britain, see McKnight, 2015; for the United States, Reeves and Howard, 2013). What is here of main concern is the extent to which individuals from more advantaged social origins appear to be protected against downward mobility—viewed primarily in terms of income—by a 'glass floor', the operation of which is taken to be contrary to meritocratic principles. In particular, it is suggested that families in the higher reaches of the income distribution engage in 'opportunity hoarding' (Tilly, 1998) by exploiting their advantaged social positions in various ways to safeguard their children's labour market chances.

We do, however, depart from the approach taken by the economists cited in the following respects.

First, rather than viewing mobility in terms of income, we focus on mobility in terms of social class. In this way, we believe, the intergenerational transmission of economic advantage and disadvantage can be more

fully captured (Erikson and Goldthorpe, 2010; Goldthorpe, 2013).

Secondly, since whatever is subsumed under 'opportunity hoarding' can be taken as some form of DESO, it would seem preferable to treat the issues that arise within the more general framework of DESO. In this way, one can then envisage not only a glass floor preventing downward mobility from more advantaged origins but also a 'glass ceiling' preventing upward mobility from less advantaged origins. And it would appear of interest to compare the relative strengths of these effects and the mediating factors that are involved.

Thirdly, in the economists' research, DESO is defined not in contradistinction to effects via education but rather to *effects via cognitive ability as measured in early life*—with education then being brought into the analysis as a variable that can in part account for the direct effect. We see advantage in the opposite approach, and especially insofar as normative questions concerning selection by merit arise: i.e. we maintain the established sociological understanding of DESO and then take cognitive ability as a possibly underlying variable. From a meritocratic standpoint, departures from selection by educational attainment must be of at least as great, if not greater, concern than departures from selection by cognitive ability. For whatever weight is given to genetic or to family environmental factors in the determination of cognitive ability, it is something that is essentially outside of individuals' control, whereas educational attainment does, in some degree, involve effort and choice for which individuals could be held accountable (cf. Roemer, 2000), despite the non-meritocratic elements that are indicated through its association with social origins.

We do, at the same time, aim to make some advance on previous sociological work on DESO in the interests of obtaining more accurate estimates of its extent. First, we take a multidimensional approach to social origins. While our focus is on intergenerational class mobility, we include parental social status and parental education in our analyses as well as parental class. Otherwise, the effects of parental class could be exaggerated through its association with parental status and education and, more seriously for present purposes, without taking account of these other components of social origins DESO could be underestimated.

Secondly, we consider individuals' educational attainment, as indexed by formal qualifications, in *relative* terms (cf. Bukodi, Erikson and Goldthorpe, 2014) and at *two different time points*: that is, at the time of their entry into the labour market and again at age 38,

which is the age at which we determine class destinations. By this age, the probability of any further advance in educational level and also of any change in class position becomes rather low (Bukodi, 2016; Bukodi and Goldthorpe, 2009). We define DESO, to begin with, in terms of the effect that is not mediated via individuals' qualification level at labour market entry, but we then further examine how far DESO is affected when we bring into our analyses later-life changes in this level. Our motivation here is the following. In previous research into DESO, it is not always clear at what stage or age individuals' educational attainment has been determined. If this is relatively early in the life course, it is possible that what is being treated as DESO is in fact to some extent still mediated via education—and not only through individuals themselves acquiring further education but also through others doing so and thus through changes in individuals' relative positions in the overall distribution of educational attainment among their labour market competitors. In this way DESO could be over-estimated.¹

Data and Variables

For our purposes, we draw on the data set of the British Birth Cohort Study 1970 (BCS70) which has followed through their life-courses all children born in Britain in one week in that year (Elliott and Shepherd, 2006). The actual data set that we use is one obtained from a multiple imputation exercise undertaken to compensate for the extent of missing data in our key variables.² The data collection that has been undertaken throughout cohort members' lives provides information on their social backgrounds, educational histories, employment and social class histories, cognitive ability and various non-cognitive attributes as measured in childhood, and also on parental help of various kinds that they may have

received in obtaining employment. More specifically, we work with the following variables.

Class Position at Age 38

We base our dependent variable—cohort member's class position at age 38—on the seven-category version of the UK National Statistics Socio-Economic Classification (NS-SEC), as shown in Table 1, following procedures described in Bukodi *et al.* (2015). We create two binary variables: (i) whether or not at age 38 the cohort member is found in Class 1 or 2, that is, in the managerial and professional salariat; and (ii) whether or not at age 38 the cohort member is found in Class 6 or 7, that is, in a working-class position.

Social Origins

Our focal social origin variable is parental class which we index by father's class at cohort member's age 10 (or, if this information is not available, at age 16), again using NS-SEC, although in this case with the 3-fold collapse indicated by the dotted lines in Table 1. As earlier noted, we also treat social origins in terms of parental social status and education. We measure parental status by the scale developed by Chan and Goldthorpe (2004) which is derived from analyses of the occupational structure of close friendship. Where parents have different status scores, the higher score is taken. A 0–1 conversion of scores is made. Previous research has clearly shown the advantage of treating educational qualifications in relative rather than absolute terms in social mobility studies (see, for example, Shavit and Park, 2016). We therefore score each of seven ordered categories of parental qualification—ranging from neither parent having any qualifications to both having degree-level qualifications—according to the proportion of parents falling below that category in the cumulative distribution (see further Bukodi and Goldthorpe, 2013).

Table 1. Social class (origin and destination), based on NS-SEC

Three-fold classification	Seven-fold classification	Description
Salariat	1	Higher managers and professionals—higher salariat
	2	Lower managers and professionals—lower salariat
Intermediate	3	Ancillary professional and administrative occupations
	4	Small employers and own account workers
	5	Lower supervisory and technical occupations
Working class	6	Semi-routine occupations
	7	Routine occupations

Note: NS-SEC names Class 3 simply as 'Intermediate occupations'. We elaborate on this to give a better idea of the occupations included.

Education at Labour Market Entry

For every cohort member, we have details of their educational histories, including both academic and vocational qualifications, up to age 38. On this basis we can determine the highest level of qualification that they had attained at the time of their labour market entry (i.e. when taking up their first significant job, one lasting at least 6 months). We treat cohort members' qualifications, like parental qualifications, in relative terms: i.e. we assume that what matters regarding labour market returns to education is not just how much education individuals have but how much relative to those others with whom they are in most direct labour market competition (Bukodi, Erikson and Goldthorpe, 2014). Moreover, it is possible that cohort members—or their direct competitors—improve their level of qualifications after labour market entry, and this may lead to changes in cohort members' relative educational position over their working lives. The construction of the variable of educational qualifications at labour market entry, which is based on a schema of 30 qualifications, is described in detail in [Supplementary Appendix A](#). It results in the division of cohort members into approximate qualifications tertiles. Since these tertiles—the highest one in particular—can be quite heterogeneous in terms of the actual qualifications involved, we take account of this by including in all of our analyses fixed effects for the detailed qualifications.

Relative Qualifications Position at Age 38

It is possible that educational qualifications obtained after labour market entry also bear on mobility chances, and to allow for this, we include in our analyses a variable constructed in the following way. We first assign cohort members to qualifications tertiles at age 38, based on the distribution of their highest level of qualification at that age by the detailed classifications of academic and vocational qualifications previously referred to. We then cross-classify cohort members by their relative qualification levels at labour market entry and at age 38, and from this cross-classification, we create a variable with the following three categories: (i) no change in cohort member's relative qualification level between labour market entry and at age 38; (ii) cohort member's relative qualification level at age 38 is higher than at labour market entry; (iii) cohort member's relative qualification level at age 38 is lower than at labour market entry. It is important to note that, because we are comparing relative rather than absolute qualification levels, *cohort members can be found in category (iii) even if they have in fact themselves obtained some*

further qualification during their working lives.³ Two points of interest emerge (for details see [Supplementary Appendix B, Table B1](#)). First, a fairly high proportion, 32 per cent, of cohort members did change their relative qualification level between labour market entry and age 38. Secondly, there are no statistically significant differences in this regard among individuals from different class origins.

Cognitive Ability and Locus of Control

Cohort members' cognitive ability is measured by first principal component scores derived from results of verbal and non-verbal tests administered to children at age 10 (Schoon, 2010). Using these scores, we allocate cohort members to cognitive ability quintiles, thus allowing for any non-linear effects on class attainment to show up. A rich set of information is available on cohort members' non-cognitive attributes in BCS70. However, in exploratory analyses we found that only one, locus of control, had significant and systematic effects on class attainment. Locus of control refers to the extent to which individuals believe that they have control over their lives and can influence their own futures (Rotter, 1966). Past research has shown that locus of control is associated with educational choice and job search behaviour (Caliendo, Cobb-Clark and Uhlenborff, 2015) and also serves as a mediating factor in intergenerational earnings mobility (Joshi, 2014). In the BCS70 data set, locus of control is measured on a 16-item scale in a test that was administered to cohort members at age 10. Using the first principal component scores of binary responses ('yes' or 'no') to these items, we allocate cohort members to locus of control quintiles according to whether they have a higher or lower sense of 'internal' control. Individuals of more advantaged class origins are more likely to be found in the higher cognitive ability and locus of control quintiles and less likely to be found in the lower quintiles than are individuals of less advantaged origins (see [Supplementary Appendix B, Table B1](#)).

Parental Help

It is possible that family 'contacts' and social networks may help individuals in obtaining employment and advancing their careers (cf. Loury, 2006). To investigate this issue, we use responses to a question put to BCS70 cohort members when they were aged 42: 'Have your parents ever done any of the things on this card to help you to get any job you have ever had? Please include internships and placements, even if unpaid'.⁴ From the responses, we construct four binary ('yes' or 'no') variables: (i) parents provided advice; (ii) parents

recommended the cohort member to an employer; (iii) parents directly employed the cohort member; (iv) parents, through their contacts, helped the cohort member to find a job. Parental advice was the most frequently reported kind of help—36 per cent of the cohort members mentioned it—and was significantly more likely to be reported by those from salariat than from working class backgrounds. Help in the form of recommendation to an employer, direct employment, or job finding was less often reported—by 11, 7, and 13 per cent of cohort members, respectively—and what is notable (cf. Macmillan, Tyler and Vignoles, 2015) is that these forms of help were *not* significantly associated with class origins (for details see [Supplementary Appendix B, Table B1](#)).

Results

As a first step, we seek to establish how far DESO is present in the experience of individuals in the 1970 birth cohort and how it is expressed in more specific glass floor and glass ceiling effects when DESO is defined in relation to relative qualification level at labour market entry. In [Table 2](#) we show relevant descriptive statistics.

The table provides clear evidence of DESO of a systematic kind and of a glass floor and a glass ceiling in

operation. As regards glass floor effects, it can be seen that if one takes men or women who were in the bottom qualifications tertile at labour market entry, their class of origin is clearly associated with their class position at age 38. Most notably, these poorly qualified men and women who are of salariat—Class 1 or 2—origins still have, respectively, more than 40 and 30 per cent probability of themselves accessing the salariat, which is almost twice that of poorly qualified men and women of working class—Class 6 or 7—origins. As regards glass ceiling effects, the mobility chances of men and women who entered the labour market with qualifications in the top tertile are likewise conditioned by their class origins. Well qualified individuals of salariat origins have, as might be expected, a high probability of being themselves found in salariat positions at age 38—almost 80 per cent for men and about 65 per cent for women; but for equally well-qualified individuals of working class origins, the probability of accessing the salariat is not much above 55 per cent for men and only 46 per cent for women.

We can then demonstrate that DESO, as we have defined it in relation to qualification level at labour market entry, is present in the British case and is expressed in sizable glass floor and glass ceiling effects for both men and women. However, we now wish to move on to

Table 2. Entry education, class of origin, and class of destination at age 38: distributions (%)

Entry education (tertiles)	Class of origin	Class of destination				N
		Salariat	Intermediate	Working	Total	
Men						
Bottom	Salariat	41.4	33.2	25.4	100.0	352
	Intermediate	27.2	37.9	34.9	100.0	778
	Working	19.3	35.2	45.5	100.0	919
Middle	Salariat	47.9	35.5	16.6	100.0	434
	Intermediate	34.8	42.5	22.7	100.0	682
	Working	29.6	36.5	33.9	100.0	693
Top	Salariat	77.1	17.7	5.2	100.0	859
	Intermediate	62.0	29.0	9.0	100.0	609
	Working	56.1	29.4	14.5	100.0	440
Women						
Bottom	Salariat	31.7	37.8	30.6	100.0	291
	Intermediate	21.0	34.6	44.4	100.0	682
	Working	16.2	30.8	53.1	100.0	871
Middle	Salariat	33.1	41.6	25.3	100.0	494
	Intermediate	28.5	40.4	31.1	100.0	666
	Working	24.1	39.1	36.8	100.0	747
Top	Salariat	65.2	24.5	10.2	100.0	954
	Intermediate	50.0	35.5	14.5	100.0	711
	Working	46.2	33.9	19.9	100.0	517

more advanced analyses to see how the assessment of DESO may be affected if we bring into our analyses, first, other components of social origins—that is, parental status and education as well as parental class; and, secondly, changes in individuals' relative qualification levels as between labour market entry and age 38.

We work with linear probability models with the two binary dependent variables previously referred to: whether or not at age 38 a cohort member is found in the managerial and professional salariat, Classes 1 and 2, and whether or not at age 38 a cohort member is found in the working class, Classes 6 and 7. Since preliminary analyses gave essentially similar results across the genders, we treat men and women together, while including in all analyses dummies for gender and also for part-time working as control variables, together with fixed effects for detailed educational qualifications at labour market entry.

Results from our first three models are shown in Table 3. Model 1 includes only parental class and, consistently with what was shown in Table 2, the existence of DESO and of glass floor and glass ceiling effects is apparent. The more advantaged the class in which individuals originate, the more likely it is that at age 38 they are found in the salariat and the less likely it is that they are found in the working class, regardless of the level of their qualifications at labour market entry. It would seem that the positive effect of having a father in the salariat on accessing the salariat is somewhat stronger than the negative effect of having a working class father. But there is no analogous difference in class of origin effects regarding the probability of being found in the working class.

In Model 2 we introduce parental status and parental education. Parental class effects now in some large part disappear, although there are still indications that access to the salariat is significantly associated with having a father in the salariat for those who entered the labour market in either the bottom or the top qualifications tertiles, and that having a working class father is significantly associated with being found in a working class position, regardless of the level of cohort members' entry qualifications. The effects of parental status are quite limited. The only notable one is that higher parental status decreases the risk of being found in the working class for individuals with low entry qualifications. In contrast, the effects of parental education are consistently significant. A high level of parental education increases the chances of being found in the salariat for individuals in all three qualifications tertiles; it is also important for those who enter in the bottom and middle tertiles in lowering their risks of ending up in working class positions.

Our results under Model 2 point then to two conclusions. First, that the apparent effects of parental class under Model 1 are in fact to some extent capturing effects of parental status and, especially, of parental education; secondly, that parental status and, especially, parental education are themselves independent sources of DESO, and that DESO will be underestimated if they are left out of account. That is to say, parental status and parental education would appear to have direct effects on children's class attainment, that could contribute to both glass floors and glass ceilings, *over and above* the well-established effects that they have via their positive association with children's educational attainment (Bukodi, Erikson and Goldthorpe, 2014). To illustrate the degree of underestimation of DESO if we base it solely on parental class, we calculate predicted probabilities of being found in the salariat and in the working class at age 38, for individuals from consistently advantaged and consistently disadvantaged backgrounds when all three dimensions of social origins are considered together (see Supplementary Appendix B, Table B2). The social origins effect is clearly larger in a more comprehensive treatment than when it is treated via parental class only. For example, individuals who started out in the bottom qualifications tertile but came from consistently advantaged backgrounds are 28 percentage points more likely than their counterparts from consistently disadvantaged background to access the salariat; the corresponding figure is only 20–21 percentage points if we operationalize DESO via parental class only.

In Model 3 we include our variable for changes in individuals' relative qualification level between labour market entry and age 38. Parental class and parental status effects, insofar as they exist, remain not greatly different to what they were under Model 2, and although parental education effects are reduced somewhat in strength, they remain, with one exception, all significant. However, what is chiefly notable are the very systematic effects that our variable for change in qualification level produces. Individuals who have improved their relative level are substantially more likely to be found in the salariat than those who have not done so, while those whose relative level has worsened are substantially less likely to access the salariat. And, regarding the risk of ending up in a working class position, while the effect sizes are somewhat smaller, a corresponding pattern prevails: the risk is reduced for those who have raised their relative qualification level but increases for those whose relative level has fallen.⁵

Since, then, changes to the relative qualification level of individuals that may occur after labour market entry do have such effects on their eventual class destinations,

Table 3. The effects of social origins and relative educational position at age 38 on class of destination at age 38

	Class at age 38: Salarial			Class at age 38: Working class		
	Bottom	Middle	Top	Bottom	Middle	Top
	tertile of entry education			tertile of entry education		
Model 1						
<i>Class of origin</i>						
Salarial	0.12***	0.07**	0.08***	−0.11***	−0.05*	−0.01
Intermediate (ref.)	0.00	0.00	0.00	0.00	0.00	0.00
Working	−0.07**	−0.04	−0.01	0.10***	0.07**	0.04*
Intercept	0.16**	0.43	0.94***	0.35***	0.31	−0.03**
Adjusted R ²	0.04	0.05	0.17	0.04	0.06	0.07
Model 2						
<i>Class of origin</i>						
Salarial	0.07*	0.01	0.06*	−0.01	−0.02	0.00
Intermediate (ref.)	0.00	0.00	0.00	0.00	0.00	0.00
Working	−0.04	−0.00	0.01	0.05*	0.05*	0.03 [§]
<i>Parental status</i>	0.05	0.09*	−0.03	−0.16***	0.00	−0.03
<i>Parental education</i>	0.16***	0.15***	0.15***	−0.17***	−0.13***	−0.04
Intercept	0.13***	0.43	0.85***	0.35***	0.34	−0.01
Adjusted R ²	0.05	0.06	0.18	0.06	0.06	0.07
Model 3						
<i>Class of origin</i>						
Salarial	0.07*	−0.00	0.06*	−0.01	−0.01	0.00
Intermediate (ref.)	0.00	0.00	0.00	0.00	0.00	0.00
Working	−0.03	−0.00	0.01	0.05 [§]	0.05*	0.03 [§]
<i>Parental status</i>	0.04	0.07*	−0.03	−0.15***	0.01	−0.02
<i>Parental education</i>	0.13***	0.14***	0.14***	−0.14***	−0.13***	−0.03
<i>Relative educational position at age 38</i>						
Improved	0.23***	0.26***		−0.21***	−0.17***	
Did not change (ref.)	0.00	0.00	0.00	0.00	0.00	0.00
Worsened		−0.08**	−0.18***		0.09**	0.07***
Intercept	0.13***	0.43***	0.86***	0.35***	0.34	−0.01
Adjusted R ²	0.09	0.11	0.19	0.08	0.09	0.07

Note: Controls: gender, part-time dummies, and fixed effects for detailed qualifications at labour market entry.

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$; [§] $p < 0.10$.

it is evident that determining qualifications level at labour market entry or at some quite early age in working life is likely to lead to an overestimation of DESO at a more advanced age. Or, to put the same point more positively, education would appear to play a significant continuing role in class attainment over a quite lengthy period of working life.

Having now sought to avoid underestimating DESO by taking a more comprehensive view of social origins and to avoid overestimating it by taking a more extensive view of educational attainment, we move on to the further concern that we indicated at the outset: that is, to ‘unpack’ DESO by trying to identify the factors that may mediate it. We focus on two kinds of factors: first, individuals’ cognitive ability and their sense of locus of control, both as measured

in early life; secondly, various forms of parental help that individuals might receive in the labour market. In Table 4 we show the results from our full model, Model 4, in which variables for these factors are introduced.

As regards cohort members’ cognitive ability and sense of locus of control, these have effects that, while rather limited, operate in interestingly contrasting ways.

Cognitive ability has its most systematic effects for individuals in the top quintile: that is, in increasing their chances of accessing the salariat by age 38, regardless of their qualification level at labour market entry and of any subsequent change in this level. And being in the top—or next-to-top—cognitive ability quintile also reduces the risk of being found in the working class for those with low level entry qualifications. That is to say, while high cognitive

Table 4. The effects of social origins, cognitive ability, locus of control, parental help, and relative educational position at age 38 on class destination at age 38

	Class at age 38: Salariat			Class at age 38: Working class		
	Bottom	Middle	Top	Bottom	Middle	Top
	tertile of entry education			tertile of entry education		
Model 4						
<i>Class of origin</i>						
Salariat	0.06*	0.00	0.06*	−0.02	−0.01	−0.00
Intermediate (ref.)	0.00	0.00	0.00	0.00	0.00	0.00
Working	−0.02	0.01	0.02	0.03	0.04 [§]	0.03 [§]
<i>Parental status</i>	0.01	0.06	−0.05	−0.12**	0.03	−0.02
<i>Parental education</i>	0.08*	0.13***	0.12**	−0.08*	−0.10**	−0.02
<i>Relative educational position at age 38</i>						
Improved	0.21***	0.25***		−0.18***	−0.15***	
Did not change (ref.)	0.00	0.00	0.00	0.00	0.00	0.00
Worsened		−0.07**	−0.17***		0.08**	0.07**
<i>Cognitive ability</i>						
Bottom quintile	−0.06*	−0.03	−0.01	0.08*	0.07*	0.01
2nd quintile	−0.04	0.01	−0.03	−0.00	0.04	0.06 [§]
3rd quintile (ref.)	0.00	0.00	0.00	0.00	0.00	0.00
4th quintile	0.04	0.02	0.05 [§]	−0.08*	0.00	−0.01
Top quintile	0.15***	0.06	0.07*	−0.13**	0.00	0.01
<i>Locus of control</i>						
Bottom quintile	−0.08***	−0.05 [§]	−0.04	0.05 [§]	0.09**	0.06*
2nd quintile	−0.09***	−0.04	−0.04	0.06*	0.08*	0.08**
3rd quintile (ref.)	0.00	0.00	0.00	0.00	0.00	0.00
4th quintile	0.03	0.04	0.01	−0.05	−0.00	0.01
Top quintile	0.04	0.07*	0.03	−0.01	−0.03	0.00
<i>Parental help</i>						
Advice	0.01	−0.03 [§]	−0.01	−0.02	−0.02	0.00
Recommendation	0.03	−0.03	−0.00	0.02	0.05 [§]	−0.04 [§]
Direct employment	−0.03	−0.00	0.02	−0.10*	−0.02	−0.02
Help finding job	−0.04	−0.01	−0.00	0.00	0.02	0.00
Intercept	0.18**	0.43	0.80***	0.35***	0.27	−0.03
Adjusted R ²	0.14	0.13	0.20	0.11	0.11	0.09

Note: Controls: gender, part-time dummies, and fixed effects for detailed qualifications at labour market entry.

*** $P < 0.001$; ** $P < 0.01$; * $P < 0.05$; [§] $P < 0.10$.

ability can add to the effects of educational attainment, it can also compensate for educational shortcomings; and, insofar as it is associated with advantaged social origins (see [Supplementary Appendix B, Table B1](#)), it can then be taken as helping to account for glass floor effects.

With our locus of control variable, however, the significant effects appear with individuals in the bottom or next-to-bottom quintiles. Having a low score on this variable—i.e. a low sense of internal control—still further reduces the chances of individuals with low qualifications being found in the salariat, while at the same time increases the risk of ending up in the working class for individuals with a higher level of qualification. Thus,

insofar as children of working class origins are more likely to have low locus of control scores (see [Supplementary Appendix B, Table B1](#)), this can be seen as a source of glass ceiling effects.

Regarding parental help in the labour market, we then obtain what may appear as our most surprising result: [Table 4](#) indicates that such help is of very little importance in mediating DESO.⁶ A significant—glass floor—effect shows up only in that being directly employed by a parent reduces the risk of ending up in a working class position for those who at labour market entry are in the bottom qualifications tertile. We do of course recognize the possibility that some cohort

members failed to report parental help; but, as earlier noted, non-negligible minorities did so, and the relevant point is that *insofar as such help was reported*, we can, for the most part, detect no significant consequence of it for individuals' eventual class destinations. We would moreover note that our findings here are in line with those from previous British, and also Spanish, studies (Gutierrez *et al.*, 2014; Green *et al.*, 2015; Bernardi, 2012). Although then 'opportunity hoarding' on the part of more advantaged classes may well be important in regard to certain elite positions in, say, the financial sector or the media, it would appear that it is not a major source of any more general glass floor effects.

If our attempt at identifying factors that mediate DESO were to be thought entirely successful, then under Model 4 all social origin effects would have to become insignificant. But, as can be seen, this is not the case. Such effects of parental class and status as were evident under Model 3 are little altered; and while the more systematic effects of parental education are now generally reduced, they are still of evident importance and, in the case of the poorly qualified, appear to create a glass ceiling effect in promoting access to the salariat and a glass floor effect in giving protection against ending up in a working class position.⁷ How the remaining social origin effects are in fact mediated—what are the actual social mechanisms that underlie them—has therefore to be regarded as a matter for further research, in regard to which we make some suggestions in our concluding section.

Finally here it is relevant to note that under Model 4 the effects of change in relative qualification level are on the same pattern as previously, and only very slightly reduced in strength. In other words, the continuing importance of—relative—educational attainment over the course of working life is confirmed.

Conclusions

In this article we have taken up, in the British case, a number of issues that arise from recent research on DESO and, more specifically, from discussion of glass floor and glass ceiling effects that are seen as preventing movement towards an education-based meritocracy. The main results we obtain from our analyses of the BCS70 data set can be stated as follows.

First, DESO is clearly in operation in present-day British society. If we define DESO in terms of the association between class origins and class destinations that is not mediated by educational attainment at labour market entry, we can show that such an effect is consistently and often quite strongly present. Individuals from more advantaged class origins are, at age 38, more likely to be found in the salariat

and less likely to be found in the working class than are individuals from less advantaged origins with similar relative levels of qualification. Glass floor and glass ceiling effects both appear to operate, and with broadly similar strength.

Secondly, when we introduce parental status and parental education into our analyses as further components of social origins, we find that they too contribute to DESO in addition to parental class. Parental class effects are now in fact a good deal reduced but parental education effects show up in a systematic way. That is to say, parental level of education has a positive effect on an individual's probability of accessing the salariat or of avoiding a working class position over and above the effects it has via his or her educational attainment. A failure to treat social origins in a comprehensive, multi-dimensional way is therefore likely to lead to an underestimation of DESO.

Thirdly, when we further introduce into our analyses a variable that captures whether individuals' relative qualification level has improved or worsened as between labour market entry and age 38, we reveal another quite systematic set of effects. An improvement in relative level clearly increases an individual's chances of being found in the salariat rather than in the working class, while a worsening has the reverse effect. And, at the same time parental education effects as a factor in DESO are somewhat reduced. In other words, it has to be recognized that the part played by education in mediating the association between class origins and destinations is not restricted to educational attainment prior to labour market entry. Whether or not, through later-life education, individuals improve their relative qualification level is also significantly associated with the class positions that they eventually achieve. It is possible that this effect is particularly important in the British case given the comparatively high levels of participation in formal further education (Dämmrich, Vilhena and Reichart, 2014). Nonetheless, neglecting later-life education could in general be regarded as likely to lead to an overestimation of DESO and in particular of its apparent strengthening over the life-course, as noted by Ballarino and Bernardi (2016).

Fourthly, in seeking then to 'unpack' DESO, in our best estimation of it, by introducing yet other variables through which it might be mediated, we obtain both positive and negative results. The individual characteristics of cognitive ability and sense of locus of control prove to be of some importance and, once their association with class origins is taken into account, would appear as a source of glass floor and glass ceiling effects, respectively. High cognitive ability may protect children from more advantaged backgrounds against downward

mobility even if their educational attainment is low; a poor sense of locus of control may prevent children from less advantaged backgrounds from achieving upward mobility even if their educational attainment is high. However, as regards parental help in the labour market, we can find little evidence of this as a factor in DESO, with the one exception that direct employment by a parent reduces the risk of ending up in the working class for the most poorly qualified individuals.

In the outcome, we do not then fully succeed in showing how DESO is mediated. Some effects of parental class and status and the more generalized effects of parental education, though reduced, still show up under our most inclusive model. In the case of parental class, further consideration should certainly be given, where adequate data are available, to its association with *wealth*, which can act as a ‘general insurance factor’ (Pfeffer and Hällsten, 2012) in regard to more ambitious educational and career choices. And in the case of all components of social origins, it is possible that they exert direct effects through psychological mechanisms of ‘loss aversion’ (Kahneman, 2011) whereby individuals from more advantaged backgrounds are particularly strongly motivated to avoid ending up in class positions that would imply downward mobility.

Finally, we should comment on how far our findings on DESO undermine the idea of an emergent education-based meritocracy in Britain. It is certainly clear from our results that if DESO is defined in terms of educational attainment at labour market entry it is overestimated, and that, conversely, inadequate recognition is given to the extent to which qualifications gained in later life are associated with the class positions that individuals eventually achieve. In other words, our research brings out the importance of seeing the full part that is played by education in the processes through which individuals’ chances of class mobility are determined.

However, the question then arises of how far the ‘merit’ entailed in later-life educational attainment—just as in educational attainment before labour market entry—is compromised by its strong association with the accidents of birth and social origins. We did not in fact find any major difference as regards class origins between those individuals whose relative qualifications level had improved or worsened during their working lives. But from related research (Bukodi, 2016) we know that individuals of more advantaged class origins are more likely than those of less advantaged origins to obtain additional *academic rather than vocational* qualifications in later life, and especially if they have some experience of downward mobility; and further that it is *improvement in academic rather than vocational*

qualifications that is chiefly associated with upward worklife mobility into positions in the salariat. In other words, later-life education appears as a way of compensating for poor levels of initial attainment, not so much for individuals from less advantaged origins who can thus improve their chances of upward intergenerational mobility, but rather for those from more advantaged origins who, through ‘counter-mobility’ (Girod 1971; Girod *et al.*, 1972), can thus improve their chances of maintaining their parents’ class position.

While DESO is then clearly a feature of the mobility regime in present-day Britain, as elsewhere, and one that is in conflict with the ideal of an education-based meritocracy, it is not clear that, if this ideal is to be pursued, reducing DESO should be seen as of prime importance. Our results would lead us to concur with the argument made by other recent researchers (Macmillan, Tyler and Vignoles, 2015; Green *et al.*, 2015) that departures from meritocratic principles resulting from opportunity hoarding, via the operation of parental influence, contacts, and social networks, are generally less consequential than those resulting from non-meritocratic features of processes of educational attainment, both before and after labour market entry, that are then powerfully transferred into the mobility regime.

Supplementary Data

Supplementary data are available at ESR online.

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Notes

- 1 In the collection previously referred to (Bernardi and Ballarino, 2016), it would appear that the educational attainment and class destinations of members of the national populations covered could be determined at any age from 28 to 65; in at least one case, education was indexed only by ‘the highest diploma obtained in initial schooling, including apprenticeship’ (Bouchet-Valat, Peugny and Vallet, 2016: p. 23).
- 2 We use the MICE (Multiple Imputation using Chained Equations) package in Stata, allowing for 20 sets of multiple imputation. We then use Rubin’s (1987) rules for combining these imputations.
- 3 For example, around 4 per cent of cohort members who started out in the top qualifications

tertile obtained some additional qualifications over their working lives, but still, their *relative* educational positions worsened between labour market entry and age 38.

- 4 We recognize that this information was collected from cohort members 4 years after the age at which we determine their class positions. However, research suggests that help through family networks and contacts matters most in the earlier stages of working life (Lin, 1999); in view of this, and of a discrepancy of only 4 years, we would believe that the information we use will very largely refer to the time period covered by our analyses.
- 5 As auxiliary analyses, we re-ran our models with two other dependent variables: first, whether or not at age 38 the cohort member is found in the higher salariat (Class 1) and, second, whether the cohort member is found in the managerial or in the professional segment of the salariat (Classes 1 and 2) rather than in any lower-class position. Overall, the results, as shown in [Supplementary Appendix B, Tables 3 and 4](#), indicate similar patterns of effects of our key variables to those presented in [Tables 3 and 4](#).
- 6 The effects of parental help are insignificant even when we do not control for cohort members' cognitive ability and locus of control.
- 7 In [Supplementary Appendix B, Table B5](#), we replicated the analysis reported in [Table 4](#), but with parental class as the only indicator of social origin. In line with the results of the main analysis, cognitive ability, locus of control, and parental help mediate only a relatively small part of the parental class effect.

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