



Resolution Foundation

Moving on up? Social mobility in the 1990s and 2000s

March 2011
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The Resolution Foundation is grateful to all those that provided comments and insights on earlier versions of this report including Jo Blanden, Leon Feinstein, Axel Heitmueller and Abigail McKnight. A discussion seminar also helped to shape the final version of this report. Attendees included John Bynner, Dan Corry, Caleb Deeks, Richard Dickens, Paul Gregg, Julian McCrae, and Jonathan Portes. Finally, reviewers and seminar participants do not bear any responsibility for the content or any errors contained in this report, which remains the authors own work.

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Introduction

There is a general view that social mobility in Britain declined in the second half of the twentieth century, that Britain is no longer a meritocratic country where a person's life chances are determined by effort and talent rather than by family background. Declining social mobility has been a concern for successive governments and the current coalition Government is no exception. It has made social mobility its top social policy priority, with the publication of a social mobility strategy expected in the coming weeks.

Much of the malaise about social mobility stems from the publication of work by Blanden *et al* looking at the extent to which the economic position of thirty year olds is determined by the position of their fathers. They compared individuals born in 1958 with those born in 1970 and found that intergenerational social mobility, as measured by income, was lower for the 1970 cohort than it was for the 1958 cohort.¹ More recent analysis that looks at educational attainment rather than income has compared the prospects for children born between 1970 and 2000 and found that intergenerational mobility has stabilised, following the sharp decline that occurred for children born in 1970 compared with those born in 1958.² However, parental background continues to exert a very strong influence over children's attainment and the transmission of earnings advantage from father to son continues to be stronger in Britain than in many other OECD countries, with the exception of France, Italy and the US.³

Blanden *et al* used earnings as a measure of social mobility. Others favour an approach that considers socio-economic status. John Goldthorpe has been the chief proponent of the sociological approach to assessing mobility which he contends is more reliable than income-based analysis. Assessing mobility on these terms, Goldthorpe has argued that the rate of mobility in each cohort is actually comparable and that talk of a crisis of social mobility is overstated.⁴

There is another form of social mobility that is largely overlooked in policy debates and that can provide a different perspective on the issue – intragenerational mobility. Intergenerational mobility asks how much of a person's life outcomes are determined by his or her parents' social or economic status. Intragenerational mobility asks how much of a person's life outcome is determined by his or her own social or economic status at an earlier time in life, for example, comparing earnings in early adulthood with earnings near middle age. Intragenerational mobility looks at the extent to which individuals can better their own situation during their life time. During the last General Election campaign, the *Resolution Foundation* held a series of focus groups with low-to-middle earners. One of the most poignant themes to arise was that many low earners felt "stuck" in their position, unable to progress up the income ladder. For these individuals, the level of intragenerational mobility in society determines the extent to which they are genuinely stuck or can earn their way to a higher standard of living.

¹ Blanden J, Gregg P, Machin S. (2005) *Intergenerational mobility in Europe and North America*. London: Centre for Economic Performance, London School of Economics and Political Science; Blanden, J, Goodman, A, Gregg, P and Machin, S, (2002), "Changes in intergenerational mobility in Britain", *Centre for the Economics of Education*, CEE DP 26.

² Blanden, J. And Machin, S. (2007), *Recent changes in intergenerational mobility in Britain*, Sutton Trust (<http://www.suttontrust.com/research/recent-changes-in-intergenerational-mobility-in-britain/intergenerationalmobilityinukfull.pdf>).

³ OECD, (2010), "A family affair: Intergenerational social mobility across OECD countries", in OECD, *Economic Policy Reforms: Going for Growth 2010* (<http://www.oecd.org/dataoecd/3/62/44582910.pdf>).

⁴ Erikson, R. and Goldthorpe, J. H. (2009) "Has Social Mobility in Britain Decreased? Reconciling Divergent Findings on Income and Class Mobility". *British Journal of Sociology*, 61, 211-30.

The analysis presented in this report compares mobility in individual earnings in the 1990s and 2000s. It looks specifically at individuals between 30 and 40 as they move towards the age of peak earnings potential. The 1990s was a period during which wages at a national level grew consistently. In contrast, wages grew over the early part of the 2000s but from 2003 to 2008 median earnings stagnated. However, for this 30 to 40 year old group moving towards its earnings peak, wages continued to grow during the 2000s, although at a slower rate than in the 1990s.

Overall, our analysis shows that while the chances of making a significant move up or down the earnings ladder remained low in the 1990s and 2000s for those in their thirties and early forties, there was nonetheless a substantial improvement in the 2000s over the previous decade. **We estimate that there was a 22 percent increase in the probability of moving significantly up the earnings distribution in the 2000s compared to the 1990s.** However, this improvement in mobility was not evenly distributed, being concentrated in the middle and among men rather than women. The highest earners in the 2000s continued to be largely sheltered from downward mobility and those at the bottom were less far likely to move up a substantial distance than those in the middle. This continued lack of mobility at the extremes helps to explain why inequality persists, even while those in the middle were more likely to move up.

Some of the explanation for this improvement in earnings mobility comes from changes in the wider economic picture in Britain between the two decades. For example, inequality grew dramatically during the 1990s, stretching the distance between the rungs on the earnings ladder. This is likely to reduce mobility as individuals have further to go to move from one decile to another.

The remainder of this report is structured as follows. Section 1 defines the different facets of mobility discussed in this report. Section 2 sets out the purpose of this report in the context of previous research. Section 3 contains our analysis of absolute and relative mobility between the 1990s and 2000s. Section 4 offers some possible explanations for the differences in mobility that we observe, drawing on differences in the economic context of the two decades. Researchers interested in the methodological detail underpinning the analysis will find further information in the appendices.

1. Defining mobility

There are four dimensions to the definition of mobility used in this report.

Earnings and income mobility

Earnings mobility and income mobility are related but distinct concepts. *Earnings mobility* refers to changes in individuals' income specifically from work. *Income mobility* usually includes a person's or household's income from all sources e.g. earnings, benefits, tax credits, interest on savings and investments. The focus of this paper is on earnings as we are interested in how people negotiate the labour market.

The four main reasons for being interested in earnings mobility are:

1. Data relating to earned income is more or less unambiguous: if an individual moves up the earnings distribution during a period of economic growth then it is clear that that person has experienced a level of progression in work.⁵
2. Earnings are a reflection of the purchasing power conferred by a job, the quality of that job, and to a certain degree, the level of skills or qualifications needed to do that job.⁶
3. Earnings change can reflect a movement towards a better quality job or a more autonomous role within an organisation which does not necessarily entail an immediate change of job title. In this way, an analysis of earnings mobility should pick up modest changes in work-related progression that would evade a socio-economic classification scheme that is better suited to assessing large-scale occupational change.
4. Increases in earnings are meaningful at an individual level. Those that experience an increase in their earnings are likely to see their personal economic circumstances improve which is important in terms of persistent aspiration and motivation to work.

Absolute and relative mobility

Absolute mobility refers to the level and distribution of earnings growth within society – or in our case – cohort. Did the number of higher paid jobs grow? If so, this means that people can move up the earnings ladder without other people moving down because there is more “room at the top”. We know Britain underwent massive structural change in the post-war period up to the 1970s and to some extent through the 1980s with growth in professional and technical jobs and the decline of manual employment. This means that absolute upward mobility would have been generally high over that period.

Relative mobility refers to whether or not people remain in the same position in the earnings distribution relative to their peers. Relative mobility is often measured by splitting the population into earnings deciles or quintiles and the number of individuals moving between deciles or quintiles is used to show the level of mobility.

⁵ Discussion of the issues around income data derived from self-report surveys can be found in the Data and Methods section, below.

⁶ There are, of course, exceptions to this general assumption as some professions will remunerate their employees disproportionately for the work they do.

Box 1: Defining deciles and quintiles

In order to analyse relative earnings mobility, the entire 1990s and 2000s cohorts are divided into ten equal groups – based on their earnings – called *deciles*. The people who are in the bottom 10 percent of the earnings distribution are in decile 1; those in the top 10 percent are in decile 10. By dividing the cohort samples in this way we can see the proportion of people that moved from decile 5 to decile 3. That would constitute relative mobility as it shows people moving around the distribution in relation to other individuals. In contrast, those that did not move from decile 5 experienced no relative mobility.

We also analyse quintile transitions which are constructed on the same principle but involve dividing the cohorts into just five equal groups based on their earnings.

Absolute and relative mobility are distinct concepts with one not necessarily influencing the other. It is possible to imagine a situation where everyone is earning more because society gets richer at every level (high absolute mobility) but nobody changes position within the earnings distribution (low relative mobility). On the other hand it is theoretically possible that earnings could not grow at all (low absolute mobility) but everyone in the distribution changes position so that those at the top are replaced by those who were at the bottom (high relative mobility).

Short and long range mobility

Short range mobility generally refers to movements of one or two deciles from an individual's starting position in the earnings distribution. For example, an individual who starts on average earnings and moves into decile six has experienced short range mobility.

Long range mobility is considered to be movements of three or more deciles from an individual's starting position in the earnings distribution.

Upwards and downwards mobility

In the context of relative mobility, for every person who moves up the distribution, someone must also move down because the number of places in the distribution is fixed over time. The direction as well as range of relative mobility is, therefore, important.

The theoretical virtue of having upward as well as downward relative mobility is that it can help to reduce persistent inequality by ensuring that the same people are not experiencing the highest rates of earnings growth all the time. However, this assumes high rates of mobility occur more or less evenly across the distribution meaning that those at the very top are as likely to move down as those at the bottom are likely to move up; a rare occurrence.

2. Purpose of the report

The purpose of this report is to examine individual earnings mobility over a decade and to compare how levels of mobility have changed between the 1990s and 2000s. This addresses a major gap in the existing literature as previous studies that have used panel or cohort data to assess income or earnings mobility have tended to consider mobility over two consecutive years rather than over the longer term. In addition, we focus on long range relative mobility because moving at least three deciles in the earnings distribution represents a real change in individual living standards.

Many of the studies that have focused on income and earnings mobility in the UK have found relatively high levels of mobility within the income distribution but it has tended to be short range. Jarvis and Jenkins, for example, analysed *British Household Panel Survey* (BHPS) data which showed that between 1991 and 1992, 71 percent of the sample remained within their original income decile or the two deciles either side of it.⁷

Over a much longer time-scale, Richard Dickens has used *New Earnings Survey* data which shows a more pronounced decline in earnings mobility over the period 1974-94. This decline in mobility is evident even after allowing for the lower inflation rates of the late 1980s compared to the 1970s.⁸

In terms of this paper, the most pertinent recent analysis of individual earnings mobility in the UK is Dickens and McKnight's report on mobility and inequality. They draw on the *Lifetime Labour Market Database* (LLMD) to construct a sample of individual earnings over a 25 year period. Dickens and McKnight look at three time periods – 1979/80, 1997/98, and 2004/05 – but only publish one-year changes in income mobility. As with previous studies, they find that most mobility is no more than one-to-two deciles among their sample, although they do find evidence of increasing upwards mobility between 1997/98 and 2004/05 for those on the lowest incomes.⁹ They recognise that individuals may move further from their original starting position over a longer timeframe.

⁷ Jarvis, S. and Jenkins, S. (1996), "Changing places: Income mobility and poverty dynamics in Britain", ISER Working Papers, 1996-19, University of Essex

⁸ Dickens, R (2000), "Caught in a trap? Wage mobility in Great Britain: 1975-94", *Economica*, 67(268)

⁹ Dickens, R and McKnight, A. (2008), "Changes in earnings inequality and mobility in Great Britain 1978/9-2005/6", *Centre for the Analysis of Social Exclusion*, CASE/132

Box 2: A note on earnings data in this research

One of the complexities of this research is reconciling the earnings data that we find in our 1990s and 2000s cohort samples with that from national cross-sectional survey data such as the *Annual Survey of Hours and Earnings* or the *Family Resources Survey*.

Our data shows how earnings changed for two specific cohorts of individuals who were in their early thirties at the start of the 1990s and 2000s and then moved towards the age of peak earnings potential. Therefore, within this cohort data there is a natural level of earnings growth that is associated primarily with lifecycle changes.

Data from cross-sectional surveys is used to show what is happening to wages overall. That data shows that, on a national level, median earnings grew over the 1990s and over the early part of the 2000s – periods which coincide with our cohort samples. *Between 2003 and 2008, national median earnings were stagnant.* This coincides with a large part of our 2000s cohort sample. It is important to understand that this stagnation is representative of what was happening for the working age population in the UK over that period. Even though overall wages remained stagnant you would still expect the wages of some groups to rise, particularly those aged 30 to 40, while others, such as younger and older workers or those from particular social classes would experience stagnant wages.

3. Data and methods

The data used in this report is drawn from the *National Child Development Study* (NCDS, 1991 to 2000) and *British Cohort Study* (BCS, 2000 to 2008) surveys. Throughout this paper, the NCDS cohort will be referred to as the “1990s cohort” and the BCS cohort will be referred to as the “2000s cohort”. Our primary concerns in this paper are how earnings mobility changes over a decade and how earnings mobility has changed between decades. In order to address both of these issues, panel data is needed so that the movements of specific individuals can be analysed, which limits the range of potential data sources.

The advantages of using the NCDS and BCS datasets over other potential data sources are:

- The size of the cohort samples which are above 4,500 in both cases.¹⁰
- The NCDS and BCS provide a large range of demographic variables together with other indicators on education and employment, most of which are not found in other datasets considered for this research, such as the *Annual Survey of Hours and Earnings Panel Data* and the *Lifetime Labour Market Database*.
- The ability to control for the age effects of earnings while maintaining a large sample. The NCDS and BCS datasets allow us to assess earnings mobility across two decades during a key period of the respective cohorts’ working lives, namely as they transition from their early thirties towards their notional period of peak earnings at around aged 40.

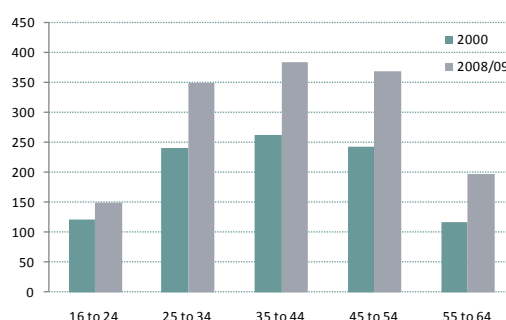


Figure 1: Nominal weekly earnings by age group: £'s per week
Note: Mean gross weekly earnings from employment.
Source: DWP Family Resources Survey, 2000 and 2008/09

Cross-sectional data shows that earnings tend to peak around the late thirties and early forties for most individuals before going into a general decline.¹¹ As can be seen in the chart above (Figure 1), earnings in the UK were highest for the 35 to 44 age group in both 2000 (the year when the 1990s cohort reached “peak earnings”) and 2008 (the year when the 2000s cohort reached “peak earnings”).¹² This is important because when comparing changes across decades, we must account for the life-cycle effect of earned income to ensure any change in earnings and mobility is genuine rather than a result of a sample entering a higher-earning period of their working lives. Table 1 provides a summary of the two datasets used.

¹⁰ In contrast, when attempting to construct a longitudinal sample of people aged 28 to 32 in 1992 from the British Household Panel Survey the sample was reduced to just 769, having accounted for non-response and between-wave attrition from 1992 and 2000.

¹¹ Ball, J and Marland, M (1996), *Male Earnings in the Lifetime Labour Market Database*, DSS Analytical Services Working Paper No. 1, London: DSS, reproduced in Hills, J. (1997) “Does income mobility mean that we do not need to worry about poverty?”, Atkinson, A. B. and Hills, J. (eds.) *Exclusion, employment and opportunity*. CASEPapers (4). Centre for Analysis of Social Exclusion, London School of Economics and Political Science.

¹² It should be noted that Goldthorpe and McKnight have shown that patterns of age-related wage growth can vary according to occupational status. For some higher occupational groups, earnings peak around age 35-44 then plateau rather than decline and for some lower occupational groups, earnings peak at an earlier age. However, on a cross sectional basis that takes into account the full range of occupational groups, peak earnings is still around the age of 35-44. Goldthorpe, J. and McKnight, A. (2004), “The economic basis of social class”, Centre for Analysis of Social Exclusion, CASEpaper 80

Table 1: Summary of data

| | NCDS (1990s) | BCS (2000s) |
|---------------------------|--------------|-------------|
| Age of cohort | 33-42 | 30-38 |
| Base year of study period | 1991 | 2000 |
| End year of study period | 2000 | 2008 |
| Sample size | 5,903 | 4,578 |

The data used in this study is net hourly earnings from employment which is derived from the variable “usual take-home pay including overtime but excluding meal breaks” in each dataset. Cohort members without earnings or working hours data at each sampling point have been removed from the final dataset. Only adults in employment at each data point are considered in the analysis so there are no sample members moving to or from earnings of zero. Full and part-time employees are considered together. Although there are considerations such as the generally lower pay of part-time work, part-time employment is part of the overall labour market picture and movements between part and full-time work are a form of earnings mobility.

Absolute mobility is assessed by showing the overall change in the structure of hourly earnings within the two cohorts, specifically looking at changes in the distribution and movements across different earnings thresholds such as low and high pay.

To measure relative mobility, we look at the strength of the relationship between individuals’ earnings at the start and end of the decade using a regression of log earnings. We also look at average changes in relative earnings and decile position to illustrate overall change in relative mobility. We use a transition matrix of earnings quintiles to show how many people moved from each quintile in the base year (1991 for the NCDS and 2000 for the BCS cohort) and which quintile they moved to in the final year (2000 for the NCDS and 2008 for the BCS cohort).

Data limitations

There are limitations to the cohort data used in this study. The first, and possibly most important, is that due to the nature of the studies it is difficult to control for the small fluctuations in earnings that take place – what is known as the transitory component of earnings. Second, self-reported income data is notorious for non-response in surveys and there remains the possibility of measurement or coding error. For this reason the data have been cleaned to reduce the effect of outliers on measures of earnings. Furthermore, the income and earnings data from these studies have been used extensively¹³ and we can be confident that they are reliable.¹⁴

The final 1990s and 2000s samples differ in some aspects, largely related to the social and structural changes that took place over the periods of study. For example, the move to a more service-driven economy means that the 2000s cohort is marginally more likely to work in professional or managerial employment. The simultaneous widening of access to higher education has led to a greater proportion of the 2000s cohort possessing NVQ Level 4+ qualifications.

One of the key differences between the cohorts that could affect our analysis of mobility is that there is an increase of 5 percentage points in the proportion working part time in the BCS 2008 sample compared to the BCS 2000 sample. The proportion working part-time in both 1990s samples remains the same. The potential effects of this are first, that estimates of relative mobility in the 2000s cohort could be higher than those found in the 1990s cohort due to higher rates of downward mobility that result from the lower paid nature of part-time work. This potential downward relative mobility

¹³ For example, Blanden J, Gregg P, Machin S. (2005) *Intergenerational mobility in Europe and North America*. London: Centre for Economic Performance, London School of Economics and Political Science

¹⁴ A full discussion and analysis of issues of attrition, measurement error and data cleaning can be found in Appendix A.

would also naturally increase upward mobility in the 2000s cohort. Second, estimates of absolute mobility could be reduced among the 2000s cohort because of the increase in lower-paid, part-time employment.

Those that were excluded from the analysis in both data sets due to incomplete information were generally from lower social classes and possessed lower levels of education than those who were included. However, similar to others who have analysed non-response in the 1990s and 2000s datasets¹⁵, we find that the characteristics of those excluded are consistent across the 1990s and 2000s cohorts which leads us to believe that there is no systematic bias in those excluded from either cohort.¹⁶

¹⁵ Breen, R and Goldthorpe, J, (1999), "Class, mobility and merit: The experience of two birth cohorts", *European Sociological Review*, 17(2)

¹⁶ A profile of the excluded cohort members is available from the author on request.

4. Findings: earnings mobility across two decades

Our analysis shows that *absolute* earnings mobility was higher in the 1990s than in the 2000s, with the whole cohort generally enjoying higher earnings but with those at the top benefiting more than others as inequality increased. Conversely, *relative* mobility was higher in the 2000s as the earnings distribution became more fluid potentially contributing to a lower rate of inequality, especially in the lower half of the distribution. The latter took place at a time when median wages on a national level were stagnant for much of the decade.

This section discusses these findings in greater detail, starting with absolute mobility. The discussion on relative mobility focuses on long range mobility because of its importance in changing people's real living standards. More detailed information on transitions between earnings quintiles is also presented. The section concludes by looking at the different patterns of mobility for men and women between the two decades.

Absolute earnings mobility

Absolute mobility was greater overall in the 1990s compared to the 2000s. Main findings:

- Average earnings for those in their thirties and forties grew by 26 pence per hour or £473 per year *more* in the 1990s than in the 2000s.
- The higher rate of absolute mobility in the 1990s benefited those at the top more than those at the bottom. For those at the lower end of the earnings distribution in these cohorts, the 2000s was a more beneficial decade.
- Over the 1990s, the number of people earning less than 50 percent of median income grew by 0.8 percent. Over the 2000s it decreased by 1.6 percent.
- Low earnings growth for those on the lowest wages in the 1990s meant that it was a decade of rapidly rising inequality.

Absolute mobility increased over both the 1990s and 2000s for those in their thirties and forties. Figures 2 and 3 show the earnings distributions for each decade and reveal a marked rightward shift in both decades which indicates higher overall earnings. Earnings continued to grow for this cohort over the 2000s as it moved towards its earnings peak, although median wages were stagnant between 2003 and 2008. In the 1990s, there was a large decrease in those earning less than £7 per hour, a commonly used threshold for relatively low pay, along with a large increase in the proportion of the population earning over £20 per hour.¹⁷ The upwards shift in absolute mobility is less pronounced in the 2000s (Figure 3) but it should be noted that the cohort started at a higher position in terms of earnings with just over 4 percent earning under £4 per hour at the start of the decade (Figure 3, pale line) compared to just under 8 percent of the 1990s cohort (Figure 2, pale line).

¹⁷ £7 per hour is often used as a threshold for "relative low pay" <http://www.poverty.org.uk/51/index.shtml>

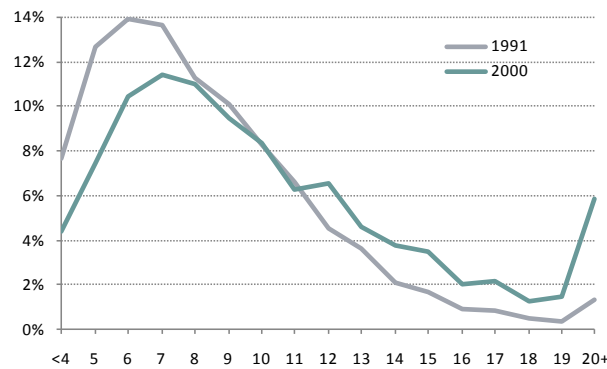


Figure 2: Earnings distribution of the 1990s NCDS cohort, £'s per hour
 Note: All values RPI-adjusted to 2008 prices
 Source: National Child Development Study, 1991 and 2000

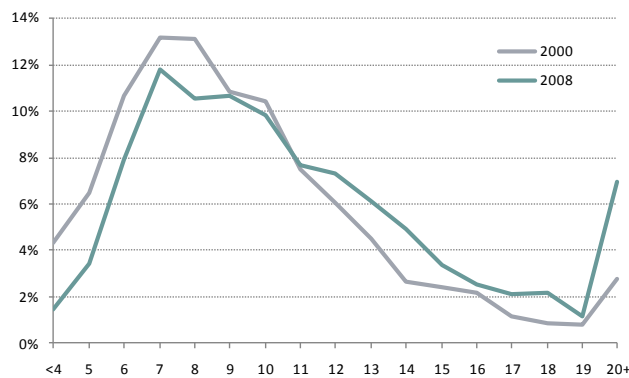


Figure 3: Earnings distribution of the 2000s BCS cohort, £'s per hour
 Note: All values RPI-adjusted to 2008 prices
 Source: British Cohort Study, 2000 and 2008

The same pattern emerges if we look at growth in average earnings across the two cohorts.¹⁸ Over the course of the 1990s cohort, average earnings grew by 28 percent (£2.28 per hour) whereas over the 2000s cohort they increased by 22 percent (£2.04 per hour). Another way of looking at absolute mobility is change in the median. On this measure too, absolute mobility was higher in the 1990s, as median earnings rose by 20 percent compared to 15 percent in the 2000s.¹⁹

Table 2 sets out changes in the number of people earning above and below specific thresholds within each cohort. We use the proportion of people earning less than 50 percent of the median as an indicator of the number of people moving out of low earnings.²⁰ Using this measure reveals that, although both cohorts started with a similar proportion earning less than 50 percent of the median (4.9 percent in 1991 for the 1990s cohort and 4.6 percent in 2000 for the 2000s cohort), by the end of the respective decades, the number earning less than half the median was almost twice as high in the 1990s (5.7 percent) as it was in the 2000s (3.1 percent). This is because people in the *bottom half* of the distribution in the 2000s experienced greater absolute mobility than in the 1990s. As a result, the lower half of the earnings distribution became more compressed as those at the bottom moved closer to those on median wages. Overall, for those at the lower end of the earnings distribution, the 2000s was a more beneficial decade.

¹⁸ This is referred to by Buchinsky et al as the *per capita directional change in cash values*. Buchinsky, M, Fields, G. S, Fougère, D, and Kramarz, F, (2003), "Francs or ranks? Earnings mobility in France, 1967-1999", *Centre for Economic Policy Research Discussion Papers*, CEPR DP3937.

¹⁹ These findings describe absolute earnings *mobility* among two specific cohorts and do not reflect what was happening to wages across the UK workforce as a whole. Median wages were in fact stagnant at a national level for the period 2003-2008 (see Box 2, page 6, for further discussion).

²⁰ National Minimum Wage would have been the preferred indicator but it was impossible to accurately calculate the level of the NMW for 1991. Furthermore, during the early stages of the debate on the NMW the threshold of 50 percent of median male earnings was often suggested as an appropriate level.

Table 2: Change in earnings thresholds in the 1990s and 2000s

| | 1990s | | | 2000s | | |
|-----------------------------|-------|-------|--------|-------|-------|--------|
| | 1991 | 2000 | Change | 2000 | 2008 | Change |
| % earning 50% of median | 4.9% | 5.7% | 0.8% | 4.6% | 3.1% | -1.6% |
| % earning 50% above median | 17.0% | 20.6% | 3.6% | 15.9% | 18.2% | 2.2% |
| % earning under £7 per hour | 47.9% | 33.7% | -14.2% | 34.7% | 24.6% | -10.1% |

Source: National Child Development Study, 1991 and 2000; British Cohort Study, 2000 and 2008

On the other hand, if we look at changes in absolute mobility at 50 percent *above* median earnings, we can see that the rate of change was greater over the 1990s (3.6 percentage points) than it was in the 2000s (2.2 percentage points). Greater absolute mobility at the top of the distribution and low earnings growth for those on the lowest wages in the 1990s meant that it was a decade of rising inequality.

We are confident that these results are not the artefact of changes in the employment patterns of the cohorts. In our profile of the 1990s and 2000s samples we found that part-time employment increased by 5 percent among the 2000s cohort between 2000 and 2008. If we consider that part-time work is usually lower paid than full-time employment then this might artificially depress our estimations of absolute mobility among the 2000s cohort. The 2000s data have been reanalysed with those individuals that moved from full-time to part-time employment excluded. This had a negligible impact on estimates of absolute mobility and the full results can be found in Appendix F.

Relative mobility

Relative earnings mobility was higher in the 2000s compared to the 1990s. Main findings:

- More substantial long range mobility was low across both decades but increased in the 2000s. The probability of moving significantly *upward* increased by 22 percent in the 2000s compared to the 1990s.
- The relationship between a person's original earnings at the start of each decade and their earnings at the end was stronger in the 1990s. This indicates an increase in mobility in the 2000s when compared to the 1990s.
- The majority of relative mobility in both decades was short range and involved only small changes in earnings.
- The increase in relative mobility in the 2000s was mainly in the middle of the distribution. The very lowest and very highest earners were the least mobile.
- Male relative mobility increased substantially in the 2000s. Women were much more mobile than men in the 1990s but this was largely a product of extremely high inequality in male earnings.

Previous studies of relative earnings mobility have found that mobility declined between 1979/80 and 1997/98 but increased between 1997/98 and 2004/05. These findings from Dickens and McKnight measured one year transitions in mobility.²¹ In this report we measure mobility over a much longer period of time, eight or nine years. We find that overall, the pattern of relative mobility is the same with higher relative mobility over the 2000s compared to the 1990s. However, due to the longer time period over which we assess mobility, the actual level of relative mobility is higher than that found by Dickens and McKnight.

Regression analysis can be used to show the strength of the relationship between individuals' earnings at the start and end of each decade. The more individuals' earnings at the start of the decade are related to earnings at the end, the lower the level of mobility. Our analysis shows that after accounting for inequality, the strength of the relationship between earnings at the start and end of the 1990s was 46 percent compared to 37 percent in the 2000s. This indicates that the relationship between original earnings and final earnings was weaker in the 2000s cohort and, therefore, relative earnings mobility was higher than in the 1990s.²²

Table 3 summarises the range and direction of relative mobility found in our analysis and reveals a complex picture. Long range mobility (moving 3 income deciles or more) was limited in both decades but improved substantially in the 2000s. We estimate that there was a 22 percent increase in the probability of moving significantly up the earnings distribution in the 2000s for people in their thirties to early forties. But individuals were also more likely to experience significant downward mobility in the 2000s than in the 1990s. Short range mobility was relatively high in both decades but fell slightly in the 2000s. The probability of an individual staying within two deciles of their starting decile was 77 percent in the 1990s and 72 percent in the 2000s. Short range mobility represents a relatively small move in the earnings distribution however, so it is less likely to make a significant difference to an individual's standard of living.

²¹ Dickens, R and McKnight, A. (2008), "Changes in earnings inequality and mobility in Great Britain 1978/9-2005/6", *Centre for the Analysis of Social Exclusion*, CASE/132.

²² A more complete account of the results of our regression analysis can be found in Appendix B

Table 3: Summary of relative mobility (%)

| | 1990s | 2000s | Percent change |
|--------------------------------|-------|-------|----------------|
| <i>All mobility</i> | | | |
| No mobility | 24.0 | 22.1 | -7.7 |
| Long range | 22.8 | 28.4 | 24.5 |
| Short range | 53.3 | 49.5 | -7.0 |
| <i>Upwards</i> | | | |
| Long range | 11.9 | 14.5 | 22.1 |
| Short range | 26.3 | 23.7 | -9.8 |
| <i>Downwards</i> | | | |
| Long range | 10.9 | 13.8 | 27.1 |
| Short range | 27.0 | 25.8 | -4.3 |
| <i>Bottom half to top half</i> | 23.4 | 26.8 | 14.5 |

There is greater long-range upward mobility at every decile in the 2000s cohort than in the 1990s cohort except at decile 6. Importantly, long range downward mobility was also higher in the 2000s at 14 percent compared to 11 percent in the 1990s. This increase in both upward and downward mobility may have contributed to the reduced rate of persistent inequality that was evident in the 2000s compared to the much higher rate in the 1990s.

Another way of viewing the extent of upward relative mobility is to consider the proportion of each cohort that moved from below median earnings into the top half of the distribution. Among the 1990s cohort, 23 percent of people who were in deciles 1 to 5 in 1991 moved up into deciles 6 to 10 by 2000. By comparison, the same is true of 27 percent of the 2000s cohort over the 2000 to 2008 period.

Quintile transitions

The above analysis of relative mobility has focussed on changes in the earnings distribution based on deciles. This is effective for picking up small changes in relative mobility that can often be meaningful. However, by consolidating the cohorts into quintiles we can see more clearly the areas of the distribution in which the greatest mobility is taking place.

We can look at the percentage of people moving between specific quintiles using a transition matrix. Tables 4 and 5 set out the transition matrices for both cohorts and show where people started in the 1990s and 2000s and where they ended up by the end of each decade. Reading across the tables, the rows indicate the quintile of origin at the start of each decade.

The columns indicate the proportion of each quintile which moved to a different decile by the end of the study period. Those in bold on the diagonal are the people that did not experience any mobility. Taking the 1990s cohort as an example (Table 4), this shows that of those who were in quintile 2 in 1991, 25.5 percent were in quintile 1 by 2000, 23.5 percent were in quintile 3, and so on across the row. Looking at the 2000s cohort, of those that were in quintile 3 in 2000, 22.1 percent were in quintile 2 by 2008 and 11.4 percent were in quintile 5.

Table 4: Quintile transitions among the 1990s cohorts

| 1990s cohort | | Quintile in 2000 (% of 1991) | | | | | Total |
|------------------|---|------------------------------|--------------|--------------|--------------|--------------|--------|
| | | 1 | 2 | 3 | 4 | 5 | |
| Quintile in 1991 | 1 | 53.7% | 27.1% | 11.1% | 5.3% | 2.8% | 100.0% |
| | 2 | 25.5% | 37.1% | 23.5% | 10.0% | 3.9% | 100.0% |
| | 3 | 9.6% | 24.7% | 33.5% | 20.6% | 11.7% | 100.0% |
| | 4 | 6.3% | 8.1% | 22.3% | 37.4% | 25.8% | 100.0% |
| | 5 | 6.1% | 4.0% | 7.9% | 25.6% | 56.4% | 100.0% |

Notes: Earnings quintiles are based on gross hourly earnings for all adults
Numbers in bold are the proportions in the same decile at each survey.

Table 5: Quintile transitions among the 2000s cohort

| 2000s cohort | | Quintile in 2008 (% of 2008) | | | | | Total |
|------------------|---|------------------------------|--------------|--------------|--------------|--------------|--------|
| | | 1 | 2 | 3 | 4 | 5 | |
| Quintile in 2000 | 1 | 47.6% | 24.8% | 14.5% | 7.3% | 5.9% | 100.0% |
| | 2 | 26.7% | 36.2% | 20.8% | 10.8% | 5.5% | 100.0% |
| | 3 | 14.4% | 22.1% | 29.4% | 22.7% | 11.4% | 100.0% |
| | 4 | 6.0% | 12.8% | 24.3% | 32.9% | 24.0% | 100.0% |
| | 5 | 4.7% | 6.1% | 9.9% | 26.6% | 52.7% | 100.0% |

Notes: Earnings quintiles are based on gross hourly earnings for all adults
Numbers in bold are the proportions in the same decile at each survey.

Several points are worth highlighting from the transition matrices:

- Overall 44 percent of people remained in the same quintile over the 1990s compared to 40 percent in the 2000s.
- 56 percent of top earners did not move in the 1990s and the same was true for 53 percent of the highest earners in the 2000s.
- Only 6 percent of people in the 1990s moved from the highest to the lowest earning quintile. In the 2000s, only 5 percent of people moved from top to bottom.
- In the 1990s, only 3 percent of people moved from the bottom quintile to the top. This figure doubled in the 2000s but was still very low at only 6 percent.
- The highest mobility in both decades was from the middle quintile. In the 1990s, only 34 percent of people who started in the middle quintile remained there by the end of the decade. In the 2000s, 29 percent of people in the middle spent the entire decade in decile 3.

Highest mobility in the middle of the distribution, lowest at the extremes

In line with previous work on relative mobility, we find that the least mobile members of each cohort can be found in the bottom and, most obviously, the top quintiles. The chances of a person remaining in the top quintile over the course of each decade were 56 percent in the 1990s and 53 percent in the 2000s. The chances of a person remaining in the bottom quintile were 54 percent in the 1990s and 48 percent in the 2000s – a substantial rise in relative mobility from the bottom quintile in the latter decade, although from a very low base.

By contrast, in both cohorts those in quintile 3 at the start of the relevant period were the least likely to remain in the same quintile over time (1990s=34 percent; 2000s=29.0 percent). This represents a rise in mobility from the middle quintile in the 2000s. Interestingly, this took the form of increased mobility both upward *and* downward from the middle quintile. Upward relative mobility from quintile 3 was 32 percent in the 1990s and 34 percent in the 2000s. Downward relative mobility from quintile 3 was 34 percent in the 1990s and 37 percent in the 2000s. This indicates that making the transition from low-to-middle earnings became easier for more people in the 2000s than it was in the 1990s.

Second, although relative mobility was higher among the 2000s cohort, the increase in the rate of relative mobility was not evenly distributed across the quintiles. Figure 4 shows the increase in rates of relative mobility in the 2000s cohort compared to the 1990s cohort. In all quintiles the rate of relative mobility increased among the 2000s cohort, with the largest increase among quintile 1 and substantial increases in quintiles 3 and 4, reflecting the improvement in mobility in the middle described above. However, as stated above, the level of relative mobility among the top and bottom quintiles remained low in the 2000s, even if it did improve in comparison to the 1990s as shown in Figure 4.

Figure 4 also shows that the rate of mobility grew the least among those at quintile 2. Why this occurred is unclear. Wage growth in the 2000s was lower among this quintile than any other – 13 percent over the course of the decade – and this is part of the explanation. Another part could lie in the characteristics of the individuals in quintile 2 of the distribution. An analysis of these characteristics will follow in the second paper of our series on earnings mobility.

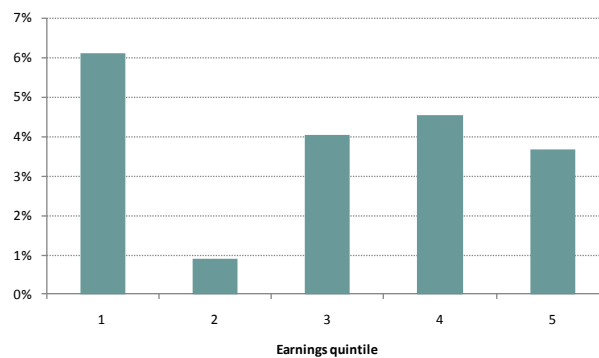


Figure 4: Differences in rates of mobility by decile between the 1990s and 2000s
 Notes: 1990s data based on quintile transitions among the NCDS cohort. 2000s data based on quintile transitions among the BCS cohort.
 Sources: Mobility can be both upwards and downwards
 National Child Development Study, 1991 and 2000 and British Cohort Study, 2000 and 2008

Tables 4 and 5 show a large increase in the proportion of people who moved from quintile 1 into quintiles 3 to 5 of the distribution among the 2000s cohort. In the 1990s cohort, 19 percent moved from quintile 1 up to quintile 3 to 5; by the 2000s, the proportion making a similar move increased to 28 percent. Although not the primary focus of this research, it is a noteworthy finding and one that needs to be explored more fully. Initial analysis shows that just 10 percent of those that moved up to quintiles 3 to 5 from quintile 1 in the 2000s cohort also moved from part-time to full-time employment. This indicates that a move into full-time work is not the primary explanation for this finding.

In a previous iteration of this research, earnings mobility was analysed on the basis of the weekly earnings of full-time employees only. The results showed a similar level of upwards mobility from the bottom quintile of the 2000s cohort. This suggests that what happened in decile 1 of the 2000s cohort is not an artefact of the data and merits further analysis, including assessing the effect that the introduction of the National Minimum Wage had on mobility from the bottom of the distribution.²³

Gender differences

Here we look at the gender and employment status of those who underwent long range relative mobility in both cohorts. We can see from Table 6 that of those that experienced long range upward mobility in the 1990s, 45 percent were men and 55 percent were women. By the 2000s this had

²³ The transition tables for weekly, full-time only cohorts can be found in Appendix D.

reversed so that men were more likely to move up the earnings distribution by three or more deciles. Across both decades there were very few gender differences among those who experienced long range *downward* relative mobility, with women marginally more likely to make this journey than men.

Table 6: Characteristics of the long range mobile (%)

| | 1990s | 2000s |
|------------------------------------|-------|-------|
| <i>Proportion moving upwards</i> | | |
| Part-time to Full-time | 10.0 | 4.8 |
| Male | 45.3 | 53.5 |
| Female | 54.7 | 46.5 |
| <i>Proportion moving downwards</i> | | |
| Full-time to Part-time | 15.1 | 13.9 |
| Male | 49.6 | 49.2 |
| Female | 50.4 | 50.8 |

Relative mobility was greater among women in the 1990s, with a 38 percent probability of staying in the same quintile over the course of the decade compared to 41 percent for men. The probability of remaining in the same quintile among the 2000s cohort was the same for men and women at 38 percent. This suggests that a large part of the increase in overall relative mobility that we observed in previous sections is due to an increase in relative mobility among men in particular in the 2000s.²⁴

Comparing relative gender mobility within each cohort highlights some important differences. Firstly, there was substantially greater relative mobility among women in the lowest quintile in the 1990s. The probability of remaining in the bottom quintile over the course of the decade was 42 percent for women but 51 percent for men. By the 2000s these differentials had evened out somewhat, though men in quintile 1 were still more likely to remain immobile than women in the same quintile.

Second, the proportion of women that moved down from the middle quintile was 42 percent in the 1990s while the same was true for 35 percent of men. By the 2000s this picture had reversed somewhat, with men slightly more likely to move down from the middle (39 percent for men as opposed to 36 percent for women).

Finally, there was a notable increase across cohorts in female downward mobility from the top quintile. In the 1990s, 41 percent of women moved from the top to a lower quintile; by the 2000s this had increased to 48 percent. Why this may be the case is unclear without further analysis. One hypothesis could be that it is an age effect with women in the 2000s cohort having children later in life compared to women in the 1990s cohort. It could therefore be the case that this higher incidence of downward relative mobility coincides with women in the cohort leaving the labour market to have a child or moving into part-time work to compensate for new caring responsibilities. This will be explored in more detail in our next paper on social mobility. For detailed quintile transition tables see Appendix G.

²⁴ Regression analysis of earnings by gender also points to this conclusion, Appendix B.

5. *Towards an explanation of differences in mobility*

The above evidence shows that absolute mobility was greater in the 1990s than in the 2000s but relative mobility was higher in the 2000s, but why do we see these differences?

One of the explanations must be the external economic conditions that set the context within which mobility occurs. Another possible explanation is the demographic, employment and educational characteristics of individuals. The influence of factors such as level of education, occupational group and timing of parenthood will be considered in greater detail in a future paper.

In this paper we consider some of the wider economic factors that may have driven the underlying levels of absolute and relative mobility in each cohort. The economy of the 2000s differed to some degree from that of the 1990s and it is possible that economic circumstances in one decade created more permissive conditions for mobility compared to the other. In this section we do not set out to prove this to be the case, we merely offer a series of arguments for fuller consideration.

Economic conditions

The economic circumstances of the 1990s were arguably more conducive to higher absolute earnings mobility than those of the 2000s.

In the 1990s the UK was emerging from recession though GDP growth was higher than in the 2000s, fluctuating between 3 and 4 percent up to 2000 (average rate of growth for the decade is suppressed by lower growth in 1991 compared to the rest of the decade). The employment rate of people aged 35-49 in the 1990s was 80 percent. At the start of the 2000s, the economy was on a more stable footing than at the start of the 1990s but, as we now know, was heading towards a recession at the end of the decade. Annual average growth in GDP was lower than in the 1990s, at 2.4 percent and employment for 35 to 45 year olds was higher at 82 percent.

As a result of faster economic growth in the 1990s than in the 2000s, with the exception of 1991, the 1990s saw an expansion in the number of jobs in the labour market whereas in the 2000s the number of jobs stagnated, albeit at a higher level. This growth in employment implies a growth in opportunities for everyone in the labour market and because of this we would expect absolute earnings mobility to be higher in the 1990s. Since GDP growth was lower during the 2000s but did continue to rise until the recession, we might expect absolute mobility to have continued but at a lower level than in the 1990s

Earnings growth

Earnings growth can indicate an increase in absolute mobility as the whole of the distribution shifts upward. It can also affect relative mobility depending on whose earnings are growing. If those at the top experience greater wage growth than those at the bottom then we might expect it to become harder to experience upward relative mobility, as the distance a person needs to travel to move up increases.

Figure 5 shows the change in gross weekly earnings at the median of the distribution together with change at the 25th and 75th percentiles. Earnings rose steadily at all levels between 1991 and 2002 before levelling out up to 2009. Over the entire period growth has been greatest towards the top of the distribution. Between 1991 and 2009 earnings grew by 21 percent at the 25th percentile, 24 percent at the median, and 27 percent at the 75th percentile.

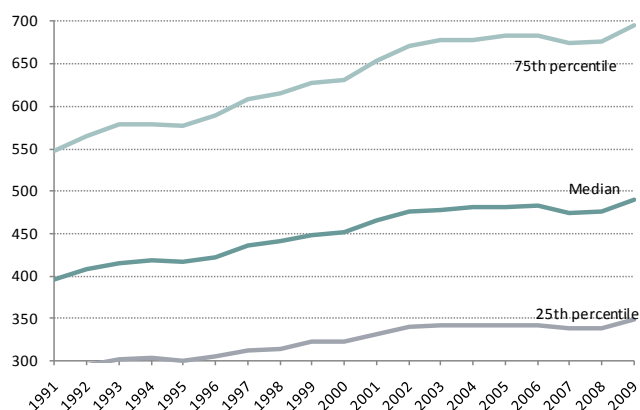


Figure 5: Real gross weekly earnings, GB: 1991-2009 (£'s per week)
 Notes: Full-time employees only.
 All values RPI-adjusted for inflation
 Source: ONS, Annual Survey of Hours and Earnings, 1991-2009

Earnings growth among the 1990s and 2000s cohorts was substantially greater than that shown in the cross-sectional data above largely because both samples were moving towards their expected earnings peak. Table 7 shows the cash value of earnings at each decile for the two cohorts. This explains how wage stagnation for the median earner between 2003 and 2008 is compatible with growth in earnings for the 2000s cohort.

Growth has been substantial among both cohorts though it was greater for every decile among the 1990s cohort than it was for the 2000s cohort. This reflects the higher rate of growth in the 1990s as discussed above. The only exception is decile 1 where the 2000s cohort experienced much greater earnings growth than the 1990s cohort, most likely as a result of the *National Minimum Wage* which rose substantially above the rate of inflation in 2001, 2003 and 2004.

The patterns of earnings growth for each cohort are markedly different. The 1990s sample experienced a pattern indicative of rising inequality across the board, with rewards increasing with each decile further up the earnings scale. For example, wage growth at the 10th percentile of the 1990s cohort was 15 percent, compared to 37 percent at the 90th percentile. The 2000s cohort, on the other hand, has a pattern of growth that is not dissimilar to that found by proponents of the “polarisation thesis”²⁵ with high rates of growth in the higher and lower deciles and the lowest rates of growth around the low-to-middle deciles (deciles 2 to 5). During this period, earnings at the lowest decile made up some ground on earnings across the rest of the distribution except in the top decile. Those in the middle fell further behind and overall inequality between the top and bottom still increased.

This leads us to hypothesise that one of the reasons why relative mobility was lower in the 1990s than the 2000s was that the rungs of the earnings ladder moved further apart over the course of the 1990s, making it harder to move up or down the earnings distribution than in the 2000s.

²⁵ Goos, M and Manning, A, (2007), “Lousy and lovely jobs: The rise of polarization in Britain”, *Review of Economics and Statistics*, 89(1). “Polarisation” refers to the national growth in employment in lower- and higher-level occupations combined with a simultaneous decline in mid-level jobs. This gives the impression of U-shaped growth in employment when plotted on a chart.

Table 7: Earnings at the median of each decile of the cohort samples, £'s per hour

| Decile | 1990s | | | 2000s | | |
|--------|-------|-------|--------|-------|-------|--------|
| | 1991 | 2000 | Growth | 2000 | 2008 | Growth |
| 1 | 3.62 | 4.16 | 15.0% | 4.20 | 5.05 | 20.3% |
| 2 | 4.67 | 5.36 | 14.9% | 5.45 | 6.24 | 14.6% |
| 3 | 5.34 | 6.27 | 17.5% | 6.30 | 7.08 | 12.3% |
| 4 | 6.05 | 7.13 | 17.8% | 7.05 | 8.03 | 13.8% |
| 5 | 6.80 | 8.05 | 18.4% | 7.86 | 8.93 | 13.6% |
| 6 | 7.57 | 9.10 | 20.3% | 8.65 | 10.00 | 15.6% |
| 7 | 8.52 | 10.35 | 21.4% | 9.63 | 11.29 | 17.3% |
| 8 | 9.64 | 11.92 | 23.6% | 10.85 | 12.70 | 17.1% |
| 9 | 11.12 | 14.47 | 30.1% | 12.57 | 15.05 | 19.7% |
| 10 | 14.39 | 19.67 | 36.7% | 16.64 | 20.83 | 25.2% |

Note: All values RPI adjusted to 2008 prices

Source: National Child Development Study 1991 and 2000, British Cohort Study 2000 and 2008

Gender differences in earnings change

The rate of earnings growth by gender is very different for the two cohorts. Figure 6 shows the patterns of change for both cohorts. The contrast in rates of growth by gender is clear. Female earnings underwent higher rates of growth than male earnings in all but the lowest quintile of the 2000s cohort. It should be noted that even after this growth, actual male hourly earnings were between 19 and 23 percent higher than female earnings across every quintile of the 2000s cohort. This means that the gap between male and female hourly earnings narrowed over the 2000s, even if it remained large. Among the 1990s cohort, on the other hand, male earnings were higher than female earnings and also grew at a faster rate in quintiles 3 to 5 which exacerbated the pay gap in these quintiles.

The patterns of earnings growth outlined in Figure 6 potentially explain some of the change in relative mobility that we saw in Table 7 which showed an increase in relative male mobility in the 2000s. While male earnings grew rapidly at the top quintile in the 1990s and less so elsewhere in the distribution, the growth was more evenly spread across in the 2000s. This arguably enabled greater relative mobility among men in the later decade.



Figure 6: Rates of hourly earnings growth by gender among the 1990s and 2000s cohorts

Notes: rates of growth are calculated based on the median of each decile. Includes all full-time and part-time employees. All earnings RPI-adjusted to the final year of the cohort period (2000 for the NCDS, 2008 for the BCS). NCDS males: n=2,947 females: n=2,956; BCS males: n=2,334 females: n=2,244

Sources: National Child Development Study, 1991 and 2000 and British Cohort Study, 2000 and 2008

Inequality

In theory, societies with lower rates of inequality should also be more mobile with the gap between the top and the bottom of the earnings ladder narrower, and therefore easier to climb.

Inequality grew steadily over the period 1991-2000. Figure 7 shows the rate of inequality in terms of the ratio of earnings at different percentiles of the distribution. The most commonly used indicator – the 90-10 ratio – the ratio of the earnings of the top 10 percent of the distribution compared to those of the bottom 10 percent – grew at a faster rate over the 1990s than over the 2000s before slowing down, but still growing, during the latter decade.

This is reflected in our discussion of earnings change within the cohort data which showed that the growth of earnings during the 1990s was progressively higher at each step of the earnings distribution. As well as pulling away from those at the bottom, Figure 7 shows that the top earners were also moving further away from those on median earnings (the 90-50 ratio). On the other hand, over the 2000s, median earners did not move away from those at the bottom (the 50-10 ratio).

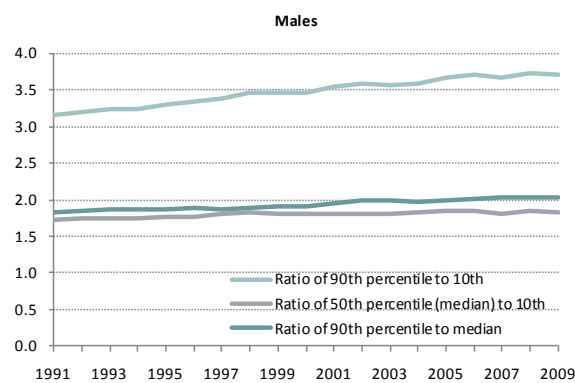


Figure 7: Earnings ratios 1991-2009
 Note: Male weekly earnings, full-time only
 Source: Annual Survey of Hours and Earnings, 1991-2009

The same pattern of inequality can be seen when looking at the cohort rather than cross-sectional data. The 90:10 ratio among both cohorts remained stubbornly above 4.0 in each year, growing more rapidly between 1991 and 2000 than it did between 2000 and 2008.

The difference in inequality across the two cohorts appears to be linked to higher relative mobility in the 2000s. The data shows that inequality grew at a much faster rate among the 1990s cohort, especially in terms of the gap between the very top and the very lowest earners. Among the 2000s cohort inequality still rose but at a much lower rate suggesting that, similar to earnings growth, the gaps between earnings percentiles were closer together than in the 1990s. Looking at just the lower half of the distribution, the distance between median earnings and the 10th percentile in the 2000s cohort actually declined over the period 2000-2008. If inequality is related to mobility, as many have suggested, we would expect relative mobility to be higher among the 2000s cohort but that most of this mobility would take place within the lower half of the distribution.

Occupational change

The UK labour market has undergone significant structural change since 1970 with a decline in heavy industrial and manufacturing employment and a rise in the number of people employed in the service sector – including financial and technological services. This is important for mobility because, on balance, these jobs have higher skill requirements and therefore tend to be higher paid. The increase in these types of jobs has opened up more “room at the top” of the labour market. There are now more higher-paid, professional and managerial jobs in the UK economy.

This trend continued over the period of our cohort studies. Data from the BHPS reproduced in Table 8 shows that between 1991 and 2007, the proportion of jobs classified as “professional” and “managerial/technical” occupations in the UK grew by nearly 10 percentage points. At the same time, the proportion employed in jobs described as “skilled non-manual” and “skilled manual” fell by 7 percentage points. Among the 1990s and 2000s cohorts we see a similar change with an increase of around 7 percentage points in the number of people working in professional and managerial occupations in the 2000s cohort.²⁶

Table 8: Registrar General's Social Class, 1991-2007 (%)

| | 1991 | 2000 | 2007 | Change 1991-2007 |
|------------------------|------|------|------|------------------|
| Professional | 4.0 | 4.3 | 4.5 | 0.5 |
| Managerial & technical | 23.6 | 28.4 | 32.9 | 9.3 |
| Skilled non-manual | 25.6 | 24.8 | 23.7 | -1.9 |
| Skilled manual | 22.2 | 19.4 | 17.6 | -4.6 |
| Partly skilled | 17.2 | 16.5 | 16.5 | -0.6 |
| Unskilled | 7.2 | 6.4 | 4.6 | -2.6 |

Source: British Household Panel Survey 1991, 2000 and 2007

The expansion of higher paid professional and managerial jobs that replaced lower paid manual jobs over the period of the cohort studies contributed to an increase in absolute mobility. Greater room at the top during the 2000s may have helped more people move out of low paid work during the 2000s than in the 1990s. The structured career development paths that are often associated with professional and managerial occupations and include progression up a pay spine could also be linked to the higher rate of relative mobility among the 2000s cohort, although there is a less direct relationship between structural occupational change and relative mobility than between occupational change and absolute mobility.

²⁶ See Appendix A for a more detailed description of occupational status in the NCDS and BCS data.

Conclusion

This report has brought to light new evidence of how earnings growth and intragenerational mobility have changed over the past two decades as individuals move towards the age of peak earnings. The picture revealed by the evidence is mixed: absolute mobility was higher in the 1990s but relative mobility was higher in the 2000s.

Our analysis shows that an individual's earnings at 40 were less closely tied to his or her earnings at 30 in the 2000s than in the 1990s, indicating an improvement in relative mobility. This challenges the generally held view informed by analyses of intergenerational income mobility that social mobility in Britain has stalled. Of particular importance is the improvement in long range relative mobility in the 2000s. Long range mobility is likely to have a more lasting effect on the lives of those that experience it as it implies a greater change in earnings. Short range relative mobility can involve very small changes in earnings that have little material impact on people's living standards. However, it is important to note that most of the long range mobility seen in the 2000s appeared to take place around the middle deciles of the distribution rather than being evenly spread. This indicates that those at the top remained protected from significant downward mobility in the 2000s, as in the 1990s.

Those who earned the most in society at age thirty were likely to remain in that position in their forties, leaving less room at the top for others to improve their status.

The improvement in long range relative mobility in the 2000s appears to be best explained by the different patterns of earnings growth over the two decades and their impact on inequality. The high rate of absolute mobility in the 1990s disproportionately benefited those at the top. The top of the wage distribution increased at a markedly faster rate than the bottom. Moving up the ladder when the rungs of the ladder are moving further apart is difficult. In the latter decade, earnings grew at the top but also at the bottom, as the lower half of the distribution compressed somewhat as evidenced by the lower rates of inequality in the 2000s. This arguably created more permissive conditions for relative mobility compared to the 1990s.

The wider economic context is just one aspect of what influences changes in mobility. The demographic, employment and educational characteristics of individuals are also likely to play a role in determining who moves up and down the earnings distribution in each decade. Which individuals experience mobility and what marks out those who are mobile from those who are not? This will be the subject of the next paper in our series on intragenerational social mobility.

Appendix A: Tests of robustness

Inclusion in the NCDS and BCS research samples

It is vital to ensure that the results of our analysis of earnings mobility are real rather than a result of biased sampling. The nature of such panel surveys requires repeated contact with individuals who naturally move around or possibly grow tired of participating in a survey.

There are two levels of potential bias in this research: attrition due to incomplete information in the surveys; and measurement error in the earnings variable. The following sections discuss the possible effects of both of these on our research.

The reason we have conducted this analysis is to show that both samples are comparable over time and with each other, so that the differences in mobility that we have found are not due to the systematic exclusion of particular respondents in either cohort.

Attrition and exclusion

One of the key concerns of this research has been ensuring that the samples used are not based on systematic selection bias, so that we did not exclude *a priori* those individuals that would either be least or most mobile in either of the samples. There is a degree to which this was unavoidable as we deliberately chose to base our analysis on those individuals who had positive earnings at every sampling point. In doing so our estimates of mobility are likely to be higher than would be found in the population overall.²⁷ However, we chose to exclude those with negative or zero earnings because we could not otherwise account for the possibility that such earnings were transitory (see “measurement error”, below) and may have risen sharply by the next sampling point and which, in turn, would inflate our estimates of mobility.

NCDS sample

Other than the exclusion of cohort members without positive earnings it is important to analyse whether or not the samples are comparable in terms of those that we excluded. For example, did we exclude more people in the BCS cohort with lower levels of education than we did in the NCDS cohort?

Table A1 compares the key characteristics of the NCDS sample used in this research with those of the cohort members that were excluded due to incomplete information. The largest difference between the excluded and included samples is in economic activity. Our criteria of only including those with positive earnings means that a much greater proportion of those excluded from the analysis are unemployed or fall into the “other” category that includes the long-term sick. We also excluded self-employed cohort members due to the unreliability of earnings data for that group.

Other than economic activity, there are also differences in the class composition of the final sample and those excluded. Those in the sample used in this research are more likely to be in one of the three highest occupational groups than those who were excluded. Furthermore, the research sample is also more likely to have Level 4 qualifications than the excluded cohort members.

²⁷ Solon, G. (1992) ‘Intergenerational income mobility in the United States’ in *American Economic Review* Vol. 82 (3); Solon, G. (1999), ‘Intergenerational Mobility in the Labor Market’, in O. Ashenfelter and D.Card (eds.), *Handbook of Labor Economics*, Volume 3A, North Holland: Amsterdam

Table A1: Key characteristics of those in the research sample and excluded cohort members in the NCDS 1991 survey

| | Included in final sample | Excluded due to incomplete information |
|--|--------------------------|--|
| Number of cohort members | 5903 | 5566 |
| <i>Gender (%)</i> | | |
| Male | 50 | 48 |
| Female | 50 | 52 |
| <i>Economic activity (%)</i> | | |
| Full-time employee | 79 | 34 |
| Part-time employee | 21 | 11 |
| Self employed | : | 23 |
| Unemployed | : | 6 |
| Other and missing | : | 26 |
| <i>Social class of cohort member (%)</i> | | |
| Professional | 5 | 4 |
| Managerial/tech | 32 | 25 |
| Skilled non-manual | 25 | 19 |
| Skilled manual | 17 | 21 |
| Partly skilled | 13 | 15 |
| Unskilled | 3 | 5 |
| Other and missing | 4 | 12 |
| <i>Highest qualification (%)</i> | | |
| NVQ Level 5-6 | 2 | 1 |
| NVQ Level 4 | 29 | 20 |
| NVQ Level 3 | 16 | 15 |
| NVQ Level 2 | 29 | 28 |
| NVQ Level 1 | 14 | 15 |
| No qualifications | 10 | 17 |
| Other and missing | 1 | 3 |

BCS sample

Table A2 compares the key characteristics of the BCS sample used in this research with those of the excluded cohort members. Similar to the NCDS cohort, the greatest differences are found in terms of economic activity due to the reasons explained above. Again, as with the NCDS sample, the members of the BCS sample used in this research were more likely than those excluded to be drawn from the three highest social classes. They were also more likely to have Level 4 qualifications and less likely to have no qualifications.

Table A2: Key characteristics of those in the research sample and excluded cohort members in the BCS 2000 survey

| | Included in final sample | Excluded due to incomplete information |
|--|--------------------------|--|
| Number of cohort members | 4578 | 6683 |
| <i>Gender (%)</i> | | |
| Male | 51 | 47 |
| Female | 49 | 53 |
| <i>Economic activity (%)</i> | | |
| Full-time employee | 85 | 46 |
| Part-time employee | 15 | 9 |
| Self employed | : | 13 |
| Unemployed | : | 5 |
| Other and missing | : | 27 |
| <i>Social class of cohort member (%)</i> | | |
| Professional | 7 | 4 |
| Managerial/tech | 38 | 22 |
| Skilled non-manual | 27 | 15 |
| Skilled manual | 17 | 17 |
| Partly skilled | 9 | 9 |
| Unskilled | 1 | 2 |
| Other and missing | 1 | 32 |
| <i>Highest qualification (%)</i> | | |
| NVQ Level 5-6 | 4 | 2 |
| NVQ Level 4 | 36 | 24 |
| NVQ Level 3 | 18 | 18 |
| NVQ Level 2 | 25 | 28 |
| NVQ Level 1 | 8 | 10 |
| No qualifications | 9 | 17 |
| Other and missing | : | 1 |

Cross cohort comparison

There are many reasons why both the final NCDS and BCS samples are drawn from higher social classes and more educated respondents than those excluded. One explanation is that it is a function of the group that we are examining – those employed at both data points. Those who experience unemployment tend to have lower skill levels and are more likely to be in the excluded sample. Another possibility is that attrition and non-response is higher among those of lower social classes, which would again lead to them being excluded from the final mobility sample. Others have reported similar findings in analyses of attrition due to non-response in the NCDS and BCS studies.²⁸

The probability of being excluded due to not being a member of one of the top three social classes shows the same pattern across both cohorts but the degree is greater among the BCS sample. Among the NCDS sample used in this research, there were 7 percentage points more respondents from the managerial class and 6 percentage points more respondents were from the skilled non-manual class (Table A1) than there was among the excluded sample. Among the BCS cohort 16 percentage points more of the final sample were from the managerial class compared to those excluded and 12 percentage points more were from the skilled-non-manual class (Table A2).

To test the effect of this on our findings of mobility we re-ran the regression of log earnings found in Table A5 of the Appendix B but with respondents from the managerial and skilled manual social classes excluded from both cohorts. The results are shown in Table A3 and are purely indicative as

²⁸ Breen, R and Goldthrope, J, (1999), "Class, mobility and merit: The experience of two birth cohorts", *European Sociological Review*, 17(2)

exclusion of the managerial and skilled manual classes removes 57 percent of respondents from the NCDS sample and 65 percent from the BCS sample. Using these reduced samples, mobility is still significantly higher among the 2000s BCS cohort than the 1990s NCDS cohort. However, we acknowledge that the increased probability of inclusion in the BCS cohort due to respondents being a member of the managerial or skilled manual classes may have increased the overall estimate, but *not* reduced its significance.

Table A3: OLS regression of log wages

| | NCDS (1990s) | BCS (2000s) |
|---------------------|--------------|-------------|
| β | .637 (.026) | .355 (.020) |
| Partial correlation | .461 (.019) | .411 (.023) |

Notes: all results significant at the .001 level
 Dependent variable = log wages (NCDS 2000, BCS 2008)
 Standard errors in parentheses

Another point to note is that the rate of exclusion overall is much higher in the BCS cohort where the excluded sample contained 2,105 more respondents than the final research sample. In comparison, the NCDS excluded sample contained 337 *fewer* respondents than the final research sample. The reason for this is likely to be the data collection methodology of the 2008 BCS survey which used a telephone interview rather than the face-to-face interview used in other NCDS and BCS surveys. Telephone interviews tend to have lower response rates than face-to-face interviews and overall attrition between the start and end points of the BCS survey (2000 and 2008) used in this research was higher than between the start and end points of the NCDS survey (1991 and 2000).

Measuring mobility

The data used here is net hourly earnings from employment, which is derived from the variable “usual take-home pay” in each dataset. This has been converted to hourly pay using the variable “usual hours worked”, which excludes meal breaks but includes overtime, whether or not that overtime is paid or unpaid.²⁹ Cohort members without earnings or hours data at each sampling point have been removed from the final dataset.

Only those adults in employment at each data point are considered in the analysis so there are no sample members moving to or from earnings of zero. Full and part-time employees are considered together. Although there are considerations such as the generally lower pay of part-time work, part-time employment is part of the overall labour market picture and movements between part and full-time work are a form of earnings mobility.

This data on hourly earnings allows us to measure mobility in a number of different ways. Absolute mobility is assessed by showing the overall change in the structure of hourly earnings within the two cohorts, specifically looking at changes in the distribution and movements across different earnings thresholds such as low and high pay.

To measure relative mobility, we use a regression of log earnings together with average changes in relative earnings and decile position to illustrate overall change in relative mobility. We also use a transition matrix of both earnings deciles and quintiles to show how many people moved from each decile/quintile in the base year (1991 for the NCDS and 2000 for the BCS cohort) and which decile/quintile they moved to in the final year (2000 for the NCDS and 2008 for the BCS cohort). This approach allows us to demonstrate relative mobility within each cohort: whether or not people remain in the same position in the earnings distribution relative to their peers and the range of any mobility.

²⁹ Ideally, we would have liked to have derived a variable that excluded hours worked in overtime, but after consultation with Peter Shepherd of the Centre for Longitudinal Studies, it was determined that this would be impossible for the 2008 BCS dataset.

Measurement error and earnings data

Measurement error should always be considered when dealing with earnings and income data. We address first the issue of measurement error in our primary variable, earnings. All surveys, both cross-sectional and panel, suffer from a higher level of item-non-response for question on earnings and income, particularly from self-employed respondents.³⁰ Where this bias is random, the earnings data can be imputed, however, this strategy becomes more difficult in panel studies – particularly the later waves when attrition can make initially representative samples biased. Rather than attempt to impute earnings data, we chose to include in the analysis only those cases for which we had complete information.

In response to questions raised by scholars such as John Goldthorpe, Blanden et al have conducted detailed analysis of the possible effects of measurement error in the parental income variable they used from the NCDS to assess intergenerational social mobility. Their discussion centred on the use of banded income data to extrapolate parental income and the possibility that the transitory component of parental income was higher in the NCDS cohort than it was for the BCS cohort. Blanden, Gregg and Macmillan have used various methods, including remodelling BHPS data on the basis of income banding methods from both the NCDS and BCS, to show that overall, measurement error is no higher in the earlier cohort than the later cohort.³¹

A number of steps have been taken to help control for the possibility of measurement error in this research. First, self-employed cohort members were excluded from the analysis *a priori*. The quality of earnings data for self-employed respondents in the NCDS and BCS has been shown to be poor and we follow the example of Blanden *et al* in simply removing these cases from the final dataset. Secondly, obvious outliers in the earnings data that could not be rectified through analysis of accompanying employment data have been excluded from the final datasets to reduce the effect that such cases have on estimates of mobility.

Finally, the data have been compared with cross-sectional data from the *Family Expenditure Survey* (FES), *Family Resources Survey* (FRS), and the *Annual Survey of Hours and Earnings* for the respective years. Table A4 shows the results of this comparison. To compare wages, pseudo-cohorts were constructed from the FES and FRS datasets. To ensure sample sizes were large enough, age bands were used to approximately match the age of the cohorts. For example, from the FRS 2008 data we used the age band 35-44 as this approximates the age of the BCS cohort in 2008 which was then 38. The one caveat to the table below is that the FES 1991 data is not weighted and is drawn from a much smaller sample than the FRS data used as comparisons in the other years. The FRS only started in 1992/93 though the FES is the forerunner to that survey. Even so, direct comparisons between the two can be problematic, but these surveys proved to be the best sources of earnings data for comparison once sample sizes, due to the necessity of focusing on a narrow age group were, taken into account.³²

Table A4 shows that earnings data in the NCDS and BCS cohorts are consistently higher than earnings data for people of a similar age from cross-sectional surveys. Median hourly wages range from 10

³⁰ Dearden, L., McIntosh, S., Myck, M. and Vignoles, A. (2002) "The returns to academic and vocational qualifications in Britain", *Bulletin of Economic Research*, 54 (2), 249-274; Dearden, L. (1999) "The effects of families and ability on men's education and earnings in Britain", *Labour Economics*, 6(4), 551-567; Plewis, I. and Kallis, C. (2008) *Changing economic circumstances in childhood and their effects on subsequent educational and other outcomes*. DWP Working Paper No. 49. Norwich: HMSO; Weiss, C.T. (2010) *The Effects of Cognitive and Noncognitive Abilities on Earnings: Different School Systems*. EALE/SOLE Conference, University College London, 17-19 June 2010. Maastricht: European Association of Labour Economists

³¹ Blanden, J, Gregg, P. and Macmillan, L. (2010), "Intergenerational persistence in income and social class: The impact of within group inequality", Centre for Market and Public Organisation, Working Paper No. 10/230

³² The *Lifetime Labour Market Database* may have been a better alternative data source for comparison, however, this data proved to be inaccessible.

percent higher in the 1991 NCDS cohort to 13 percent higher in the 2000 NCDS and 2000 BCS cohorts. The pseudo-cohorts of the FES and FRS data should be comparable with the NCDS and BCS samples as identical data screening procedures were used – self-employed sample members were removed and only those with positive earnings included.

Importantly from the perspective of this research, the difference in median earnings is more or less consistent across every data point. Earnings across every data point in the NCDS and BCS cohorts are consistently higher than that found in the cross-sectional data. This means that the comparisons over time should be valid and are not an artefact of, for example, one cohort reporting earnings data at *Point A* that is substantially different from the cross sectional data but reporting earnings data at *Point B* that is identical to the cross-sectional data.

The slight exception is 1991 where we have had to use data from a different source – the FES – as our comparison. As we have noted, this data is not weighted, unlike the FRS data. Furthermore, the FES is a smaller scale survey collected under a very different methodology. The FES was designed to gather detailed family income data and interviewers visited participating households a number of times over a two-week period. By contrast, participants in the FRS were visited just once. Analysis of FES and FRS data in years that both were collected has shown that the FES tends to have higher estimates of both household income and earnings.³³ This explains why the difference in median earnings for 1991 in Table A4 is smaller than the difference at other data points.

Table A4: Earnings in the cohort data and cross-sectional data

| | NCDS 1991 | FES 1991 | Difference | NCDS 2000 | FRS 2000 | Difference |
|-------------|-----------|----------|------------|-----------|----------|------------|
| Median Wage | 4.45 | 4.01 | -9.9% | 6.79 | 5.93 | -12.6% |
| Mean Wage | 5.00 | 4.58 | -8.3% | 7.64 | 6.72 | -12.0% |
| | BCS 2000 | FRS 2000 | Difference | BCS 2008 | FRS 2008 | Difference |
| Median Wage | 6.51 | 5.72 | -12.2% | 9.41 | 8.18 | -13.1% |
| Mean Wage | 7.04 | 6.28 | -10.8% | 10.52 | 9.47 | -9.9% |

If we consider wage dispersion by examining the 90:10 ratio in the cohorts and the cross-sectional data then we see that the gap between the 10th and 90th percentiles of the earnings distribution grew at comparable rates. Data from the *Annual Survey of Hours and Earnings* shows that between 1991 and 2000 the 90:10 ratio grew by 10 percent on a national basis and between 2000 and 2008 it grew by 8 percent. Among the NCDS cohort the 90:10 ratio grew by 15 percent between 1991 and 2000, and among the BCS cohort it grew by 12 percent. Although the rates of change are higher among the NCDS and BCS cohorts, this is likely to be a product of the samples, as the ASHE data includes all adults in work rather than just a specific age group. What is important to take from this data is that the pattern of change is similar in the cross-sectional and cohort data – specifically, the 90:10 ratio grows more rapidly between 1991 and 2000 than it does between 2000 and 2008. This suggests that the earnings data in the NCDS and BCS surveys reflect what was going on nationally.

This comparison of earnings data from the NCDS and BCS cohorts and cross-sectional surveys has shown that earnings are higher among the datasets used in this research. However, the earnings are consistently higher – between 10 and 13 percent at the median in all cases – which leads us to believe that the cohorts are comparable and any results are not the effect of differences in the way earnings data was measured in any one of the NCDS or BCS surveys.

³³ Frosztega, M. (2000), *Comparisons of Income Data between the Family Expenditure Survey and the Family Resources Survey*, DWP (<http://campaigns.dwp.gov.uk/asd/hbai/gssms18.pdf>)

Appendix B: Regression analysis of earnings mobility

Regression analysis of the elasticity of earnings shown in Table A5 tells us how much of the variation in individuals' earnings at the end of each decade is explained by earnings at the start. The β coefficient in Table A5 shows that in the 1990s cohort, 64 percent of original earnings were reflected in final earnings, compared to 31 percent in the 2000s. These figures are highly significant but they are not the complete picture. The partial correlation statistic is a more accurate reflection of mobility over the decade, because it takes into account changes in inequality. On this measure, we can see that 46 percent of original earnings in the 1990s cohort is reflected in final earnings, compared to 37 percent in the 2000s.

Table A5: OLS regression of log wages

| | NCDS (1990s) | BCS (2000s) | Change |
|---------------------|--------------|-------------|--------------|
| β | .643 (.016) | .312 (.011) | -.331 (.019) |
| Partial correlation | .460 (.012) | .374 (.014) | -.086 (.018) |

Notes: all results significant at the .001 level
 Dependent variable = log wages (NCDS 2000, BCS 2008)
 Standard errors in parentheses

Analysis of mobility by gender

The results of a regression analysis indicate that the lower rate of mobility among the 1990s cohort is partly due to the high rate of inequality in male earnings in that decade. The partial correlation which takes into account changes in inequality differs from the β coefficient to a greater extent for men in the 1990s than it does for women. Once this is taken into account the cross-cohort difference in male mobility is 9 percent, but among women it is just 1 percent (Change column, Table A6). This suggests that a large part of the increase in overall mobility that we outlined in Table A5 is due to increases in male mobility in particular.

Table A6: OLS regression of log earnings by gender

| | NCDS (1990s) | BCS (2000s) | Change |
|---------------------|--------------|-------------|--------------|
| <i>Men</i> | | | |
| β | .687 (.026) | .288 (.016) | -.399 (.031) |
| Partial correlation | .444 (.017) | .352 (.019) | -.092 (.025) |
| <i>Women</i> | | | |
| β | .508 (.023) | .302 (.016) | -.206 (.028) |
| Partial correlation | .374 (.017) | .362 (.020) | -.012 (.026) |

Notes: all results significant at the .001 level
 Dependent variable = log wages (NCDS 2000, BCS 2008)
 Standard errors in parentheses

Appendix C: Formal notation of mobility indices

x and y represent matched pairs of individuals within the samples. Buchinsky, Fields, Fougère and Kramarz (2003)

Per capita decile movement

$$\frac{\sum_i |dec(x_i) - dec(y_i)|}{n}$$

Per capita non-directional change £

$$\frac{\sum_i |x_i - y_i|}{n}$$

Per capita directional change £

$$\frac{\sum_i (y_i - x_i)}{n}$$

Appendix D: Full-time only transition tables

Table A7: Decile transition summaries for the NCDS cohort, 1991-2000, full-time only

| | | Earnings deciles 2000 (% of 1991) | | | | | | | | | | |
|-----------------------------|----|-----------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Total |
| Earnings deciles 1991 | 1 | 42.4% | 30.2% | 12.9% | 5.7% | 2.8% | 1.3% | 1.0% | .8% | 1.0% | 1.8% | 100.0% |
| | 2 | 17.2% | 28.3% | 24.4% | 11.9% | 7.5% | 6.1% | 1.4% | .8% | 1.4% | 1.1% | 100.0% |
| | 3 | 9.7% | 20.0% | 24.4% | 17.5% | 10.6% | 9.7% | 3.1% | 3.3% | 1.1% | .6% | 100.0% |
| | 4 | 7.3% | 10.1% | 17.6% | 17.9% | 17.1% | 15.1% | 5.6% | 5.6% | 2.8% | .8% | 100.0% |
| | 5 | 4.6% | 5.2% | 10.1% | 20.0% | 17.1% | 18.8% | 10.1% | 5.8% | 5.2% | 2.9% | 100.0% |
| | 6 | 5.0% | 5.5% | 6.8% | 7.7% | 14.1% | 16.4% | 15.3% | 15.9% | 9.6% | 3.6% | 100.0% |
| | 7 | 5.9% | 2.5% | 5.3% | 3.9% | 6.4% | 16.5% | 19.6% | 19.0% | 13.7% | 7.0% | 100.0% |
| | 8 | 4.3% | 2.2% | 1.4% | 5.4% | 6.8% | 8.6% | 17.2% | 25.1% | 19.0% | 10.0% | 100.0% |
| | 9 | 3.4% | 1.2% | 2.0% | 2.2% | 2.9% | 5.4% | 8.8% | 19.7% | 29.5% | 24.8% | 100.0% |
| | 10 | 3.2% | .9% | .3% | .9% | .9% | 3.5% | 3.2% | 10.4% | 23.2% | 53.6% | 100.0% |

Notes: Income deciles are based on net weekly earnings for full time employees only
 Numbers in bold are the proportions in the same decile at each survey.
 Source: National Child Development Study, 1991 and 2000.

Table A8: Decile transition summaries for the BCS cohort, 2000-2008, full-time only

| | | Earnings deciles 2008 (% of 2000) | | | | | | | | | | |
|-----------------------------|----|-----------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Total |
| Earnings deciles 2000 | 1 | 35.0% | 19.1% | 8.9% | 9.9% | 7.0% | 4.8% | 3.8% | 6.1% | 2.2% | 3.2% | 100.0% |
| | 2 | 26.0% | 25.1% | 20.6% | 12.2% | 8.1% | 2.7% | 2.4% | .9% | 1.2% | .9% | 100.0% |
| | 3 | 16.0% | 20.7% | 15.2% | 15.2% | 11.0% | 8.3% | 6.1% | 2.8% | 4.1% | .6% | 100.0% |
| | 4 | 8.6% | 12.3% | 18.2% | 17.0% | 16.0% | 9.6% | 9.3% | 5.9% | 1.9% | 1.2% | 100.0% |
| | 5 | 4.1% | 7.9% | 15.8% | 15.0% | 15.0% | 16.4% | 8.5% | 9.7% | 4.7% | 2.9% | 100.0% |
| | 6 | 2.1% | 7.0% | 8.8% | 12.5% | 17.0% | 18.8% | 12.5% | 12.2% | 7.6% | 1.5% | 100.0% |
| | 7 | 2.2% | 4.5% | 8.4% | 8.9% | 12.8% | 11.7% | 17.3% | 17.3% | 14.0% | 2.8% | 100.0% |
| | 8 | 1.8% | 2.9% | 2.9% | 5.0% | 9.0% | 14.7% | 15.1% | 18.0% | 20.5% | 10.1% | 100.0% |
| | 9 | 2.7% | 1.7% | 2.7% | 3.4% | 5.1% | 9.8% | 10.1% | 17.2% | 27.3% | 20.2% | 100.0% |
| | 10 | 2.1% | .3% | .3% | 1.7% | 2.8% | 5.2% | 4.5% | 9.7% | 21.8% | 51.6% | 100.0% |

Notes: Income deciles are based on net weekly earnings for full time employees only
 Numbers in bold are the proportions in the same decile at each survey.
 Source: British Cohort Study, 2000 and 2008

Appendix E: Economic indicators

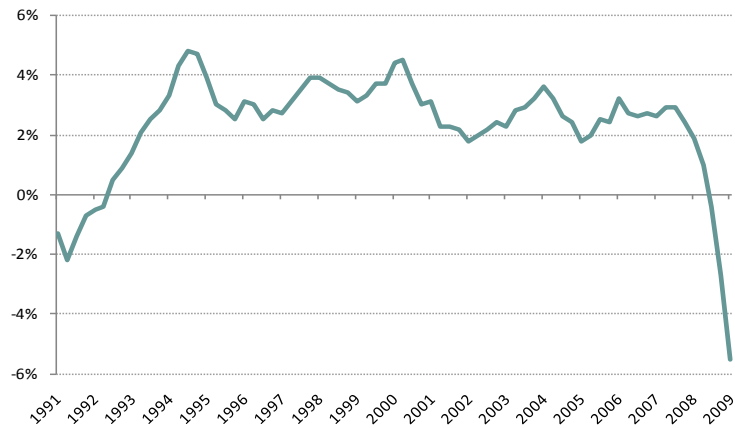


Figure A1: Annual GDP change: 1991-2009
Source: ONS, Quarterly GDP Time Series 1991-2009 and ONS

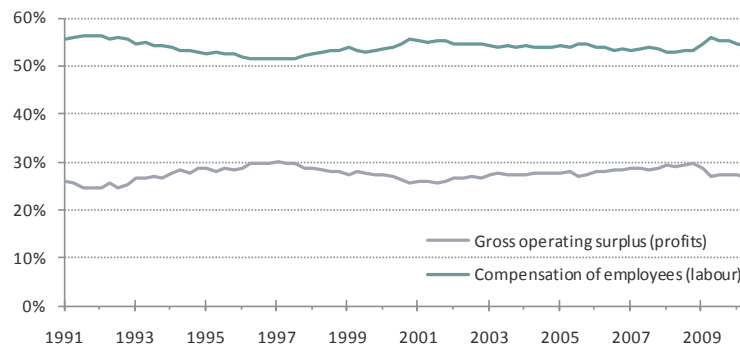


Figure A2: Factor shares of GDP 1991-2009
Source: ONS time series, IHXM, IHXO, IHXP

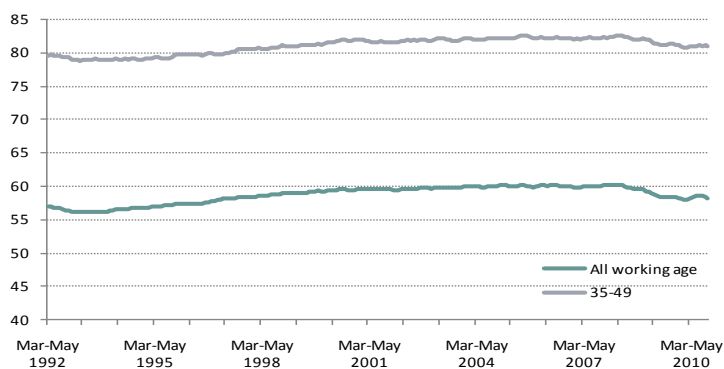


Figure A3: Employment rate of working-age adults and adults aged 35-49, 1992-2010 (%)
Source: ONS time series, MGSR, and YBUJ

Appendix F: Estimates of absolute mobility in the 2000s cohort excluding those who moved from full-time to part-time employment

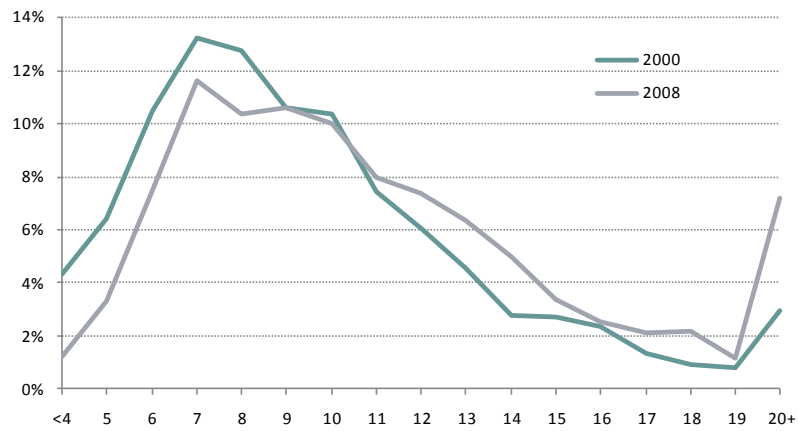


Figure A4: Earnings distribution of the 2000s cohort, £'s per hour

Table A9: Change in earnings thresholds in the 2000s

| | BCS | | |
|------------------------------|-------|-------|--------|
| | 2000 | 2008 | Change |
| % earning 50% below median | 4.7% | 3.1% | -1.6% |
| % earning 50% above median | 16.5% | 17.8% | 1.3% |
| % earning under £10 per hour | 34.4% | 23.7% | -10.8% |

Appendix G: Quintile transition tables for men and women in the 1990s and 2000s cohort

Table A10: Quintile transitions among the 1990s cohort, by gender, 1991-2000

| Male: Quintile in 2000 (% of 1991) | | | | | | | Female: Quintile in 2000 (% of 1991) | | | | | | |
|------------------------------------|--------------|--------------|--------------|--------------|--------------|--------|--------------------------------------|--------------|--------------|--------------|--------------|--------------|--------|
| | 1 | 2 | 3 | 4 | 5 | Total | | 1 | 2 | 3 | 4 | 5 | Total |
| Quintile in 1991 | 50.9% | 27.4% | 13.5% | 5.0% | 3.2% | 100.0% | Quintile in 1991 | 41.8% | 28.3% | 15.4% | 9.3% | 5.2% | 100.0% |
| 2 | 22.5% | 37.0% | 23.9% | 10.8% | 5.9% | 100.0% | 2 | 28.0% | 32.3% | 23.3% | 11.0% | 5.5% | 100.0% |
| 3 | 11.9% | 22.8% | 29.9% | 23.6% | 11.7% | 100.0% | 3 | 16.7% | 25.3% | 29.3% | 21.5% | 7.2% | 100.0% |
| 4 | 8.0% | 8.5% | 25.0% | 34.1% | 24.4% | 100.0% | 4 | 7.7% | 10.7% | 26.2% | 32.4% | 23.0% | 100.0% |
| 5 | 6.7% | 5.0% | 6.7% | 26.4% | 55.2% | 100.0% | 5 | 6.0% | 3.1% | 5.7% | 25.9% | 59.4% | 100.0% |

Notes: Earnings quintiles are based on gross hourly earnings for all adults
Numbers in bold are the proportions in the same decile at each survey.
Male n=2947; Female n=2956

Table A11: Quintile transitions among the 2000s cohort, by gender, 2000-2008

| Male: Quintile in 2008 (% of 2000) | | | | | | | Female: Quintile in 2008 (% of 2000) | | | | | | |
|------------------------------------|--------------|--------------|--------------|--------------|--------------|--------|--------------------------------------|--------------|--------------|--------------|--------------|--------------|--------|
| | 1 | 2 | 3 | 4 | 5 | Total | | 1 | 2 | 3 | 4 | 5 | Total |
| Quintile in 2000 | 46.6% | 25.9% | 14.5% | 6.6% | 6.4% | 100.0% | Quintile in 2000 | 44.3% | 29.0% | 14.0% | 7.8% | 4.9% | 100.0% |
| 2 | 27.7% | 33.2% | 20.1% | 13.7% | 5.3% | 100.0% | 2 | 26.2% | 31.8% | 23.8% | 13.9% | 4.3% | 100.0% |
| 3 | 14.6% | 24.2% | 25.8% | 24.6% | 10.8% | 100.0% | 3 | 14.8% | 21.0% | 30.7% | 21.2% | 12.4% | 100.0% |
| 4 | 6.2% | 12.1% | 26.8% | 31.4% | 23.5% | 100.0% | 4 | 7.5% | 11.8% | 22.0% | 32.2% | 26.6% | 100.0% |
| 5 | 4.7% | 5.6% | 11.4% | 24.0% | 54.3% | 100.0% | 5 | 7.0% | 6.3% | 10.2% | 24.8% | 51.7% | 100.0% |

Notes: Earnings quintiles are based on gross hourly earnings for all adults
Numbers in bold are the proportions in the same decile at each survey.
Male n=2334; Female n=2244

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The Resolution Foundation is an independent research and policy organisation. Our goal is to improve the lives of people with low-to-modest incomes – who we refer to as low-to-middle earners (LMEs) – by delivering change in areas where they are currently disadvantaged. We do this by:

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- developing practical and effective policy proposals; and
- engaging with policy makers and stakeholders to influence decision-making and bring about change.

For more information on this Report contact Lee Savage on 020 3372 2955 or lee.savage@resolutionfoundation.org

