Education and Intergenerational Mobility: Help or Hindrance?

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Abstract

Evidence on intergenerational income mobility in the UK is dated. This paper seeks to update our knowledge by introducing new estimates of mobility for later measures of earnings in the 1958 and 1970 birth cohorts. Given poor or non-existent data on more recent cohorts we adopt an indirect approach to assessing more recent mobility trends. This exploits the close link between income persistence across generations and the gap in educational achievement by family background (referred to as educational inequality). We gather a comprehensive set of data which measures educational inequality for different cohorts at different points in the education system. We conclude that educational inequality has declined for cohorts born after 1980, and this is associated with rising average educational achievement. In contrast, evidence on high attainment does not reveal that educational inequality has declined; this suggests that policy seeking to promote equality of opportunity should encourage students to aim high.

Key words: intergenerational income mobility

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Introduction

Social mobility has risen in prominence in public and political discourse over the past decade. The Deputy Prime Minister unveiled his Social Mobility Strategy in 2011 and improving social mobility is described as the 'principal goal' of the coalition's social policy (Cabinet Office, 2011). The previous Labour Government established the importance of this area, producing its own Social Mobility White Paper in 2009. Policy interest has been underpinned by two important findings. First, the UK does not do well when judged against some comparable countries in terms of income mobility across generations (Bratsberg et. al., 2007). Second, intergenerational income mobility got worse over time in the UK (Blanden et. al., 2004) when comparing children born in 1970 with those born in 1958. However, it is clear that this evidence is based on rather old data; here we review more recent evidence on social mobility; and attempt to establish its future direction.

In this paper we define social mobility as relative income mobility, which is measured as a lack of association between the adult earnings of children and their parental income in childhood. Alternative definitions of social mobility consider movements up and down social positions (class) across generations (Goldthorpe and Jackson, 2007). The advantage of using income is that it is more likely to capture differences in family resources (Blanden, Gregg and Macmillan, 2007). Our approach is relative, measuring the life chances of children given their parents' position in the income distribution in childhood. We therefore ask whether those from the poorer or richer families have the same chance of ending up well-off. We review the latest evidence on intergenerational mobility before attempting to update it.

Intergenerational income mobility is closely linked to inequalities in education by family background (Solon, 2004, Blanden, et al., 2007). The more strongly family background influences educational achievements (the greater educational inequality) the more likely that adult earnings are associated with childhood family income. This is confirmed by findings from Blanden et. al. (2007) that 85% of the decline in mobility between the 1958 and 1970 cohorts can be accounted for by an increase in educational inequality; by the 1970 cohort the achievements of the children of richer parents far outstripped those of children from poorer backgrounds.

Given that educational inequality is an important driver in the persistence of inequalities across generations, it is possible to assess potential future trends in mobility by looking at current trends in educational inequality (Gregg and Macmillan, 2010). This approach has been recognised by Government who monitor 17 'leading indicators' of mobility as set out in the 2011 Social Mobility Strategy. In this paper we follow this rationale bringing together a comprehensive range of evidence across cohorts over time and across the life course in order to build a picture of the trends in educational inequality over the past three decades. We also update the evidence on recent trends in returns to education and shine some light on trends in educational inequality at other, often ignored, parts of the education distribution. Bringing these

aspects together for the first time, we can provide a more complete overview of the likely implications for longer-term intergenerational mobility. The aim of this paper is therefore to inform and stimulate the policy debate in this area.

In the next section we discuss the existing evidence on intergenerational mobility in the UK and update this evidence using more up to date data. In section 3 and 4, we introduce the role of educational inequality in the transmission of incomes across generations and present evidence on this across the life course and across cohorts. Section 5 discusses the implications of these trends in educational inequality in the context of new evidence on returns to these qualifications and new evidence on trends in educational inequality at alternative parts of the distribution of educational attainment. We end with some conclusions and policy discussion.

Evidence on Intergenerational Mobility for Adult Cohorts in the UK

The much cited evidence on trends in intergenerational income mobility in the UK is from evidence by Blanden, Gregg, Goodman and Machin from a decade ago. The approach taken to measure intergenerational mobility dates back to Becker and Tomes (1986), operationalised as a regression of log son's earnings (y_i^{son}) on log parental income in childhood (y_i^{parent})[1]. Daughters are typically excluded from this analysis due to issues with modelling female labour market participation.

$$y_i^{son} = \alpha_1 + \hat{\beta} y_i^{parent} + \hat{\varepsilon}_i \quad (1)$$

The estimated parameter, $\hat{\beta}$, captures the intergenerational elasticity or the persistence in incomes across generations. Mobility, or the extent to which incomes are *not* associated across generations, is measured as $1 - \hat{\beta}$.

Blanden et. al. (2004) presented estimates of intergenerational income mobility from the two British birth cohort studies, the National Child Development Study (NCDS) born in 1958 and the British Cohort Study (BCS) born in 1970, suggesting that income persistence across generations increased by 0.092 percentage points from 0.205 in the NCDS to 0.297 in the BCS. This indicates that intergenerational income *mobility* decreased over time from sons born in 1958 to sons born in 1970. Ermisch and Nicoletti (2005) explore changes in mobility using the British Household Panel Survey (BHPS). They use retrospective measures of fathers' occupation at age 14 to impute earnings using a two-sample two-stage least squares approach. Their evidence is consistent with an increase in persistence, or decrease in mobility, for cohorts born between 1960 and 1971.

[1] Note that in keeping with previous studies we are measuring an asymmetric relationship here, relating earnings in the second generation to parental income in the first generation. This is discussed in greater detail in Blanden et. al. (2013).

Work by leading sociologists in the UK (predominantly John Goldthorpe) has shown that there is no similar change over time in social class mobility using the same data source (Goldthorpe and Jackson, 2007). Goldthorpe (2013) and Erikson and Goldthorpe (2011) argue that if there is greater error in the measure of permanent parental income used by economists in the first cohort of data, the resulting attenuation bias could account for the apparent increase in persistence (decrease in mobility) that is observed over time in the UK. Blanden et. al. (2013) do a number of robustness tests to assess the importance of random measurement error and transitory income variation in the income measures in each data set and find little evidence of a substantial difference across the two cohorts. Instead, they point to an increase in within class income persistence over time which could account for the divergence in findings across the two approaches. In summary, the estimated fall in intergenerational income mobility has been thoroughly scrutinised, and has been found to be robust.

Another important measurement issue is the role of life-cycle bias in estimates of mobility. Blanden et. al. (2004) measures sons' earnings at relatively similar ages (age 33 in NCDS and age 30 in the BCS), this is still considered 'young' in the context of lifetime earnings. Evidence from Haider and Solon (2006) and Grawe (2006) suggests that these estimates may understate the true intergenerational elasticities as the rate of some education qualifications are not fully realised until around the age of 40. To the extent that individuals with high levels of education are typically from more affluent families, this life-cycle bias will understate the difference between the earnings of those from better off and worse off families. Hence the degree of educational inequality is related to the degree of life-cycle bias in estimates of intergenerational income mobility. As the cohort studies have aged, we are now able to present more recent estimates of intergenerational mobility for when the cohorts are age 42 in the NCDS and 34 and 38 in the BCS. Table 1 shows the updated estimates of intergenerational mobility for the cohort members of the NCDS and BCS at older ages.

If we compare the estimates in the NCDS with estimates in the BCS at a more comparable age of sons, 34, we can see that the increase in persistence between the two cohorts is even larger – the elasticity increased by 0.119 percentage points, from 0.205 in the NCDS to 0.324 in the BCS. Given that differential wage returns are not fully realised in the labour market until around age 40 we can extend this picture further[2] to look at even later measures of sons' earnings. By age 42 in the NCDS, the intergenerational elasticity has increased to 0.291. In the BCS, the latest earnings available for the sons is at age 38, which puts the estimated intergenerational elasticity up to 0.385. This is 0.094 percentage points higher than the NCDS estimate at age 42; and the age gap is likely to lead to a further relative rise in the BCS estimate. Previous estimates of mobility have therefore understated the extent of persistence in incomes

[2] Gregg, Macmillan and Vittori (2014) present estimates of intergenerational persistence up to age 50 in the NCDS and up to age 38 in the BCS to document the role of life cycle bias in the UK data.

across generations in the UK. For the BCS cohort, by age 38 almost 40% of adult earnings were associated with family income at 16.

Table 1: Intergenerational elasticities across time and the life-cycle in the NCDS, BCS and BHPS

Cohort (year of birth)	Age 30	Age 33/34	Age 42/38
NCDS (1958)		0.205 (.026)***	0.291 (.034)
BCS (1970)	0.297 (0.025)***	0.324 (.027)***	0.385 (.031)
BHPS (1978) Age 30 only	0.128 (0.098)		
BHPS (1978) centred	0.260 (0.120)**		

From regression of earnings at various ages on parental income at age 16. Robust standard errors in parenthesis. * 90% confidence, ** 95% confidence, *** 99% confidence.
Samples NCDS: 2161 at age 33, 2213 at age 42, BCS: 1976 at age 30, 1691 at age 34, 1266 at age 38 BHPS: 157 at age 30, 319 for earnings measured across a broader age group (25-33) with average earnings reported at age 29.

Although these new estimates give us a better sense of the true size of intergenerational income persistence in the UK for these cohorts, they do not tell us anything about more recent trends in intergenerational mobility for younger groups. To do this, we would like to use a cohort study of individuals born in the early 1980s, but no such data exists. Instead we use the British Household Panel Survey (BHPS) a panel study that started in 1991 following 10,000 households every year. As children within these households reached age 16 they entered into the survey and were then followed into adulthood. These data are not ideal for several reasons, as we shall see.

The BHPS has been used previously to estimate trends in intergenerational income mobility using imputed earnings based on reported father's occupation and education at age 14 (Ermisch and Nicoletti, 2005). Grawe (2006) details issues with this approach including problems of life-cycle bias, the assumption that the covariance between father's education and father's earnings remains stable over time and the implicit assumption that father's education is an exogenous predictor of earnings. Instead, we explore the possibility of using the BHPS to estimate intergenerational mobility directly in this survey for the first time, linking parents to children and observing the family income and adult earnings of both generations. Those who were teenagers in their family homes at the start of the survey can now be observed as adults at around age 30, so can be used to estimate intergenerational mobility in a way comparable with the 1958 and 1970 cohorts.

Ideally we would like to measure earnings at the same age, say age 30. The main difficulty with using these data is that the number of people that we observe to be born in each year is limited to around 200. In addition, when we restrict the sample to those who are included in the survey both at around age 16 and around age 30, this reduces the numbers further. Our focus on sons reduces this sample even further. Therefore, to

derive any meaningful estimates a number of cohorts must be combined; we use those born between 1974 and 1983. We report two estimates: one for earnings at age 30 for a limited sample, and the other for earning as close to age 30 as possible for an extended sample. Our estimate is therefore based on sons who were born 1974-1983 who have measure of parental income at age 15-17. This gives an extended sample size of 319 (for any earnings around age 30) and a limited sample size of 157 (for earnings at 30 only). As recommended by Haider and Solon (2006) and used by Lee and Solon (2009) we include quadratic age dummies for the sons' age and an interaction between family income and quadratic age for the extended sample to control for life-cycle bias in the estimates[3]. We also include cohort dummies in both approaches to remove any cohort specific effects to account for the fact that earnings are observed in different years.

As can be seen in Table 1, our estimate for earnings at age 30 is 0.128, which is even smaller than the NCDS estimate but based on only 157 observations. For the broader sample, we obtain a β of 0.260; qualitatively more in line with the BCS. In both cases the standard errors are large and it is very clear that this data is not able to offer robust evidence of the trend in intergenerational income mobility after 1970. We are therefore forced to rely on indirect evidence, which is the focus of the remainder of this paper.

The role of education in driving mobility

Conceptual framework

Studies on the role of education in intergenerational mobility date back to the early 1980s within the economics literature (Atkinson, 1980; Atkinson and Jenkins, 1984) and are found even further back within sociology (Duncan and Hodge, 1963). Models by Blau and Duncan (1963) and Becker and Tomes (1986) place education, or human capital, as the central mechanism through which advantage (or disadvantage) is passed from one generation to the next. They argue that greater income allows parents to invest more in their children's education. In addition children of richer parents may have characteristics, either genetic or learned, which make it easier for them to acquire education. More education leads to higher earnings. The education system can therefore be viewed as playing a key role in improving mobility. If access to education and the returns to given education levels are equal regardless of family background then education will provide a meritocratic route for the most able children to become the most well-paid adults.

Over the past ten years there has been resurgence in this analysis, focusing on the drivers of intergenerational mobility over time and across countries (see Black and Devereux, 2011 for a comprehensive review). Many studies have focused on the role

[3] Estimated equation: $lnearn_{ic} = \beta lninc_{ic} + \pi dadage + \tau dadage^2 + \gamma_1(a-\bar{a}) + \gamma_2(a-\bar{a})^2 + \vartheta_1 lninc * (a-\bar{a}) + \vartheta_2 lninc * (a-\bar{a})^2 + \delta D_c + \varepsilon_{ic}$ where $a$is the age of the son when earnings are observed and D is the year of birth of the son. ε_{ic} is a random error term.

not only of education but also of cognitive and non-cognitive skills in this process (Osborn Groves, 2005; Blanden, Gregg and Macmillan, 2007; Mood, Jonsson and Bihagen, 2012). Implementing a statistical decomposition derived from the model of Solon (2004), these analyses consider both the association between family income and childhood characteristics and the returns to these characteristics in the labour market in adulthood. By combining these two separate stages, the role of these childhood characteristics can be assessed in the context of the transmission of income persistence across generations. While these studies find an independent role for early cognitive skills and non-cognitive traits in transmitting incomes across generations, the dominant effect is through educational attainment with these earlier skills feeding in to later attainment which is rewarded in the labour market.

Blanden, Gregg and Macmillan (2007) present a framework which picks up on this conceptualisation, and separates $\hat{\beta}$ into two stages. The first stage, a regression of educational attainment on logged parental income, captures the association of educational attainment with parental income. The second stage measures the returns to this education in the labour market, regressing sons earnings on educational attainment, conditional on parental income in childhood[4].

$$ed_i^{son} = \widehat{\alpha_2} + \hat{\gamma} y_i^{parent} + \hat{e}_i \quad (2)$$

$$y_i^{son} = \widehat{\alpha_3} + \hat{\rho} ed_i^{son} + \hat{\delta} y_i^{parent} + \hat{u}_i \quad (3)$$

Combining these equations demonstrates that part of the intergenerational regression coefficient can be accounted for by the contribution of both $\hat{\gamma}$ (educational inequality) and $\hat{\rho}$ (the returns to education). This can be demonstrated in equation (4).

$$\hat{\beta} = \hat{\gamma}.\hat{\rho} + \hat{\delta} \quad (4)$$

Using this statistical decomposition, Blanden, et. al. (2007) demonstrates the important role of educational inequality in shaping intergenerational mobility in the UK. Particularly striking is the fact that the strengthening relationship between family income and test scores, age 16 exam results and higher education participation all contributed to the decline in intergenerational mobility between the 1958 and 1970 cohorts.

One of the advantages of viewing education as central to social mobility is that it allows us to address a problem common to the literature on social mobility; that we cannot measure mobility until individuals are adults. In the context of policy analysis this is problematic as those for whom we can measure mobility will have left the

[4] The statistical decomposition of $\hat{\beta}$ includes parental income in the returns equation. This is capturing the direct effect of income on earnings in the next generation or the association between parental income and sons' earnings within education groupings. Although not typical in returns regressions, we argue that this is a more stringent estimate of the association between education and earnings, accounting for the often omitted role of family background. The descriptive story of the returns to education is not affected by whether we do this or not.

education system (where the number of policy levers is greatest) up to two decades earlier. For example, in the United Kingdom the most recent mobility estimates are for a cohort who attended secondary school under Margaret Thatcher as Prime Minister. While it is useful to learn from the past, this does not help in the assessment of the likely effects of current policies on future trends in social mobility.

An assessment of the role of education in promoting social mobility is all the more pertinent in light of Lupton and Obolenskaya's (2013) and Heath et al's (2013) assessments of education policy under New Labour. Both of these papers discuss the resources and policy energy that was ploughed into this area and find that the level of qualifications obtained increased and socio-economic inequalities in educational outcomes narrowed in the period 1997-2010. If we believe that education is the main driver of social mobility, it is possible to assess the potential future trends in mobility by looking at current trends in the association between family incomes and educational attainment.

Measurement issues

Our aim, therefore, is to use the available evidence on the relationship between educational achievements and socio-economic background to learn about the likely future direction of mobility. However, there are some complications.

In order to create a detailed picture we wish to use data from as many sources as possible. This means that the ideal of having a continuous measure of parental income is unattainable; we cannot estimate the regression model (2) due to a lack of data. Instead we use a measure of 'educational inequality'; this is the gap between the attainment of a privileged group and a disadvantaged group. This measure has been used previously when investigating trends in educational inequality (Blanden and Machin, 2004, Lindley and Machin, 2012).

The measures used overlap with the Government's Social Mobility Indicators (SMIs). These 17 measures of inequality will be followed across time as a barometer of the UK's progress in improving social mobility. The relevant indicators are presented in Table 2. Of the SMIs presented, 8 relate to measured educational attainment or participation in post-compulsory schooling while another three are measured by early tests before age 6. It can be seen that they cover many of the expected achievements at given educational standards and use several different approaches to defining the privileged and disadvantaged groups.

We focus initially on the expected level of attainment at different stages in the education system; for example, reaching the expected level (Level 4) of achievement in English and Maths at age 11 (Key Stage 2) and achieving 5 or more GCSEs at grade A*-C including English and Maths. These are standard measures of attainment that have been used in a number of analyses of trends in educational attainment (see Lupton and Obolenskaya, 2013).

Table 2: Government social mobility indicators across the life-cycle

Low birth weight, by social background
Early child development, by social background
School readiness, by free school meal eligibility
School readiness - phonics screening check
School attainment: age 11, by free school meal eligibility
School attainment: age 16, by free school meal eligibility
School attainment: age 16, by school-level deprivation
Attainment at age 19, by free school meal eligibility at age 15
High A-level Attainment by age 19, by school type
Participation in education 18-24, by social background
Participation in employment 18-24, by social background
Progression to higher education by age 19, by free school meal eligibility at age 15
Progression to higher education in the most selective institutions by age 19, by school type
Graduate destinations, by social background
Access to the professions, by social background
Progression in the labour market
Second chances in the labour market

The definitions of privilege and disadvantage that are available depend on the data. Survey data such as the cohort studies enables us to compare performance across the distribution; and we commonly focus on the top and bottom income quintiles. Administrative data sources give us less options and one easy way to split the data is on the basis of Free School Meals receipt which is available in the administrative education databases. Around 14% of English pupils are in receipt of free school meals, a statistic that has remained broadly stable across the past decade into the Great Recession. Children are eligible for Free School Meals based on their parents' low income or weak labour market attachment. The indicator is therefore primarily looking at gaps between 'the disadvantaged' and the rest, although recent evidence has cast some doubt on the legitimacy of Free School Meals status as a measure of low income (Hobbs and Vignoles, 2010).

Using discrete measures of educational improvements will make measures of educational inequality subject to ceiling effects. Initially, educational improvements will benefit the most advantaged, however once it is not possible to further improve the position of the privileged group, any improvement in performance leads to a narrowing of the gap. The Coleman report of 1966 and Boudon (1974) argued that rising education levels would reduce educational inequality, as those from poorer families would see rising educational participation whilst the well-off would plateau. This effect is discussed with regard to Key Stage 2 attainment in Lupton and Obolenskaya (2013). Once 85% of children who are not eligible for Free School

Meals achieve the expected level, a closing of the gap between richer and poorer children is inevitable if performance continues to rise as the richer children are constrained at the top. Nonetheless, a narrowing of the gap due to ceiling effects can be viewed as a positive outcome in terms of social mobility as it is still showing an increase in the absolute performance of those at the lower end of the education distribution.

Other issues relate to changes in the distribution of education. The measure of intergenerational mobility that is described in regression (1) is inherently relative; it discusses the percentage difference in income that can be expected between children of relatively richer and poorer parents. It is therefore invariant to the general growth of incomes over time. Equation (2) is slightly different; it describes the additional units of education which are associated with a doubling of parental income (parental income is logged in this model to transform this to a normal distribution). As education levels increase it may not be the case that an additional GCSE at A-C has less on an impact in terms of an individuals' position in the education distribution and their future earnings. We consider the implications of this by examining changes in the returns to education.

Looking forward – recent trends in educational inequality

The results on trends in educational inequalities that we present attempt to consider a range of measures of family background and educational attainment from a variety of sources, alongside those used by the Government as SMIs. In this section we focus on the trends in educational inequality across education levels for the *average or expected level of attainment* at each stage. We present evidence on both absolute attainment gaps and relative attainment gaps (ratios) to ensure that any trends that we are observing hold in both cases (see Gorard, 2000, for a full discussion of differences in absolute and relative measures of education inequality). We consider a range of measures across different ages and education stages to try to build a picture of changes between different cohorts. We also consider a range of measures of family background to prevent the results being unduly influenced by the measures used for each analysis. All of the data and measures used are listed in Table 3, and a graphical representation of the cohorts and educational stages is given in Figure 1. We consider both sexes in this section as educational inequality is not directly affected by female labour market participation issues.

Table 3: Data sources and measures of family background and educational attainment

Year of birth (average)	Data Source	Family Background measure	Education measure
1958	NCDS	Top/bottom income	Degree, KS5, KS4
1970	BCS	Top/bottom income	Degree, KS5, KS4
1976	BHPS	Top/bottom income	Degree
1978	BHPS	Top/bottom income	KS5, KS4
1981	BHPS	Top/bottom income	Degree
1983	BHPS	Top/bottom income	KS5, KS4
1986-1991	NPD-HESA	Top/bottom SES	Degree
1987-1993	NPD	FSM/Non-FSM	KS5
1986-1995	NPD	FSM/Non-FSM	KS4
1990	LSYPE	Top/bottom income	KS5, KS4, KS2
1992	ALSPAC	Top/bottom income	KS2
1992-1999	NPD	FSM/Non-FSM	KS2

We begin by examining trends in degree attainment and higher education participation by family background. Table 4 presents estimates of degree attainment by age 23 from the cohorts that we have estimated intergenerational elasticities for in Table 1. Educational inequality (or the gap in degree attainment between the top and bottom 20% of parental income distribution at age 16) begins at 0.14 in the NCDS before increasing dramatically to 0.30 in the BCS. This is driven by a large increase in the proportion of those from the top income quintile obtaining a degree during this period. For the BHPS cohort we have split the analysis into two groups, those born in the earlier part of the pooled sample and those born in the later part of the pooled sample. Educational inequality continued to increase slightly for the earlier BHPS cohort with the gap increasing to 0.33 (consistent with Blanden and Machin, 2004) before declining slightly for the later BHPS cohort to 0.27. The ratio of attainment increases from 3.4 rich kids attaining a degree for every 1 poor kids in the NCDS to 5.1 in the BCS and 5.3 in the first BHPS cohort. This comes down a fraction to 4.6 in the later BHPS cohort. The proportion of those from the top income quintile is in line with the BCS but there has been a slight increase (1 percentage point) in the proportion of those from the bottom income quintile acquiring a degree in this later cohort.

Figure 1: Representation of the Data

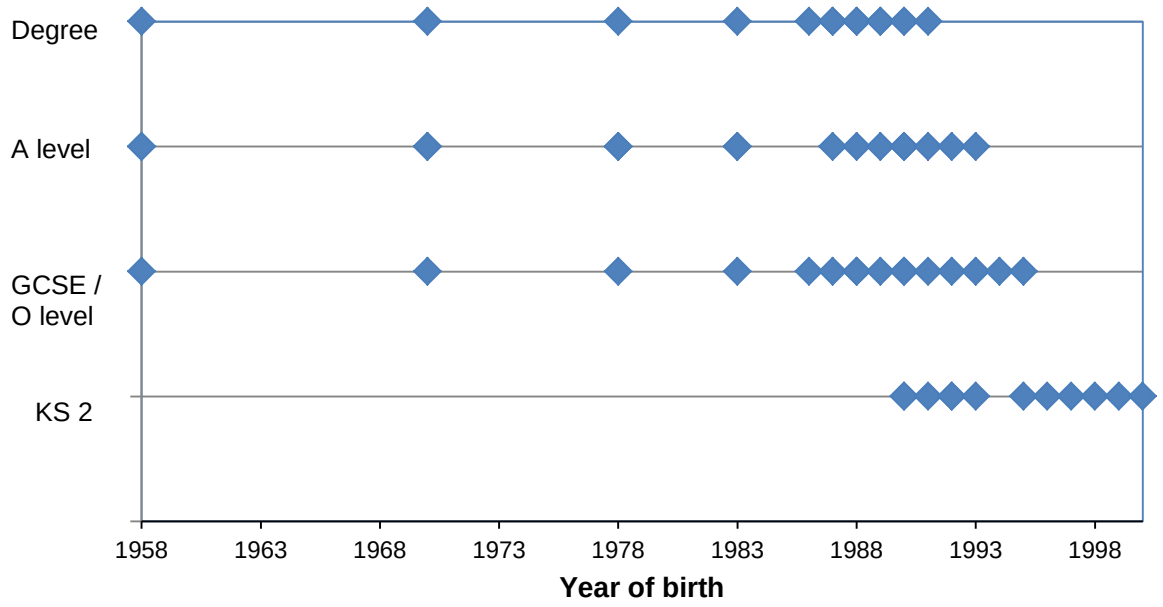

Table 5 presents results from Crawford (2012) who analyses higher education participation at 18/19 for those born from 1986 to 1991 who turn 18 between 2004 and 2009. Matching information from the National Pupil Database (NPD) to the Higher Education Statistics Agency (HESA) data, Crawford creates a measure of socio-economic status[5] (SES) and looks at participation rates at age 18/19 in higher education institutions by SES quintiles. These individuals are born slightly later than the youngest cohort observed in the BHPS and therefore allow us to build on the story told in Table 4. Looking across the two tables reveals the expansion of the HE sector, with total participation increasing from just 10% for those born in 1958 to 34% for those born in 1991. Table 5 demonstrates that while participation increased for those from the most deprived and the least deprived quintiles of SES, participation increased faster for the most deprived quintile, increasing by 5.8 percentage points for those born in 1986 to those born in 1991 compared to the least deprived quintile where participation increased by 3 percentage points. This reduced the participation gap between the two groups from 40 percentage points for those born in 1986 to 37.2 percentage points for those born in 1991. For those born in 1986, there were 4 children from the least deprived SES quintile participating in higher education for every 1 child from the most deprived SES quintile. For those born in 1991, this had declined to 3 children from the least deprived to every 1 from the most deprived quintile. The improvement found by Crawford, in terms of percentage points, is greater than that found in the University Participation Social Mobility indicator which shows a slight fall in the FSM-Non-FSM gap of 1 percentage point from 19 to 18 percentage points between 05/06 and 10/11 (see Appendix Table A1). As anticipated,

5 Combining Free School Meals (FSM) status with neighbourhood based measures of Index of Multiple Deprivation (IMD), their ACORN type, the proportion of individuals who work in high class jobs, the proportion of highly educated individuals, and the proportion who own their home.

the precise measures used to capture family background appear to matter, although in this case a decline in educational inequality is observed using both approaches.

Table 4: Degree acquisition by age 23 by parental income in the NCDS, BCS and BHPS

Year of birth	Year turned 18	Most deprived 20%	Least deprived 20%	Gap	Ratio	*% acquiring a degree*
1958	1976	5.9	20.3	14.4	3.4	10.2
1970	1988	7.3	37.2	29.9	5.1	17.7
1974-1978	1992-1996	8.6	45.7	37.1	5.3	24.8
1979-1983	1997-2001	9.6	44.0	34.4	4.6	24.2

N =5706, 4706, 580, 834.
Source: Blanden and Machin (2013)

Table 5: HE participation at age 18/19 by state school pupils from the most and least deprived quintiles of socio-economic status

Year of birth	Year turned 18	Most deprived 20%	Least deprived 20%	Gap	Ratio	*% participating in HE*
1986	2004	12.0	52.0	40.0	4.3	29.7
1987	2005	12.9	52.2	39.3	4.1	30.1
1988	2006	13.7	51.4	37.7	3.8	30.4
1989	2007	15.4	52.9	37.5	3.4	31.9
1990	2008	16.6	54.0	37.5	3.3	33.2
1991	2009	17.8	55.0	37.2	3.1	34.4

Notes: SES defined by combining Free School Meals (FSM) status with neighbourhood based measures of Index of Multiple Deprivation (IMD), their ACORN type, the proportion of individuals who work in high class jobs, the proportion of highly educated individuals, and the proportion who own their home.
Source: Crawford (2012)

Table 6 presents evidence of the proportion taking at least 1 A-level[6] for the most deprived and least deprived family income quintile across a range of cohorts. The NCDS, BCS and BHPS are presented in the first four rows with new data from the Longitudinal Survey of Young People in England (LSYPE)[7] in the last row. The

6 Not including equivalent qualifications. This is measured at age 23 in the NCDS, age 30 in the BCS, at their latest available age in the BHPS and from the linked NPD file in the LSYPE.

7 The Longitudinal Survey of Young People in England (LSYPE) is a longitudinal survey of

absolute measure of educational inequality (attainment gaps) peak for the first BHPS cohort born in the late 1970s and then declines steadily to the most recent cohort born in 1990[8]. For the relative measure (ratio), the peak occurs earlier in the BCS cohort before falling steadily. In the LSYPE cohort only 2 least deprived individuals were attaining 1 or more A-levels for every 1 most deprived person compared to 4 least deprived individuals in the BCS cohort. We can see a large increase in participation in A-levels across the period with only 14% of the NCDS cohort obtaining at least 1 A-level whereas by the last three cohorts around 50% were reaching this level of qualification.

Table 6: Relationship between parental income at age 16 and A-level attainment for NCDS, BCS, BHPS 1 (1975-80), BHPS 2 (1981-86) and LSYPE (1989-90)

1 or more A-levels						
Year of birth	Year turned 18	Most deprived 20%	Least deprived 20%	Gap	Ratio	*% at least one A-level*
1958	1976	7.1	25.9	18.8	3.6	13.6
1970	1988	18.9	53.8	34.9	2.8	33.6
1975-1980	1993-1998	26.3	77.1	50.8	2.9	53.6
1981-1986	1999-2004	26.6	66.7	40.1	2.5	50.6
1989/1990	2007/2008	38.0	71.9	33.9	1.9	49.2

N = 7841 in the NCDS; N= 3769 in the BCS; N= 638 in the BHPS 1975-1980; N= 401 in the BHPS 1981-1986; N= 6319 in the LSYPE.

In order to explore the association between GCSE attainment and family background, we switch our focus to more recent cohorts using data from the National Pupil Database (NPD). As ever, the limitation of using these data is that we can only use Free School Meal eligibility as the measure of family background, but the advantage is that changes can be considered year on year with the full cohort of school children in England and Wales. Table 7 presents trends in GCSE attainment by FSM status for cohorts born in 1986 up until 1995. The measure here is the proportion reaching 5 A*-C grades at GCSE level with the proportion reaching this benchmark increasing from just over 50% for the earliest cohort to almost 80% by the latest cohort. Over this

young people, collected by the Department for Children, Schools and Families (DCSF), now renamed the Department for Education, who were aged 13/14 in 2004 and so were born in 1989 and 1990. These individuals were beginning junior school in 1997 with the change in Government and have thus been exposed to national policy developments in the New Labour period. The survey follows the young people and their families with data currently available up to wave 7, 2010 at age 20/21.

8 The proportions observed in the BHPS seem to vary more than we would expect between cohorts. We have seen in Section 2 that the results for intergenerational income mobility are not entirely robust due to small sample sizes. We should therefore be cautious about the BHPS results here.

period both measures of the absolute and relative gaps in attainment have been declining. Appendix Table A1 presents data from the older cohorts (counting GCSE equivalents to the O level and CSE examinations they took) by the most and least deprived families in terms of quintiles of family income. It appears that the relative gap at age 16 has been steadily declining since its peak in the BCS cohort born in 1970. Strikingly, in the NCDS cohort as few as 25% were reaching this, now standard, benchmark.

Although we have used a number of measures of exam attainment we might still be concerned about the impact of grade-inflation. An alternative approach that is not affected by this is to use results which come from outside the school system. PISA is a project which attempts to compare the performance of different international schooling systems by using comparable tests. Jerrim (2012) uses data from PISA in 2000 and 2009 and finds evidence of a similar narrowing of the attainment gap in test scores at age 15 that are not vulnerable to grade-inflation. This suggests that this trend is occurring across a wider range of attainment measures and not just in the key results that schools are monitored on suggesting real progress. For those born in 1994 compared to 1985, the gap in reading test scores at age 15 between the most deprived and least deprived quintiles of parental occupation[9] has declined in England from 108 points in 2000 to 93 points in 2009. This is equivalent to the reading ability of low SES children moving approximately one school term closer to that of their high SES peers.

Finally, we can consider trends in educational inequality at age 11 (Key Stage 2) for those born most recently. Table 8 introduces the first available estimates of educational inequality for those born in the late 1990s up to 2000. These children are currently in their early teens and will be sitting their GCSEs in the next few years. The table presents the percentage of children reaching level 4 in English and maths at Key Stage 2 by FSM status, one of the Government's SMIs. For those born at the start of the 1990s, the gap between non-FSM and FSM eligible children reaching the threshold of achieving level 4 in English and maths was 27 percentage points. For those born by the end of the decade, this gap had fallen to 20 percentage points, a 6.9 point decline in the relative attainment at this threshold for non-FSM and FSM children.

9 Measured using the Highest International Social and Economic Index (HISEI) of Occupational Status of the parent scored from 16-90 based on inputs (education required) and outputs (salary received).

Table 7: Relationship between FSM status and GCSE attainment (%A*-C grades) from the National Pupil Database (NPD)

Year of birth	Year turned 16	FSM	Non-FSM	Gap	Ratio	*% achieving 5 GCSEs (A*-C)*
1986	2002	23.0	53.7	30.7	2.3	51.6
1987	2003	24.4	55.2	30.8	2.3	52.9
1988	2004	26.1	56.1	30.0	2.2	53.7
1989	2005	29.9	58.9	29.0	2.0	56.3
1990	2006	31.0	61.0	29.5	2.0	58.5
1991	2007	35.5	62.8	27.3	1.8	60.3
1992	2008	40.0	67.0	27.0	1.7	65.3
1993	2009	48.9	72.8	23.9	1.5	70.0
1994	2010	57.8	78.4	20.6	1.4	75.4
1995	2011	64.6	83.0	18.4	1.3	79.6

Table 8: Relationship between FSM status and Level 4 attainment at Key Stage 2 in English and Maths from the National Pupil Database (NPD)

Year of birth	Year turned 11	FSM	Non-FSM	Gap	Ratio	*% achieving level 4 or above in maths*
1991	2002	43.4	70.3	26.9	1.6	73
1993	2004	45.8	71.9	26.1	1.6	74
1995	2006	48.7	73.7	25.0	1.5	76
1996	2007	51.0	74.7	23.7	1.5	77
1997	2008	54.1	76.3	22.2	1.4	79
1998	2009	53.6	75.6	22.0	1.4	79
1999	2010	55.9	77.1	21.2	1.4	79
2000	2011	57.9	77.9	20.0	1.4	80

A picture is emerging therefore of a decline in mobility for those born in 1958 to those born in 1970 which continued into the early 1970s. For those born in the late 1970s and early 1980s, this trend appears to have slowed with some initial evidence of a decline in educational inequality in participation in higher education for those born in the mid- to late 1980s. For those born in the late 1970s and early 1980s, their earlier attainment showed similar patterns in terms of educational inequality across time to that observed in higher education. From the late 1980s to the early 1990s there has been a reduction in educational inequality at Key Stage 4 which has been borne out in

a reduction in educational inequality in higher education participation for the youngest cohorts to have reached this stage so far. For the youngest group born in the late 1990s, this reduction in educational inequality has continued and can be observed in their Key Stage 2 test scores at age 11.

To assess more clearly if this trend can be observed across education levels and measures of family background we combine the information presented so far with additional evidence presented in Appendix Table A1. This provides us with 59 observations of attainment gaps, education level, family background measures, year of birth and proportions achieving the level in this cohort.[10] We estimate two models on this aggregated data: one regressing attainment gaps on year of birth dummies conditional on education level, the family background measure used and an interaction between education and background and a second repeating this model and in addition controlling for a quadratic attainment variable[11]. The aim of the first model is to assess whether trends in attainment gaps have genuinely improved over time for more recent birth cohorts rather than this being driven by the educational stage they have reached or the measures of family background available.

Figure 2 presents the results from the trend across birth cohorts, conditional on background and education measures (solid line). As can be seen from the graph, there is a clear inverted U-shape in trends to educational inequality for people born over the last 50 years with educational inequality increasing from the NCDS cohort to the BCS and early BHPS cohorts and then improving since then[12]. The dashed line presents results from a second model. The aim here is to see whether this trend in improving educational inequality can be explained by the large increases in overall attainment that we have witnessed across cohorts. Conditioning on overall attainment levels completely eliminates the improved educational inequality trend that we witnessed for more recent birth cohorts, consistent with Boudon's suggestion that beyond a tipping point increasing overall attainment (or increasing participation where that is relevant) reduces educational inequality as individuals from the bottom of the income distribution catch up with those at the top. We have therefore shown that trends in educational inequality look to have improved for recent cohorts across education stages and measures of family background and that this recent trend is associated with increasing numbers of pupils achieving set targets. We now move on to discuss the potential implications for these findings for future trends in social mobility.

10 We exclude the PISA data as this is obtained outside the education system.

11 This measures the total proportion reaching the given level of attainment for each cohort.

12 The pattern is very similar if the measure of relative attainment is used instead.

Figure 2: Trends across time in attainment gaps

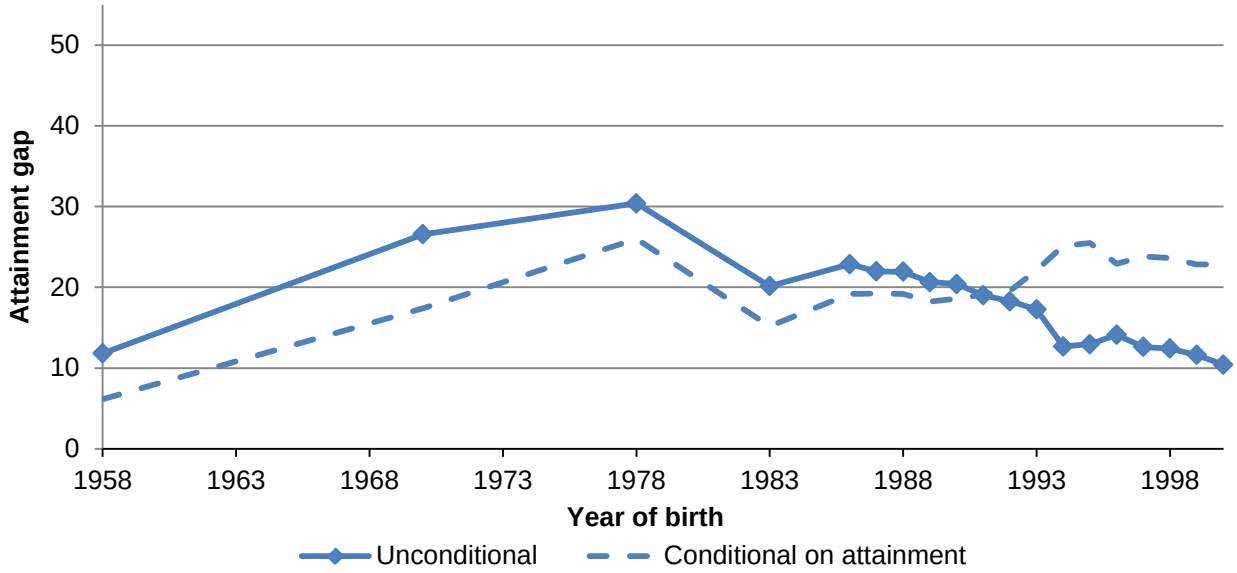

Table 9: The returns to detailed qualifications – All full-time employees, males – LFS 2004-2010

	2004	2005	2006	2007	2008	2009	2010
Academic qualifications							
Higher degree	0.101 (.014)*	0.087 (.013)*	0.107 (.011)*	0.109 (.012)*	0.096 (.012)*	0.094 (.012)*	0.102 (.012)*
First degree	0.229 (.010)*	0.229 (.010)*	0.248 (.009)*	0.233 (.009)*	0.236 (.009)*	0.240 (.009)*	0.231 (.010)*
Other HE	0.223 (.051)*	0.257 (.056)*	0.199 (.043)*	0.150 (.031)*	0.072 (.033)+	0.097 (.029)*	0.082 (.026)*
HE Diploma	0.040 (.019)*	0.071 (.021)*	0.029 (.018)	0.031 (.018)	0.043 (.019)+	0.071 (.020)*	0.025 (.019)
A levels	0.060 (.009)*	0.083 (.009)*	0.079 (.008)*	0.067 (.008)*	0.069 (.009)*	0.073 (.009)*	0.082 (.009)*
A/S level	-0.069 (.031)+	-0.070 (.031)*	-0.068 (.035)*	-0.051 (.025)+	-0.066 (.024)*	-0.052 (.023)+	-0.098 (.024)*
5+ GCSEs A*-C	0.180 (.009)*	0.178 (.008)*	0.170 (.007)*	0.178 (.007)*	0.172 (.008)*	0.183 (.008)*	0.175 (.008)*
1-4 GCSEs A*-C	0.077 (.009)*	0.077 (.008)*	0.075 (.008)*	0.080 (.008)*	0.077 (.008)*	0.093 (.008)*	0.082 (.009)*
Vocational qualifications							
Professional	0.465 (.028)*	0.353 (.027)*	0.369 (.026)*	0.190 (.019)*	0.212 (.017)*	0.206 (.018)*	0.212 (.018)*
Teaching	-0.011 (.024)	0.011 (.026)	-0.007 (.023)	-0.011 (.024)	-0.024 (.024)	-0.035 (.026)	-0.020 (.027)
Nursing	0.112 (.032)*	0.092 (.035)*	0.108 (.028)*	0.060 (.030)+	0.094 (.031)*	0.144 (.032)*	0.133 (.032)*
HNC/HND	0.121 (.011)*	0.120 (.011)*	0.138 (.010)*	0.119 (.010)*	0.128 (.011)*	0.132 (.011)*	0.133 (.011)*
RSA Higher	-0.004 (.093)	-0.025 (.078)	-0.073 (.075)	-0.248 (.077)*	-0.127 (.076)*	-0.095 (.079)	-0.209 (.084)+
ONC/OND	0.091 (.014)*	0.067 (.016)*	0.080 (.014)*	0.096 (.015)*	0.092 (.015)*	0.066 (.016)*	0.085 (.016)*

	2004	2005	2006	2007	2008	2009	2010
City and Guilds Advanced	0.062 (.011)*	0.068 (.011)*	0.071 (.010)*	0.082 (.011)*	0.085 (.011)*	0.068 (.011)*	0.062 (.012)*
NVQ 3-5	0.033 (.013)*	0.047 (.012)*	0.037 (.011)*	0.043 (.011)*	0.034 (.011)*	0.027 (.011)+	0.030 (.011)*
City and Guilds Craft	-0.002 (.014)*	0.031 (.014)+	0.019 (.013)	0.010 (.013)	0.006 (.014)	0.006 (.015)	-0.009 (.015)
BTEC diploma	0.056 (.035)	-0.024 (.033)	-0.021 (.031)	-0.008 (.030)	-0.003 (.031)	-0.039 (.034)	0.011 (.031)
NVQ 2	-0.075 (.014)*	-0.075 (.014)*	-0.076 (.012)*	-0.062 (.012)*	-0.083 (.012)*	-0.083 (.012)*	-0.091 (.012)*
City and Guilds Other	0.019 (.011)	0.017 (.011)	0.005 (.011)	0.003 (.011)	0.005 (.011)	0.002 (.012)	-0.005 (.012)
NVQ 1	-0.126 (.024)*	-0.087 (.024)*	-0.123 (.022)*	-0.110 (.022)*	-0.096 (.022)*	-0.098 (.023)*	-0.098 (.023)*
RSA Lower	-0.123 (.028)*	-0.155 (.030)*	-0.084 (.030)*	-0.115 (.033)*	-0.163 (.037)*	-0.130 (.040)*	-0.095 (.045)+
Other	0.065 (.006)*	0.050 (.006)*	0.073 (.005)*	0.065 (.005)*	0.055 (.005)*	0.055 (.006)*	0.055 (.006)*
Observations	18,849	18,224	23,311	24,019	24,019	21,262	20,361
R-Squared	0.38	0.37	0.38	0.37	0.37	0.36	0.36

Notes: No qualification data available in Jan-Mar 2004 and 2005 hence smaller samples. * sig at 1%, + sig at 5%. Standard errors in parenthesis. Controls for age, age squared, region and ethnicity.

Discussion: Implications for future trends in mobility

The returns to education

Up until this point our focus has been on estimating trends in educational inequality, a form of equation (2) in section 3. We now turn our attention to the other side of the story, the trends in returns to education as described by equation (3) in section 3. This will help us to assess the implications of this reduction in educational inequality in the labour market. If returns to education are stable, this trend will improve mobility. However, if the increased supply of qualified workers dilutes their value in the labour market, this reduction in educational inequality will make less difference to future mobility.

To analyse recent trends in earnings premiums to qualifications, we present new estimates of returns to various qualifications for recent years of the Labour Force Survey (LFS). The log of monthly earnings is regressed on all *qualifications attained* rather than the highest educational qualification as in McIntosh (2006) so that the returns to various qualifications can be viewed in an additive sense.[13] The results from this analysis are presented in Table 9 for all full-time employed males[14] aged 26-65 from 2004 until 2010. These results are an update of McIntosh's study which presented estimates of earnings premiums to educational qualifications from 1996 until 2002. The estimated earnings differentials associated with qualification are broadly flat over the past 15 years (from 1996 onwards) following a rise in the previous 15 years (Harkness and Machin, 1999). The exception to this is the returns to professional qualifications that appear to have diminished in value quite significantly over this period. This might be explicable by the large rise in the supply of people educated to this level (7% in 2004 to 22% in 2010). In contrast, the returns to degrees and post-graduate qualifications remained constant despite the proportion of people taking these qualifications continuing to rise (3.8 percentage point increase for degrees, 2.1 percentage point increase for higher degrees). This suggests continuing increases in demand by employers for high level academic qualifications. While Lindley and Machin (2012) present some evidence of an increase in earnings differentials for post-graduate qualifications, most of this increase occurred between 1996 and 2001 with even premiums for these top qualifications appearing flat since the start of the millennium.

The patterns of estimated premiums are consistent to that found previously with positive differentials for standard academic qualifications such as degrees, A-levels and GCSEs and some of the high-level vocational qualifications such as the City and Guilds Advanced qualification and NVQ levels 3-5. As was previously found in McIntosh (2006) and Dearden et. al. (2002) there continues to be estimated negative associations between earnings and some of the lower level vocational qualifications such as NVQ level 1-2 and RSA qualifications.

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13 Note that we do not condition on family background as specified in equation (3) as these measures are not available in the LFS data.

14 The patterns are very similar for females

When we combine the evidence on estimated earnings premiums for qualification levels with a reduction in educational inequality, this suggests that if returns remain stable there may be an improvement in mobility levels for more recent cohorts. This is of course highly speculative as it assumes that the economy will continue to grow and absorb the increasing supply of skilled workers to maintain current returns to education. To date, despite the large increases in participation that we have observed across the past three decades, there is no evidence of the pay-offs to these qualifications diminishing. A further assumption is that the broad qualifications used are the most relevant aspects of education for labour market performance. If more detailed information matters (such as exact grades obtained) then we might be missing part of the story. In the next section we evaluate this hypothesis, examining educational inequalities among the highest achievers.

Trends in attainment at the top of the education distribution

To date, all of our analysis has focused on comparing the socio-economic status attainment gaps in the *average or expected level* of attainment across different education levels. While this is an obvious place to look given the focus on these targets in school league tables, this may hide attainment gaps by family background at parts of the attainment distribution which have not been such a focus of Government policy. If there is growing inequality by family background at higher achievement levels then this will offset the decline in educational inequality that we have observed in our results so far.

There has been a large sociological literature which views education as a positional good (Ball, 2003; Goldthorpe, 2013). What matters for labour market performance; and therefore mobility, is how much education an individual attains relative to their competitors in the labour market. Over a period of rapid educational upgrading we might therefore be concerned that focusing on particular education levels might not give the full picture. If a greater proportion of children are obtaining GCSEs, these parents will ensure their children get A-levels and so-on to ensure that their dominant position remains intact. To understand this we consider five alternative measures of achievement that signal higher quality attainment: Post-graduate qualifications, attending high-status higher education institutions, attaining A*-B in 3 or more 'facilitating' A-level subjects[15], reaching the equivalent of the EBacc at Key Stage 4 and reaching level 5 at Key Stage 2.

To begin by considering trends in post-graduate qualifications, from 1996 to 2011 the proportion of the population obtaining a postgraduate qualification has increased from 4 per cent of the employed population to 11 per cent (Lindley and Machin, 2012). Recent HESA data shows that the total number of UK students starting a full-time post-graduate course in the UK increased by 10% from 2008/9-2011/12[16] although interestingly the numbers have dropped back in the most recent year of data, causing speculation that the Great Recession has taken its toll on demand.

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15 The facilitating subjects are defined in Government as English Literature, Maths, Further Maths, Physics, Chemistry, Biology, Modern languages, Classical languages and Humanities.

16 http://www.hesa.ac.uk/content/view/1897/239/ (accessed January 16th, 2014)

Lindley and Machin (2012) use the cohort studies to demonstrate that the greater part of this growth between the cohort studies is to be found among those from higher social backgrounds (top panel, Table 10). In the older NCDS cohort, 2 per cent of those from the most deprived income quintile had a post-graduate qualification by age 33 compared to 8 per cent from the least deprived quintile. For the later BCS cohort, post-graduate attainment for those from the most deprived quintile[17] increased by 1 percentage point, to 3 per cent while post-graduate attainment from the least deprived quintile increased by 5 percentage points to 13 per cent. This trend can also be observed for the slightly younger BHPS cohort, born 1974 to 1978, with only 3% of individuals from the most deprived family income quintile obtaining post-graduate qualifications by age 30 compared to 11 per cent from the least deprived family income quintile[18]. This aspect of educational inequality has received minimal attention at present, and is not yet addressed in the Government's SMIs.

At first degree level, it is becoming increasingly clear that institutions and courses attended are crucial to determining success (Chevalier, 2011, Walker and Zhu, 2011). The Government acknowledges this by including as a social mobility indicator the share of A level students who at age 19 are attending the most prestigious universities, by private versus state school type. Large inequalities are found in this measure with a gap of almost 40 percentage points. Over the four years for which this information is available, there is little evidence of change. Crawford repeats her analysis presented in Table 5 for high status institutions[19] only and similarly finds no change in the gap in participation between the least deprived and most deprived quintiles of socio-economic status (second panel, Table 10). This suggests that while gains are being made in increasing participation of the poorest students at universities overall, this is not filtering up to the elite institutions.

The subjects that are studied at A-level play an important role in the application process for universities, particularly the elite Russell Group institutions. This is acknowledged in the government's SMIs by looking at the proportion of students from state and private schools that obtain at least 3 A*-B grades in facilitating subjects, that appeal to elite institutions. The published SMIs only track this for the past three years. Our new analysis in the third and fourth panels of Table 10 expands these findings in two ways. First, it presents earlier estimates of the gap in the proportion of students from state and private schools hitting this high target to show that this trend has actually improved slightly over a longer time series compared with the flat picture seen in recent years. Second it also splits the proportion of students reaching this target by FSM and non-FSM status within state

17 Defined as the bottom quintile of family income when cohort members were aged 16.

18 Lindley and Machin (2012) measure post-graduate attainment at age 33/34 in the cohort studies, slightly later than measured here. The limited samples in the BHPS (N=440) make further inference difficult although these figures are broadly in line with the later BCS findings from this study.

19 These are defined as the Russell Group plus other institutions with comparable research performance.

schools. It is important to note that only 4% of the total number of pupils taking A-levels across this period were eligible for free school meals at 15. We will return to this point later in this section. As can be seen in the fourth panel of Table 10, there is no clear trend in the gap between non-FSM and FSM pupils hitting this target across the period. This suggests that the gains being made in terms of educational inequality are not playing out at the very top of the attainment distribution.

The issue of subject choice is also pertinent at GCSE. Evidence from Sullivan, Zimdars and Heath (2010) suggests that children from more affluent backgrounds are choosing subjects that are more suited to further study at A-level and beyond (such as single sciences, humanities and languages). At the other end of the scale there is a concern that some children have been pushed towards 'soft-options' in order to meet targets. In response to this in 2010 the coalition Government emphasised the importance of good qualifications in certain subjects by defining the English Baccalaureate which requires A*-C grades in all of English, Maths, two Science Subjects, History or Geography and a Language.

In the fifth panel of Table 10 we consider attainment in this synthetic qualification by FSM status. First, it is startling how few children reach this milestone, just 18% of the cohort in 2004 and 15% in 2010. The proportion of children who are eligible for Free School Meals who achieve at this level is extremely small, around 4% throughout. There is slight evidence of a fall in this gap, but more detailed results indicate that this is driven by the drop in non-FSM children obtaining a language qualification when broken down by subject choice. This may indicate that more non-FSM children drop languages in an attempt to push them over the 5 A*-C threshold.

Table 10: Attainment in higher level qualifications

Post-graduate education						
Year of birth	Year turned 18	Most deprived 20%	Least deprived 20%	Gap	Ratio	*% acquiring a degree*
1958	1976	2.0	8.0	6.0	4.0	3.8
1970	1988	3.0	13.0	10.0	4.3	7.4
Higher Status Institutions Degree Participation						
Year of birth	Year turned 18	Most deprived 20%	Least deprived 20%	Gap	Ratio	*% participating in HE*
1986	2004	2.2	21.9	19.7	9.8	9.6
1987	2005	2.2	21.2	19.0	9.6	9.3
1988	2006	2.4	21.8	19.5	9.2	9.7
1989	2007	2.7	22.4	19.7	8.4	10.1
1990	2008	2.8	22.3	19.5	8.0	10.2
1991	2009	2.7	21.7	19.0	8.1	9.9
A*-B in 3 or more facilitating subjects at Key Stage 5						
Year of birth	Year turned 18	State	Independent	Gap	Ratio	*% attaining*
1986	2004	7.8	21.6	13.7	2.8	10.6
1990	2008	9.3	22.0	12.8	2.4	11.8
1992	2010	7.7	19.6	12.0	2.6	9.9
Year of birth	Year turned 18	FSM	Non-FSM	Gap	Ratio	*% attaining*
1986	2004	3.9	8.0	4.2	2.1	7.8
1990	2008	5.0	9.4	4.4	1.9	9.3
1992	2010	3.9	7.8	4.0	2.0	7.7
English BACC at Key Stage 4						
Year of birth	Year turned 16	FSM	Non-FSM	Gap	Ratio	*% attaining*
1988	2004	4.3	20.3	16.0	4.7	18.0
1992	2008	3.8	16.2	12.3	4.2	14.6
1994	2010	3.8	16.8	13.0	4.4	15.1

Top quintile of capped point score (top 8 GCSEs) – fixed at 2004 top quintile						
Year of birth	Year turned 16	FSM	Non-FSM	Gap	Ratio	*% attaining*
1988	2004	5.6	21.9	16.3	3.9	19.6
1992	2008	10.8	29.4	18.6	2.7	27.1
1994	2010	16.9	37.2	20.3	2.2	34.5
Level 5 or higher at Key Stage 2 in English and Maths						
Year of birth	Year turned 11	FSM	Non-FSM	Gap	Ratio	*% attaining*
1993	2002	6.6	25.5	18.9	3.9	21.8
1995	2004	7.2	26.4	19.2	3.7	22.6
1997	2008	7.9	28.0	20.1	3.5	24.4
1999	2010	10.3	32.0	21.7	3.1	28.0

Notes: Sources for top two panels: Lindley and Machin (2012), Crawford (2012).

An alternative measure of higher attainment at age 16 is to consider the proportion of pupils in the top quintile of the capped total GCSE point score by FSM status. Given that all the other measures here are picking up absolute attainment, we measure the proportion of pupils reaching the capped GCSE point score that would place them in the top quintile in 2004. This allows the proportion reaching this level to increase over time. The sixth panel of Table 10 indicates that the number of FSM children reaching this measure of high attainment, has increased over the period 2004-2010, but the proportion of non-FSM children reaching this level has increased faster. This has contributed to an increase in the absolute attainment gap at this higher level of educational attainment at age 16. However, the relative attainment gap has decreased over this period, indicating that the performance of FSM children in this category has improved at a faster rate.

Taken together, the evidence at GCSE indicates that the reduction in inequality observed at the benchmark level of attainment at age 16 is not present at higher levels of attainment at the same stage, although there has been some improvement in relative attainment. These findings are supported by evidence from Jerrim (2012) who uses quantile regression analysis to assess whether the declining trend in socio-economic inequalities in PISA test scores in England from 2000-2009 is consistent across the distribution of achievement. He finds evidence of a significant reduction in achievement gaps in the lower tail of the achievement distribution but not at the top.

Finally, we consider trends in educational attainment by FSM status in the higher end of the distribution of Key Stage 2 test scores for more recent cohorts. As seen in Section 4, at the average (or expected) level, the proportion of FSM children reaching Level 4 in English and Maths has been catching up with the proportion of non-FSM children hitting this benchmark over the past decade. For this analysis, we consider the proportion of FSM

and non-FSM children reaching Level 5 or above in English and Maths rather than Level 4 or above. In the final panel of Table 10 we can see that the proportion of FSM and non-FSM children reaching this higher threshold has increased over the past decade from 6.6% to 10.3% for FSM children and from 25.5% to 32.0% for non-FSM children. The findings are mixed in terms of relative and absolute attainment gaps with non-FSM children slightly extending their advantage over FSM children in absolute terms over the period; the attainment gap increases from 18.9% in 2002 to 21.7% in 2010. Conversely, in terms of relative attainment, FSM children are catching up with non-FSM children with an average of 4 non-FSM children reaching this high level of attainment for every 1 FSM child in 2002 compared to 3 non-FSM children for every 1 FSM child by 2010.

There is therefore some evidence of FSM children making relative gains on non-FSM children for higher levels of attainment at Key Stage 2 in the most recent cohorts. However, the broad picture across the range of education stages and measures is of more limited improvements at higher levels of educational attainment. We must therefore be cautious in our interpretation of improving educational inequality over time and the implications for this in terms of future levels of social mobility.

Conclusions

The aim of this paper is to assess the evolution of educational inequalities among recent generations of young people and comment on implications for the likely direction of future intergenerational mobility. It is very clear that absolute improvements in educational attainment have closed gaps by family background at several important education milestones. The timing of this progress coincides with increased public educational investment, a prescriptive focus on standards and increasing use of performance tables from the mid-1990s onwards. This is clearly encouraging for the promotion of children's life chances and may lead to improvements in mobility if returns to education remain stable. On the other hand, there is little evidence that these improvements have reduced inequality at the highest levels of attainment. This has important implications. If it is the highest qualifications which matter in obtaining the most lucrative labour market opportunities then these findings cast doubt on the idea that a standards agenda alone can encourage mobility.

These findings resonate with the idea of education as a positional good (Goldthorpe, 2013). If more affluent parents respond to increased absolute attainment by pushing their children to higher levels of attainment at each qualification level then this supports the notion of the 'regime's important self-maintaining properties' (Goldthorpe, 2013, page 443). We find some evidence here that this claim might be true in the current context. Although, if this was a strong effect we might actually expect to see an increase in the attainment gap at higher levels of education in response to recent absolute average improvements. This is not yet observed.

It is notable that several of the new SMIs provide a focus on the upper reaches of the attainment distribution; this is captured in the indicators for achievement of facilitating A levels, attendance at Russell Group Universities and access to the professions. Government is setting more challenging targets at 18 plus, but there is no formal focus through SMIs at earlier stages; a recent commitment to focus on the EBACC has been dropped. There are plans however, to adapt the target at GCSE to explicitly monitor achievement in high-value subjects, and this may address this concern to some extent. It is interesting that our paper has demonstrated that high achievements can be measured from at least Key Stage 2, and perhaps Social Mobility Indicators should include achievement at Level 5 here too, as well as more on GCSE achievement.

Our primary goal in this paper has been to describe recent developments rather than offer detailed policy implications. However, it would seem that Government must set itself more challenging targets if social mobility is to be promoted in a society where educational aspirations are constantly expanding. The new University fee structure requires that Universities charging full fees have a Widening Participation Strategy, encouraging institutions to focus on these issues at the HE level. However, often this type of intervention comes too late in the life course as University choices are primarily determined by prior performance (Chowdry et al, 2013). An extension of existing targets to focus on higher attainment levels in schools should ensure that all children achieve to their potential. There also still appear to be large gaps in the information and guidance offered in schools regarding subject choice at Key Stage 4 and Key Stage 5 (Sutton Trust, 2008). Given the weight that both Universities and employers place on choosing the 'right route', it is paramount that there is more consistency in the guidance offered across all schools.

Of course, targets and advice will not solve all the underlying differences in resources which enable more privileged children to consistently outperform their peers. It may well be that a reversal of education inequalities at all stages requires a more radical solution such as a dramatic extension of the Pupil Premium. The discussion continues over the impact of policies to encourage school diversification on social mobility.

When engaged in this debate we must not forget those children who fail to meet the targets; the 20% of 11 year olds who are not achieving the expected level of attainment at Key Stage 2, and then the similar proportion who do not get 5 good GCSEs. The target culture has tended to exclude those children from the general progress. The LSE Growth Commission (2013) report focuses on policies to engage the most disadvantaged pupils and attack 'the long tail' of underachievement. In summary, it is doubtless the case that school standards have improved; but not for everyone, and perhaps, not as much as they could have. Substantial improvements in social mobility might require more drastic action.

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Appendix

Table A1: Other attainment data included in the meta analysis

Degree participation						
Year of birth	Year turned 19	FSM at 15	Non-FSM at 15	Gap	Ratio	*% participating in HE*
1987	2006	13	33	19	2.5	30.4
1988	2007	14	33	19	2.4	31.9
1989	2008	15	33	18	2.2	33.2
1990	2009	17	35	18	2.1	34.4
2 or more A-levels (including equivalents)						
Year of birth	Year turned 18	FSM at 15	Non-FSM at 15	Gap	Ratio	*% at least 2 A-levels (and equiv)*
1987	2005	19.9	46.3	26.4	2.3	45.6
1988	2006	21.0	47.2	26.2	2.2	46.9
1989	2007	22.7	48.3	25.7	2.1	48.2
1990	2008	24.5	49.7	25.2	2.0	49.8
1991	2009	26.7	51.3	24.6	1.9	51.5
1992	2010	29.6	53.8	24.2	1.8	54.0
1993	2011	31.8	56.5	24.7	1.8	56.7
Staying on post 16						
Year of birth	Year turned 18	Most deprived 20%	Least deprived 20%	Gap	Ratio	*% staying on post-16*
1958	1976	28.7	56.8	28.1	2.0	39.1
1970	1988	32.0	70.7	38.7	2.2	46.6
1975-1980	1993-1998	49.7	83.5	33.8	1.7	69.1
1981-1986	1999-2004	49.5	75.6	26.1	1.5	64.2
1989/1990	2007/2008	68.2	86.8	18.6	1.3	74.5

Five or more GCSEs grade A*-C						
Year of birth	Year turned 16	Most deprived 20%	Least deprived 20%	Gap	Ratio	*% achieving 5 O-levels (A*-C)*
1958	1974	16.2	39.4	23.1	2.4	24.6
1970	1986	24.8	64.2	39.4	2.6	42.7
1975-1980	1991-1996	39.7	76.4	36.7	1.9	57.8
1981-1986	1997-2002	51.2	68.3	17.1	1.3	62.5
1987-1990	2003-2006	45.5	79.0	33.5	1.7	60.0
1989/1990	2005/2006	44.9	81.4	36.5	1.8	58.6
KS2						
Year of birth	Year turned 11	Most deprived 20%	Least deprived 20%	Gap	Ratio	*% achieving level 4 or equivalent*
Maths						
1989/90	2000/01	65.0	87.5	22.5	1.4	73.4
1991/92	2002/03	75.2	94.3	19.1	1.3	76.7
English/reading						
1989/90	2000/01	70.4	90.1	19.7	1.3	78.2
1991/92	2002/03	78.7	94.7	16.0	1.2	79.0