Social mobility and economic success

How social mobility boosts
the economy

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oxera
compelling economics

Contents

Executive summary

Social mobility is a good in and of itself; it represents equality of opportunity for all. But the impact of increasing social mobility can be more significant than this. Creating the opportunity for talent across the social spectrum to be recognised and developed can boost the economy, increasing both productivity and gross domestic product (GDP).

The research undertaken for this report examined the relationships between social mobility, the matching of people to jobs ('matching'), and productivity. It finds that social mobility is positively related to productivity—a modest increase in the UK's social mobility (to the average level across western Europe) could be associated with an increase in annual GDP of approximately 2%, equivalent to £590 per person or £39bn to the UK economy as a whole (in 2016 prices).

One factor driving this relationship is the fact that improved social mobility should lead to an improvement in the match between people and jobs in society. Greater mobility means both that the talents of all young people are recognised and nurtured, and that the barriers to some jobs are reduced—these entry barriers exist because of biases in recruitment processes or inequality of educational opportunity. In a more socially mobile society, a job is more likely to be filled by someone with the highest level of potential to perform well in that job than someone who may be less well suited but, for example, better connected.

This better matching means that the average productivity of a job should increase as employees are, on average, better suited to the job they are doing.

Evidence across a number of countries confirms that those countries with more social mobility have people better matched to job opportunities and a more productive workforce. This is consistent with the view that policies that increase social mobility—for example, by increasing equality of access to university education or the quality of primary education—can unlock the latent potential of high-aptitude individuals, enabling them to generate greater value in the economy in future than they otherwise would.

In spite of these benefits, we find that social mobility in the UK appears to have stagnated in recent years. Our findings are broadly consistent with other recent analysis commissioned by the Sutton Trust. There is evidence that social mobility has not improved over the last decade. However, our analysis tentatively suggests that social mobility today is slightly better than in the 1980s, in contrast to other studies that did not find a material improvement even over this longer period. But although social mobility increased after the 1980s, improvements in mobility have since been less pronounced and this evidence suggests that it may have been stagnant in recent years since the economic downturn in 2008. The lack of significant progress gives a clear opportunity to increase social mobility in the UK, from which we can expect to see economic benefits, not just to the more mobile individuals, but to everyone.

These relationships are complex. Our analysis has found some promising early conclusions in relation to the broad economic benefits of investing in social mobility, but we also highlight a range of further research questions, which we hope other researchers will be encouraged to pursue.

1   Introduction

The Sutton Trust asked Oxera to examine historical changes in social mobility in the UK and analyse the link between social mobility and economic performance. For the purposes of this study, economic performance is measured in terms of economic output in the form of gross domestic product (GDP) or productivity, which measures how much of this output is produced per input, such as an hour worked by an employee. To examine historical changes in UK social mobility, we identified datasets that allowed us to estimate inter-generational mobility: how have the aspirations and achievements of individuals changed relative to their parents?

One of the most interesting paths through which our research indicated social mobility's influence on economic performance is its impact on the matching of people to jobs in society ('matching'). We therefore gathered data on social mobility and matching to investigate this link.

We identified data on social mobility, matching and productivity across a number of countries (dependent on data availability) and then compared how these factors relate to one another. For example, if a country has high social mobility, is this associated with better matching of people to jobs, or with higher levels of productivity?

We also examined what has happened to social mobility in the UK over the last 20 years. For this, we used slightly different measures of social mobility, since we needed data over a long period of time for a single country (the UK). More detail and specific references are included in Appendix A1.

1.1   What is social mobility?

The OECD describes social mobility as 'the extent to which individuals move up (or down) the social ladder compared with their parents'.[1] The Sutton Trust defines it as 'how someone's adult outcomes relate to their circumstances as a child'.[2] Given how broad this concept is, it is not surprising that there are many ways to measure social mobility. Having reviewed the literature and the data available, we have identified measures of social mobility that allow us to make comparisons across time or between countries.

Our preferred measure for comparing across countries is based on the gap between the wage of an individual whose father achieved tertiary education and the wage of an individual whose father achieved below upper secondary education.[3] In a country with high social mobility, we would expect this difference to be small; in other words, that it does not appear that the wage potential of an individual is strongly influenced by the educational attainment of their parent. We have this information for 13 OECD countries, based on a 2005 database.

As a sensitivity check, we also looked at an alternative measure of social mobility, also used by the OECD, which is based on the relationship between an individual's income (relative to their peer group) and that of their parent (again, relative to their peer group).

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[1] OECD (2010), 'A Family Affair: Intergenerational Social Mobility across OECD Countries', p. 184.
[2] Sutton Trust (2017), 'About us: Social Mobility', http://www.suttontrust.com/about-us/us/social-mobility/ [accessed 12 July 2017].
[3] We note that the choice of 'father' rather than 'parent' is based on the fact that this is the data that has traditionally been collected to measure inter-generational mobility. As female participation in the labour force has increased, this focus has become more complicated; however, for reasons of data availability and comparability, this measure has tended to be retained.

To identify changes in social mobility over time in the UK, we required data across a number of years. We used data from four UK surveys[4] and measures of mobility that can be consistently estimated using data from these four sources.

The Mobility Manifesto, published by the Sutton Trust in 2010,[5] also presented analysis on the economic impact of improvements to social mobility based on analysis by Boston Consulting Group (BCG). This earlier analysis sought to identify the relationship between educational attainment (one of the potential benefits of improved social mobility) and economic success. Our analysis is complementary to this approach, as it draws similar conclusions on the size of the economic benefits, but does this by focusing directly on the broad productivity benefits that should arise from improving social mobility between different generations.

1.2   Matching people to jobs

Our theory is that an increase in social mobility will lead to better matching of people to jobs because social mobility reduces the barriers that might limit the educational and career prospects of highly capable individuals.

We measure matching by comparing the educational requirements of a job to the educational attainment of the employee currently occupying that post.

1.3   Productivity

Economic productivity is a measure of how good an economy is at turning inputs, such as people, into economic output (measured by GDP). Our preferred measure of productivity is output per person (population of a nation). Using a productivity measure based on total population allows us to capture labour force participation as well as working hours, which may both be affected by social mobility.

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[4] British Cohort Study, British Household Panel Survey, Longitudinal Study of Young People in England, and Understanding Society. See section 3 for details of the surveys.
[5] The Sutton Trust (2010), 'The Mobility Manifesto', March, https://www.suttontrust.com/wp-content/uploads/2010/03/120100312_mobility_manifesto2010.pdf [accessed 12 July 2017].

2   Social mobility and economic success

We take two approaches to identifying the relationship between productivity and social mobility. We look at the relationship between social mobility and productivity across a number of countries with a view to getting a better understanding of how improving social mobility in the UK could potentially support productivity growth. We then look at the individual elements of this relationship: social mobility and better job matching, and then better job matching and productivity.

2.1   Social mobility and productivity

Figure 2.1 illustrates the relationship between social mobility and productivity for a number of OECD countries.[6]

We find a statistically significant relationship between productivity and social mobility.[7] An increase in social mobility in the UK to the level of the next-best-performing country (the Netherlands) could be associated with an increase of approximately 6% in the UK's GDP, equivalent to £1,650 per person or £108bn in total (in 2016 prices).[8] An increase to the western Europe average could be associated with an increase in GDP of approximately 9%, equivalent to £2,620 per person, or £170bn in total (in 2016 prices).

Figure 2.1   The relationship between social mobility and productivity
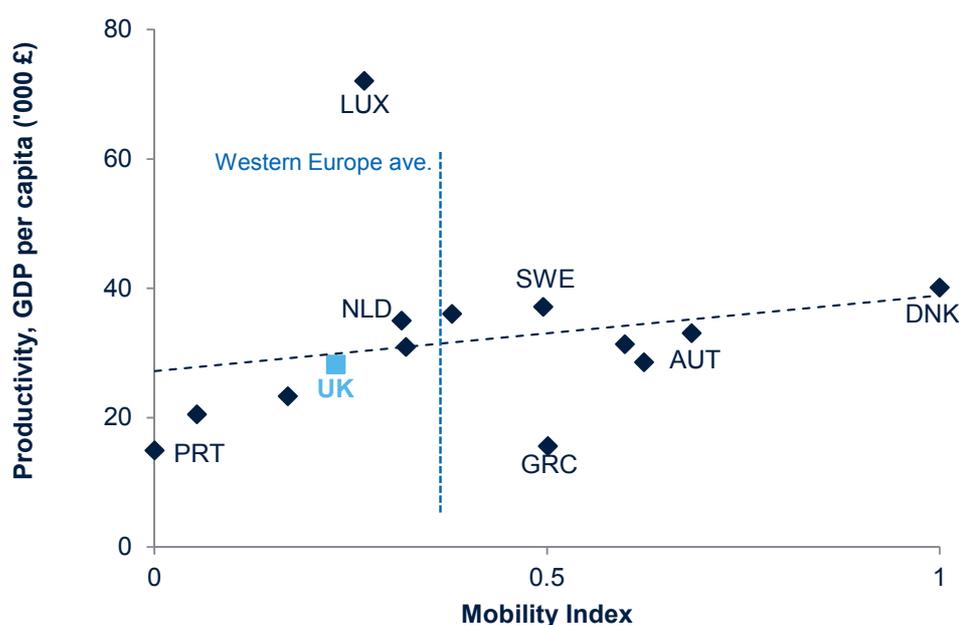
Note: A full explanation of data sources is provided in Appendix A1. Some data points are labelled for illustrative purposes. Acronyms used are defined in Appendix A2.

Source: Oxera analysis.

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[6] Luxembourg and Greece have been excluded as outliers because their productivity levels during this period are likely to have been significantly affected by factors other than social mobility (for example, the tax policy and economic distress).
[7] Statistically significant at the 1% level (i.e. less than a 1% chance that this relationship occurred by chance).
[8] This is calculated by shifting the dotted line down to intercept the UK observation and reading the productivity level observed at the level of social mobility exhibited by the Netherlands.

This positive relationship is not sensitive to using alternative measures of mobility and productivity. In Figure 2.2, we use an alternative measure of both variables to show this.

Figure 2.2   The relationship between productivity and mobility, sensitivities
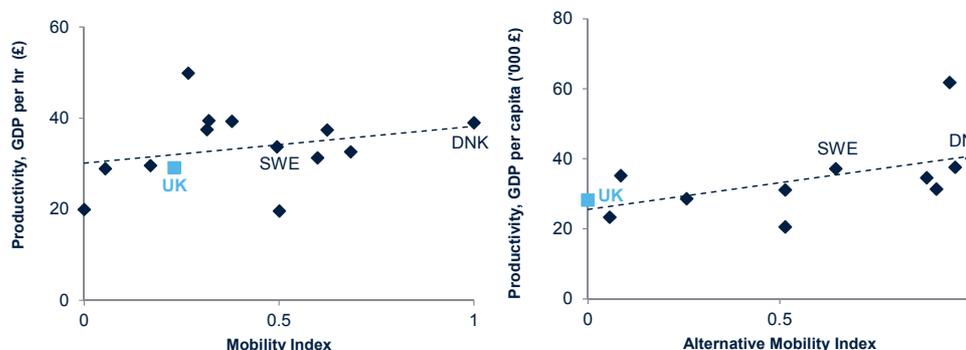
Note: The Alternative Mobility Index captures the relationship between an individual's wage and that of their parents, such that a value of 1 indicates the country with the weakest relationship (see Appendix A1).

Source: Oxera analysis.

2.2   What does this mean for the UK?

Based on this analysis, the productivity gains potentially associated with improved social mobility appear to be significant. However, given that social mobility changes tend to occur slowly, the full impact is likely to accumulate over a long period of time. For example, a policy aimed at increasing the quality of secondary education received by talented but disadvantaged children would achieve its full impact on productivity only when all of the affected children have reached the peak of their careers (30+ years). Table 2.1 summarises our findings.

Table 2.1   Impact of an increase in mobility

Change in GDP	Next-best-performing country	Western Europe average
%	6%	9%
£ per person	£1,650	£2,620
£ total	£108bn	£170bn

Source: Oxera analysis.

These figures are higher than those estimated by BCG for the Sutton Trust in 2010, which were in the region of £56bn and up to £140bn if best-in-class educational attainment were achieved (Finland).[9] This study quantifies the benefits from social mobility solely through the educational impact. More socially mobile countries tend to have better educational outcomes, and this study quantifies the value that would arise from achieving those better outcomes.

Our work takes a broader approach to the benefits of social mobility. It includes the productivity enhancement that comes from better education as well as those that come from other sources. We estimate there would be higher benefits even

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[9] The Sutton Trust (2010), 'The Mobility Manifesto', March, https://www.suttontrust.com/wp-content/uploads/2010/03/120100312_mobility_manifesto2010.pdf [accessed 12 July 2017].

if the UK improved to only the average performance in western Europe, as opposed to best in class.

Section 2.4 looks into the productivity benefits that arise solely through improved matching as a result of better social mobility. These are of a similar magnitude to the educational benefits quantified by BCG.

2.3 Accounting for missing drivers of productivity

There is limited information available to study these important relationships. We recognise that, as presented, the assessment does not adjust for other important drivers of productivity. For example, countries that prioritise policies that increase social mobility may also tend to engage in high levels of research spending (which drives productivity). The two may be caused independently by the same underlying driver, leading us to observe a relationship between social mobility and productivity that is not causal. We sought to address this challenge in two ways.

First, we recalculated our regression, controlling for the amount of investment each country made in research and development (R&D). We found that the relationship between productivity and mobility remained statistically significant.

Second, we repeated the analysis looking only at the relationship between mobility and productivity within 'clusters' of economically and socially similar countries; this would control for systematic differences between, for example, northern and southern European countries. While the sample size did not allow for the use of regression techniques, Figure 2.3 shows that a positive relationship remains between social mobility and productivity within each of the southern, northern and western clusters of European countries.

Figure 2.3   Social mobility and productivity, cluster analysis
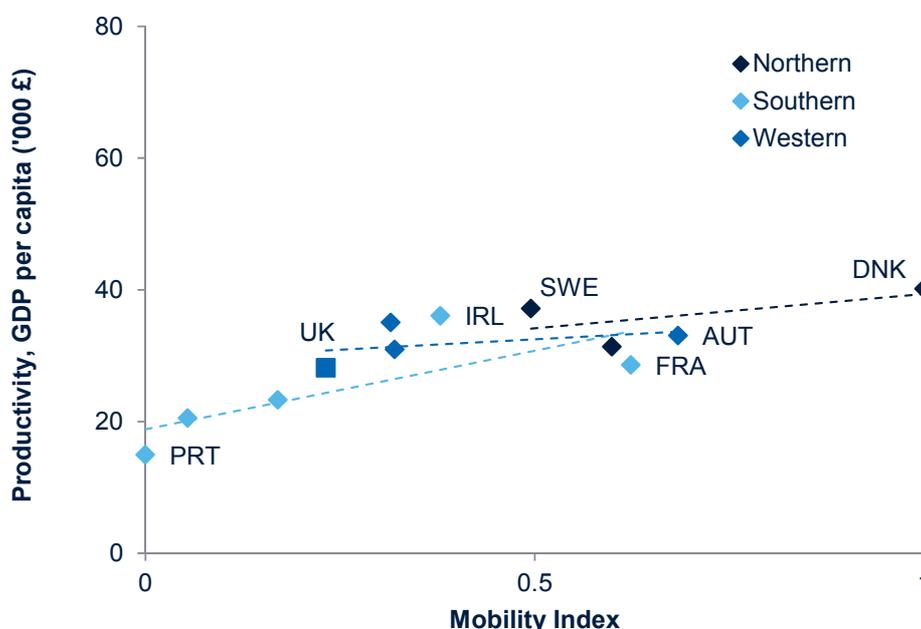

Source: Oxera analysis.

2.4   Improved matching as the driver of social mobility's impact on productivity

In section 2.1, we observed a relationship between social mobility and productivity. We now use our hypothesis about what might be driving this relationship to further explore its origins. In particular, we believe that part of the reason this relationship exists is because social mobility increases the likelihood that people and jobs will be well matched (based on skills, qualifications and experience). As noted, we describe this concept as 'matching'. Better matching of people to jobs means that, on average, people are more productive in their roles and overall productivity in the economy increases. In addition, better matching prospects may increase workforce participation over time, generating further benefits to the economy.

We therefore use an alternative 'two-step' approach for relating productivity to mobility that first looks at how social mobility affects matching and then at how matching affects productivity.

This first-step relationship is plotted in Figure 2.4. We find a statistically significant relationship between matching and social mobility.[10]

Figure 2.4   The relationship between matching and social mobility
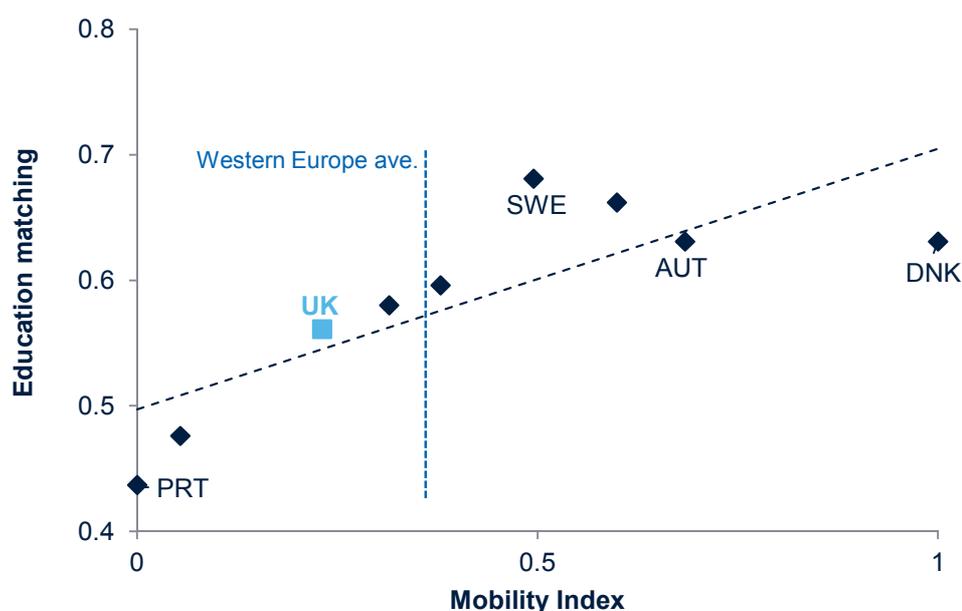
Note: Education matching is the share of people with appropriate qualifications for their jobs.

Source: Oxera analysis.

Again, this relationship is not sensitive to using an alternative measure of mobility or using a set of countries that excludes northern European countries (which tend to have high levels of social mobility and productivity), as shown in Figure 2.5 below.

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[10] Statistically significant at the 1% level (i.e. less than a 1% chance that this relationship occurred by chance).

Figure 2.5   The relationship between matching and mobility, sensitivities
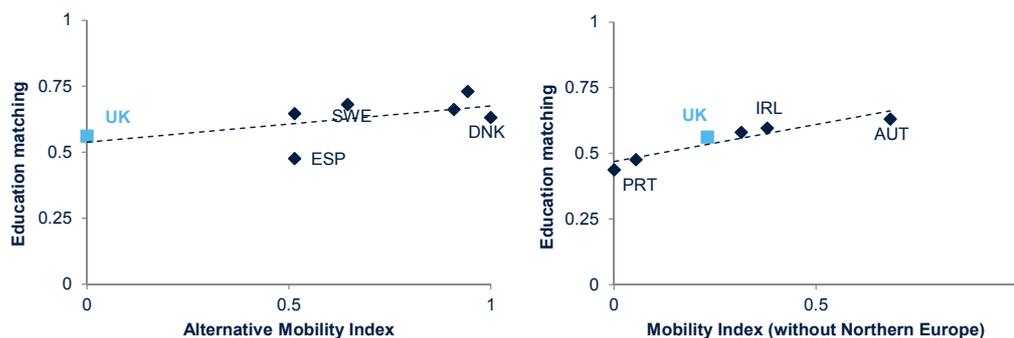
Source: Oxera analysis.

Second, we use findings from existing literature that identify the relationship between matching and productivity. Notably, McGowan and Andrews (2015) use data from the recent OECD Survey of Adult Skills (PIAAC) to evaluate the link between qualification mismatch and labour productivity across 19 OECD countries.[11] The authors find that a 10% increase in qualification matching (a close proxy for the educational matching used in this report) is correlated with a 0.8% increase in GDP per head.

2.5   What does this mean for the UK?

Combining our analysis with the research by McGowan and Andrews indicates that an increase in the UK's social mobility up to the level observed in the next-best-performing country (the Netherlands) could be associated with an increase of approximately 1.3% in GDP, equivalent to £370 per person or £24bn in total (in 2016 prices). Similarly, an increase in social mobility to the western Europe average might be associated with an increase in GDP of 2.1%, equivalent to approximately £590 per person or £39bn in total (in 2016 prices). These results are summarised in Table 2.2.

Table 2.2   Social mobility and productivity (via matching)

Change in annual GDP (2016 prices)	Next-best-performing country	Western Europe average
%	1.3%	2.1%
£ per person	£370	£590
£ total	£24bn	£39bn

Source: Oxera analysis.

The relationship between productivity and social mobility identified using the two-step approach is weaker than that identified using the one-step approach. This is likely to be the case for two reasons. On the one hand, the two-step approach tests only one particular link between mobility and productivity—better job matching. Therefore, as it may not capture other ways in which mobility increases productivity, the relationship estimated in Table 2.2 may underestimate the true relationship.[12] On the other hand, the one-step approach

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[11] McGowan, M. and Andrews, D. (2015), 'Labour market mismatch and labour productivity: Evidence from PIAAC data', OECD Paper: The Future of Productivity, April. Cross-section countries: Austria, Belgium, Czech Republic, Denmark, Estonia, Finland, France, Germany, Italy, Japan, Korea, the Netherlands, Norway, Poland, Slovakia, Spain, Sweden, the UK, and the USA.
[12] As set out in section 2.2, these are of a similar magnitude to those found by BCG, but arise from a different source: matching rather than improved educational outcomes. There may be some overlap between these benefits, so they cannot simply be added together.

gives an overall productivity effect, but, as currently estimated, may capture unrelated omitted variables that may result in an overestimate of the relationship between productivity and mobility, as discussed in section 2.2. The two estimates can therefore be considered as broad upper and lower bounds for the relationship between social mobility and productivity. Hence, in this report, we focus on the latter, more conservative, figures and use the western Europe average to indicate the level of potential improvement in productivity.

These are promising results in relation to the link between social mobility and productivity, showing tangible benefits to economies with more socially mobile populations. However, our work is based on only a small sample of countries at a given point in time. Suggestions for further research and alternative regression approaches that could be used to establish a deeper understanding of this relationship are discussed in section 5.

As noted above, policies designed to increase social mobility have a long lead time. For example, if a policy is introduced to increase equality of access to university education, we would expect to see some of the benefits of this within three or four years, when the first cohort of graduates finds jobs. However, the full potential of this policy materialises over the long term, as successive cohorts join the workforce and replace those retiring who were recruited under the old system. Therefore, productivity changes should be interpreted as changes that would accrue over a long period of time (mirroring the gradual increase in social mobility). Our analysis, based on the cross-country comparison, is, in effect, an equilibrium analysis. It gives an indication of the productivity gains once the social mobility in one country has transitioned to the social mobility level in the chosen comparator.

3   Social mobility in the UK

We also examined data on changes in social mobility over time in the UK to understand the potential for benefits to be achieved.

We measured social mobility by looking at how an individual's relative position in society (measured by income and education) changed in comparison to their parents' position (see Figure 3.1). This gives a view on inter-generational social mobility.

Figure 3.1   Measurement of inter-generational mobility
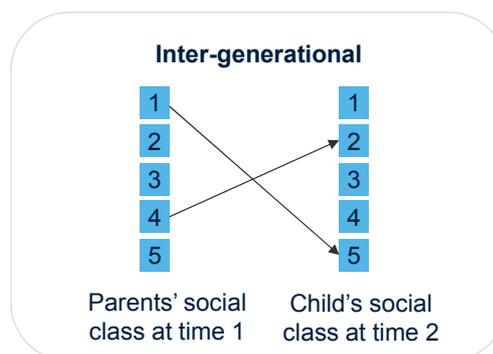
Source: Oxera.

In a socially immobile society, if a parent was at the top at time 1, we would expect the child to also be at the top at time 2. The opposite would hold for an individual at the bottom. However, in a more mobile society, this is less likely to be the case—parents' position at time 1 will be a less good predictor of an individual's position at time 2. In practice, we measure the strength of the links between the parents' and child's positions at two different points in time using a correlation coefficient (a measure of how similar the two observations are).

Measuring the mobility in society therefore requires information at a minimum for two different points in time. To assess the changes in mobility in the UK, we used data from four survey datasets:

- British Cohort Study (BCS): provides data on a cohort of children born in 1970 for a number of years, ending in 2012;

- British Household Panel Survey (BHPS): provides data on households annually from 1991 to 2009;

- Longitudinal Study of Young People in England (LSYPE): provides data on young people annually from 2004 to 2010;

- Understanding Society (USoc): provides data on households annually from 2009 to 2014.

To ensure meaningful comparisons over time, we focus on social position parameters that are tracked in all four studies: parent income, parent occupation and child's plans after the age of 16. We examine social mobility by tracking children at each point in these surveys.

3.1   Measuring inter-generational mobility

Social mobility or immobility can be exhibited not only through actual outcomes for an individual but also through their plans, aspirations and expectations about the future. We consider educational aspirations to be important, as educational

achievement is a key determinant of an individual's future career opportunities and earnings potential.[13] In a society with low social mobility, children's aspirations are likely to be limited by the lot of their parents. It is this relationship that we looked at by using data on parents' income and occupation and their children's educational plans (i.e. plan after the age of 16).

Figure 3.2 shows the strength of the relationship between parents' income and the child's aspirations (plans after the age of 16) using data from the four surveys. Upward movements imply increases in social mobility over time. The bars on the chart show the 95% confidence intervals, which can be interpreted as indicating that we can be 95% confident that the true value lies within this range. The larger the interval, the more uncertainty there is around the point estimate.

Figure 3.2   Inter-generational mobility relationship between parents' income and child's aspirations (plan after age 16)

BCS 1980-86   LSYPE 2004-05   BHPS 2007-09   USoc 2009-14
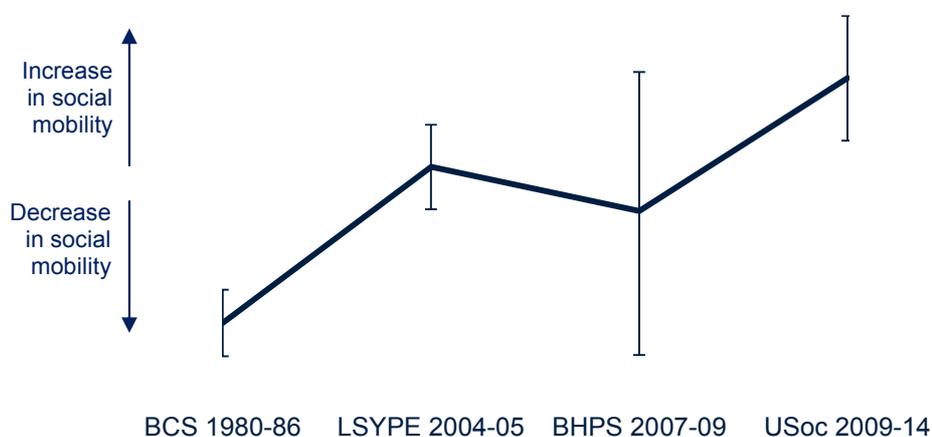
Note: The data points are each a measure of how good a predictor a parent's income is of a child's aspirations. Full details of our methodology are set out in Appendix A1.

Source: Oxera analysis based on BCS, BHPS, LSYPE and USoc survey data.

This pattern is consistent with Sutton Trust polling, which, since 2003, has shown a steady increase in aspirations towards participation in higher education.[14] Figure 3.3 below looks at an alternative measure of inter-generational social mobility, based on the relationship between a parent's occupation and their child's aspirations.

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[13] While we expect to see a strong correlation between educational aspirations and eventual labour market outcomes, barriers may exist which mean that educational aspirations may not translate fully into educational achievement and then eventually to labour market outcomes. It is important to be aware of this when considering how changes in this particular measure of social mobility might affect productivity. Our analysis of the relationship between social mobility and productivity in section 2 is not affected by this issue, as we use labour market outcome based measures of social mobility.

[14] The Sutton Trust (2016), 'Half of young people hoping to go to higher education worry about cost', 12 August, press release, https://www.suttontrust.com/newsarchive/half-of-young-people-hoping-to-go-to-higher-education-worry-about-cost/, [accessed 12 July 2017].

**Figure 3.3   Inter-generational mobility—relationship between parents'
occupation and child's aspirations (plan after age 16)**

BCS 1980-86   LSYPE 2004-05   BHPS 2007-09   USoc 2009-14
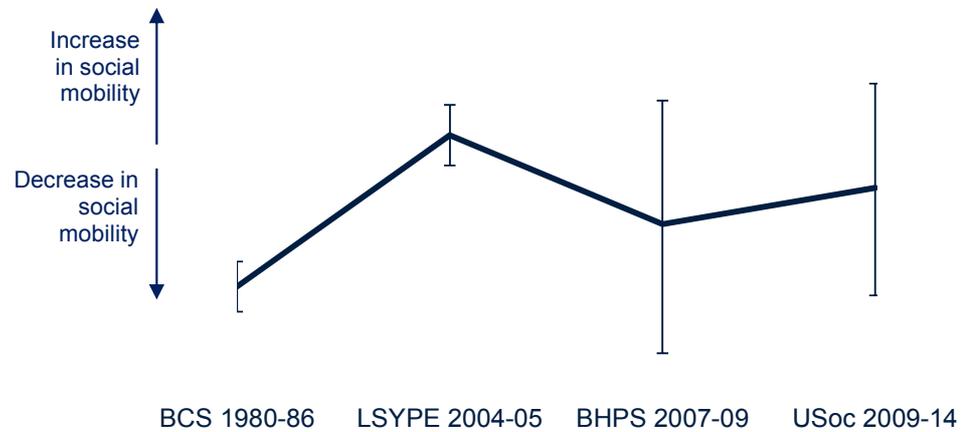
Note: The data points are each a measure of how good a predictor a parents' occupation is of a child's aspirations. Full detail of our methodology is set out in Appendix A1.

Source: Oxera analysis based on BCS, BHPS, LSYPE, USoc survey data.

The evidence presented in both figures suggest that social mobility increased after the 1980s but improvements in mobility have since been less pronounced, which indicates that there has been no substantial improvement in mobility in recent years. This highlights the substantial room for improvement in social mobility which, if addressed, could result in productivity gains of the magnitude shown in section 2—even a modest improvement in social mobility, to the western European average, could yield significant pay-offs.

4   Conclusions

The research undertaken for this report examined the relationships between social mobility, matching (of people to jobs) and productivity.

Social mobility should lead to an improvement in the match between people and jobs in society. Greater mobility means reducing the barriers to some jobs—these entry barriers exist because of biases in recruitment processes or inequality of educational opportunity. In a more socially mobile society, a job is more likely to be filled by someone with the highest level of potential to perform well in a job than someone who may be less well suited but, for example, better connected. This better matching means the average productivity of a job should increase—on average, employees will be more suited to the job they are doing.

Evidence across a number of countries confirms that those with more social mobility have people matched better to job opportunities and a more productive workforce. It finds that social mobility is positively related to productivity, and in particular that a modest increase in the UK's social mobility, to the average level observed in western Europe, could be associated with an increase in annual GDP of approximately 2% in the long term (enough time for children and young adults affected by policy change to reach the peak of their career). This is equivalent to £590 per person or £39bn to the UK economy as a whole (in 2016 prices).

This means that policies that increase social mobility—for example, by increasing equality of access to university education or the quality of primary education—do not serve just equity objectives; they serve economic ones too.

In spite of these benefits, social mobility in the UK appears to have stagnated in recent years, although some progress has been made since the 1980s. This gives a clear opportunity to increase social mobility in the UK, from which we can expect to see economic benefits, not just to the more mobile individuals, but to everyone.

These relationships are complex. Our analysis has found some promising early conclusions in relation to the broad economic benefits of investing in social mobility, but we also highlight a range of further research questions, which we hope other researchers will be encouraged to pursue.

5 Further research

There are a number of areas of further research which, if pursued, could greatly improve our understanding of the relationship between productivity and social mobility, and changes in social mobility over time.

5.1 Natural experiments

Analysing a natural experiment that affects social mobility can inform our understanding of the relationship between productivity and social mobility without having to control for variation between countries.

The natural experiment should be an exogenous shock in access to the labour market, unrelated to other drivers of productivity. Potential examples include:

- the end of apartheid in South Africa;

- the increase in female workforce participation during the First and Second World Wars;

- a substantial change in education policy (for example, making private education legal/illegal);

- a substantial change in the level of nepotism/corruption in the public and/or private sectors.

5.2 Longitudinal survey

Because this study focused on cross-country comparisons, it was constrained by the lack of availability of consistent data on how mobility has changed over time. An alternative approach would be to use a longitudinal survey (asking the same group of people the same questions over time) to conduct a panel analysis of intra-national variations in mobility and productivity over time, looking at local and regional factors in social mobility. This approach is more feasible in countries with significantly decentralised economic and social policy and relatively low internal migration (for example, the USA, Switzerland, and Australia).

To examine social mobility comprehensively and consistently across time and geography, there would be a substantial benefit to an internationally co-ordinated birth cohort longitudinal study. To maximise the potential of such research, international organisations, for example the OECD or ILO, could take a lead role in providing guidance and co-ordination to support individual countries in their studies and ensure that methodologies are as comparable as possible.

A1   Data definitions and sources

Mobility Index

Measured as the difference in estimated wages between an individual whose parents achieved tertiary education and one whose parents achieved below upper-secondary education. This measure is converted into an index such that the country where this gap is largest (low social mobility) has an index of 0, while the country where the gap is smallest (high social mobility) has a score of 1.

Source: OECD calculations using the 2005 EU-SILC Database.[15]

Alternative Mobility Index

Measured as the relationship between an individual's wage and that of their parents. Wages are expressed as a ranking relative to others of the same generation. This measure is converted into an index such that the country where this relationship is strongest (low social mobility) is given an index of 0, while the country where the relationship is weakest (high social mobility) is given a score of 1.

Source: OECD calculations based on meta-analysis carried out by Corak (2006) and supplemented with additional countries from d'Addio (2007).[16]

Inter-generational mobility

Measured as i) the negative of the correlation coefficient between parents' income and child's plan after the age of 16; and ii) the negative of the correlation coefficient between parents' occupation and child's plan after the age of 16. High values imply high social mobility; low values imply low social mobility. Child's plan after 16 is rated according to how likely they are to continue studying after 16 and to go to university (those unsure were removed from the analysis): 3 for 'study full-time', 2 for 'study part-time', and 1 for 'work full-time' or 'do something else'. Parents' income is based on total income of both parents and divided into five groups based on percentile (1 for bottom 20% and 5 for top 20%). Parents' occupation is based on the occupation of the main parent and on the National Statistics Socio-economic classification (with the exception of the earlier surveys from the BCS, which uses categories based on skilled/unskilled and non-manual/manual).

Source: Data from British Cohort Study, British Household Panel Study, Longitudinal Study of Young People in England, and Understanding Society.

Productivity (GDP per person)

Measured as the gross domestic product per head in 2014. This measure is converted into 2016 GBP using an Office for National Statistics retail price index.

Source: World Bank.[17]

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[15] OECD (2010), 'A Family Affair: Intergenerational Social Mobility across OECD Countries', p. 186.
[16] OECD (2010), 'A Family Affair: Intergenerational Social Mobility across OECD Countries', p. 185; Corak, M. (2006), 'Do Poor Children Become Poor Adults? Lessons from a Cross Country Comparison of Generational Earnings Mobility', IZA Discussion Paper, No. 1993; d'Addio, A. (2007), 'Intergenerational Transmission of Disadvantage: Mobility or Immobility Across Generations? A Review of the Evidence for OECD countries', OECD Social, Employment and Migration Working Papers, No. 52.
[17] World Bank (2017), 'GDP per capita', http://data.worldbank.org/indicator/NY.GDP.PCAP.KD [accessed 17 May 2017].

Productivity (GDP per hour worked)

Measured as the gross domestic product per hour worked in 2014, adjusted for purchasing power parity. This measure ignores the share of a country's population that is in work, and the average number of hours worked per year in calculating productivity. This measure is converted into 2016 GBP using an Office for National Statistics retail price index.

Source: OECD.[18]

Matching

Measured as the likelihood that a person has the 'appropriate' level of education for their current job, as opposed to too much or too little education. The 'appropriate' level of education is determined by assigning three ISCO occupation groups an education requirement using the International Standard Classification of Education.

Source: ILO calculations using the European Social Survey.[19]

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[18] OECD (2017), 'GDP per hour worked', https://data.oecd.org/lprdty/gdp-per-hour-worked.htm [accessed 17 May 2017].
[19] ILO (2014), 'Skills mismatch in Europe', Annex A.

A2   Country abbreviations

Country abbreviations	Country name
AUT	Austria
DNK	Denmark
FRA	France
IRL	Ireland
NLD	Netherlands
PRT	Portugal
SWE	Sweden
UK	United Kingdom

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