

THE STATE OF SOCIAL MOBILITY IN THE UK

Boston Consulting Group
Sutton Trust
– July 2017



BCG



Contents

Executive Summary.....2

Recommendations.....4

1. Introduction.....5

2. What is social mobility and how has it changed in the UK?.....6

3. What drives social mobility and how have these drivers evolved in the UK?.....11

4. The future of work and social mobility.....18

5. What interventions might be required?.....32

6. Bibliography.....36

Executive Summary

- Social mobility in the UK increased from a low base from the 1940s through to the 1970s.¹ In this period both absolute social class and income mobility increased. Since the 1980s, social mobility appears to have stalled or deteriorated in terms of social class and income measures respectively.² The UK (along with the US) is one of the lowest performing countries for income mobility across the OECD. The UK ranks better in educational mobility, but this does not appear to translate into earnings.^{3,4}
- We see three key drivers of social mobility: economic opportunities, capability development, and fair access to opportunities (both job and education opportunities). There has been some progress on these drivers in recent years, particularly in education, where educational gaps by socioeconomic background have narrowed since the 1980s.
- However, significant obstacles to social mobility remain:
 - Real wage growth has stagnated and income inequality has grown. Millennials are likely to be the first generation in modern times to earn less than their parents.⁵
 - Large educational gaps remain and entrenched privilege continues in higher education. Students from lower socioeconomic backgrounds are still far less likely to attend university⁶ and students from the poorest households are 55 times less likely than independent school students to attend Oxford or Cambridge.⁷
 - Access to education and job opportunities is an ongoing issue with continued evidence of opportunity 'hoarding' through networks, information asymmetries, and social bias. Even when less well-off students attend the same university and study the same subject as their wealthier peers they earn over 10% less per year.⁸
- Without concerted effort, social mobility could deteriorate further due to trends shaping the future of work
 - These trends include the rise of disruptive technologies, new ways of working, demographic changes and globalisation
 - The future of work is likely to involve large structural changes to the labour market and potentially a net loss of jobs, mostly in routine occupations. An estimated 15 million UK jobs could be at risk of automation, with 63% of all jobs impacted to a medium or large extent.⁹
 - Additionally we may see less stable full-time employment, greater demand for technical skills, and an increased value of "soft" or "essential life" skills (such as confidence, motivation and communication). This will advantage those from higher socioeconomic backgrounds, who typically have greater opportunities to develop these skills.¹⁰
- These changes will likely have significant impacts on social mobility- both positive and negative:

¹Goldthorpe, *Social class mobility in modern Britain: changing structure, constant process*, 2016.

²Bukodi et al., *The mobility problem in Britain: new findings from the analysis of birth cohort data*, 2015.

³OECD, *Going for Growth: A Family Affair- Intergenerational Social Mobility across OECD countries*, 2010

⁴OECD, *In it together*, 2015.

⁵Resolution Foundation, *Stagnation generation*, 2016.

⁶Crawford et al., *Higher Education, Career Opportunities and Intergenerational Inequality*, 2016

⁷The Sutton Trust, *Responding to the new landscape for university access*, 2010.

⁸Britten et al., *UK graduate earnings by gender, institution attended, subject and socio-economic background*, 2016.

⁹Andrew G Haldane, *Speech: Labour's share*, 2015.

¹⁰De Vries and Rentfrow (Sutton Trust), *A winning personality: The effects of background on personality and earnings*, 2016.

- *Challenges:* Job losses from technology development are likely to disproportionately impact routine jobs, with most of the impact falling on those from low and medium socioeconomic backgrounds. The increased value placed on essential life skills and 'soft' skills as a differentiator in securing employment could put those from lower socioeconomic backgrounds at a disadvantage. Further, the need to continuously re-skill and up-skill oneself will raise the cost and time required for education and individual development.
- *Opportunities:* There has been a large increase in demand for STEM jobs. Studies show that there is a greater proportion of students from lower socioeconomic backgrounds in STEM subjects than in other subjects such as law and medicine.¹¹ This could be positive for social mobility as the demand for STEM skills grows. In addition, technology could also create more opportunities for individuals to re-skill themselves through the use of free/low cost online learning platforms (such as MOOCs).

¹¹ Codioli, *Inequalities in students' choice of STEM subjects*, 2015.

Recommendations

To ensure social mobility improves in the face of future challenges, a range of interventions are needed across job opportunities, development of individual capabilities and access to education and work:

Increase job opportunities

- Ensure continued economic growth through supporting innovation and entrepreneurship to drive high value job creation. In addition, seize opportunities that will come with technological change. Build a competitive advantage in the “industries of the future” and where the UK could be a global leader such as in FinTech. This will require training the UK workforce to excel in these skills (further discussion below).
- In addition, government policy should support greater geographic distribution of opportunity. Incentives can encourage companies to establish outside London and the South

Develop individual capabilities

- Interventions that tackle inequalities while children are young have potential for the most lasting impact. Early interventions are key given that most of the gap in educational attainment is created by age five. Recommendations include a national definition of school readiness and an innovation fund to support those with effective local parenting initiatives (such as The Sutton Trust's Parental Engagement Fund).¹²
- Teaching quality must be improved, particularly in disadvantaged schools. Teachers in the UK currently experience lower wages, longer working hours and have a less prestigious career than their peers in other developed countries. This needs to be reversed to attract and retain the most talented graduates into teaching.
- The 'summer gap', where more advantaged pupils continue to develop and less advantaged pupils fall behind, must be closed. This could be addressed through longer school days, with time dedicated to supervised homework, as well as compulsory digital programmes to support learning through the summer.
- State schools must do more to develop "soft" or "essential life skills" in less advantaged pupils, through a richer programme of extra-curricular activities.
- Promotion of the apprenticeship model and vocational tracks, including the new 'T-levels' will be needed to ensure the supply of skills meets the demand in the labour market. Apprenticeships should combine workplace training with off-site study, and lead to a professional accreditation. There should be a focus on higher and advanced apprenticeships, along with automatic progression.
- More should be done to increase the study of STEM subjects (particularly among women) to ensure young people are equipped for the changing world of work. Initiatives such as teaching coding in schools are welcomed.

Ensure fairer and more equal access to education and the job market

- Given the significant wage premiums graduates command, the gaps in elite university acceptance by socioeconomic background are a clear barrier to mobility. Some progress has been made, with universities publishing access targets and being monitored on progress against them. A common set of metrics which all universities are required to report to the Director of Fair Access would allow further scrutiny and comparison of access efforts.
- While it is a positive development that the Government and leading businesses are collaborating to create a set of common measures to track social mobility in the workplace, a further step would be to roll out internship and apprenticeship schemes aimed at increasing participation of disadvantaged students.¹³

¹² Social Mobility and Child Poverty Commission, *State of the Nation 2015: Social Mobility and Child Poverty in Great Britain*, 2015.

¹³ Gov.uk: New measures announced to improve social mobility in the workplace, 24 March 2016

1. Introduction

Social mobility is critical for a fair society where people from any background are able to succeed in life. Social mobility is important in terms of creating a fairer society, fostering social cohesion and maximising society's productivity. A fairer society rewards merit and hard work, rather than having success determined by inherited advantage. Socially mobile societies are also arguably more productive because they enable the widest talent pool to be developed and utilised, ensuring talents are applied where they can have the greatest impact. This could have knock on benefits for boosting economic growth. Mobile societies are also more cohesive as they allow opportunities to be fairly accessed by all; minimising conflict and maximising feelings of trust in society.¹⁴ There is also evidence that strong social mobility improves levels of wellbeing in society.¹⁴

In recent decades, there has been considerable attention paid to social mobility, particularly in the UK and other developed countries. Political leaders have recognised the importance of building socially mobile societies that work for all their citizens. The greater availability of data has also enabled researchers to bring new perspectives and an improved understanding of the topic. One of the seminal studies was the 2005 paper by Blanden, Gregg and Machin that shed light on the low and declining state of social mobility in the UK for those born between 1958 and 1970.¹⁵

A decade on, much has changed in the UK. We have seen change in political leadership, the financial crisis of 2007-08 and the subsequent period of Government 'austerity', the continued growth of online and digital technologies, the effects of globalisation, and most recently the vote to leave the European Union. In the context of this changing environment, this report examines the state of social mobility in the UK today and considers what has driven recent changes. In the face of trends shaping the future of work, how can we expect social mobility to evolve? And given the likely challenges and opportunities, how can we act to improve social mobility in the future? This paper seeks to provide perspectives on these questions.

¹⁴ Council of Europe, *Fostering social mobility as a contribution to social cohesion*, 2012.

¹⁵ Blanden et al., *Intergenerational mobility in Europe and North America*, 2005.

2. What is social mobility and how has it changed in the UK?

2.1 What is social mobility?

Social mobility is about **breaking the link between an individual's parental background and their opportunities to reach their full potential in terms of income and occupation**. It is about better opportunities for each generation and making access to these opportunities fairer, regardless of background.

Social mobility is usually measured through income or social class:

- **Income** mobility compares parental income to the adult earnings of their children
- **Social class** mobility examines whether individuals are in the same or different social class to their parents. This approach typically categorises occupations into "classes" (e.g. professional vs routine manual) and ranks them on factors like social prestige, level of education required and pay.

There are other ways to understand social mobility; one is in terms of "life chances", measured by a range of outcomes including education, health and justice outcomes. However, the research in these areas tends to be less focused on social mobility and is less developed (educational outcomes is an exception). For this report we focus on income and social class measures of mobility. Generally we use income as an indicator as it is tangible, easily measured and has a clear relationship to aspects of quality of life. Social class is used as it gives a view of salary, job prestige and level of education required by the occupation. Though neither is a perfect indicator, they form the basis of most research on social mobility.

Social mobility can also be measured in **absolute** or **relative** terms:

- **Absolute** mobility compares an individual's income or social class to their parents. Upward social mobility is when an individual's income or social class is higher than their parents
- **Relative** mobility examines the position (or 'ranking') of an individual's income or social class relative to the rest of society, and how linked this is to their parents' position in society. When an individual's income or social class position in society is not very linked to that of their parents, this is high relative mobility.

In the UK, much of the research has been focused on three birth cohort studies (1946, 1958, and 1970), with an additional study for a cohort born in 2000. Children born in the early 2000s are too young to have entered the labour market so it is not yet possible to measure mobility for generations born in the last 25-35 years. However, it is possible to look at other indirect indicators such as income inequality, levels of educational attainment and access data.

2.2 How has social mobility evolved?

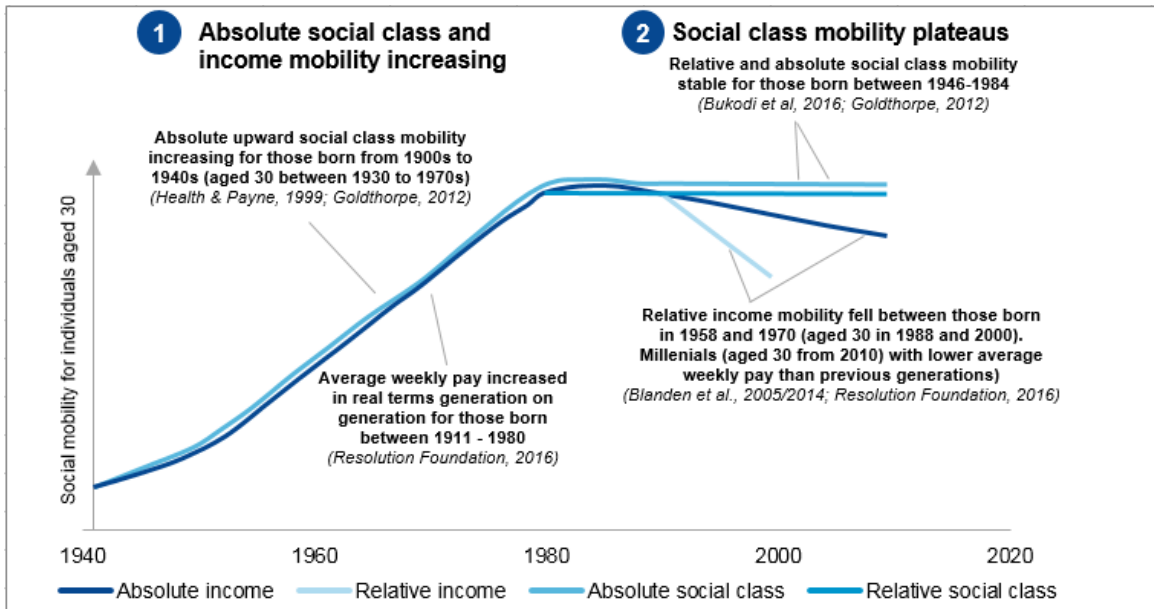


Exhibit 1: Evolution of social mobility¹⁶

1. Starting from a low base, there was a rapid increase in social mobility from the 1940s to 1970s

Absolute upward social class and income mobility increased for those of working age from the 1940s to the 1970s. Approximately 30% of men aged 30 had a better "class" of job than their fathers in the 1940s, which rose to over 45% of men by the 1970s.¹⁷ Average wages of individuals (a proxy for absolute income mobility) in each generation was higher than that of the previous generation, from the Pre-war period (those born 1911-25) to Generation X (born 1966-80), suggesting a "rising tide lifting all boats".¹⁸ Therefore, for those born between 1910 and the 1940s (aged 30 between 1940 and the 1970s), the number and quality of job opportunities increased.^{19,20} There is limited data on relative mobility for either social class or income over this time period, therefore it is difficult to assess whether opportunities became fairer.

2. Since the 1980s, improvements in social class mobility have stalled for men – and may actually be worse than originally believed

Since the 1980s there **do not appear to have been better or fairer job opportunities available for men**; both absolute and relative social class mobility remained largely constant in the second half of the twentieth century for men of working age. For women, however, it appears modest increases in social mobility have continued.²¹

Worryingly, some recent research suggests that **opportunities have been, and probably still are, significantly less fair than originally believed**: on average for those in their late 30s between 1976 and

¹⁶ Resolution Foundation, *Stagnation Generation*, 2016; Heath & Payne, *Twentieth Century Trends in Social Mobility*, 1999; Goldthorpe, *Understanding – and Misunderstanding – Social Mobility in Britain*, 2012; Bukodi et al., *The mobility problem in Britain: new findings from the analysis of birth cohort data*, 2015; Blanden et al., *Intergenerational mobility in Europe and North America*, 2005; Blanden et al., *Intergenerational mobility in the United States and Great Britain*, 2014

¹⁷ Goldthorpe, *Social class mobility in modern Britain: changing structure, constant process*, 2016.

¹⁸ Resolution Foundation, *Stagnation Generation*, 2016.

¹⁹ Heath & Payne, *Twentieth Century Trends in Social Mobility*, 1999.

²⁰ Goldthorpe, *Understanding – and Misunderstanding – Social Mobility in Britain*, 2012.

²¹ Bukodi et al., *The mobility problem in Britain: new findings from the analysis of birth cohort data*, 2015.

2000, the likelihood of a man working in a managerial or professional class job was **six times greater if a parent held a managerial or professional job** compared with a man with working class parents (five times more likely for women).²² Research also indicates that **fewer good jobs are being created than before**; for both men and women, upward mobility rates fell for those aged 30 between 1976 and 2004, whilst downward mobility rates rose.²¹ In effect this means that relative to the previous generation, it is harder to climb up the ladder to a better job, but easier to fall down the ladder to a worse job.

3. Earlier gains in income mobility appear to have reversed, with income mobility falling for those born since the early 1980s

Millennials (born from the 1980s) are the first generation in a century to have **lower average wages** than the previous generation (a proxy for absolute income mobility).²³ This is particularly concerning for the UK, with real wages falling an average of 1% per year from 2007-2015 (the greatest decline of OECD countries besides Greece and Iceland). In contrast, France and Germany have both seen modest real wage increases over this period.²⁴

In research commissioned by The Sutton Trust, researchers at the LSE found that **relative income mobility** was significantly worse for children born in 1970 compared to 1958.²⁵ Men born in 1958 to the richest 25% of families were 2.1 times more likely to become top quartile earners themselves than men born to the poorest 25% of families (a 35% likelihood versus a 17% likelihood). For men born in 1970 this gap had widened to **2.6 times**.²⁵ This decline in income mobility is also shown by an increase in intergenerational elasticity (a measure of how much a parent's income impacts their child's income) from 0.205 to 0.324 over the period from 1958 to 1970.²⁶ This means that in 1958, an individual whose parental income was twice the average could expect an income 21% higher than the average as an adult. By 1970, this figure had increased to 32%.

Whilst trends in income and social class mobility appear to be different, researchers have suggested that they are compatible. A commonly cited explanation is that while social class mobility broadly did not change, there has been an increase in *within*-class income inequality since World War 2.²⁷ This means that while social class remained steady, income inequality has grown, with those from higher socioeconomic backgrounds increasingly likely to earn higher salaries than those from lower socioeconomic backgrounds in the same occupational class.

2.3 How does the UK compare to other countries for social mobility?

The UK ranks near the bottom for income mobility across OECD nations. International comparisons are difficult to make for social mobility, due to differences in datasets and methodologies used. However, some studies have attempted to adjust for these differences to allow a meaningful comparison. In these studies, the UK (along with the US) is consistently ranked one of the least fair of many developed nations for income mobility. An OECD study finds that the **UK is 3.3 times less socially mobile** than Denmark, the most mobile country in their study of 12 OECD countries. This means that parental income in the UK has over three times the impact on their children's income than in Denmark.^{28,29}

Canada, Australia and the Nordic countries are consistently ranked as the fairest nations. This is likely to be the result of a complex mix of history, values and Government policies. Some key reasons

²² Goldthorpe, *Social class mobility in modern Britain: changing structure, constant process*, 2016.

²³ Resolution Foundation, *Stagnation Generation*, 2016.

²⁴ OECD, *OECD Employment Outlook* (Table N), 2016.

²⁵ Blanden et al., *Intergenerational mobility in Europe and North America*, 2005.

²⁶ Blanden et al., *Intergenerational mobility in the United States and Great Britain*, 2014.

²⁷ Blanden et al., *Intergenerational Persistence in Income and Social Class: The Impact of Within-Group Inequality*, 2013.

²⁸ OECD, *Going for Growth: A Family Affair- Intergenerational Social Mobility across OECD countries*, 2010.

²⁹ Blanden et al., *How much can we learn from International Comparisons of Social Mobility*, 2008.

appear to be lower income inequality, better welfare systems, better early-years education, less divided schooling systems, and greater support for vocational training.²⁸

In contrast to the UK, some countries have seen consistent improvements in social class mobility since the 1950s, largely attributed to improving access to educational opportunities (for more see Box 1).³⁰

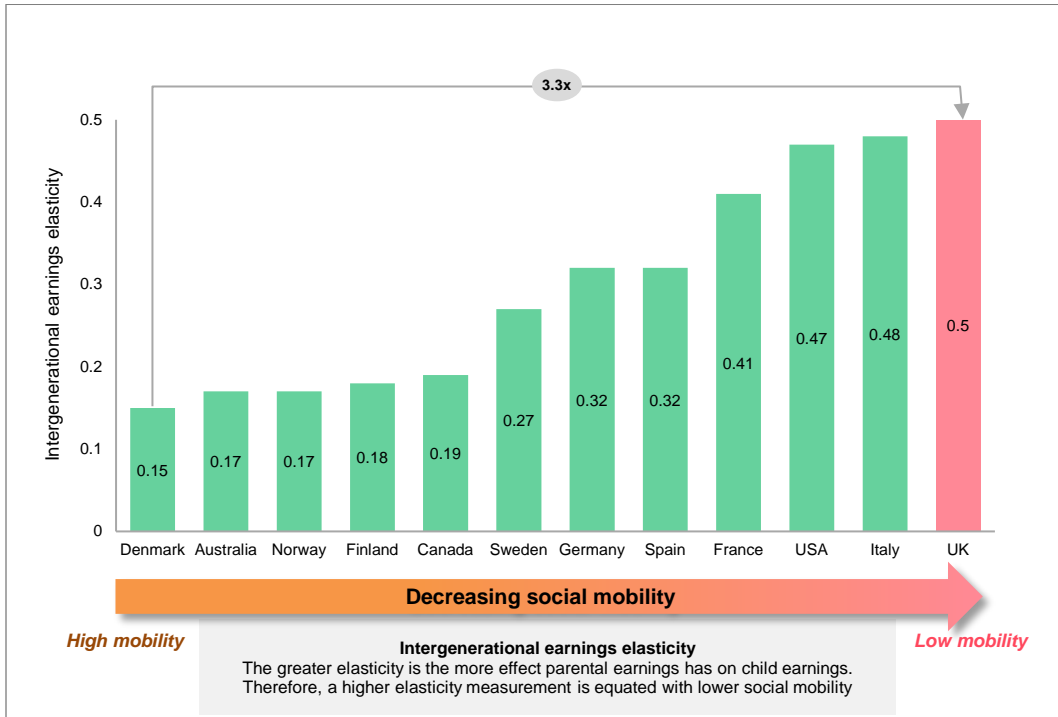


Exhibit 2: International comparisons of income mobility (intergenerational elasticity)²⁸

³⁰ Vallet, *Changes in intergenerational social fluidity in France, 2004*.

Box 1: What are other countries doing to foster social mobility?

What are Canada and the Nordics doing right?

Canada is regarded as a relative success story in social mobility, especially compared to the US. This is in part because of significantly lower income inequality in Canada, meaning that individuals can more easily move up or down the social ladder. Canadian children (particularly the least advantaged) are more likely to be living with older, more educated parents than American children, and this may help children from poorer families to achieve in school. Educational policy also appears important; the quality of schooling in Canada varies less by family background than in the US (partly because US schools are financed to a greater extent by local property tax), which helps even the playing field.^{1,2}

Sweden also has relatively high levels of social mobility, in part due to a large reduction in educational inequality between the 1930s and 1970s. This was the result of an active effort from the Government to transform a traditional selective schooling system into a non-selective comprehensive one with mixed ability classes, supplemented by the expansion of adult education, and generous university loans. This was supported by a reduction in income inequality, strong welfare support, a strong labour movement and a commitment to egalitarian reforms.³

What have lower performing countries done to improve?

In contrast to the UK, France has seen a consistent improvement in social class mobility since the 1950s that suggests France now has fairer opportunities by parental occupation. Over this period, it appears education became fairer, with a consistent decline in inequalities of educational opportunity. Furthermore, evidence suggests that most people became educated to a level that parental social class mattered less to job outcomes.⁴ While France still has significant challenges with unemployment and inequality, this demonstrates that improvements in social mobility can be made even within this context.

The USA also appears to be making progress in reducing the gap in educational achievement between rich and poor in recent years. For decades the gap in test scores of five year-olds from the richest and poorest 10% of families was increasing. However, in the past ten years the trend has reversed and the gap has begun to narrow. One of the biggest drivers of this improvement seems to be greater investment by less affluent parents in their children's learning (such as regularly reading stories). Widespread public campaigns aimed at improving parenting may have been an important factor, such as Hilary Clinton's "Too small to fail" campaign. Time will tell whether this improvement in pre-school education gaps trickles through to overall social mobility improvements, but it is certainly a positive sign.⁵

¹ Corak, *Income Inequality, Equality of Opportunity, and Intergenerational Mobility*, 2013.

² Corak, *Public policies for equality and social mobility in Canada*, 2013.

³ Erikson & Jonsson, *Can education be equalised?* 1998.

⁴ Vallet, *Changes in intergenerational social fluidity in France*, 2004.

⁵ Bassok et al., *Socioeconomic Gaps in Early Childhood Experiences: 1998 to 2010*, 2016.

3. What drives social mobility and how have these drivers evolved in the UK?

3.1 Drivers of social mobility

There are **three key drivers** that directly contribute to social mobility, ensuring that there are both better and fairer opportunities (see Exhibit 3).

1. **Economic opportunities:** The quantity and quality of jobs available in the economy
2. **Capabilities development:** Equipping people with the skills and capabilities to do these jobs
3. **Access to education and jobs:** Having equal opportunities to get these jobs, regardless of socio-economic background, gender or race.

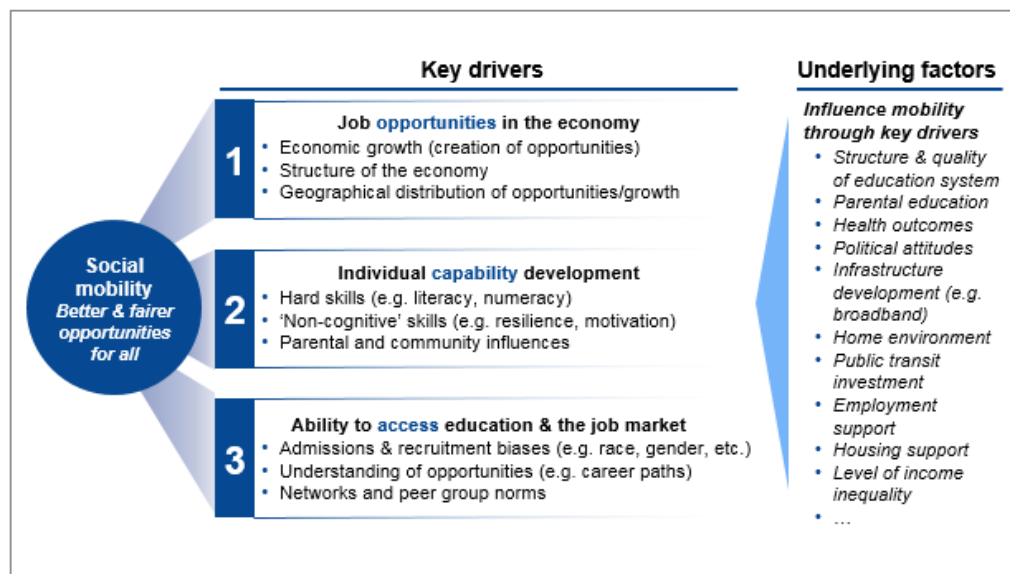


Exhibit 3: Drivers of social mobility

While we see these as the primary drivers, there are many other indirect factors that impact social mobility. These include the home environment, public housing and infrastructure, and health outcomes (such as smoking, obesity, mental health).³¹ Some research suggests that these underlying factors are relatively more important for those from the least advantaged families, because individuals need a basic standard of living to take advantage of better education and job opportunities. Another important factor is parental education.³² Though important, these indirect factors are difficult to influence in the short to medium term. For the purposes of this paper, we focus on the direct drivers (economic growth, capability development, and access) that impact individuals of all backgrounds.

3.2 Economic opportunities

For people to improve their social standing there must be 'good' jobs available to them. Job creation in the economy (often measured as real economic growth) is vital for social mobility. However, not all growth promotes better and fairer opportunities. Some of the economic considerations that impact social mobility

³¹ Economic and Social Research Council, *Health inequalities continue to undermine social mobility*. Independent Commission on Social Mobility, *Report from the Independent Commission on Social Mobility*, 2009

³² For example, Sullivan et al. (*Social Class and Inequalities in Early Cognitive Scores*, 2013) find that children of parents with a degree the equivalent of a year ahead in test scores at age 7 than their peers.

include the number of jobs created, the income level of these jobs, job security, and the geographic distribution of opportunities.

As discussed in section 2, social mobility as measured by income fell for those entering the job market from around the 1980s. This deterioration can in part be explained by a corresponding decline in economic opportunities over a similar period.

The decades following World War 2 saw a boom in job opportunities and rapid improvement in social mobility (albeit from a low base). This period saw significant structural change in the economy, with many more well-paid and professional jobs created and strong double-digit wage growth.³³ However, by the mid-1960s growth in the number of "good" (professional and managerial) jobs and real wages slowed, while regional disparities in economic growth also began to open up.³⁴

Since the 1980s, job opportunities have deteriorated further, compounded by the recent financial crisis. For millennials (born from the mid-80s) real wages have not grown, putting them on course to be the first generation in modern times to earn less than their parents.³⁵ The recent financial crisis has also increased downward pressure with wages in the UK hit harder than any other European country, besides Greece.³⁶ Income inequality has increased over this period, as well as further widening of geographical disparities, placing pressure on social mobility. There has also been a "hollowing out" of the labour market: the number of medium skilled jobs has fallen by 10% since 2002, while there has been a corresponding growth in high and low skilled jobs.³⁷ Although those displaced from medium skilled jobs have tended to take on higher skilled jobs, the loss of these middle rungs on the job ladder is likely to make it harder to move up the job ladder from a low skilled job to a high skilled job.³⁸

If recent trends of falling wages, rising inequality and the hollowing out of the labour market continue, then there has likely been deterioration in job opportunities that would enable social mobility. The question still remains: is access to these opportunities becoming fairer? For this, we need to look at the other drivers of social mobility – capability development and access to opportunities.

3.3 Individual capabilities development

Capabilities refer to a broad set of skills that are both cognitive (such as intelligence, good memory, and other hard skills, such as numeracy and literacy) and **non-cognitive skills or "essential life skills"** (such as confidence, determination and aspirations). These skills are developed through formal education, but also in the home and the community. There is lots of evidence that these capabilities (especially those acquired in formal education) significantly improve career success and are therefore vital for social mobility.³⁹ To understand the link between social mobility and capabilities we generally compare the educational attainment (at all stages, from pre-school to university) of those from the richest and poorest families.

³³ Resolution Foundation, *Stagnation generation*, 2016.

³⁴ Goldthorpe, *Understanding – and misunderstanding – social mobility in Britain*, 2012. Goldthorpe and Mills, *Trends in intergenerational class mobility in Britain*, 2008. Resolution Foundation, *Stagnation generation*, 2016. Equality Trust, *How has inequality changed?*, accessed online 26 Aug. 2016; Duraton and Monastiriotis, *Mind the gap*, 2001; Financial Times, *UK's north-south divide widens*, 9 December 2015; The Guardian, *North-south divide is far from being redesigned to history*, 15 April 2015.

³⁵ Resolution Foundation, *Stagnation generation*, 2016.

³⁶ Between 2007 and 2015, wages in the UK fell by 10%, whereas Germany and France both saw wage growth of 14% and 11% respectively. OECD, *Employment outlook 2016*, 2016. Allen and Elliott (The Guardian), *UK Joins Greece at the bottom of wage growth league*, 27 July 2016 (access: 27 July 2016); Analysis by the Trade Union Congress.

³⁷ Gardiner and Corlett (Resolution Foundation), *Looking through the hourglass: Hollowing out of the UK job market pre- and post-crisis*, 2015.

³⁸ Holmes, *The Route out of the Routine: Where do the displaced routine workers go*, 2011. Holmes et al., *Mobility and the changing structure of occupations*, 2011.

³⁹ Solon, *A model of intergenerational mobility variation over time and place*, 2004. Blanden et al., *Accounting for intergenerational income persistence*, 2007. Heckman et al., *The effects of cognitive and noncognitive abilities on labour market outcomes and social behaviour*, 2006. Carneiro et al., *Which skills matter?*, 2006.

Educational gaps grew for those born during the 60s to late 70s, which have been linked to the decline in income mobility. Researchers from the LSE found increased inequalities in higher education over this period, with a poor child five times less likely to complete a university degree than a rich child (comparing the top and bottom 20% by parental income). This rose from a poor child being three times less likely approximately a decade earlier.⁴⁰

Since the 80s, improvements have been made in closing educational attainment gaps. Between 1985 and 1994, the gaps in educational attainment have narrowed such that children born in 1994 from the most deprived 20% of families were the equivalent of one school term closer to the reading ability of their peers from the most advantaged 20% (though a gap of more than two school years remains).⁴¹ For GCSE pupils, the gap in achievement between the richest and poorest 20% narrowed by 13 percentage points (to 18%) between 2002 and 2011, with London schools in particular seeing rapid improvement since the 1990s.⁴² Furthermore, gaps in university attainment between the most and least deprived 20% narrowed by three percentage points (to 37%) between 2004 and 2009.⁴³

However, large gaps in educational attainment remain at all major milestones. Only 36.7% of disadvantaged children achieved five good GCSEs (grades A*-C, including English and Maths), compared with 64.7% of other pupils.⁴⁴ State-educated children from the most advantaged 20% of families are 37% more likely to attend university by age 19 than those from the least advantaged 20%.⁴⁵ Even once children from more deprived families achieve a place at university, they are still disadvantaged compared to their peers; those from the least advantaged fifth of families are 23% less likely to achieve a 2.1/First than those from the most advantaged fifth.⁴⁶

Of concern is that there has been no narrowing of the gap at the highest achievement levels. For example, when considering 3A*-B grades for A-levels, no improvement has been seen in the gap between FSM and non-FSM pupils between 2004 and 2010. On the contrary, the gap in those achieving the top 20% of GCSE scores between FSM and non-FSM pupils appears to have grown between 2004 and 2010 (from a 16% gap to 20%).⁴⁷ Though recent increased take-up of the English Baccalaureate has been positive for high-achieving pupils from disadvantaged backgrounds.⁴⁸

These educational gaps are driven in part by differences in development support outside school, which varies by socio-economic background. Studies have shown that over school holidays "summer learning loss" is observed: low income students experience a decline in reading skills, whereas middle income students still experience modest gains. These different trajectories are linked to socioeconomic differences in parenting and the home environment. For example, children from working class backgrounds are on average read to less by their parents. Research suggests that **these gaps in educational attainment appear early in life** and are compounded throughout the education of the child, with schools having limited impact in narrowing these gaps.⁴⁹

⁴⁰ Blanden et al., *Intergenerational Mobility in Europe and North America*, 2005.

⁴¹ The gap in educational attainment is measured by PISA scores with a 15 point improvement in the test score gap between the most and least deprived 20% between 1985 and 1994. 40 PISA test points equate to roughly one additional year of schooling on average. Jerrim, *The Socio-Economic Gradient in Teenagers' Reading Skills: How Does England Compare with Other Countries?*, 2012.

⁴² Blanden et al., *Understanding the improved performance of disadvantaged pupils in London*, 2015. Blanden and Macmillan, *Education and intergenerational mobility: Help or hindrance?*, 2014.

⁴³ Crawford, *Socio-economic gaps in HE participation: how have they changed over time?*, 2012.

⁴⁴ DfE, *Revised GCSE and equivalent results in England, 2014-2015*

⁴⁵ Advantage is defined using an index constructed of free school meal eligibility and various neighbourhood deprivation measures

⁴⁶ Crawford et al., *Higher Education, Career Opportunities and Intergenerational Inequality*, 2016.

⁴⁷ Blanden and Macmillan, *Education and intergenerational mobility: Help or hindrance?*, 2014.

⁴⁸ Sutton Trust, *Changing the Subject*, 2016.

⁴⁹ Waldfogel and Washbrook, *Early years policy*, 2008.

In addition, differences in "essential life skills" create barriers for social mobility. "Essential life skills" (or "soft" skills) are the skills people need for learning, work and life, such as motivation, confidence and communication skills. Recent research by the Sutton Trust reveals that differences in these skills exist between children from different socio-economic backgrounds.⁵⁰ They highlight the growing body of research that these skills are essential for securing jobs and hence are vital for social mobility. In addition, researchers at the LSE find that these skills not only directly impact job outcomes, but significantly impact educational attainment.⁵¹ While focus on this area in schools is improving, gaps in "essential skills" remain unaddressed and a barrier to social mobility.

3.4 Access to opportunities

Issues of access arise when individuals have comparable capabilities but there remains an apparent preference for those that come from wealthier backgrounds. Various factors contribute to access barriers, including:

- **Networks** based on family or social circles can provide unequal access to opportunities.⁵²
- **Access to information** about opportunities, often impacted by family background.
- **Discrimination** based on class and/or wealth (or those correlated with class, e.g. race).

Historically, access to job and education opportunities has been improving. More state-educated children are completing university and attending top universities than ever before. From 1970 to 2012 there was a 15 and 13 percentage point increase in the proportion of state school pupils accepted to Cambridge and Oxford respectively.⁵³ Oxford's proportion of state-schooled admissions has increased to 59.2% in 2016.⁵⁴ There are also indications of improved access to education and top jobs for women and ethnic minorities. Numbers of BAME students are increasing year on year, although white British students are still 16 percentage points more likely to be accepted to Russell Group universities than Black African students with the same grades.⁵⁵

However, there remain barriers to elite higher education. Much of the aforementioned improvement is concentrated in the lower-ranked universities, and there has been little narrowing of the gaps in elite university attendance.⁵⁶ There has **been no trend of improvement in the gap in Russell Group attendance** by socioeconomic status. The gap is even starker for Oxbridge attendance; **state school students eligible for free school meals (FSM) are 55 times less likely to attend Oxford or Cambridge.**⁵⁷ Despite improvements in state school admissions to Oxbridge, **in 2012/13 only 50 free school meals students were admitted.** Research indicates that around 30% of this gap in elite university attendance between rich and poor students cannot be explained by academic ability.⁵⁸ Evidently, access to opportunities is not equal.

The gaps in elite university attendance by socioeconomic background are particularly concerning given the inequality in returns to higher education. Russell Group graduates earn on average £200k more in their lifetime than non-Russell Group graduates; Oxbridge graduates earn over £400k more.⁵⁹ In addition, those with post-graduate degrees have seen their earnings rise, while the value of having only an

⁵⁰ De Vries and Rentfrow (Sutton Trust), *A winning personality: The effects of background on personality and earnings*, 2016.

⁵¹ Blanden et al., *Accounting for intergenerational income persistence: Non-cognitive skills, ability and education*, 2007.

⁵² Macrcenaro-Gutierrez et al., *Social mobility, parental help, and the importance of networks*, 2015.

⁵³ Bolton, *Oxbridge 'elitism'*, 2014.

⁵⁴ <http://www.bbc.co.uk/news/education-37250916>

⁵⁵ Alexander and Arday (Runnymede Trust), *Aiming higher: Race, Inequality and Diversity in the Academy*, 2015. Crawford, *Socio-economic gaps in HE participation: how have they changed over time?*, 2012.

⁵⁶ Blanden and Macmillan, *Education and intergenerational mobility: Help or hindrance?*, 2014.

⁵⁷ The Sutton Trust, *Responding to the new landscape for university access*, 2010.

⁵⁸ Jerrim (The Sutton Trust), *Family background and access to 'high status' universities*, 2013.

⁵⁹ Gurney-Read (The Telegraph), *Oxbridge graduates 'earn double £200,000 Russell Group premium'*, 9 October 2015 (accessed online: 5 August 2016).

undergraduate degree has fallen or remained constant.⁶⁰ These changes are likely to benefit children from wealthier backgrounds who are overrepresented at elite institutions and post-graduate courses, creating a negative spiral for mobility.

A key barrier to mobility in higher education is wealthier parents' ability to build a "glass floor" by spending greater resources on their children's education to increase the chances of attending a top university and protecting against downward mobility. This can be seen in wealthier families' investment in extracurricular activities and private tuition.⁶¹ In addition, there is evidence that wealthier parents are targeting the best state schools, driving up house prices in the surrounding area. This makes it harder for students from poor backgrounds to access good state schools as they are pushed out of the area.⁶² Research by The Sutton Trust also highlights that students from wealthier backgrounds are often advantaged in applying to Oxbridge by having greater access to information through their schools and networks.⁶³ All these factors create a "glass floor" for children from wealthier backgrounds.

Equality of access is also an issue for job opportunities. A study of HMRC tax records shows that even when less well-off students attend the same university and study the same subject as their wealthier peers, they earn around 10% less per annum (comparing the bottom 80% to the top 20% by parental income).⁶⁴ Many top professions such as law and medicine are dominated by alumni of private schools and Oxbridge: 74% of top judges and 61% of top lawyers were privately educated, despite private school pupils making up 7% of children.⁶⁵ This impedes social mobility insofar as Oxbridge remains dominated by children from wealthier backgrounds. Another prominent example highlights the remaining access challenges for elite jobs: the intake of the Government's flagship Fast Stream graduate programme is less diverse by social background than even the student population of Oxford University.⁶⁶ This is likely because a "glass floor" similarly appears to exist for access to jobs, with children from wealthier backgrounds often receiving greater parental support. In an increasingly competitive job market, unpaid internships and "soft skills" have become more important to securing a top job, benefiting those from wealthier backgrounds. Furthermore, research by the Prince's Trust demonstrated the importance of parental networks, with children from poorer backgrounds being half as likely to find work experience through their parents as the average child. This may explain why the UK ranks alongside the Nordics for levels of educational mobility, but performs poorly among OECD countries for income mobility.

3.5 Where is social mobility at today?

Since children born in the last 15 years have not yet entered the labour market, we cannot directly measure how social mobility has changed over this period. However, changes in the drivers of social mobility can indicate the direction of change. The narrowing gaps in attainment at all stages of education, and the greater proportion of state school pupils attending Oxbridge, are likely to have improved social mobility. However, stagnating real wage growth and growing income inequality may outweigh these benefits to create an overall decline in mobility. These challenges were more acutely felt in the aftermath of the recent financial crisis, which has had a major impact on the entry level prospects of many recent graduates.

Looking ahead, continuing to narrow the attainment gaps at both the school and university level will have a positive effect on social mobility. Greater investment in pre-school education in recent years may also contribute to closing educational gaps more quickly.

⁶⁰ Lindley and Machin, *The rising post-college wage premium in America and Britain*, 2014. Britton et al., *How English domicile graduate earnings vary with gender, institution attended, subject and socio-economic background*, 2016.

⁶¹ McKnight (The Social Mobility & Child Poverty Commission), *Downward mobility, opportunity hoarding and the 'glass floor'*, 2015.

⁶² Burns (BBC), *Outstanding schools take too few poor pupils*, 2 August 2016 (accessed online: 5 August 2016).

⁶³ Sutton Trust, *Oxbridge admissions*, 2016.

⁶⁴ Britten et al., *UK graduate earnings by gender, institution attended, subject and socio-economic background*, 2016.

⁶⁵ Kirby (The Sutton Trust), *Leading People 2016: The educational backgrounds of the UK professional elite*, 2016.

⁶⁶ Cabinet Office, *Socio-economic Diversity in the Fast Stream*, 2016.

Social mobility is expected to be negatively impacted by weak economic growth constraining job creation, compounded by the uncertainty around Brexit. In addition, social mobility at the bottom of the income spectrum is likely to weaken going forward. While the "glass floor" ensures opportunities at the top-end of the income distribution, the UK has historically had modestly better mobility at the bottom-end.⁶⁷ However, continued "hollowing out" of the job market will make upward mobility even harder for those in the lowest skilled jobs.

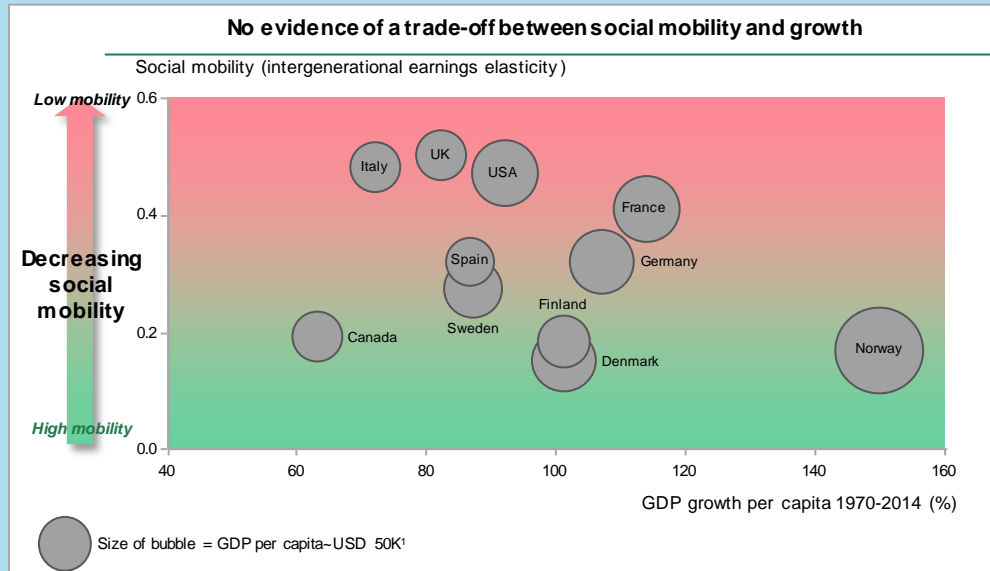
Inequalities in access to opportunities are likely to be compounded by weak economic opportunities. The significant and unchanged gaps in access to Russell Group universities, combined with more unequal returns to education, raise concerns that students from wealthy backgrounds will be able to "hoard" the best education and employment opportunities. The "hoarding" of opportunity is likely to be further compounded with a weaker economic outlook as competition for top jobs becomes fiercer. Furthermore, recent changes to government policy (including higher tuition fees and the elimination of maintenance grants) may have a disproportionate impact on low income students, reducing their access to higher education.

Whilst the increasing number of students obtaining degrees is largely positive, it may also have concerning implications for equality of access to jobs in future. As more students with undergraduate degrees enter the job market, employers are forced to differentiate more on "soft skills" and post-graduate qualifications, both of which give those from higher socioeconomic backgrounds further advantage. Without changes to post-graduate funding and the way "soft skills" are taught in schools, the positive effects of reducing the gaps in educational attainment may be undermined.

Taken together, **moderate gains in social mobility from increasing equality in educational attainment are likely be more than offset by a weak economic outlook and significant inequalities in access to education and job opportunities.**

⁶⁷ Jantti et al., *American exceptionalism in new light*, 2006.

Box 2: While some argue increased social mobility and equality come at the cost of economic growth, international comparisons indicate that countries can 'have their cake and eat it'



The figure above indicates that there is no obvious correlation between GDP growth per capita and measures of income mobility across OECD countries. Conversely, OECD research indicates that income inequality can have a negative impact on GDP growth. With higher inequality and imperfect credit markets, people from poorer backgrounds are less able to invest in education, thereby creating a drag on economic growth.⁶ Furthermore, if decisions to invest in education are based on future earnings expectations, in a highly immobile society those from the bottom could be rationally expected to choose to invest less in education. This would lead to a lower overall level of education in society.

Additionally, there is a clear link between income mobility and income inequality: **countries with higher inequality typically show low social mobility**. This is commonly referred to as the "Great Gatsby Curve". Researchers believe that increased income inequality means rich parents can disproportionately invest more in education. This in turn leads to reduced mobility as those from wealthier households are better positioned to earn more in the labour market – continuing the cycle.

⁶ OECD, *In it together: Why less inequality benefits all*, 2015.

4. The future of work and social mobility

Academics, non-profit organisations, governments and businesses have all identified the future of work as a critical topic. It is widely acknowledged that the nature of work will change dramatically over the next two decades.⁶⁸ The shifts are expected to include disruptive trends (rapid advances in technology and new ways of working) as well as broader long term trends (demographic shifts, globalisation and greater gender equality). However, while the future of work has received considerable attention, there has been limited exploration of the impact on social mobility, although this is likely to be significant. In section 4.1, we examine some of the key trends shaping the future of work. In section 4.2 we put forward a perspective on the future of work and the impact on the labour market. Finally, in section 4.3 we describe the possible ensuing challenges and opportunities for social mobility.

4.1 Trends shaping the future of work

Disruptive technologies

Technological change is significantly impacting today's economic and business structures and hence the future of work.⁶⁹ Major developments are taking place in **hardware and software**. Manufacturing is being transformed by a revolution in robotics that is making robots more autonomous, flexible, cooperative, and cheaper.⁷⁰ Additive manufacturing techniques such as 3D printing are becoming commonplace, with the falling cost of 3D printers (from £235,000 in the 1980s to £1400 today) enabling smaller scale, customised and decentralised production. The integration of autonomous capability is also on the rise, with autonomous vehicle features expected to be included in 25% of the new car market by 2035.⁷¹ Furthermore, developments in augmented reality and artificial intelligence are expected to change the world in ways not yet fully understood.

The acceleration of **connectivity**⁷² and the integration of technology into daily life is expected to continue. Examples of this include the widespread adoption of cloud technology, the challenges of cyber security, and the "Internet of Things" where connected devices will be commonplace. For example, 30 billion connected devices are expected to be installed by 2020 compared with around 10 billion today.⁷³ We are already seeing early change brought about by the connectivity revolution in consumption patterns, including a shift towards online retailing, the greater importance of peer recommendations, and growth of the "sharing economy".

The **big data and analytics revolution** will impact the work of tomorrow through the rapid growth in the collection, storage, and real-time analysis of data in business and in customer interactions.⁷⁴ Since the rise of the digital age, the amount of information handled has exploded. For instance, Neuman et al. have shown that the total media supply (television, internet, newspapers and other media) to US homes rose 1700% between 1960 and 2005 (an annual growth rate of nearly 7% for 45 years).⁷⁵ The application of big data and analytics will impact virtually every industry as the insights possible provide opportunities to transform areas such as marketing, operations, research and development, and supply chain.

⁶⁸ Including studies by the UK Commission for Employment and Skills (2014) and the World Economic Forum, *The Future of Jobs* (2016)

⁶⁹ Citi Group research, *Technology at work v2.0, The Future is not what it used to be*, 2016.

⁷⁰ The Boston Consulting Group, *Industry 4.0: The Future of Productivity and Growth in Manufacturing Industries*, 2015.

⁷¹ The Boston Consulting Group, <https://www.bcg.com/expertise/industries/automotive/autonomous-vehicle-adoption-study.aspx>, 2016.

⁷² National Intelligence Council, Washington DC., *Global Trends 2030: Alternative Worlds*, 2012.

⁷³ Bauer, Patel, and Veira, *The Internet of Things: Sizing up the opportunity*, McKinsey, 2014.

⁷⁴ Avanade, *Global Survey: Is Big Data Producing Big Returns?*, 2012.

⁷⁵ Neuman, Park and Panek, *Tracking the Flow of Information into the Home*, International Journal of Communication, 2012

These technologies are expected to lead to the destruction of existing jobs (specifically routine-based jobs such as product assemblers), creation of new jobs (such as translating big data into business insights), as well as changes in the mix of skills and capabilities demanded in future. We will detail the impact of these changes on the labour market in the next section.

New ways of working

Ways of working are expected to undergo significant change from greater industry volatility and technology developments that make new business models possible. Companies today see higher volatility in demand, company profitability and industry position, requiring greater strategic agility.⁷⁶ Businesses are facing the continued deconstruction of the “traditional firm” with the rise of the sharing economy. In many industries, leading firms will increasingly need to play the role of ‘network orchestrator’ as opposed to product core competence.⁷⁷ For example, Airbnb, one of the largest hotel chains by market capitalisation, is a market-creator of rooms but does not itself offer rooms to customers like traditional hotel chains.

Ways of working will also be further impacted by changes to **individual preferences** regarding work. There has been a rise in part time work, contract work and freelancing, driven in part by a desire for improved work-life balance and the need to accommodate child and elderly care.^{78,79} The number of freelance workers has grown steadily by 4.5% p.a. since 2008, to reach around two million in the UK in 2015.⁸⁰ One in three jobs in the UK is already part-time,⁸¹ and this is expected to grow. These changes are also translating into less rigid career structures and a rise of the “portfolio career” (holding multiple jobs at the same time). For example, millennial workers (born 1981-2000) are expected to have an average of 17 jobs and five careers over their lifetime,⁸² compared to 1970 when males had on average between two and five jobs.⁸³

Demographic shifts

The shape of the population will shift in the coming 20-30 years, transforming the demand for goods and services and the supply of labour. The UK will see population growth at 0.55% p.a. through to around 2040, a rate five times the EU average.⁸⁴ Net migration is expected to contribute to around half of this growth,⁸⁵ and although potentially impacted by Brexit, the UK's natural population growth will still be significantly higher than the rest of Europe. The UK's population will age, with the largest age group of workers shifting from 44-46 to 54-56 by 2020,⁸⁶ and an almost doubling of the population aged 75+.⁸⁷ The labour force is also expected to continue to urbanise, with the urban population projected to rise from 82% in 2014 (78% in 1990) to 89% of total population by 2050.⁸⁸

Globalisation

Despite Brexit, it is likely that the UK will be increasingly integrated into the global economy. Asia will provide 59% of global middle-class consumption by 2030 versus 23% in 2009, leading to new trade opportunities.⁸⁹ At the same time, globalisation will open up the UK to greater competition from skilled workers abroad, with further outsourcing likely for a range of functions, including production & development, infrastructure & data centre services, sales, procurement and design & engineering.⁹⁰

⁷⁶ The Boston Consulting Group, *The Most Adaptive Companies 2012, Winning in an Age of Turbulence*, 2012.

⁷⁷ Fung, Fung and Wind, *Competing in a Flat World*, 2008.

⁷⁸ Ouye, *Five Trends that Are Dramatically Changing Work and the Workplace*, 2011.

⁷⁹ Adachi, Gretczko and Pelster, *Human Capital Trends 2013: Leading Indicators*, 2013.

⁸⁰ IPSE, *Exploring the UK Freelance workforce in 2015, 2016*

⁸¹ Andre et al., *Labour Market, Welfare Reform and Inequality in the United Kingdom*, 2013.

⁸² BCG analysis in Australia

⁸³ This calculation is based on Farber (2009), who assesses that average tenure for males at 50 was 13.6 years. Provided 44 working years (20 to 64), we calculate ~3.2 jobs in a lifetime. This analysis is done for the USA where more data exists

⁸⁴ ONS, *National Population Projections: 2014-based Statistical Bulletin*, 2015.

⁸⁵ ONS, *Migration Assumptions, 2012-Based National Population Projections*, 2013.

⁸⁶ Duckworth. et al., *Horizon Scanning and Scenario Building: Scenarios for Skills 2020*, 2010.

⁸⁷ ONS, *National Population Projections: 2014-based Statistical Bulletin*, 2015.

⁸⁸ UNDESA, *World Urbanization Prospects The 2014 Revision*, 2014.

⁸⁹ Pezzini, ‘An Emerging Middle-Class’, in *OECD Observer*, 2012.

⁹⁰ EY, *Outsourcing in Europe An in-depth review of drivers, risks and trends in the European outsourcing market*, 2013.

However, there is potential for the UK to in-source higher value activities, such as high value manufacturing in the automotive, offshore wind, and nuclear sectors.

Greater gender equality

Women's workforce participation has steadily risen over the last several decades and improvements to gender equality are likely to continue. Women are expected to comprise 56% of the net increase in jobs between 2010 and 2020. This is supported by the higher levels of female educational achievement, with 4% more higher skilled females than males predicted by 2020 (compared to just 2% in 2010).⁹¹ As a result, women are expected to secure a greater share of new jobs in higher-level occupations, with the gender pay gap expected to further narrow.⁹² For further discussion on gender and social mobility, see *Box 3: Differences in social mobility between men and women*.

Box 3: Differences in social mobility between men and women

How is social mobility different between men and women?

As explored in section 2.2, **social class mobility has stagnated for men born since the around the 1950s, but has continued to steadily increase for women.** In studies conducted in 1940 and 1970, a man from a managerial or professional background was around six times more likely to obtain a managerial or professional job than a man from a working-class background. In contrast, the same odds for women fell from eight times more likely in the 1940s to just four times more likely for those born in the 1970s.⁷ These odds demonstrate **mobility for working-class women catching up and even overtaking that of working-class men.** Despite this improvement in women's relative mobility, **in absolute terms the mobility picture is less positive.** For both men and women, rates of upward mobility appear to be falling, while rates of downward mobility are increasing (see section 2.2).⁸

What are the reasons for these differences?

A number of reasons likely contribute to the faster improvement of female mobility versus men, though the full picture is not yet understood. Likely factors include greater female participation in the workforce, more middle-class mothers returning to work, and better educational attainment for women, opening up more highly skilled roles.⁹ Indeed, **educational attainment of women now appears to be higher than men at all stages of education.** At age five, there was a 17% gap between boys and girls reaching the expected standard in 2013/14¹⁰. These differences persist into later life, with a 16% gap between boys and girls in GCSE attainment (2014)¹¹, and a 12% gap in entering higher education (2012/13)¹². These differences are often attributed to developmental differences, cultural influences and the greater time spent on homework by girls.¹³

However, female academic outperformance does not appear to translate into higher income in later life. The lifetime returns of five or more good GCSEs is £51,000 higher for men than women (for those who work, compared to those with no qualifications).¹⁴ Furthermore, average pay for full-time employees was 9.4% higher for men than women in 2015.¹⁵ These figures do not take into account the proportion of men and women in different occupations and at different levels of seniority. Recent analysis of over 12,000 organisations suggests that when men and women do the same role in the same organisation, the UK gender pay gap shrinks to less than 1%.¹⁶ This suggests that **the gender pay gap is mainly a result of men obtaining higher paid roles than women, rather than being paid more for the same role.** Fewer women are found in leadership, senior management and high-paying industries. For example, just 21% of senior roles in the UK are held by women in 2016 (even lower than the 24% held by women globally).¹⁷ This could have overall economic consequences: a recent IMF study of 2 million European firms found that **companies with more women in senior positions have significantly higher Return on Assets (ROA).**¹⁸

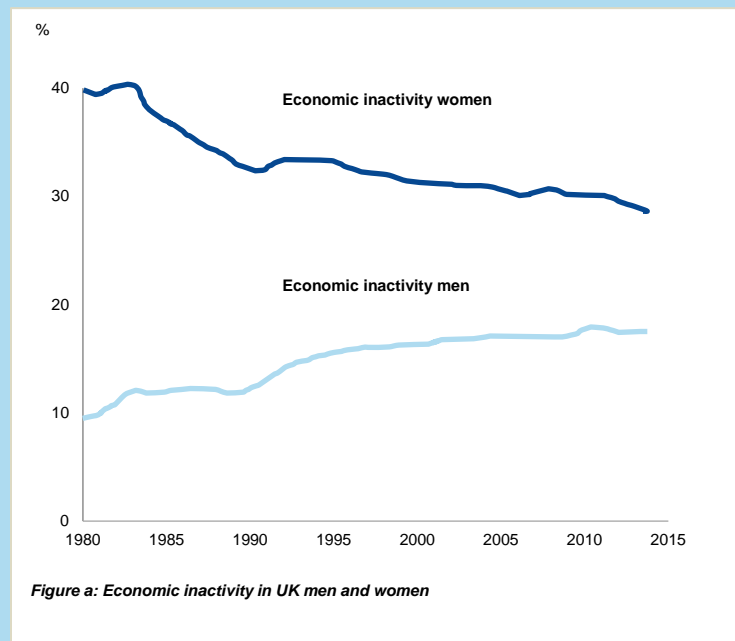
⁹¹ Bosworth, *UK Skill Levels and International Competitiveness*, 2013.

⁹² ONS, *Statistical Bulletin: Annual Survey of Hours and Earnings, 2012 Provisional Results*, 2012c.

Are these differences between men and women likely to continue?

Although there is limited data on income or social class mobility for those born in the last 25 years, **recent trends suggest improved social mobility for women but a more challenging outlook for men.**

Girls look likely to further pull ahead of boys in educational attainment. For example, gaps in GCSE performance between boys and girls widened 6% between 2006 and 2014.¹⁹ **In contrast, gaps in income appear to be narrowing slowly,** from men earning around 17% more than women in 1997 to 9% more in 2015 for full-time employees.²⁰ Together, these factors suggest further improvements in social mobility for women.



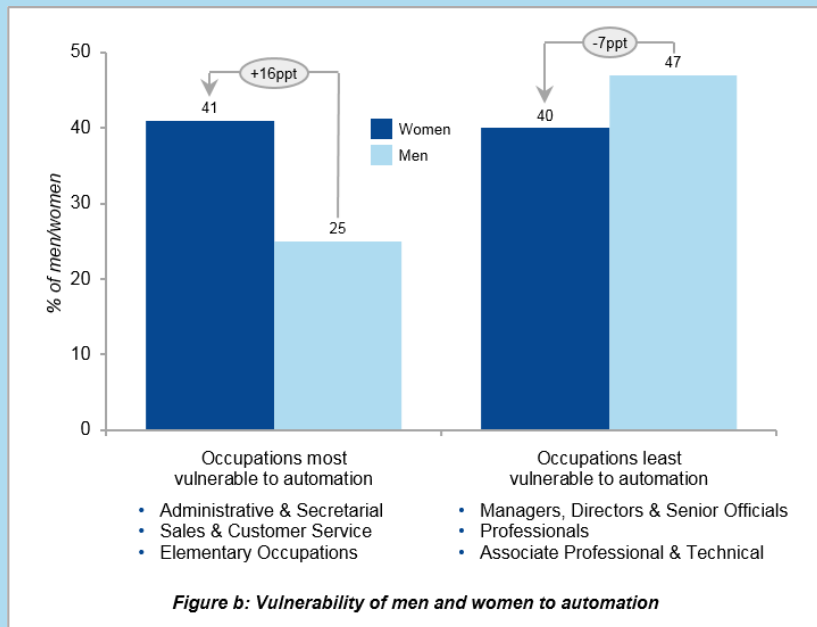
In contrast, the mobility outlook for men appears more challenging. Greater female labour participation is undoubtedly positive for society on the grounds of equity and having a wider talent pool from which to draw. However, it will also increase competition for jobs. This may result in more men struggling to exceed the job class or income of their parents, as well as greater numbers of men failing to work at all. This pattern can be seen in the increasing levels of economic inactivity in men, matching a corresponding fall in inactivity of women in the UK (see Figure 2).²¹ We see similar patterns of declining male workforce participation in the US in recent years, with less educated men most affected.²² If trends in economic inactivity over the past 5 years continued, more women than men would be economically inactive by 2050.²³ The outlook appears particularly difficult for young men (aged 18-24) not in full-time education, for whom inactivity rates have almost doubled between 1993 and 2015. The equivalent rate for women has moderately declined, though it remains 10ppts higher than that of men in 2015.²⁴

If less educated men are most impacted by this trend in the UK, the burden will fall most on those from lower socioeconomic backgrounds, given the correlation with lower educational attainment. The "glass floor" built under children from higher socioeconomic backgrounds may exacerbate this affect (see section 3.4). **This has the potential to damage social mobility for men.**

However, early indications suggest technological disruption could negatively impact women more than men. Far more women than men are in the occupations most at risk of automation; 41% of women are in administrative & secretarial and sales & customer service and elementary occupations, compared to 25% of men (see Figure b and Exhibit 4).^{25,26} Women are also underrepresented in the managerial, professional and associate professional occupations least at risk of automation (40% of women versus 47% of men).

Moreover, men will disproportionately benefit from the greater demand for STEM skills (see section 4.2). Currently, 96% of those with engineering apprenticeships are male,²⁷ and women make up just 13% of the STEM workforce.²⁸ Additionally, the number of women studying ICT at University is falling, with five men for every one woman currently studying.²⁹

Interventions are needed to ensure the mobility prospects of men do not fall further behind that of women. However, a focus must also be on inspiring young women to study STEM subjects and enter expanding professions to ensure mobility gains made in education and wages are not undermined in the age of technology.



⁷ Social Mobility and Child Poverty Commission, *State of the Nation 2015: Social Mobility and Child Poverty in Great Britain*, 2015.

⁸ Bukodi et al., *The mobility problem in Britain: new findings from the analysis of birth cohort data*, 2015.

⁹ Erikson and Goldthorpe, *Has Social Mobility in Britain Decreased? Reconciling Divergent Findings on Income and Class Mobility*, 2010.

¹⁰ Department for Education, *EYFSP Attainment by Pupil Characteristics 2013 to 2014*, National and Local Authority tables

¹¹ Department for Education, *GCSE and Equivalent Attainment by Pupil Characteristics: 2014*, 2015.

¹² Higher Education Statistics Agency, *Student Introduction 2012/2013*.

¹³ Social Mobility and Child Poverty Commission, *State of the Nation 2015: Social Mobility and Child Poverty in Great Britain*, 2015.

¹⁴ Department for Education, *The Economic Value of Key Intermediate Qualifications: Estimating the Returns and Lifetime Productivity Gains to GCSEs, A levels and Apprenticeships*, 2014.

¹⁵ Office for National Statistics, *What is the Gender Pay Gap?*, accessed online 22/08/2016.

¹⁶ Hay Group, *Tackling the Gender Pay Gap*, 2015.

¹⁷ Grant Thompson, *Women in Business*, 2016.

¹⁸ IMF, *Gender Diversity in Senior Positions and Firm Performance*, 2016.

¹⁹ Social Mobility and Child Poverty Commission, *State of the Nation 2015: Social Mobility and Child Poverty in Great Britain*, 2015.

²⁰ Office for National Statistics, *What is the Gender Pay Gap?*, accessed online 22/08/2016.

²¹ Office for National Statistics, *Economic Activity for 16-64 year olds*.

²² The White House, *The Long Term Decline in Prime Age Male Labour Force Participation*, 2016.

²³ Office for National Statistics, *Economic Activity for 16-64 year olds*.

²⁴ Office for National Statistics: *Economic Inactivity Rates in Men and Women aged 18-24 not in full-time education*, Accessed online 01/09/16

²⁵ Office for National Statistics, *What is the Gender Pay Gap?* (data from Labour Force Survey), accessed online 22/08/2016.

²⁶ Frey and Osborne, *The Future of employment: How susceptible are jobs to computerisation*, 2013.

²⁷ Sutton Trust, *Levels of Success: The Potential of UK Apprenticeships*, 2015.

²⁸ WISE analysis of Labour Force Survey, April-August 2014.

²⁹ Tech Women UK, *The Women in Technology Project Research Report 2015*, 2015.

Numerous other important global trends, such as increased workforce mobility and changes linked to climate change have been considered, but not represented, given their less direct relevance to the labour market and social mobility.

4.2 The Future of Work

Most studies point to a future of work vastly different from the past, which was characterised by relatively stable industries, individuals pursuing a single career with a small number of employers, and a set of skills mostly relevant over the course of a lifetime. The trends described above are expected to bring about significant changes to the nature of work.

1. Structural change in the job market with creation and destruction of jobs

Technological disruption and globalisation are likely to result in the destruction of jobs. A recent Bank of England study estimates that up to 15 million jobs in the UK could be at risk of automation, with 63% of all jobs impacted to a medium or high extent (see Exhibit 4).⁹³ This is broadly consistent with similar studies for Australia and the USA that estimates between 37% and 66% of all work could be automated, with between 60-75% of all jobs significantly impacted.^{94, 95}

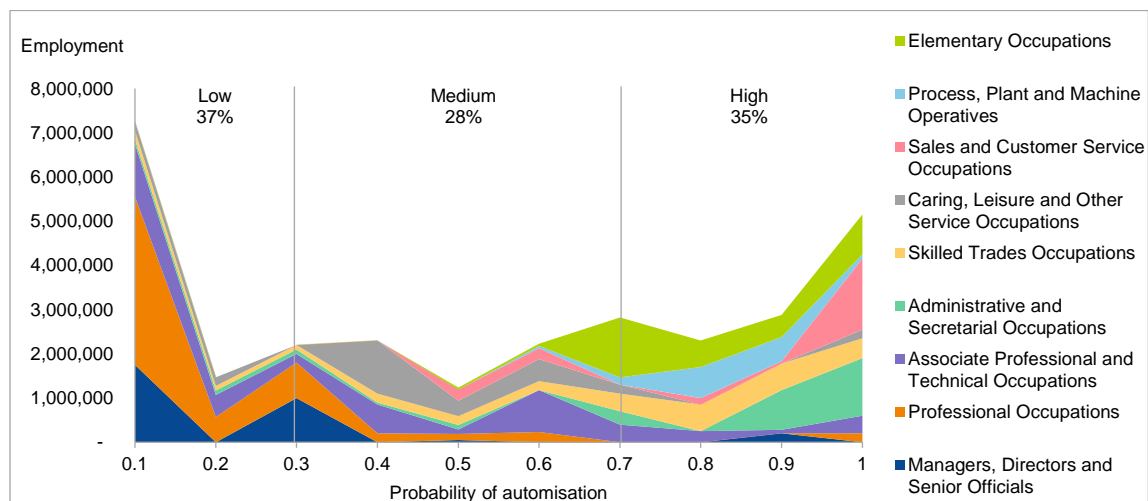


Exhibit 4: Impact of automation on UK jobs

Routine-based jobs are most at risk of automation versus jobs that cannot be easily described by rules. The level of routine is expected to be the most important dimension to whether a job can be automated than whether the job is manual or cognitive (see Exhibit 5). Jobs with a high routine component can be found across both manufacturing and service sectors and in low and middle income professions. For discussion on jobs potentially at risk, see *Box 4*.

⁹³ Andrew G Haldane, *Speech: Labour's share*, 2015.

⁹⁴ BCG analysis

⁹⁵ C.B. Frey and M.A. Osborne, *The Future of employment: How susceptible are jobs to computerisation?* 2013.

Box 4: What jobs could be at risk through automation?³⁰

Technological disruption through automation is likely to result in the destruction of jobs. A recent Bank of England study estimates that up to 15 million jobs in the UK could be at risk of automation.³¹ Routine-based jobs in predictable environments can easily be described by rules and hence are most at risk of automation.

Several paraprofessional occupations have a high risk of automation. Paraprofessional jobs are supporting roles that do not require a professional license, and sometimes provide an entry route for qualification into the profession. Around 280,000 book-keepers, payroll managers and wages clerks in the UK could see their jobs disappear following the transition towards cloud based accounting, increased use of robots and improved level of automation. A further 75,000 paralegals in the UK could also face automation of their jobs through technology. However, some groups of paraprofessionals such as care assistants and teaching assistants are unlikely to be automated given the high degree of human interaction and empathy required.

A further 2.6 million jobs in other administrative and secretarial occupations have a high probability of automation. A third of employment in these occupations is in three industries: public administration, financial and insurance activities, and wholesale and retail trade. For example, the financial sector is seeing a wave of technological innovation, including the introduction of robo-advisory, robotic process automation, and artificial intelligence. These could reduce the need for middle and back office jobs by up to 50 - 70%. For instance, 38,000 credit controllers could be replaced by robots trained by users to automatically and more efficiently complete repetitive tasks. These roles are currently performed by a mix of graduates and non-graduate employees and are often middle income jobs. Other similar occupations likely to be significantly impacted include bank and post office clerks, sales administrators, office managers, and secretaries.

Other occupations such as sales and customer service and skilled trade are also at risk. There are 2.3 million roles in sales and customer service in the UK including retail assistants, cashiers, salespersons, and telephone sales. Automatic cashiers are already supplanting human cashiers. Further rolling out of existing technologies, as well as new technologies such as voice and image recognition and natural language processing (ability to interpret human language, tone, and pitch and take appropriate actions) will put these jobs at risk. The UK also has 2.5 million jobs in skilled trade including food operatives, machinists, and transport and machine operatives that could be disrupted through advances in robotics and automation.

The disappearing of these jobs will adversely affect social mobility with the majority of impact felt by those from middle and lower socioeconomic backgrounds who are more likely to hold these jobs. In addition, the loss of middle income jobs will contribute to the ongoing 'hollowing out' of workforce. This could lead to fewer jobs for middle income and mid-skill workers, removing a potential career step for upward mobility.

³⁰ All figures below, unless stated otherwise, are extracted from the ONS job census of 2011 for England and Wales

³¹ Andrew G Haldane, *Speech: Labour's share*, 2015.

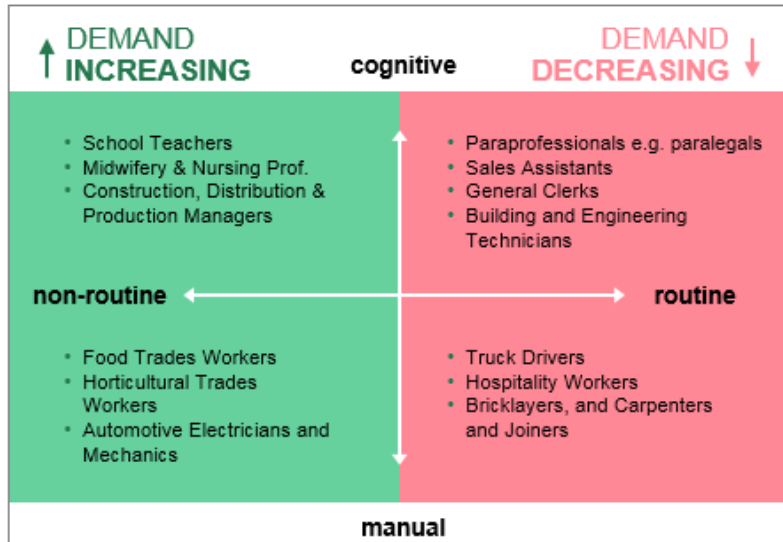


Exhibit 5: Potential increase and decrease in demand by job type

While it is difficult to predict where job creation may take place, technological change and new ways of working can be reasonably expected to increase demand in certain areas. The ICT sector⁹⁶ and high-technology manufacturing⁹⁷ are likely to see significant growth in employment as economic activity shifts to these sectors. The UK ICT sector could require up to 300,000 recruits by 2020 at professional, manager and associate professional levels.⁹⁶ The demand for certain professional services is also likely to grow. For example, there will be an increased need for managers able to support organisational transition amidst considerable industry and technology change, and the financial sector may see job creation due to the increased need to save for a longer retirement.⁹⁸ Some estimate an increased demand of around two million high-skilled workers across sectors.⁹⁹ It is also expected that employment in the personal and health care industry will rise due to an ageing population and a greater proportion of disposable income spent on services in these sectors.

The net impact of technology is difficult to assess. It is, however, reasonable to assume that the speed of technology developments will cause more job destruction than can be replaced in the short to medium term (as was similarly the case during the Industrial Revolution in the mid-18th century). We can therefore expect lower employment in the near term as structural change from technology takes place. Over the longer term, the conventional view is that technology is wealth and employment creating. However, several economists believe that the nature of technological change today is such that it might be different this time. If this is true, there will be considerably more dramatic impacts on the labour market and social mobility (see *Box 5: Could technology significantly disrupt employment?*).

⁹⁶ Hollingworth and Harvey-Price, *Technology and Skills in the Digital Industries*, 2013.

⁹⁷ Livesay and Thompson, *Making at Home, Owning Abroad. A Strategic Outlook for the UK's Mid-Sized Manufacturers*, 2013

⁹⁸ Cedefop, *Jobs in Europe to Become More Knowledge- and Skills-intensive*, 2010b.

⁹⁹ Hollingworth and Harvey-Price, *Technology and Skills in the Digital Industries*, 2013.

Box 5: Could technology significantly disrupt employment?

The pace and scale of today's technological change is potentially unprecedented in history. The telephone took 35 years to reach 25% of the US population. By comparison, it took just 13 years for mobile phones to achieve the same level of adoption. Similarly, radio took 31 years to reach the 25% threshold whereas the internet took just 7 years.³² In addition, whereas past technological developments have typically been confined to a smaller number of sectors, today's technological developments are causing disruption across all types of sectors. For example, automation and robotics are going beyond manufacturing environments and finding applications in homes (e.g. robot vacuums) and food service (e.g. robot chefs). Similarly, big data is revolutionising agriculture in areas including plant breeding and precision farming. As earlier discussed (in sections 4.1 and 4.2), today's disruptive technologies are expected to enable between 37% and 66% of all work to be automated and the potential loss of up to 15 million jobs in the UK.^{33,34}

Previous waves of technological change have led to job destruction in the short to medium term but employment has subsequently returned. One of the best known examples is that of the Luddites, the term given to English textile workers in the early 1800s who protested against unemployment brought about by the Industrial Revolution by destroying the newly introduced mechanised looms. The agricultural sector also illustrates the impact of technology, with productivity gains leading to a decline in employment from 41% of the US workforce in 1900 to just 2% in 2000.³⁵

Although difficult to prove, previous waves of technological disruption do not seem to have led to a permanent fall in employment. Various factors determine the overall impact of technology on employment. Workers stand to lose if technology directly substitutes for labour. On the other hand, technology can benefit workers if it complements their role, improving their productivity and enabling them to perform more sophisticated tasks. This could lead to either higher or lower wages, depending on the supply of workers able to perform tasks supported by new technology. Finally, as shown by the agricultural sector, technology can lead to dramatic reductions in industry size and employment as a result of productivity gains. However, technology can also indirectly lead to the growth of other industries. For example, the roadside motel industry sprung up as a result of technological improvements that made automobiles affordable on a mass scale. Productivity gains in food production have also increased the amount of disposable income that can be spent on other goods and services, such as in leisure industries.³⁶

While the conventional view is that technological change does not permanently reduce employment, it could be different this time. The first Industrial Revolution, commencing in the mid-18th century, saw mechanisation disrupting manual labour and the decline of employment in primary industry (such as agriculture, mining and forestry), with a rise in secondary industry (such as manufacturing). The UK then experienced a period of mass industrialisation from the mid-19th century in which primary industry further declined and manufacturing and services took hold, followed by the information economy in the second half of the 20th century where services have grown to comprise 80% of employment (*see figure a below*).³⁷ Advances in the capabilities of computers and robots are now beginning to threaten service sectors and knowledge work, with some futurists predicting a *technological singularity* by 2040 in which computers are able to self-improve and develop intelligence far surpassing human intelligence. It is difficult to visualise what could provide large-scale employment if the UK's service sector is disrupted. Some futurists point to the emergence of a 'quaternary' sector that emphasises information and creative services, although there is limited agreement on the nature and scope of this potential future sector.

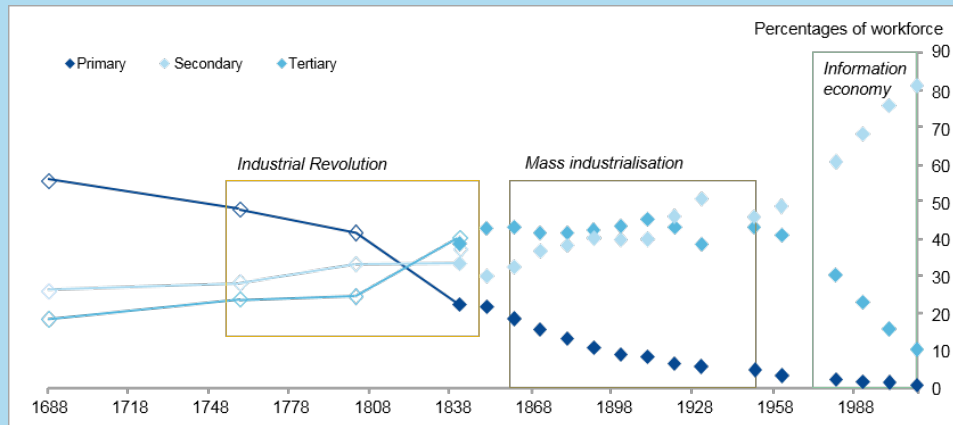


Figure a: UK employment share by sector over time³⁸

While difficult to predict the future, several eminent economists suggest that technological developments are already leading to a decline of labour. MIT economists Erik Brynjolfsson and Andrew McAfee chronicle a Great Decoupling in the US: since World War 2 productivity improvements and job creation have broadly tracked each other, but from around the year 2000 a significant gap has opened up with productivity continuing to climb but employment stagnating.³⁹ For the UK, the divergence of productivity and employment has been occurring since at least 1970, with productivity doubling between 1970-2015 but total employment levels only increasing by 25%.⁴⁰

These trends are consistent with a persistent decline in the labour share of income seen across many developed countries in recent decades. This indicates the increasing importance of capital over labour in generating economic output, supported by advances in information technology and the computer age.⁴¹ The labour share in the US fell from 66% in 1980 to around 62% today, with the UK also experiencing a similar decline from 63% in 1960 to around 55% today.⁴²

The growth of automation is also seen as a primary reason for the 'hollowing out' of the workforce over the last few decades, whereby the percentage of middle income jobs shrinks with growth in low and high income jobs. Between 1993 and 2010, the share of middle income jobs in the UK reduced by 11% whereas the share of low income jobs increased by 4% and high income jobs by 7%. This is attributed to automation causing destruction of routine jobs in predictable environments, such as plant operatives and administrative roles. The jobs which are harder to automate are usually "manual" in less predictable environments (such as security and protective services and in-person home aides) or "abstract" which place a premium on intuition, creativity and problem solving. These jobs are typically found at the low and high income levels and are therefore (currently) less susceptible to automation.⁴³

Larry Summers points to the increasing proportion of men of working age (25-54 years old) not working as a sign of a decline of labour. Summers sees this demographic as the group with the strongest social expectation of work. In the US, in the 1950s and 60s, one in 20 men of working age was not working; this has trended steadily upwards with between one in six or seven men of working age not working by 2012.^{44,45} This phenomenon is also observed in the UK with the proportion of men aged 16-64 not working similarly rising from around one in 10 in 1980 to one in six in 2014.⁴⁶ The growth of men not working is likely driven in part by greater women's participation, but potentially also by men having greater difficulty finding work and/or opting out of the workforce as the trend of technology substituting for labour continues (see supporting figures).

If technology is now leading to a more permanent decline of labour, there could be significant future challenges for social mobility. Brynjolfsson and McAfee identify three pairs of winners and losers from technological disruption. High skill workers (typically drawn from higher socioeconomic backgrounds) could disproportionately benefit, particularly if their work is likely to be complemented by technology. In contrast, low skill workers in routine jobs could face being substituted by technology. The advance of technology is also likely to lead to the creation of 'superstars' versus everyone else. Digital technologies allow the best talent and ideas to 'scale' extremely quickly, leading to a 'winner takes all' dynamic in many markets and industries (for example, entertainment or software). Finally, improved productivity through the substitution of capital for labour will lead to the owners of capital benefiting versus workers.⁴⁷ These impacts suggest that disruptive technology could lead to considerably lower employment and increased income inequality, and in an extreme version of the future, mass unemployment. With the greatest burden likely to fall on the poorest and least educated, this would strongly undermine future social mobility.

³² See <http://www.economist.com/blogs/graphicdetail/2014/03/daily-chart-7?%3Fsrc%3Dscn%2F=tw%2Fdc>

³³ BCG analysis

³⁴ C.B. Frey and M.A. Osborne, *The Future of employment: How susceptible are jobs to computerisation?*, 2013.

³⁵ David Autor, *Why Are There Still So Many Jobs?*, 2015.

³⁶ David Autor, *Why Are There Still So Many Jobs?*, 2015.

³⁷ Andrew Haldane, *Labour's Share*. Speech given to the Trades Union Congress, 2015.

³⁸ Andrew Haldane, *Labour's Share*. Speech given to the Trades Union Congress, 2015; some modifications to chart to highlight periods of disruption

³⁹ The Second Machine Age by Brynjolfsson and McAfee; The Atlantic, A World Without Work, 2015.

⁴⁰ Analysis from ONS data (1970-2015)

⁴¹ Karabarounis and Neiman, *The Decline of the Global Labor Share*, 2013

⁴² Andrew Haldane, *Labour's Share*. Speech given to the Trades Union Congress, 2015.

⁴³ David, *Why Are There Still So Many Jobs?*, 2015.

⁴⁴ Summers, *Economic Possibilities for our Children*, 2013.,

⁴⁵ The Atlantic, *A World Without Work*, 2015.

⁴⁶ Analysis from ONS data (1970-2015)

⁴⁷ The Second Machine Age by Brynjolfsson and McAfee; The Atlantic, A World Without Work, 2015.

2. Decline of stable full-time employment

An increasingly volatile environment and the growing desire for more flexible ways of working will create opportunities as well as place pressure on workers.

The **level of freelancing and self-employment is expected to continue to rise rapidly**. UKCES forecasts that this type of work will represent half of the increase in employment by 2024, with an increase of almost a million part-time jobs.¹⁰⁰ These large increases could be a sign of under-employment in the labour market (that is, many workers who would like to have a full-time job are unable to find one and choose the second-best best option which is self-employment or part-time work).

With the increasing flexibility of work and employment conditions, work could prove **psychologically more demanding** than the traditional full-time permanent job due to the loss of steady income. There is evidence that the blurred lines between work and home life can cause increased levels of burnout.¹⁰¹ The need to constantly secure the next job, as well as the social isolation, may lead to increased anxiety and stress for the new generation of workers. In addition, although freelancers' wages are higher on a per hour basis, it is unclear whether in aggregate freelancers are financially better off. The overall impact on individuals will be directly linked to their ability to find work.

3. Greater demand for technical skills with a shorter 'half-life'

¹⁰⁰ UK Commission for Employment and Skills, *Working Futures 2014-2024*, 2016.

¹⁰¹ Taris et al., *All day and all of the night: The relative contribution of two dimensions of workaholism to well-being in self-employed workers*, 2008.

A shift to more technologically intensive industry will **increase demand for STEM like skills** such as mathematics, statistics, engineering, and business operations. These skills will be required to respond to the increased need to create, design and operate advanced devices of the future including robots, 3D printers, drones, automated systems, and artificial intelligence devices. Computing and coding skills and the ability to develop user interfaces will be essential as technology continues to transform business with a greater emphasis on digital literacy and visual design. In addition, the labour market is likely to see an increased demand for high-tech manufacturing skills such as plastic electronics and nanotechnology.

The speed of technological change will require these skills to be acquired rapidly, but they will also become obsolete faster (with a shorter 'half-life'; the time it takes for half the knowledge in a particular domain to be superseded). For example, the Institute of Electrical and Electronics Engineers estimates that the half-life of an engineering degree was about 35 years in 1960 versus about five years in 2013. As such, re-skilling and continued education will become the norm. This may be further compounded by the more frequent career changes of the millennial generation.

4. Increased value of "soft" or "essential life skills"

Business leaders cite the increased importance of a broad range of "soft" skills as essential to succeed. These include skills in content, process, social skills, system skills, and resource management.¹⁰² A further study showed that soft skills are a good predictor of labour market success.¹⁰³ There is also a strong relationship between soft skills and positive academic and broader life outcomes, as highlighted by the Education Endowment Foundation and Cabinet Office. Their work assembled compelling evidence of the **correlation between non-cognitive factors**, specifically self-efficacy, motivation, self-control, and school engagement, and **positive outcomes for young people** such as academic attainment, improved finance in adulthood and reduced crime.¹⁰⁴

Increasingly volatile industry structures, the decline of stable career paths and automation of routine work are likely to place a greater premium on these essential life skills in the future. **More workplace collaboration from increased part-time work and job-sharing** will require increased emotional intelligence, empathy and communication skills.¹⁰⁵ The shift towards **less stable career** structures will place greater emphasis on entrepreneurship, confidence, resilience, self-organisation and pro-activity. Balancing employees' careers with personal lives will require managers and workers alike to be more **flexible and adaptable as well as display more empathy**. Finally, the growing diversity and internationalisation of the workplace will necessitate increased **cross-cultural skills and mindsets**.

4.3 Impact on social mobility

These changes in the labour market are likely to have significant impacts on social mobility.

Challenges

1. Job losses will adversely impact routine occupations, with most of the impact falling on those from low and middle socioeconomic backgrounds

As earlier identified, up to 15 million jobs in the UK could disappear due to technological disruption (with further losses possible through outsourcing). The number of routine manufacturing or service jobs is likely to significantly reduce, with mid or low skilled workers most impacted. Given that those from less advantaged backgrounds are less likely to obtain a degree and enter high-skilled employment, the disappearance of these jobs is likely to most affect them, undermining social mobility.

¹⁰² World Economic Forum, *The Future of Jobs; Employment, Skills and Workforce Strategy for the Fourth Industrial Revolution*, 2016.

¹⁰³ Heckman, *Hard evidence on soft skills*, 2012.

¹⁰⁴ Cabinet Office, *The impact of non-cognitive skills on outcomes for young people*, literature review, 2013.

¹⁰⁵ World Economic Forum, *The Future of Jobs; Employment, Skills and Workforce Strategy for the Fourth Industrial Revolution*, 2016.

Technological disruption is also likely to continue the ‘hollowing out’ of middle income jobs seen since 1990. Routine jobs that can be easily programmed, such as in administration and production, are typically found at middle incomes and are at higher risk of being automated versus some lower income jobs (such as social care and personal services) and many higher income jobs.¹⁰⁶ This phenomenon could result in two groups with very little mobility: an elite high skilled group dominating the higher echelon of society and a lower-skilled, low-income group with limited prospects of upward mobility and an irremediably broken social ladder.

The reduction in jobs that provide a stable and steady source of income is likely to lead to more time spent searching for work between contracts and jobs. This could be exacerbated by the growth of zero hour contracts. Both phenomena would result in further immobility as workers often settle for a job for which they are over-qualified, rather than wait for the appropriate job. For a more extensive discussion of the interaction between technology and employment, and potential implications for social mobility, see *Box 5*.

2. Increased value of "essential life skills" in employment is likely to benefit those from higher socioeconomic backgrounds

As the overall rate of educational attainment in the UK population rises, there will be fiercer competition to stand out and “essential life skills” are likely to be a key differentiator. The Sutton Trust has shown that social or non-cognitive skills such as aspiration, confidence and personality, which are likely to be related to family background, can have an important effect on income and hence may play a role in social mobility.¹⁰⁷ Similarly, the Social Mobility and Child Poverty Commission found that children from higher socioeconomic backgrounds are better prepared with the “soft” skills that make them successful in elite professions.¹⁰⁸ Recruiting processes were found to be biased towards middle-class backgrounds with the capacity to present a “polished” appearance and the ability to act in a confident manner highly important in the selection process. As “soft” skills become even more important, those from lower socioeconomic backgrounds are likely to be at a disadvantage.

3. The increasing need to re- and up-skill could create new socioeconomic barriers

The need for continuous re- and up-skilling will raise the cost and time required for education. The large gaps in post-graduate qualification by socioeconomic status would suggest that those from lower socioeconomic backgrounds are likely to be disadvantaged, as they may be less able to invest in skills acquisition and re-skilling over the course of their lives. In addition, existing regional disparities in educational opportunities could reinforce social immobility, with those in less advantaged regions less able to access opportunities to re-skill or up-skill themselves.

4. Other potential winners and losers in the labour market

The forecast population growth, higher levels of immigration, later retirement of an aging population, and an increased level of female workforce participation will result in significant growth of the workforce and increased competition for jobs. Given gaps in educational attainment, soft skills and use of family networks in obtaining employment, less-privileged young people are likely more at risk. Similarly, greater gender equality and the rising educational attainment of women versus men may make it more difficult for men to access the job market in the future (see *Box 3: Differences in social mobility between men and women*).

Opportunities

1. Openness of STEM-based job opportunities to a broad mix of socioeconomic backgrounds

A large increase in demand for STEM jobs is expected, with the UK currently facing a considerable shortfall in supply. The Social Market Foundation has estimated an annual shortfall in domestic supply of

¹⁰⁶ McIntosh, *Hollowing out and the future of the labour market*, 2013.

¹⁰⁷ De Vries and Renfrow, *A Winning Personality, The effects of background on personality and earnings*, 2016.

¹⁰⁸ Social Mobility & Child Poverty Commission, *A qualitative evaluation of non-educational barriers to the elite professions*, 2015.

around 40,000 STEM graduates.¹⁰⁹ Given this significant demand for STEM skills, educational achievement in hard sciences could offer access to higher-skilled jobs regardless of background. Research by Natasha Codioli¹¹⁰ shows that the uptake of STEM subjects is not correlated to socioeconomic background. She assesses that “encouraging high attainment for low socioeconomic position students will have a large impact on uptake [of STEM degree subjects]”. Encouragingly, there is also no pay gap between those from higher and lower social classes for engineers and scientists, unlike many other elite professions such as law and medicine. This implies that an expansion in STEM jobs could help foster social mobility.¹¹¹

2. Technology may create more accessible opportunities for re-skilling

The current job market is placing ever greater value on qualifications with increasingly specific knowledge. Qualifications for roles such as IT risk architects or enterprise IT business specialists are in high demand and could command a significant wage premium. Attainment of these specific qualifications is generally less differentiated by socioeconomic background than the traditional 'elite' degrees studied at Russell Group universities.

Technology is also reducing the cost of education and re-skilling. Online offerings such as MOOCs (Massive Open Online Courses) are providing education and qualifications for free or lower cost. Although there is currently limited data on the backgrounds of students taking up MOOCs and employer recognition,¹¹² free online education could improve access to knowledge and skills development for all. This could enable motivated students from poorer backgrounds to gain the required qualifications and enter a higher-wage career.

3. Growth in non-routine jobs at lower skill levels (particularly jobs requiring interpersonal skills)

Numerous lower-skilled jobs are less routine in nature and cannot be easily described with a set of rules (such as caring roles, teaching assistants, and plumbers). As such, these jobs will not easily be automated and replaced. It is expected that demand for these jobs will continue to be strong and may even increase (particularly in the health and personal care sectors as the population ages). These lower-skilled jobs may provide entry points to the job market for those from lower socioeconomic backgrounds without high levels of education. Growing demand for lower skilled work could lead to rising wages for jobs in this sector. However, any rise in wages will depend on the labour supply of workers for these roles.

¹⁰⁹ Broughton, *In the Balance, The STEM human capital crunch*, 2013, Analysis by Social Market Foundation

¹¹⁰ Codioli, *Inequalities in students' choice of STEM subjects*, 2015.

¹¹¹ Crawford et al., *Higher Education, Career Opportunities and Intergenerational Inequality*, 2016.

¹¹² Liyanagunawardena, *MOOCs: A Systematic Study of the Published Literature 2008-2012*, 2013.

5. What interventions might be required?

The UK's relatively weak state of social mobility, and the challenges posed by the future of work, call for concerted action. To provide better and fairer opportunities for all, it will be critical for the UK to have continued economic growth and position itself as a leader in new, large, and high growth sectors (particularly in technology). It will also be important to improve access to education and jobs, and address social barriers and issues of bias. However, by the time individuals reach university or their first jobs, the ability to improve social mobility has reduced considerably. The most impactful interventions are therefore in fostering equality in early-years development. Ways to achieve this include improving educational attainment, building "essential life skills", expanding alternative pathways into work, and ensuring young people are equipped with the tools to succeed. A range of potential interventions are described below.

A. Increase job opportunities through continued economic growth and developing high growth sectors

Support innovation and entrepreneurship to fuel further high value job creation, potentially through lighter regulations and possibly decreased employment taxes. This is likely to be particularly important in today's volatile business environment where the creation of new businesses can provide employment opportunities as industry structures are disrupted. In addition, the teaching of entrepreneurship and innovation can be extended beyond traditional business programmes. These topics could be taught at school, and included as elective modules in a wide range of degrees.

Supportive policy and funding can also enable the UK to develop a competitive advantage in high growth sectors that could become significant sources of employment. For example, the UK is well positioned to be a global leader in the FinTech sector and Smart Cities. Public and private investment in "industries of the future" can fuel economic growth and create job opportunities, therefore providing the grounds for absolute upward mobility.

Ensure job creation is geographically distributed throughout the UK. Growth in some sectors are likely to be more evenly distributed geographically (such as care related sectors), but other sectors (such as technology) have opportunity growth strongly skewed towards London and the South. Government incentives can encourage companies to establish outside London and the South through a broad regional development strategy (for example, the "Northern Powerhouse" or more widely distributed development).¹¹³ Encouraging young people from lower socioeconomic backgrounds to move or commute outside their town for better job opportunities remains a challenge.¹¹⁴ Further research is needed to understand these attitudinal barriers and develop solutions to overcome them.

B. Develop individual capabilities

Invest in closing educational gaps between poor and better-off children.

Early interventions are key given the majority of the gap in educational attainment is created by age five.¹¹⁵ Provision of comprehensive early-years services has accelerated in recent years, however more needs to be done to improve school readiness of the poorest children.¹¹⁶ A national definition of school readiness should be established and robust targets set to close the gap.¹¹⁶ Given the influence of parenting on school readiness, a government fund should be established to support those with effective local parenting initiatives (such as The Sutton Trust's Parental Engagement Fund). Additionally, Government

¹¹³ Financial Times, *Theresa May shifts focus from 'Northern Powerhouse'*, August 2nd 2016.

¹¹⁴ The Sutton Trust, *Home Advantage*, 2015

¹¹⁵ Reardon, *The Widening Academic Achievement Gap Between the Rich and Poor*, 2011.

¹¹⁶ Social Mobility and Child Poverty Commission, *State of the Nation 2015: Social Mobility and Child Poverty in Great Britain*, 2015.

could improve uptake of free pre-school hours by reducing the complexity of the funding system and incentivising a return to employment for mothers.¹¹⁶

Teaching quality must be improved, particularly in disadvantaged schools. The improved performance in London schools, including schools with a significant proportion of free school meals,¹¹⁷ is a positive development that should be replicated nationwide. There are clear social returns to better teaching,¹¹⁸ with the greatest need in low socioeconomic areas. Schemes to attract talented teachers to disadvantaged schools (such as Teach First) are important,¹¹⁹ but more mainstream solutions will also be required. The most important intervention will be attracting and retaining high quality teachers. However, this is likely to continue to be a challenge when teachers are paid on average 20% less than their private sector peers with similar levels of education¹²⁰ and their pay has declined 10% in real terms between 2002/3 and 2013/14 (one of only four OECD nations to see a decline between 2002 and 2013).¹²¹ Both starting salaries and top-level salaries of English primary and secondary teachers are behind the OECD and EU21 averages: upper secondary teachers in Germany can expect to earn 73% more than teachers in England at the height of their career.¹²¹ Furthermore, an OECD study shows the UK ranked 10th of 21 countries in societal respect for teachers, behind USA, Greece and China.¹²² Improving the financial and social standing of teachers should be a key priority for Government to improve social mobility with higher rates of pay and steeper pay scales likely effective levers.

Addressing the educational "summer gap" in educational attainment between rich and poor will be vital. Various interventions are possible, including lengthening the school day or the school year. Both Singapore and South Korea have successfully improved their Pisa scores in part through implementing longer school days.¹²³ This could be achieved more cost-effectively if the extra time is used for supervised homework completion, where fewer qualified teachers are required. Digital programmes that provide compulsory educational activities to complete over summer, as well as free places on summer educational programmes, could also help narrow the "summer gap" between rich and poor.¹²⁴

Ensure children from all backgrounds are equipped with the "essential life skills" to succeed in work

Independent school pupils are often better supported to develop "essential life skills" through a range of extra-curricular activities. These skills are vital in supporting both academic and job market success. Improvement of extra-curricular activities in state schools may be most effective, and a longer school day would allow more activities such as debating and sports to be incorporated. Schools in the US are working to measure "soft skills" such as resilience, self-discipline and communication as part of the curriculum.^{125,126} Though controversy around measurement techniques remain, the approach focuses schools on delivering life skills alongside a formal education. Programmes outside of school which promote life skills, such as the National Citizen Service, could also be further encouraged and supported.

Promote the apprenticeship model and the new T-levels to better match jobs and skills. As previously explored by the Sutton Trust, the radical expansion of high-quality apprenticeships could boost GDP by £8billion per year and reduce the public deficit by £2.5billion.¹²⁷ Furthermore, apprenticeships can act as a key vehicle for social mobility, as in Germany and Switzerland.¹²⁷ In the UK, an additional 300,000 new apprenticeship starts are required each year. These apprenticeships should combine workplace training

¹¹⁷ Blanden et al., *Understanding the Improved Performance of Disadvantaged Pupils in London*, 2013.

¹¹⁸ The Sutton Trust, *Improving the impact of teachers on pupil achievement in the UK – interim findings*, 2011.

¹¹⁹ Brynjolfsson and McAfee, *The Second Machine Age*, 2014.

¹²⁰ Department for Education, *Government Evidence to the STRB*, 2014.

¹²¹ OECD, *Education at a Glance 2015*, 2015.

¹²² Varkey Gems Foundation, *2013 Global Teacher Status Index*, 2013.

¹²³ Olga Khazan, *Here's why other countries beat the U.S. in reading and math*, Washington Post, 2012.

¹²⁴ H. Cooper et al., *The Effects of Summer Vacation on Achievement Test Scores: A Narrative and Meta-Analytic Review*, 1996.

¹²⁵ REL West, *Measuring resilience and youth development*, 2007.

¹²⁶ The New York Times, *Testing for Joy and Grit? Schools' Nationwide Push to Measure Students' Emotional Skills*, 29 February 2016.

¹²⁷ The Sutton Trust, *Real Apprenticeships*, 2013.

with off-site study, and lead to a professional accreditation. The focus of apprenticeships should shift more towards young people, given that in the past up to 75% of new "apprenticeships" have gone to adults over 25.¹²⁷ There should also be an emphasis on quality, with more higher and advance apprenticeships, along with automatic progression, particularly from level 2 to level 3 to facilitate young people's development. Government subsidies of apprenticeship costs (through tax breaks or NI contributions) will likely be required as an initial incentive, but analysis shows that within 5 years the scheme could have a positive budget impact.¹²⁷

The proposed overhaul of technical education and the introduction of T-levels also provides a key opportunity for giving young people the skills needed in the workplace, but their implementation will be critical. Requisite funding to ensure high quality and good advice to make sure young people make informed choices are crucial.

Equip children with the skills to succeed in the face of technological and societal changes

Increasing uptake of STEM subjects (for A-levels, degrees and apprenticeships) across a broad spectrum of socioeconomic backgrounds will be vital to fostering mobility. Of particular importance is increasing uptake among working class women, given the current gaps by gender. This will address skills shortages in the economy (currently there are three vacancies for every STEM qualification awarded),¹²⁷ whilst also providing a path for less advantaged children to reach high-skilled jobs. Tools such as MOOCs (Massively Online Open Courses) can provide low-cost replication of the best teachers, content and methods. This could provide fairer access to education to the majority of children (although MOOCs are still early in their development).¹²⁸

C. Ensure fairer and more equal access to education and the job market

Close access gaps at university entrance

Given the significant premiums graduates command, the gaps in acceptance by socioeconomic background are a clear barrier to mobility. As discussed above, more must be done to improve the A-level attainment of poorer students to match their better-off peers. However, universities also have a significant role to play in widening access. Some progress has been made, with many universities publishing access targets and progress against them. However, universities do not always publish a wide range of relevant metrics (for example, focusing on just state school pupils but not those on Free School Meals). A common set of metrics which all universities are required to report would allow further scrutiny and comparison of access efforts. Sharing of best practice access schemes across universities should also be encouraged, and it is welcome that the Office for Fair Access is working on this. Furthermore, a minimum number of outreach visits could be required of all universities who wish to charge the top fees.

Reduce recruiting biases in the workplace

A positive development is last year's announcement that the Government and leading businesses are collaborating to create a set of common measures to track social mobility in the workplace.¹²⁹ We encourage organisations to contribute to the development of these metrics, and then transparently track their progress against them. The scrutiny this transparency brings to companies has had past success in spurring action to promote gender diversity.

A further step would be a compulsory scheme for companies of a certain size to dedicate a small percentage of their profit to access schemes designed to boost social mobility. These could include outreach activities in schools, or internship and apprenticeship schemes for disadvantaged students.

¹²⁸ Jimmy Daly, *80 Percent of MOOC Students Already Have a College Degree*, Edtech magazine, 2013.

¹²⁹ Gov.uk: New measures announced to improve social mobility in the workplace, 24 March 2016.

Similar initiatives are already in place at elite firms, aimed at promoting gender or racial diversity. For example, RARE partners with elite firms to provide mentoring and insight programmes for ethnic minorities. Some professional services firms have also had success skewing their internship programmes towards females. Replicating these schemes for those from lower socioeconomic backgrounds could help foster improved workplace skills and greater confidence in applying to elite firms. More radically still, the Social Mobility Commission has suggested a ban on unpaid internships, to reduce the advantage of those who are able to draw on parental resources whilst working unpaid.¹³⁰ Finally, to ensure the effectiveness of the aforementioned expansions to apprenticeships and MOOCs, employers must improve recognition of qualifications outside of the elite or mainstream.

This report was prepared by Toby Owens and Ian Walsh (senior partners), Sek-Loong Tan (project leader) and Simon Beck (consultant) from The Boston Consulting Group.

¹³⁰ Social Mobility and Child Poverty Commission, *State of the Nation 2015: Social Mobility and Child Poverty in Great Britain*, 2015.

6. Bibliography

- Adachi, Gretczko and Pelster, *Human Capital Trends 2013: Leading Indicators*, 2013.
- Alexander and Arday (Runnymede Trust), *Aiming higher: Race, Inequality and Diversity in the Academy*, 2015.
- Allen and Elliott (The Guardian), *UK Joins Greece at the bottom of wage growth league*, 27 July 2016 (access: 27 July 2016); Analysis by the Trade Union Congress.
- Andre et al., *Labour Market, Welfare Reform and Inequality in the United Kingdom*, 2013.
- Andrew Haldane, *Labour's Share*. Speech given to the Trades Union Congress, 2015.
- Ashley and Empson, *Understanding Social Exclusion in Elite Professional Service Firms: Field Level Dynamics and the 'Professional Project'*, 2015.
- Autor, *Why Are There Still So Many Jobs?*, 2015.
- Avanade, *Global Survey: Is Big Data Producing Big Returns?*, 2012.
- Azmat, *Gender gaps in the UK labour market*, 2015.
- Bauer, Patel, and Veira, *The Internet of Things: Sizing up the opportunity*, McKinsey, 2014.
- Blanden and Machin, *Educational inequality and the expansion of UK higher education*, 2004.
- Blanden and Machin, *Recent changes in intergenerational mobility*, 2007.
- Blanden and Macmillan, *Education and intergenerational mobility: Help or hindrance?*, 2014.
- Blanden et al., *Intergenerational mobility in Europe and North America*, 2005.
- Blanden et al., *How much can we learn from International Comparisons of Social Mobility*, 2008.
- Blanden et al., *Accounting for intergenerational income persistence*, 2007.
- Blanden et al., *Intergenerational mobility in the United States and Great Britain*, 2014.
- Blanden et al., *Intergenerational Persistence in Income and Social Class: The Impact of Within-Group Inequality*, 2013.
- Blanden et al., *Understanding the improved performance of disadvantaged pupils in London*, 2015.
- Bolton, *Oxbridge 'elitism'*, 2014.
- Bosworth, , *UK Skill Levels and International Competitiveness*, 2013.
- Britten et al., *UK graduate earnings by gender, institution attended, subject and socio-economic background*, 2016.
- Brown and Smetherham, *The changing graduate market*, 2006.
- Brynjolfsson and McAfee, *The Second Machine Age*, 2014.
- Bukodi et al., *The mobility problem in Britain: new findings from the analysis of birth cohort data*, 2015.
- Burns (BBC), *Outstanding schools take too few poor pupils*, 2 August 2016 (accessed online: 5 August 2016).
- Cabinet Office, *Socio-economic Diversity in the Fast Stream*, 2016.
- Cabinet Office, *The impact of non-cognitive skills on outcomes for your people*, literature review, 2013.
- Carneiro et al., *Which skills matter?*, 2006.
- Cedefop, *Jobs in Europe to Become More Knowledge- and Skills-intensive*, 2010b.
- Citation TBC – will be published in AERA Open in next few weeks by Waldfogel
- Citi Group research, *Technology at work v2.0, The Future is not what it used to be*, 2016.
- Codioli, *Inequalities in students' choice of STEM subjects*, 2015.
- Conger et al., *Economic stress, coercive family process, and developmental problems of adolescents*, 1994.
- Cooper et al., *The effects of summer vacation on achievement test scores*, 1996.
- Cooper et al., *The Effects of Summer Vacation on Achievement Test Scores: A Narrative and Meta-Analytic Review*, 1996.
- Corak, *Income Inequality, Equality of Opportunity, and Intergenerational Mobility*, 2013.
- Corak, *Public policies for equality and social mobility in Canada*, 2013.
- Council of Europe, *Fostering social mobility as a contribution to social cohesion*, 2012.
- Crawford et al., *Higher Education, Career Opportunities and Intergenerational Inequality*, 2016.
- Crawford, *Socio-economic gaps in HE participation: how have they changed over time?*, 2012.

Daly, *80 Percent of MOOC Students Already Have a College Degree*, Edtech magazine, 2013.

De Vries and Rentfrow (Sutton Trust), *A winning personality: The effects of background on personality and earnings*, 2016.

Department for Education, *EYFSP Attainment by Pupil Characteristics 2013 to 2014*, National and Local Authority tables

Department for Education, *GCSE and Equivalent Attainment by Pupil Characteristics: 2014*, 2015.

Department for Education, *Government Evidence to the STRB*, 2014.

Department for Education, *The Economic Value of Key Intermediate Qualifications: Estimating the Returns and Lifetime Productivity Gains to GCSEs, A levels and Apprenticeships*, 2014.

Downey et al., *Are schools the great equalizer? Cognitive inequality during the summer months and the school year*, 2004.

Duckworth. et al., *Horizon Scanning and Scenario Building: Scenarios for Skills 2020*, 2010.

Duraton and Monastiriotis, *Mind the gap*, 2001.

Economic and Social Research Council, *Health inequalities continue to undermine social mobility*

Equality Trust, *How has inequality changed?*, accessed online 26 Aug. 2016

Erikson and Goldthorpe, *Has Social Mobility in Britain Decreased? Reconciling Divergent Findings on Income and Class Mobility*, 2010.

Erikson & Jonsson, *Can education be equalised?* 1998.

EY, *Outsourcing in Europe An in-depth review of drivers, risks and trends in the European outsourcing market*, 2013.

Farrell (The Guardian), *UK workers on zero-hours contracts rise above 800,000*, 9 March 2016 (accessed: 2 Aug. 2016).

Financial Times, *Theresa May shifts focus from 'Northern Powerhouse'*, August 2nd 2016.

Financial Times, *UK's north-south divide widens*, 9 December 2015; The Guardian, *North-south divide is far from being redesigned to history*, 15 April 2015.

Frey and Osborne, *The Future of employment: How susceptible are jobs to computerisation?*, 2013.

Frey and Osborne, *The Future of employment: How susceptible are jobs to computerisation*, 2013.

Fung, Fung and Wind, *Competing in a Flat World*, 2008.

Gardiner and Corlett (Resolution Foundation), *Looking through the hourglass: Hollowing out of the UK job market pre- and post-crisis*, 2015.

Garratt et al. (Social Mobility Commission), *The childhood origins of social mobility*, 2016.

Goldthorpe, *Social class mobility in modern Britain: changing structure, constant process*, 2016.

Goldthorpe, *Understanding – and Misunderstanding – Social Mobility in Britain*, 2012.

Goldthrope and Mills, *Trends in intergenerational class mobility in Britain*, 2008.

Goodman and Gregg, *Poorer children's educational attainment: how important are attitudes and behaviour?*, 2010.

Goodman et al (Early Intervention Foundation)., *Social and emotional skills in childhood and their long-term effects on adult life*, 2015.

Gov.uk: *New measures announced to improve social mobility in the workplace*, 24 March 2016

Grant Thompson, *Women in Business*, 2016.

Hay Group, *Tackling the Gender Pay Gap*, 2015.

Heath & Payne, *Twentieth Century Trends in Social Mobility*, 1999.

Heckman et al., *The effects of cognitive and noncognitive abilities on labour market outcomes and social behaviour*, 2006.

Heckman, *Hard evidence on soft skills*, 2012.

Higher Education Statistics Agency, *Student Introduction 2012/2013*.

Hollingworth and Harvey-Price, *Technology and Skills in the Digital Industries*, 2013.

Holmes et al., *Mobility and the changing structure of occupations*, 2011.

Holmes, *The Route out of the Routine: Where do the displaced routine workers go*, 2011.

IMF, *Gender Diversity in Senior Positions and Firm Performance*, 2016.

Independent Commission on Social Mobility, *Report from the Independent Commission on Social Mobility*, 2009

Iniesta-Martinez & Evans (Department for Education), *Pupils not claiming free school meals*, 2012

IPSE, *Exploring the UK Freelance workforce in 2015*, 2016

Jantti et al., *American exceptionalism in new light*, 2006.

Jerrim (The Sutton Trust), *Family background and access to 'high status' universities*, 2013.

Jerrim et al., *Socioeconomic inequality in access to high-status colleges*, 2015.

Jerrim, *The Socio-Economic Gradient in Teenagers' Reading Skills: How Does England Compare with Other Countries?*, 2012.

Karabarbounis and Neiman, *The Decline of the Global Labor Share*, 2013

Khazan, *Here's why other countries beat the U.S. in reading and math*, Washington Post, 2012.

Kirby (The Sutton Trust), *Leading People 2016: The educational backgrounds of the UK professional elite*, 2016.

Kirby (The Sutton Trust), *Levels of Success*, 2015

Lindley and Machin, *The rising post-college wage premium in America and Britain*, 2014.

Livesay and Thompson, *Making at Home, Owning Abroad. A Strategic Outlook for the UK's Mid-Sized Manufacturers*, 2013

Liyanagunawardena, *MOOCs: A Systematic Study of the Published Literature 2008-2012*, 2013.

Macmillian, *Social mobility and the professions*, 2009.

Maccrenaro-Gutierrez et al., *Social mobility, parental help, and the importance of networks*, 2015.

McIntosh, *Hollowing out and the future of the labour market*, 2013.

McKnight (The Social Mobility & Child Poverty Commission), *Downward mobility, opportunity hoarding and the 'glass floor'*, 2015.

National Intelligence Council, Washington DC., *Global Trends 2030: Alternative Worlds*, 2012.

Neuman, Park and Panek, *Tracking the Flow of Information into the Home*, International Journal of Communication, 2012

OECD, *Education at a Glance 2015*, 2015.

OECD, *Employment outlook 2016*, 2016.

OECD, *Going for Growth; A Family Affair- Intergenerational Social Mobility across OECD countries*, 2010

OECD, *In it together*, 2015.

OECD, *OECD Employment Outlook* (Table N), 2016.

ONS, *Migration Assumptions, 2012-Based National Population Projections*, 2013.

ONS, *Economic Activity for 16-64 year olds*, accessed online 22/08/2016.

ONS, *Job census England and Wales*, 2011.

ONS, *National Population Projections: 2014-based Statistical Bulletin*, 2015.

ONS, *Statistical Bulletin: Annual Survey of Hours and Earnings, 2012 Provisional Results*, 2012c.

ONS, *What is the Gender Pay Gap?*, accessed online 22/08/2016.

Ouye, *Five Trends that Are Dramatically Changing Work and the Workplace*, 2011.

Pezzini, *'An Emerging Middle-Class'*, in *OECD Observer*, 2012.

Reardon, *The Widening Academic Achievement Gap Between the Rich and Poor*, 2011.

REL West, *Measuring resilience and youth development*, 2007.

Resolution Foundation, *Stagnation Generation*, 2016.

Sabates and Dex, *The impact of multiple risk factors on young children's cognitive and behavioural development*, 2013.

Social Mobility & Child Poverty Commission, *A qualitative evaluation of non-educational barriers to the elite professions*, 2015.

Socioeconomic status measured by a combination of parental occupation, parental education and Free School Meal status

Solon, *A model of intergenerational mobility variation over time and place*, 2004.

Sullivan et al., *Social Class and Inequalities in Early Cognitive Scores*, 2013

Summers, *Economic Possibilities for our Children*, 2013.,

Sutton Trust, *Oxbridge admissions*, 2016.

Taris et al., *All day and all of the night: The relative contribution of two dimensions of workaholicism to well-being in self-employed workers*, 2008.

Tech Women UK, *The Women in Technology Project Research Report 2015*, 2015.

The Atlantic, *A World Without Work*, 2015.

The Boston Consulting Group, <https://www.bcg.com/expertise/industries/automotive/autonomous-vehicle-adoption-study.aspx>, 2016.

The Boston Consulting Group, *Industry 4.0: The Future of Productivity and Growth in Manufacturing Industries*, 2015.

The Boston Consulting Group, *The Most Adaptive Companies 2012, Winning in an Age of Turbulence*, 2012.

The New York Times, *Testing for Joy and Grit? Schools' Nationwide Push to Measure Students' Emotional Skills*, 29 February 2016.

The Prince's Trust, *40 life-changing years*, 2016.

The Sutton Trust, *Improving the impact of teachers on pupil achievement in the UK – interim findings*, 2011.

The Sutton Trust, *Real Apprenticeships*, 2013

The Sutton Trust, *Responding to the new landscape for university access*, 2010.

The White House, *The Long Term Decline in Prime Age Male Labour Force Participation*, 2016.

The World Wealth and Income Database, accessed online: 02/08/2016.

UK Commission for Employment and Skills, *Working Futures 2014-2024*, 2016.

UNDESA, *World Urbanization Prospects The 2014 Revision*, 2014.

Vallet, *Changes in intergenerational social fluidity in France*, 2004.

Varkey Gems Foundation, *2013 Global Teacher Status Index*, 2013.

Waldfogel and Washbrook, *Early years policy*, 2008.

World Economic Forum, *The Future of Jobs; Employment, Skills and Workforce Strategy for the Fourth Industrial Revolution*, 2016.