



Social Mobility
Commission

Social Mobility, the Class Pay Gap and Intergenerational Worklessness: New Insights from The Labour Force Survey

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26 January 2017

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About the Commission

The Social Mobility Commission is an advisory non-departmental public body established under the Life Chances Act 2010 as modified by the Welfare Reform and Work Act 2016. It has a duty to assess progress in improving social mobility in the UK and to promote social mobility in England. It consists of up to 10 commissioners, supported by a small secretariat.

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- The Rt. Hon. Alan Milburn (Chair).
- The Rt. Hon. Baroness Gillian Shephard (Deputy Chair).
- Paul Gregg, Professor of Economic and Social Policy, University of Bath.
- David Johnston, Chief Executive of the Social Mobility Foundation.

The functions of the Commission include:

- Monitoring progress on improving social mobility.
- Providing published advice to ministers on matters relating to social mobility.
- Undertaking social mobility advocacy.

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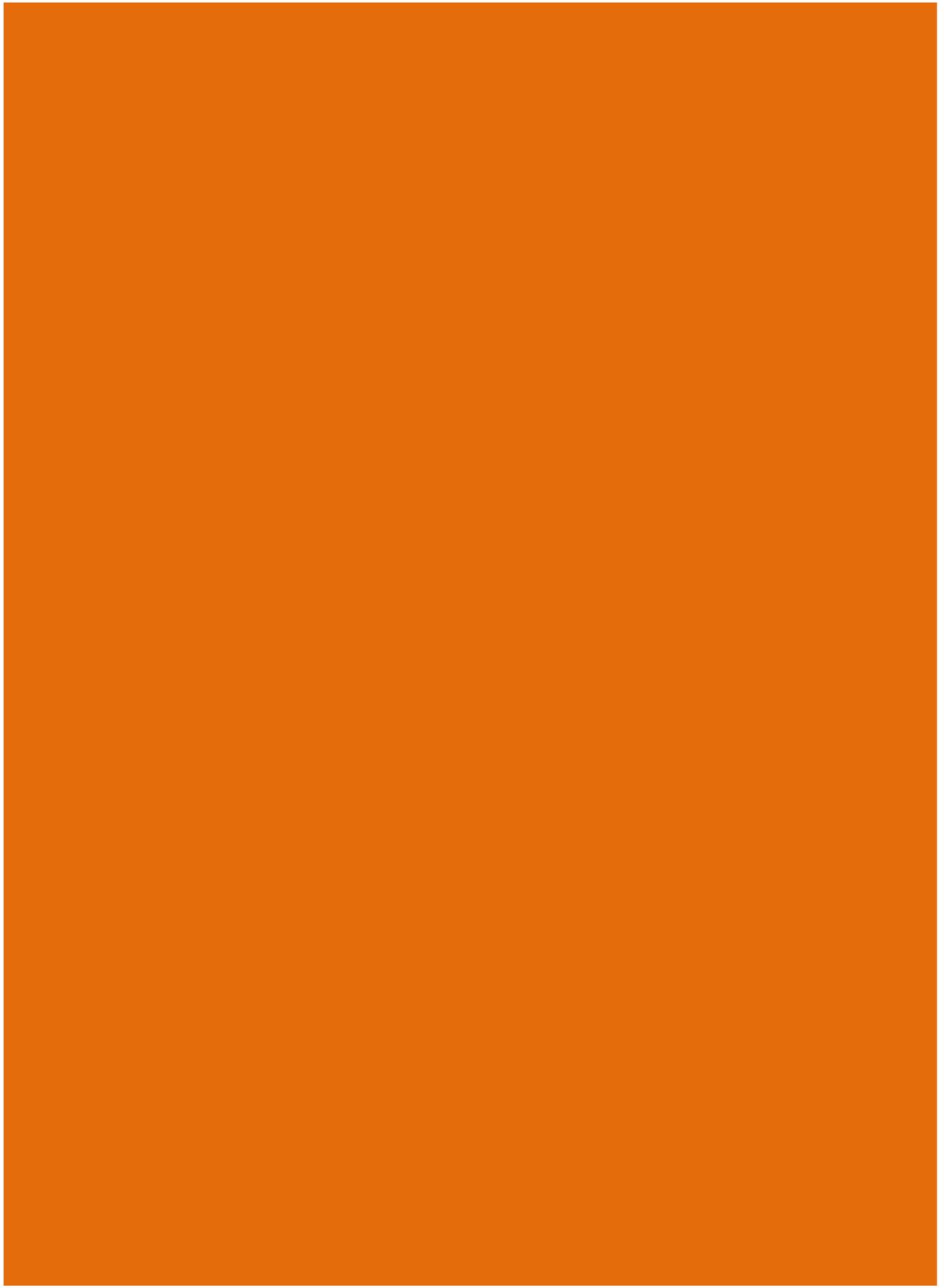
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Acknowledgements

The authors would like to thank Paul Gregg, Mike Savage, Tak Wing Chan, Steve Gibbons, Alex Bryson, Jouni Kuha, Paul Wakeling, Niall Cunningham, Neil Lee, Ruth Lupton, Polina Oblenskaya, and Aaron Reeves for detailed comments and feedback on draft versions of this report, and Alivia Kratke, Rachael Millar, Peter Brant and Kirsty Walker from the Social Mobility Commission for comments and feedback.

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Executive Summary

Social mobility remains at the very top of the political agenda. Yet the UK has traditionally lacked a data source extensive enough to pinpoint exactly where to target policy interventions intended to improve social mobility. This report capitalises on new socio-economic background questions within the UK Labour Force Survey (LFS) to provide the most comprehensive analysis of social mobility to-date. Drawing on an unusually large sample of 64,566 we are able to move beyond the normal measures of national mobility rates to shine a light on a number of pressing but largely unexplored questions. In particular, we hone in on mobility in the top echelons of British society by examining the openness of the professions, and at the bottom by looking at intergenerational worklessness. We end with three proposals to improve this important data source to help us answer some key questions regarding social mobility. Below we summarise our main findings:

1. Rates of Social Mobility

Social mobility represents the norm and not the exception in contemporary Britain – 43% experience some form of upward mobility compared to their parents whereas 29% experience downward movement. However, strong barriers to equality of opportunity persist. The odds of those from professional backgrounds ending up in professional jobs are 2.5 times higher than the odds of those from less advantaged backgrounds reaching the professions. For those from working-class backgrounds, the odds of following in their parents' occupational footsteps are 2.3 times higher than the odds of those from more advantaged backgrounds moving into working-class jobs. We also find that 45% of earnings inequalities are passed across generations.

2. Access and Progression within the Professions

Britain's traditional professions such as medicine, law, journalism, and academia remain dominated by those from advantaged backgrounds. 73% of doctors are from professional and managerial backgrounds and less than 6% are from working-class backgrounds. However, there are clear grounds for optimism in some sectors. For example, technical professions such as engineering and IT as well as many public sector professions are markedly more open - with a clear majority *not* from professional families.

Moving from who gets 'in' to who gets 'on' we find evidence of a powerful and largely unacknowledged 'class pay gap' within the professions; those from working-class backgrounds earn on average £6,800 less than colleagues from professional and managerial backgrounds. This is partly explained by differences in education and occupational segregation, but even when comparing individuals with the same education, occupation and level of experience, those from working-class backgrounds are still paid £2,242 less than more privileged colleagues. This penalty is exacerbated for upwardly mobile women and ethnic minorities who face a 'double disadvantage' in earnings. Our analysis also reveals that the class pay gap is particularly marked in finance, medicine and IT.

3. *Intergenerational Worklessness*

While there is little evidence of generations of families never working, we do find that people from workless households are 15-18 percentage points more likely to be workless themselves as adults, a finding which is broadly consistent across gender and age. Our analysis suggests that intergenerational health issues and particularly local economic conditions are fundamental in explaining this association. For those currently living in areas with low unemployment there are only small differences in workless rates between those who grew up in a workless versus a working household. In contrast, people currently living in areas of high unemployment from workless households are over 25 percentage points more likely to be workless than those from working households. The impact of these external conditions, we argue, go some way in dispelling the myth that people from workless families simply collect welfare payments as a lifestyle choice rather than working.

4. *Strengthening Social Mobility Data in the future*

We propose that the LFS social mobility unit could be significantly strengthened with the inclusion of new questions relating to parental education and, in particular, region of origin. While the sample size is large enough to enable a detailed exploration of regional patterns of social mobility, the current survey only asks about people's current location, hampering a robust regional analysis. We also emphasise the benefits of continuing this unit of questions, which over time is likely to become the UK's most authoritative data source for answering important policy questions about changes in social mobility. We suggest that the social mobility questions could be asked less frequently, every second or third July-September wave, including the additional questions, at a zero-sum cost.

1. Introduction

Improving intergenerational social mobility remains one of the UK government's most pressing social policy goals. As Theresa May recently pledged in her maiden speech as Prime Minister, 'we won't entrench the advantages of the fortunate few, we will do everything we can to help anybody, whatever your background, to go as far as your talents will take you.'

However, one longstanding hurdle in realising this political aim is the limitations of data on social mobility. Most existing studies of mobility rely on longitudinal sources such as the Birth Cohort Studies, where respondents were born in 1958 and 1970 (Bukodi et al, 2015, Blanden et al, 2004; Goldthorpe and Mills, 2008). These have been very useful for understanding how national mobility rates have changed over time but their limited sample sizes have left a number of important questions unanswered. In particular, the UK has lacked a large nationally representative data source able to provide fine-grained analysis of how mobility varies according to sub-categories of the population such as by profession and among the workless¹. This was recently addressed when, after sustained lobbying from the Social Mobility Commission and other stakeholders, the 2014 and 2015 waves of The Labour Force Survey (LFS) included for the first time questions about socio-economic background (see Appendix B for full details). The LFS represents the largest survey of employment in the UK, with a sample of over 90,000 respondents, and a rich array of questions relating to earnings and other important aspects of a person's work context.

In this report we capitalise on the LFS data to shed new light on patterns of social mobility. We begin by providing an overview of national mobility trends, presenting new estimates of intergenerational occupation and earnings mobility. We then turn to two relatively underexplored questions relating to social mobility. First, we look at the top, focusing on access to and progression within the top professions. Second, we focus on the bottom, considering the issue of intergenerational worklessness – examining whether there is an association between a person's employment status and that of their parents. Below we briefly outline where these research questions come from and why they are important for understanding social mobility in contemporary Britain.

1.1 National Mobility Rates

Academics in the UK measure intergenerational social mobility in two different ways. Sociologists have traditionally favoured measures of occupational class. This is based on an individual's National Statistics Socio-Economic Classification (NS-SEC), a measure which combines occupation with the degree of autonomy of the role and the size of the employer (see Appendix Table A1 for examples). Mobility is calculated by looking at how a person's NS-SEC compares to that of their main income-earning parent. Alternatively, economists have tended to measure mobility by looking at intergenerational differences in income or earnings. In the recent

¹ The ONS longitudinal Study contains a large representative sample and has been used fruitfully to look at mobility (Fry et al, 2012). However, it is limited when looking at worklessness and its most recent data is from 2011 which is already somewhat out-of-date.

literature these two approaches have generated somewhat divergent results. Drawing on data from the 1958 National Child Development Study (NCDS) and the 1970 British Cohort Study (BCS70), economists Blanden et al (2004; 2005; 2007) found that income mobility has fallen for those sons born in 1970 compared with those born in 1958. Such a decline in mobility has also been detected in the recent work of Gregg et al. (2016). These findings have had a strong impact in political and media circles, leading to a widespread consensus that social mobility is in decline.

However, studies using the same data focusing on occupational mobility have found that class mobility has remained stable over time (Goldthorpe and Jackson, 2007; Goldthorpe and Mills, 2008; Goldthorpe, 2013)². Most recently, Bukodi et al (2015) draw on an extended data set including four birth cohorts³, to argue that while the overall mobility rate has stayed constant, upward mobility is declining and downward mobility increasing for both men and women. In terms of relative mobility rates (see box), they similarly find no evidence of declining mobility and instead, for women, show that there is some evidence of greater relative social mobility among younger cohorts.

DEFINING KEY TERMS: RELATIVE AND ABSOLUTE MOBILITY

While economists focus on the extent to which individuals' relative position in the income distribution changes across generations, sociologists typically distinguish between two types of mobility rates; absolute mobility, which measures the percentage of individuals whose class destinations are different from their class origins (in terms of upward, downward and total movement) and relative mobility, which measures the relative chances of individuals of different class origins arriving at different class destinations *net of all change in the occupational structure*.

In this report we report rates of occupational *and* income mobility⁴. However, we also attempt to bring these two strands of research together. In particular, we are informed by recent work (Laurison and Friedman, 2016; Gregg et al, 2015, Crawford et al, 2016) which argues that there are important earnings differences *within* occupational classes or education groups that relate to a person's family background. In other words, even when individuals experience occupational mobility, they may still face a 'class ceiling' in terms of their earnings. This form of intra-class

² A lively academic debate has interrogated how these two findings interact, exploring measurement issues and the increase in within-class inequality over time (see Erikson and Goldthorpe, 2010, Blanden et al., 2013 and Breen et al., 2015).

³ Bukodi et al (2015) supplement the NCDS and BCS data by constructing a 1948 cohort from the National Survey of Health and Development (NSHD) and a 1980-84 cohort from the UK Household Longitudinal Study

⁴ The comparative advantage of the LFS data is that it contains a much higher sample from which to calculate mobility rates. However, it also has a number of limitations. Most centrally the data we report offers only a cross-sectional snapshot of social mobility and therefore, unlike the longitudinal analysis cited above, has limited ability to comment on changes in mobility over time.

earnings inequality represents a very important dimension of social mobility, and one that has been somewhat overlooked amid the longstanding debate over the measurement of mobility. As we explain in the following section, we therefore interrogate this issue in detail here - with a particular focus on the professions.

1.2 Access to, and Progression within, The Professions

In the post-war period the professions represented the primary route for intergenerational social mobility in the UK (Cabinet office, 2008). Yet in recent years a number of reports commissioned by the Social Mobility Commission have highlighted that Britain's traditionally high-status professional arenas, such as law, medicine, journalism, elite professional services and, most recently, banking, are dominated by those who have been privately educated or who hail from privileged backgrounds. While this work has been revealing, it has had to rely on either data with small sample sizes (Macmillan, 2009), or purely qualitative data (Ashley et al., 2015; Moore et al., 2016). In contrast, the new LFS data we draw on in this report contains both a very large sample size and detailed data on parental occupation. This allows us to compare the impact of socio-economic background on rates of access into both traditional high-status professions like medicine and law but also many professions not often explored in relation to social mobility such as nursing, social work, life science and IT.

Another limitation of existing work on the professions is that it tends to focus almost entirely on how background affects entry into top jobs. Yet while those from working-class backgrounds may secure admission to elite occupations, they do not necessarily go on to achieve the same earnings, or levels of success. This issue of relative success *within* occupations has of course been very effectively explored in relation to women and ethnic minorities, with studies consistently demonstrated the considerable hidden barriers, pay gaps, and general "glass ceilings," faced by women and ethnic minorities in Britain's top occupations (Davies, 2011; Brynin and Guveli, 2012). However, recent research (Friedman et al, 2015; Laurison and Friedman, 2016) has revealed that a 'class ceiling' is also at play in high-status occupations. More specifically, examining the large-sample 2013 Great British Class Survey (GBCS) and the 2014 Labour Force Survey (LFS), Friedman and Laurison uncover a significant 'class-origin pay gap' in both data sets within higher professional and managerial (NS-SEC 1) occupations.

In this report we extend this work in two important ways. First, we extend our analytical lens to all professional and managerial occupations (NS-SEC 1 and 2) rather than just focusing on the most high-status professions (NS-SEC 1). This allows us to see whether there are class pay gaps in a wider set of professions. Second, our analysis draws on data from both the 2014 and 2015 waves of the LFS, and therefore benefits from a greatly increased sample size.

1.3 Intergenerational Worklessness

One major limitation with measures of national mobility rates is that they often exclude those who are long-term unemployed or workless. This is because an NS-SEC category based on occupation is difficult to allocate if an individual does not have a stable occupation. Similarly, measures of earnings exclude those who do not work. Therefore, the majority of previous work on national mobility rates has excluded those right at the bottom of the income or occupation distribution; the

workless. Yet intergenerational worklessness, the extent to which workless adults are likely to have grown up in a workless household, is a high-profile policy issue and was often cited by Iain Duncan Smith MP when justifying his wide-scale welfare reforms:

“A radical welfare reform programme designed to tackle entrenched poverty and *end the curse of intergenerational worklessness* is set out today by new Secretary of State for Work and Pensions Iain Duncan Smith. Calling for an *end to a culture of welfare dependency ...*” DWP Press Release (2010).⁵

There have been very few large-scale quantitative studies on this topic, with the exception of Macmillan (2014), who uses the two national birth cohort studies to look at intergenerational worklessness over time and the role of local labour markets in this relationship. This work builds on that study, considering the extent of intergenerational worklessness in the UK for this large new sample of data, and to what extent this relationship is driven by supply-side factors, such as a lack of education or health issues, or demand-side factors, such as poor local labour market conditions.

⁵ <http://www.dwp.gov.uk/newsroom/press-releases/2010/may-2010/dwp070-10-270510.shtml> (accessed 15th May 2012).

2. Data and Methodology

Our analysis draws on data from the Labour Force Survey (LFS), the largest representative sample of employment in the UK. We draw on LFS data collected from 2013 to 2015 and this gives us a sample of 64,566⁶ survey respondents aged 25-60⁷. Here we give a brief overview of the data and methodology used in this analysis. More detail is provided in Appendix C at the end of this report.

To measure occupational social mobility, respondent's origin class is created using information on the occupation of their main earning parent (80% father) when they were 14. We then group respondents into the 7 classes of the National Statistics Socio-Economic Classification (NS-SEC). Appendix Table A1 shows the breakdowns and examples of occupations in each class. We compare this to respondent's destination class, measured in terms of their current occupation. Given the large sample size in the LFS, we are also able to consider mobility differences by gender, age and ethnicity⁸.

DEFINING KEY TERMS: 'THE PROFESSIONS' AND 'WORKING CLASS'.

Following standard practice, we refer to NS-SEC 1 and 2 occupations as 'the professions'. There is no widely accepted definition of the professions but in this report when we use this term we refer to all those whose work, or whose main earning parent's work, places them in the top two classes of the NS-SEC classification – defined formally as 'professional and managerial employment'. Our extended definition reflects the widespread professionalization of management occupations that has taken place in recent decades (Evetts, 2009)

Similarly, we refer to NS-SEC 6 and 7 occupations as *working-class*. Again there is no uncontested definition of the term 'working-class' but it is commonly used throughout social scientific research to describe this set of occupations (Bukodi et al, 2014; Savage et al, 2015).

⁶ The sample size is slightly larger (68,459) when we look at rates of intergenerational worklessness as there is some missing data on respondent's parental occupation when we look at occupational mobility

⁷ We restrict the sample to age 60 or younger to minimise the effects of retirement, particularly for women in our sample as this was the standard national retirement age for women until 2010, which is now being gradually brought in line with the retirement age for men (now at age 65).

⁸ We follow standard academic practice (Li and Health, 2016) and focus on the main 'visible' minority groups. We thus distinguish white, black Caribbean, black African, Indian, Pakistani/Bangladeshi, Chinese, other Asians, and mixed ethnicity. We combine the Bangladeshis with the Pakistanis, as both groups are predominantly Muslim, tend to face similar levels of dis-advantage in the British labour market, and also experience similar levels of social fluidity. Migrants and their children of white European origins from Europe, North America, Australia, New Zealand (white other) and from the Republic of Ireland (white Irish) are included in the white category.

In our analysis of the class pay gap, we show results using the simplified 3-class scheme of NS-SEC for ease of presentation. This involves comparing respondents with professional and managerial (NS-SEC 1 and 2) origins to those with intermediate (NS-SEC 3, 4 and 5) and routine and semi-routine (NS-SEC 6 and 7) origins. For ease of presentation, we refer to respondents from professional (and managerial) backgrounds as from the ‘professions’; those from NS-SEC 3, 4 and 5 backgrounds are referred to as ‘intermediate’; and those from NS-SEC 6 and 7 backgrounds are referred to as ‘working-class’. Where sample sizes are low we also occasionally combine both ranges to make one ‘upwardly mobile’ group.

To analyse progression within the professions, the earnings of the survey respondents are used. Earnings do not necessarily provide a definitive measure of occupational position but they are the best available proxy and an important marker of success in their own right. These measures were only collected in waves 1 and 5. This resulted in a sample of 15,881 respondents working in the professions (top two NS-SEC classes) who also have earnings information, and 15,498 with data on all covariates used in regression models.

Intergenerational earnings mobility cannot be directly estimated using this data as no questions were asked about parental earnings. However, a Two-Sample Two-Stage Least Squared (TSTSLS) approach⁹ can be used to impute average occupation-level earnings for respondent’s main-earning parent based on their responses to the occupation of their main parental earner when they were 14 (see Appendix B for details of the survey questions and Appendix C for more detail on this approach).

In terms of measuring intergenerational worklessness, we first identify respondents who report that ‘no one was earning’ in response to the question about their main wage earner at aged 14 (see Appendix B). We then examine these responses in relation to respondents’ own experience of worklessness, with workless spells defined as any spell not in employment or full time education¹⁰.

It is important to note that the LFS is a cross-sectional survey (i.e it only offers a snapshot of social mobility) and therefore one limitation of our analysis is that we have a very limited capacity to talk about changes in mobility over time. In other words, we are not able to ascertain whether differences in social mobility across age groups are related to respondents being at different stages of their careers or whether they reflect changes that have occurred over time. Further waves of SM unit questions will enable researchers to distinguish between the two effects. In the executive summary and the conclusions we recommend some improvements to the current social mobility questions in the LFS, emphasising the importance of this unit for understanding crucial policy questions.

⁹ There are a number of potential biases associated with this approach (see Jerrim et al., 2016). This technique would be improved if measures of parental education were also available.

¹⁰ We use two measures of respondent’s own worklessness which are detailed in Appendix C.

3. How Open is Contemporary Britain? Intergenerational Social Mobility

Key Findings:

- **43% of people in Britain experience upward social mobility¹¹**
- **29% experience downward social mobility**
- **The odds of those from professional or managerial backgrounds ending up in a professional or managerial job are 2.5 times higher than the odds for those from less advantaged backgrounds moving to the top**
- **Those from working-class backgrounds have odds 2.3 times higher than those from more advantaged backgrounds of ending up in working-class jobs**
- **Younger cohorts appear less mobile, although there are difficulties separating age and time effects here**
- **Black Caribbeans and Pakistani and Bangladeshi ethnic origins appear to be more mobile than those from white ethnic origins**
- **45% of earnings inequalities are passed across generations**

3.1 Occupational Mobility

Measures of absolute mobility capture any movements that occur between the 7 origin and destination social classes¹². While, unlike measures of relative mobility, they do not account for changes in the overall size of class groupings,¹³ absolute rates are informative about how much mobility there is within the population.

As can be seen from Table 1, the experience of social mobility represents the norm rather than the exception in contemporary Britain - 43% have experienced upward mobility and 29% downward mobility compared to their parents. More people have therefore moved up compared to down, but this arguably reflects the greater 'room at the top' over time in terms of a growing professional and managerial sector. Appendix Table A2 illustrates that there has been a significant expansion in professional and managerial employment - 34% of respondents have professional or managerial *origins* whereas 47% are employed *now* in professional and managerial jobs.

Next we turn to relative rates of intergenerational occupation mobility. These capture the chances of individuals of different classes of origin being found in different

¹¹ In the original version of this report, published on the 23rd of January 2017, absolute upward and downward mobility was incorrectly calculated. Specifically, it included movements between classes 3-5 which are difficult to rank and therefore considered horizontal moves (for further detail see Goldthorpe, 2016: 90-91). In this corrected version, published on 24th February 2017, the results in Tables 1-4 have been adjusted to exclude mobility movements between Classes 3-5

¹² With the exception of movements within classes 3-5 (for further detail see Goldthorpe, 2016: 90-91)

¹³ See Appendix Table A2 for the underlying transition matrix and a discussion of the change in the size of class groups between origin and destination.

classes of destination, taking account of structural changes in occupational groups such as the vast expansion of professional and managerial occupations.

Table 1 demonstrates that the odds of an individual with a professional or managerial parent ending up in professional employment themselves are 2.5 times higher than the odds of someone from any other background ending up in professional employment. Similarly, the odds of individuals from working-class backgrounds ending up in working-class jobs are 2.3 times higher than the odds of those with parents in higher social classes working in working-class jobs. This indicates that the intergenerational reproduction of advantage *and* disadvantage remain strong in Britain.

Table 1: Absolute and relative intergenerational occupation mobility

	All
Absolute mobility	
Downward	28.6%
Upward	42.8%
Horizontal	7.6%
Relative mobility	
Ratio of odds of staying in NS-SEC 1 or 2 relative to moving to top	2.54
Ratio of odds of staying in NS-SEC 6 or 7 relative to moving to bottom	2.29

Notes: All individuals age 25-60 with a reported main parent occupation at 14 in July-Sept 2014 or July-Sept 2015 and reporting own NS-SEC in any wave. Weighted frequencies used to calculate summary statistics. Unweighted N=55,308, weighted N=33,149,226. Weighted frequencies used to calculate summary statistics.

DEFINING KEY TERMS: MEASURING RELATIVE MOBILITY

Relative rates are measured using what are called odds ratios. As Goldthorpe (2016: 97) explains: ‘What odds ratios tell us is the chance of an individual originating in class A being found in class A rather than in class B relative to the chance of an individual originating in class B being found in class A rather than in class B. If the odds ratio works out at 1, this means that these chances are equal, and that there is no association between class origin and destination. But as the odds ratio rises above 1, the more unequal are the relative chances, and the stronger the association between class of origin and of destination.’

In this report we largely focus on two key odds ratios: First, the odds of ending up in the top two classes if one is *from the top two classes* compared to the odds of ending up in the top two classes *from any lower class*; second, the odds of ending up in the bottom two classes if *from the bottom two classes*, relative to the odds of ending up in the bottom two classes *from any higher class*. We focus on these two ratios as we believe they provide a powerful metric describing the relative chances of advantage and disadvantage being reproduced intergenerationally. However, it is important to note that there are numerous odds ratios relating to other NS-SEC movements that we largely do not show that could confound these two particular odds ratios (see Appendix A for further details).

Table 2 compares rates of absolute and relative mobility by gender. In absolute terms, men are slightly less likely to experience downward mobility while women are slightly less likely to experience upward mobility. However, an exploration of relative mobility models (Appendix Table A5)¹⁴ suggests that there are no differences in relative rates across genders.

Table 2: Absolute and relative intergenerational occupation mobility by gender

	Males	Females
Absolute mobility		
Downward	26.9	30.2
Upward	43.6	41.9
Horizontal	7.2	8.0
Relative mobility		
Ratio of odds of staying in NS-SEC 1 or 2 relative to moving to top	2.64	2.43
Ratio of odds of staying in NS-SEC 6 or 7 relative to moving to bottom	2.33	2.26

Notes: All individuals age 25-60 with a reported main parent occupation at 14 in July-Sept 2014 or July-Sept 2015 and reporting own NS-SEC in any wave. Male unweighted N = 26,670, weighted N =18,830,570. Female unweighted N = 28,638, weighted N =18,318,656. Weighted frequencies used to calculate summary statistics.

We also consider age differences in mobility by splitting the sample into four age groups¹⁵. We restrict the youngest group to 29 – 36 as many individuals in their mid-twenties are in transitory positions and have not yet settled into their adult career path. Looking across Table 3, the results suggest that older cohorts have experienced both more absolute and relative mobility. The upward mobility rate rises from 40% for the youngest individuals to 46% for the oldest. The youngest groups experience more downward mobility than their older counterparts. Looking at relative rates, the odds of those from professional backgrounds in the oldest cohort staying in the top two NS-SEC groups were 2.3 times higher than the odds of those from non-professional families moving to the top. For the youngest cohort, the odds of those from professional backgrounds staying at the top are 2.7 times higher than the odds of those from all other backgrounds moving to the top.

As noted in the methodology section, the cross-sectional nature of the LFS data makes it impossible to separate out differences that stem from individuals being

¹⁴ In the appendix, we present results from three statistical models that take into account all possible odds ratios to test whether there are any differences in odds ratios across sub-groups such as gender, age and ethnicity. The first model is a baseline model with very unrealistic assumptions about the relationship between class origin and destination. The second model, constant social fluidity (CSF), assumes that the odds ratios are the same across subgroups, such as males and females, or across age groups. The third model, UNIDIFF, allows the relationship across sub-groups to vary by some scaled factor (β parameter under UNIDIFF). If the UNIDIFF model is a better fit than the CSF model, this implies that there are differences across sub-groups. If not, there are unlikely to be any differences across groups.

¹⁵ Appendix Table A7 replicated this analysis by age and gender. The patterns are broadly similar to those seen in the two separate analyses.

different ages and experiencing things at a different period in time. We can therefore not tell whether the young are less mobile because they have had less opportunity to move yet or because the class system has become less mobile. However, the literature suggests that most individuals reach ‘occupational maturity’ in their mid-thirties (Bukodi et al., 2015) and therefore it is possible to argue that our oldest three cohorts have largely reached their final class destination. Considered this way our data does provide tentative evidence of a decline in social mobility among younger Britons, particularly in terms of relative mobility rates. This is supported by the relative mobility models (Appendix Table A6)¹⁶. However, we would stress here that future waves of data are required to assert any firm conclusions about changes over time.

Table 3: Age differences in intergenerational occupation mobility

	29-36	37-44	45-52	53-60
Absolute mobility				
Downward	30.4	27.3	26.5	26.7
Upward	39.5	43.5	45.3	46.0
Horizontal	6.6	7.5	8.0	8.1
Relative mobility				
Ratio of odds of staying in NS-SEC 1 or 2 relative to moving to top	2.69	2.64	2.56	2.26
Ratio of odds of staying in NS-SEC 6 or 7 relative to moving to bottom	2.55	2.25	2.35	2.06

Notes: All individuals in given age range with a reported main parent occupation at 14 in July-Sept 2014 or July-Sept 2015 and reporting own NS-SEC in any wave. Age 29-36 unweighted N = 13,028, weighted N = 8,085,814. Age 37-44 unweighted N = 14,060, weighted N = 9,169,121. Age 45-52 unweighted N = 12,293, weighted N = 8,044,460. Age 53-60 unweighted N = 11,384, weighted N = 8,123,191. Weighted frequencies used to calculate summary statistics.

Finally, we look at rates of mobility by ethnic background in Table 4¹⁷. Here we see that some minority ethnic groups appear to be more mobile than others in both absolute and relative terms. For example, Black Caribbean individuals have high rates of upward mobility (51% move up a class compared to their main earning parent) and the odds of those from professional backgrounds working in the professions themselves is only 1.8 times higher than Black Caribbean individuals from less advantaged backgrounds moving into the professions. Similarly, Pakistanis and Bangladeshis have comparatively high rates of both upward and downward mobility. Contrast this to White individuals who experience less upward mobility (43%) and where those from professional backgrounds have odds 2.6 times higher than those from other backgrounds of moving into the professions. Significantly, the magnitude of these ethnic differences are supported by relative mobility models (see Appendix Table A8).

¹⁶ where the UNIDIFF model shows an improvement in fit compared to the CSF model

¹⁷ Here we do not distinguish between recent migrants and second generation migrants and this could explain some key differences across groups. Further exploration is beyond the scope of this report but a fruitful line of enquiry for future research would be the relationship between patterns of migration and social mobility.

Table 4: Differences in intergenerational occupation mobility by ethnicity

	White	Indian	Pakistani / Bangladeshi	Chinese	Other Asian	Black African	Black Caribbean	Mixed or other
Absolute mobility								
Downward	28.3	26.1	28.5	24.8	39.8	43.2	24.8	32.9
Upward	42.9	47.7	43.9	45.4	29.5	30.1	50.7	37.1
Horizontal	7.5	6.7	9.2	9.0	9.9	5.8	6.1	6.8
Relative mobility								
Ratio of odds of staying in NS-SEC 1 or 2 relative to moving to top	2.58	2.17	1.43	3.13	2.92	1.75	1.80	2.40
Ratio of odds of staying in NS-SEC 6 or 7 relative to moving to bottom	2.45	2.00	1.23	1.43	1.81	2.14	1.49	1.42

Notes: All individuals age 25-60 with a reported main parent occupation at 14 in July-Sept 2014 or July-Sept 2015 and reporting own NS-SEC in any wave. White unweighted N = 43,432, weighted N =29,124,563. Indian unweighted N = 1,357, weighted N =1,011,411. Pakistani/Bangladeshi unweighted N = 865, weighted N =650,685. Chinese unweighted N = 265, weighted N =187,402. Other Asian unweighted N = 562, weighted N =408,883. Black African unweighted N = 687, weighted N =522,574. Black Caribbean unweighted N = 489, weighted N =369,176. Mixed or other unweighted N = 1,141, weighted N =863,525. Weighted frequencies used to calculate summary statistics.

3.2 Earnings mobility

We can also consider intergenerational earnings mobility for a limited sub-group of our sample, the youngest age cohort who were 29-36 in 2015. These individuals were 14 in 1993-2000 and we can therefore impute an occupation-level wage for their main parent earner, based on the reported occupation of the main earner when the respondent was age 14 and the average male full time earnings for that occupation during that period of time. This cohort was born 1979-1986, a decade later than our most recent available estimates of intergenerational earnings mobility in the UK (for the national British Cohort Study, born in 1970, see Gregg et al., 2016). The estimated coefficient, the intergenerational elasticity, is a measure of the extent of mobility with a coefficient of 0 indicating a perfectly mobile society and a coefficient of 1 indicating an immobile society. International comparison studies suggest that more mobile countries such as Sweden, Norway and Denmark have estimated intergenerational elasticities of 0.2 while less mobile countries such as the US and the UK have estimated intergenerational elasticities of 0.4 or higher (Corak, 2013).

DEFINING KEY TERMS: MEASURING INTERGENERATIONAL EARNINGS MOBILITY USING THE INTERGENERATIONAL ELASTICITY AND RANK-RANK ASSOCIATION.

The log of the survey respondent's destination wages are regressed on the log of the parental occupation-wage to estimate the intergenerational elasticity or the percentage of inequality that is transmitted across generations using OLS.

Measures of the rank ordering of parents and children were also computed within the sample to estimate the rank-rank association. This measures the extent to which intergenerational earnings mobility is driven by re-ordering across generations, net of changes in the distribution of earnings.

The intergenerational elasticity, or the extent to which income inequalities are transmitted from one generation to the next in the UK, is estimated to be 0.45 for this cohort within the LFS (Table 5). That suggests that 45% of inequalities in earnings are passed across generations: almost half of the earnings differences between richer and poorer parents in childhood are evident in the earnings differences of survey respondents when they are adults.

Given the limitations with the data, there are difficulties with comparing this estimate with previous estimates (see Jerrim et al., 2016 for full discussion¹⁸). However, this estimate is close to those found in recent UK studies (for example 0.36-0.42 at age 30 and 34, from Table 2 in Gregg et al., 2016). The second measure of intergenerational earnings mobility, the association between the ranks of earnings, removes any scale issues from the estimate focusing solely on people's rank position within the distribution of earnings. This estimate is less affected by biases due to the technique used¹⁹ and therefore slightly more comparable across studies.

¹⁸ Jerrim et al. (2016) point out that by also including questions regarding parents' educational attainment and combining this with occupation-wage data, this technique is much improved.

¹⁹ see Gregg et al. (2016) for full discussion.

Again, the estimated association of 0.27 is very much in line from previous estimates of an earlier cohort of 0.30-0.32 at age 30 and 34²⁰.

Table 5: Intergenerational earnings mobility by gender

	All	Males	Females
Intergenerational coefficient β	0.446 (0.024)***	0.388 (0.029)***	0.482 (0.035)***
Rank-rank coefficient	0.269 (0.013)***	0.288 (0.019)***	0.273 (0.018)***
N	5,437	2,579	2,858

Notes: Standard errors in parenthesis. * 90% confidence, ** 95% confidence, *** 99% confidence. All individuals age 29-36, with a reported main parent occupation at 14 in July-Sept 2014 or July-Sept 2015 that can be matched to 4-digit occupation-earnings from LFS 1993-2000 and reporting earnings in either wave 1 or 5. Sample weights are used to calculate standard errors.

When looking across genders, the results suggest that women are less mobile than men in this context, consistent with previous studies from the UK (Dearden et al., 1997, Blanden et al., 2004). Caution is urged with these results however as they are based on a sample of females that have positive earnings and are therefore in employment. It is likely that there are sample selection issues related to timing of fertility for females of this age range. When considering the second measure of the rank association, removing differences driven by the scale of earnings, there are no differences between men and women in terms of mobility rates.

We now turn our attention away from national mobility rates to consider more specific dimensions of social mobility; namely, access to and progression within the top professions and persistence at the bottom through intergenerational worklessness.

²⁰ While the evidence presented here is for a limited cohort of the whole sample, this could be improved upon in future by using additional occupation-level wage data from before 1993. This would give estimates of intergenerational earnings mobility for older individuals within this sample. However, given the cross-sectional nature of the data, future waves of the LFS would be required to enable us to separate out changes in intergenerational earnings mobility over time, an important policy question, from differences in earnings mobility across the life cycle.

4. The Class Ceiling: Access and progression within The Professions

Key findings

- ***Traditional professions such as medicine, law, journalism, academia and management consultancy remain dominated by the privileged***
- ***In technical professions such as engineering and IT as well as many public sector professions the majority do not come from professional backgrounds***
- ***Those from working-class backgrounds in the professions earn £6800 less than colleagues from professional backgrounds***
- ***Even when those from working-class backgrounds are similar to those from advantaged backgrounds in terms of education, human capital and a range of other measures, they still face a £2242 class pay gap***
- ***The class pay gap is particularly high in finance, medicine and IT***
- ***Upwardly mobile women and ethnic minorities face a double disadvantage***

So far we have considered general national rates of social mobility. However, one of the most enduring and high-profile policy issues in this space concerns the openness of Britain's professions. Most attention here has focused on ensuring 'fair access' to these occupations. However, more recently this has extended to concerns about career progression and, specifically, the possibility that those from lower socio-economic backgrounds may face a 'class ceiling'. Here we are able to draw on the large sample of the LFS to explore both these issues in unprecedented detail. This analysis combines both class and earnings mobility, looking at earnings inequality by social background *within* the professions.

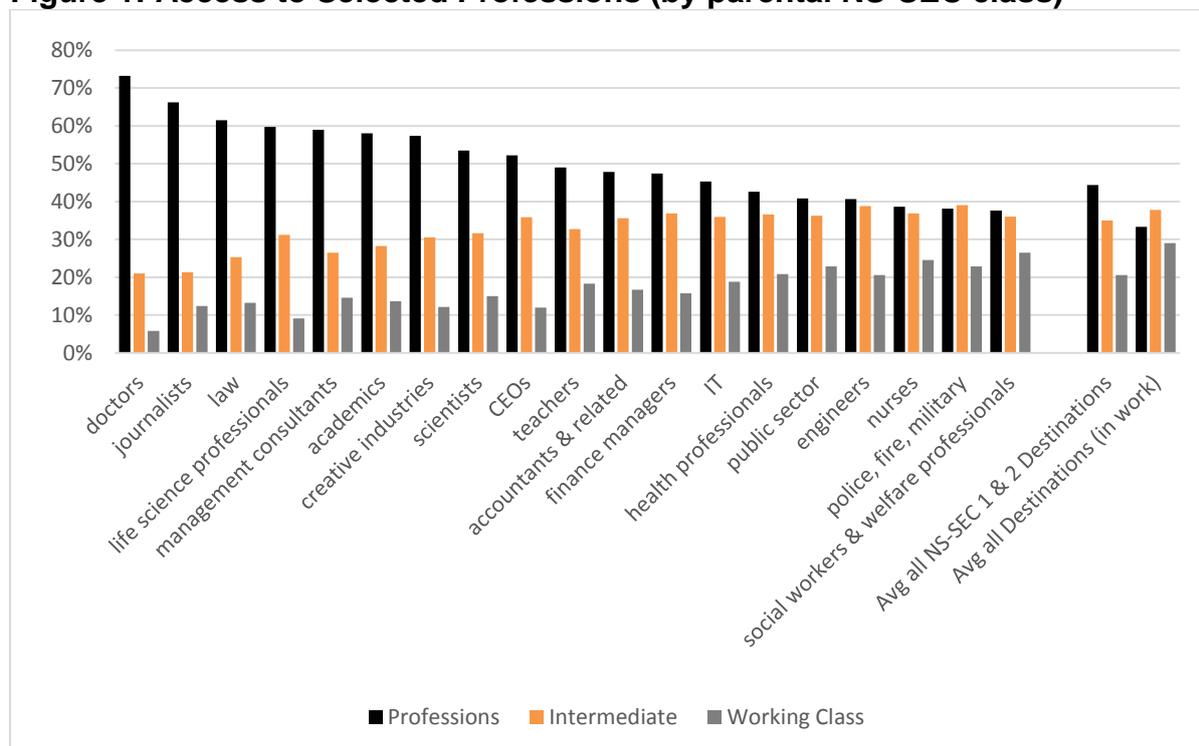
4.1 Fair Access?

We begin by looking at the class backgrounds of those in professional and managerial occupations. Notably, the large LFS sample allows us to extend our lens beyond the 'traditional' professions to 19 distinct occupational groups that make up NS-SEC 1 and 2. Figure 1 demonstrates that those employed in all of these top occupations are disproportionately drawn from professional backgrounds. As the bars on the right of the Figure indicate, while 33% of the population as a whole comes from professional or managerial backgrounds, the average figure among top occupations is 44%.

However, there is also striking variation *between* occupational groups. Medicine stands out in particular. 73% of doctors are from privileged backgrounds while less than 6% come from working-class backgrounds. Other traditional professions like law, journalism, life science, management consultancy and academia also contain a clear majority of those from advantaged backgrounds. In contrast, more technical professions such as IT and engineering, as well as a range of public-sector professions such as nursing, social work, health, and the protective civil service (police, military, fire), are markedly more open. In these occupations a clear majority

do *not* come from professional backgrounds. For example, 61% of nurses come from non-professional or managerial families.

Figure 1: Access to Selected Professions (by parental NS-SEC class)

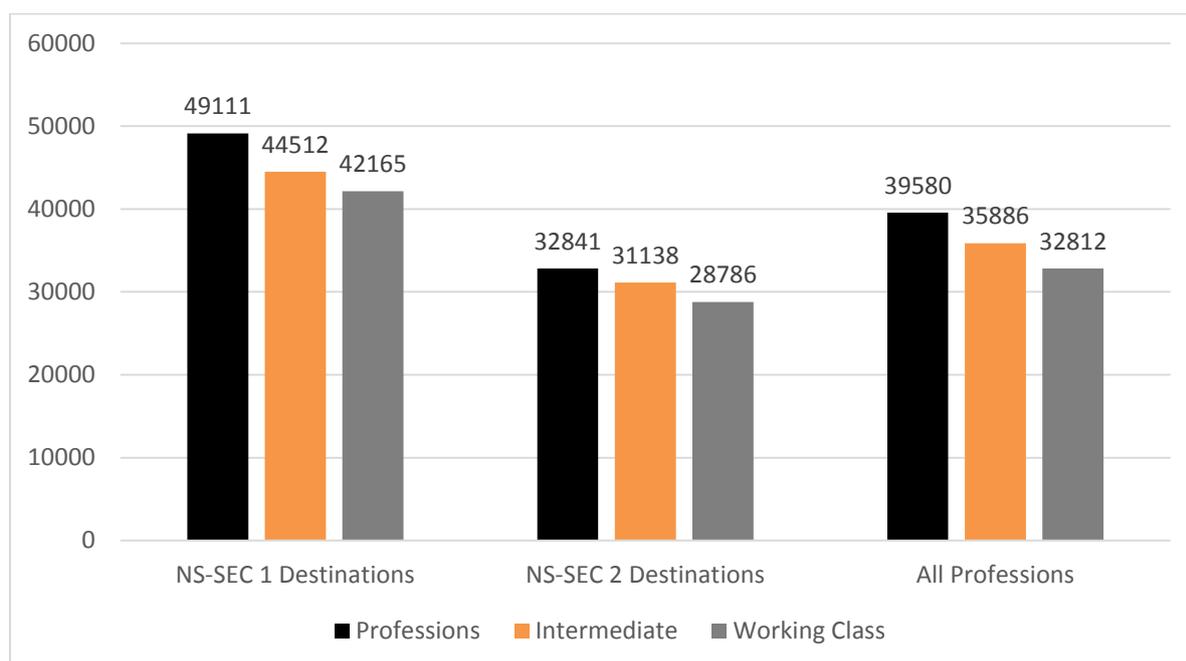


Notes: All individuals age 25-60 with a reported main parent occupation at 14 in July-Sept 2014 or July-Sept 2015 and reporting own NS-SEC of 1 or 2 in any wave. Academics unweighted N = 239, weighted N = 162,005. Accountants & related unweighted N = 530, weighted N = 366,984. CEOs unweighted N = 100, weighted N = 68,153. Doctors unweighted N = 413, weighted N = 286,003. Engineers unweighted N = 846, weighted N = 578,224. Finance managers unweighted N = 320, weighted N = 220,572. Law unweighted N = 280, weighted N = 196,696. Life science professionals unweighted N = 270, weighted N = 176,864. Management consultants unweighted N = 261, weighted N = 175,911. Scientists unweighted N = 374, weighted N = 252,557. Creative industries (film, television, artists, architects, music, design, museums, performing arts) unweighted N = 651, weighted N = 461,878. Journalists unweighted N = 94, weighted N = 64,232. Police, Fire, Military (protective services) unweighted N = 471, weighted N = 314,544. Public sector unweighted N = 789, weighted N = 502,884. IT unweighted N = 1,787, weighted N = 1,257,772. Nurses unweighted N = 1,070, weighted N = 670,188. Teachers unweighted N = 1,943, weighted N = 1,271,743. Health professionals unweighted N = 724, weighted N = 467,934. Social workers & welfare professionals unweighted N = 646, weighted N = 426,909. Total all NS-SEC 1 & 2 Destinations unweighted N = 20,791, weighted N = 13,959,665. Total all destinations unweighted N = 48,672, weighted N = 32,340,312. Weighted frequencies used to calculate summary statistics. See Appendix Table A9 for percentages for each group.

4.2 The Class Pay Gap

Figure 1 shows that access to Britain’s top professions remains restricted for those from lower socio-economic backgrounds. But what about those that *do* enter these occupations? Next we examine how people from different backgrounds *progress* within professions by looking at differences in their average earnings. Figure 2 shows how the estimated annual earnings of those in higher professional and managerial employment (NS-SEC 1), lower professional and managerial employment (NS-SEC 2), and all professional and managerial employment, varies according to a person’s class origins. This shows that those from working-class backgrounds face a significant ‘class pay gap’ in both the higher *and* lower division of the professions. In the sector as a whole this translates into an annual earnings pay gap of 17% or £6800-a-year compared to those from professional backgrounds.

Figure 2: Progression within top jobs by parental NS-SEC, £ per year



Notes: All individuals age 25-60 with a reported main parent occupation at 14 in July-Sept 2014 or July-Sept 2015 and reporting own NS-SEC of 1 or 2 in any wave. Estimated annual earnings based on reported weekly earnings. Professional or Managerial Origins unweighted N = 6,903, weighted N = 4,505,658. Intermediate Origins unweighted N = 5,607, weighted N = 3,581,290. Working Class Origins unweighted N = 3,317, weighted N = 2,104,543. NS-SEC 1 Destinations unweighted N = 9,809, weighted N = 4,668,265. NS-SEC 2 Destinations unweighted N = 17,314, weighted N = 8,079,591. Survey weights used to calculate mean earnings.

4.3 Explaining the Class Pay Gap

While these earnings differences are striking, they cannot tell us whether the upwardly mobile face barriers to progression or whether they are simply different to the intergenerationally stable in other respects. For example, there may be more meritocratic explanations for the gap such as higher educational attainment among the privileged. Alternatively, these respondents could be simply older on average (and therefore better remunerated).

In order to disentangle potential sources of the class pay gap we next use regression analysis to see how the gap is affected when we adjust for five sets of factors often identified as sources of income inequality. Figure 3, begins by showing (in the first bar) the raw average earnings gap reported in Figure 2, while the second bar shows the average earnings gap in pounds per week when we control for gender, ethnicity, age and hours worked²¹. In the next bar, additional controls for educational attainment²² are included; then human capital²³, work context (work region, industry, firm size, public vs private sector) and finally the individual occupation the individual works in²⁴.

²¹ Here we also control for the quarter in which the respondent gave earnings information

²² The measures of education are the highest degree or qualification the respondent has achieved and their degree classification

²³ The measures of “human capital” are whether respondent has recently undergone job training, job tenure and current and past health

²⁴ Here we add dummy variables for each of the individual occupations in NS-SEC 1 and 2

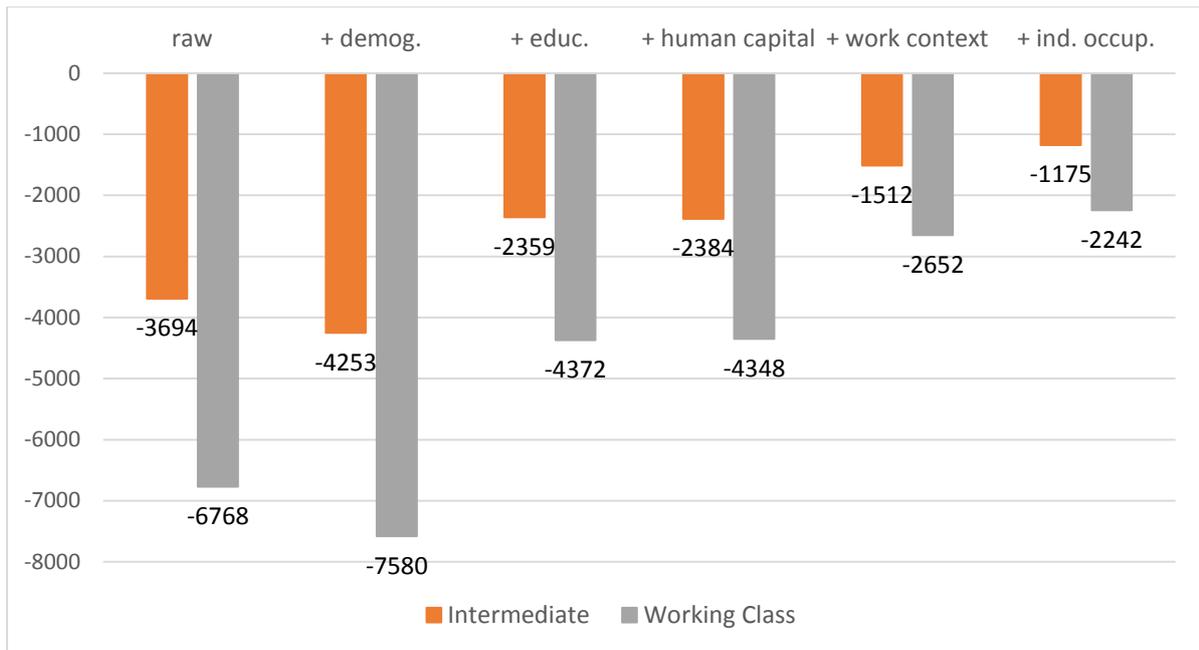
There are two main things to note about Figure 3. First, it is clear that the pay gap is partially accounted for by observable differences between the socially mobile and the intergenerationally stable. In particular, education does act as a limited equaliser. For example, once a person's educational attainment is taken into account, the class pay gap is reduced by nearly half (i.e. the intergenerationally stable tend to be more highly educated and this explains a significant portion of their higher pay²⁵). Similarly, aspects of work context are also important; the intergenerationally stable are more likely to enter bigger firms and work in London, both of which are associated with higher earnings. Finally, the last bar of Figure 3 demonstrates that the pay gap is also partially explained by processes of occupational segregation. As we saw in Figure 2, there are substantial differences in the composition of different occupations with those from working-class backgrounds tending to enter lower-paid professions within the sector.

Second, however, even when we control for all of these variables, Figure 3 shows that the class pay gap remains substantial and statistically significant (see Appendix Table A10 for standard errors). Thus even when those from working-class backgrounds are similar to those from advantaged backgrounds in every way we can measure, they still face a 7% or £2242 a year pay gap in Britain's professional and managerial occupations²⁶.

Figure 3: Accounting for the Class Pay Gap (all figures £ per year)

²⁵ It is important to note here that the LFS lacks fine-grained educational measures, such as private schooling that is known to be strongly associated with class origin and higher earnings (Macmillan, Tyler and Vignoles, 2015). However, in previous work we have conducted using the Great British Class Survey (Friedman et al. 2015), the class pay gap remained significant even after controlling for attendance at both private schools and elite universities.

²⁶ It is worth noting that the gap is even larger (9-12%) when we look only at those in higher professional and managerial employment and compare the earnings of those from higher professional and managerial *backgrounds* with those from intermediate or working-class backgrounds (See Laurison and Friedman, 2016). See Appendix Table A10 for underlying models for this chart.



Note: Unweighted N = 14,988, weighted N = 9,977,364. All individuals age 25-60 with a reported main parent occupation at 14 in July-Sept 2014 or July-Sept 2015 and reporting own NS-SEC of 1 or 2 in any wave. Estimated annual earnings based on reported weekly earnings. Results from models, using survey weights. Each subsequent model includes all controls in the preceding model. The Demographic model includes age and age squared, paid hours worked, cohort of survey, racial or ethnic group, gender, and country of birth. Education includes highest degree achieved and degree classification. Human capital includes measures of current and past health, job tenure, and whether respondent has completed job-related training in the past three months. Work context includes firm size, industry, public or private sector, region of work, and NS-SEC category, and the final model adds dummy variables for each individual occupation.

How might we account for the fact that the class pay gap remains significant, even when we control for all potential drivers contained within the LFS data? Clearly, this pressing question requires follow-up research²⁷. We suspect the mechanisms at work are multi-faceted and fall into two categories. First, it may be that the class pay gap can be explained by the behaviours, practices and resources of the upwardly mobile themselves – what we might term ‘supply-side’ mechanisms. As previous work suggests, the mobile may specialise in less lucrative areas (Cook, Faulconbridge, and Muzio 2012; Ashley 2015), may be more reluctant to ask for pay raises, have less access to networks facilitating work opportunities (Macmillan, Tyler, and Vignoles 2015), or in some cases even exclude themselves from seeking promotion because of anxieties about “fitting in” (Friedman 2015).

Second, it may be that the upwardly mobile are the victims of ‘demand-side’ mechanisms of discrimination: that they are either consciously or unconsciously given fewer rewards in the workplace than those from more advantaged backgrounds. This may manifest as outright discrimination or snobbery (Friedman et al 2016), or it may have to do with more subtle processes of favouritism or ‘cultural-matching’, whereby elite employers misrecognise social and cultural traits rooted in

²⁷ Authors Friedman and Laurison are currently investigating this question via four in-depth occupational case studies in media, accountancy, acting and engineering.

middle class backgrounds as signals of merit and talent (Rivera, 2015; Ashley, 2015).

4.4 Is the Class Pay Gap worse for those working in certain professions, women and ethnic minorities?

It is clear that the upwardly mobile face a significant pay penalty in professional and managerial occupations, even after controls are added. Yet it is important to go further and use the granular detail of the LFS to ask whether this aggregate figure hides significant variation by smaller sub-groups in the population.

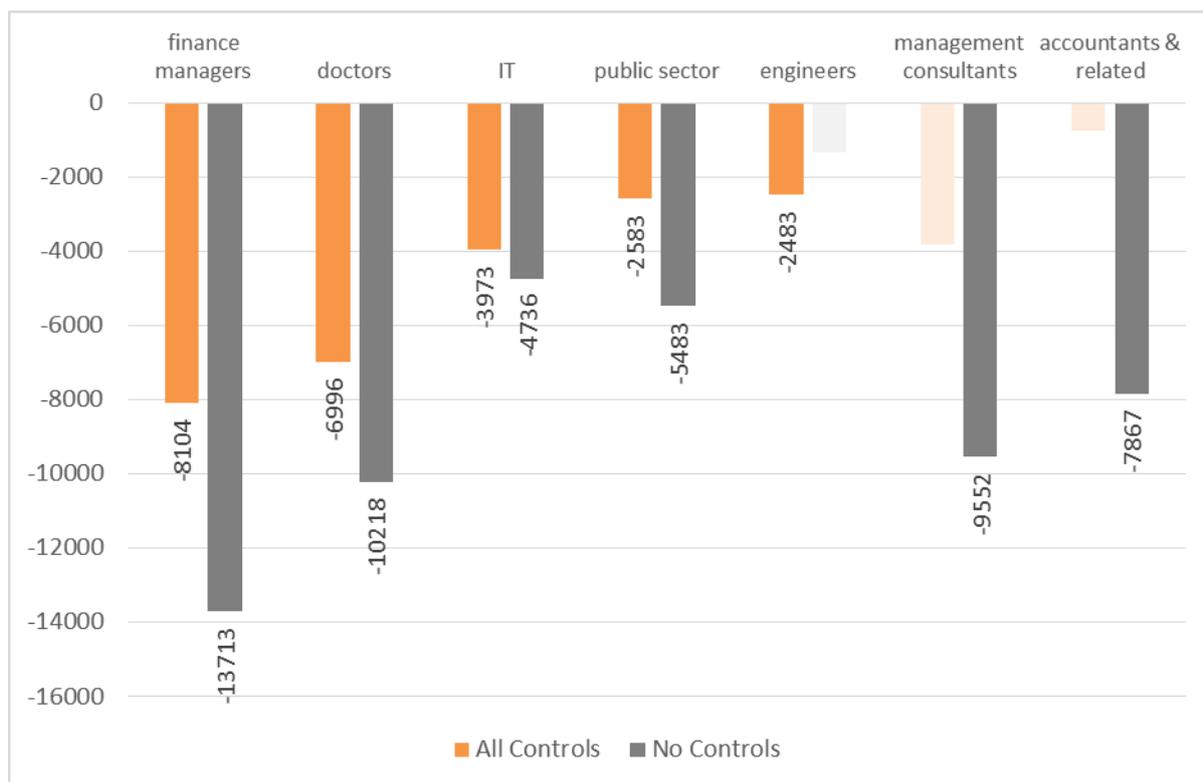
First, we drill down into differences by individual occupation. Here we find that although those from working-class backgrounds earn less in almost all occupations, in many areas this difference is fairly modest²⁸. For example, there are not statistically significant class pay gaps in nursing, teaching, social work or life science²⁹. In contrast, Figure 4 illustrates the occupations – including finance, medicine and IT - where the class pay gap is most substantial, even after applying controls³⁰. Most striking here is arguably medicine, where comparatively large class-origin inequalities are evident in terms of both access (see Figure 2) *and* progression. For other occupations, despite having relatively more equal access by background (particularly for those from Intermediate backgrounds), we find significant differences in progression by origin for those working as finance managers, engineers, in IT and in the public sector.

Figure 4: Class pay gap for all socially mobile (Intermediate and Working Class origins) by selected occupation (£ per year)

²⁸ See Appendix Table A11 for annual earnings pay gaps by occupation, before and after controls are added

²⁹ It is worth noting here that pay gaps do exist in higher professions like law and accountancy if we look at earnings differences between those from *higher* professional and managerial backgrounds and working-class groups (Laurison and Friedman, 2016)

³⁰ See Appendix Figure A2 for all occupations with statistically significant class pay gaps

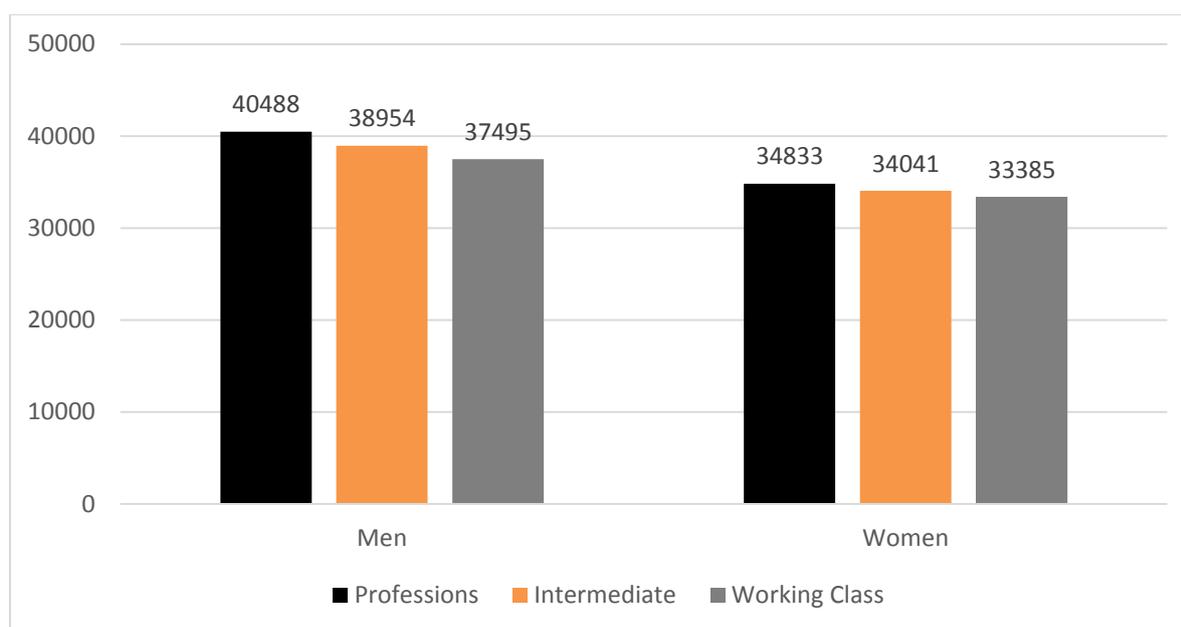


Notes: All individuals age 25-60 with a reported main parent occupation at 14 in July-Sept 2014 or July-Sept 2015 and reporting own NS-SEC of 1 or 2 in any wave. Estimated annual earnings based on reported weekly earnings. Results from models, using survey weights, with all controls described in full model in Figure 3. Dark shaded regions sig. at 95% confidence level or above. Light shaded regions not significantly different from zero at $p < .05$. Accountants & related unweighted N = 365, weighted N = 253,484. Doctors unweighted N = 267, weighted N = 185,379. Engineers unweighted N = 624, weighted N = 426,827. Finance managers unweighted N = 254, weighted N = 170,792. Management consultants unweighted N = 154, weighted N = 102,375. Public sector unweighted N = 656, weighted N = 418,150. IT unweighted N = 1,325, weighted N = 923,893.

Next we ask whether the pay gap varies demographically according to gender and ethnic origin³¹. In terms of gender, two points emerge from Figure 5. First, the class pay gap is significantly higher among men. However, second, Figure 5 also illustrates that upwardly mobile women face a clear double disadvantage based on class background *and* gender. Thus men from professional and managerial backgrounds earn 21% more than women from working-class backgrounds.

³¹ There is no indication that the class pay gap is worse among younger age groups. As Appendix Figure A1 demonstrates, the gap is relatively consistent across all four age cohorts in our LFS sample.

Figure 5: Gender and the class pay gap, £ per year (after controls)

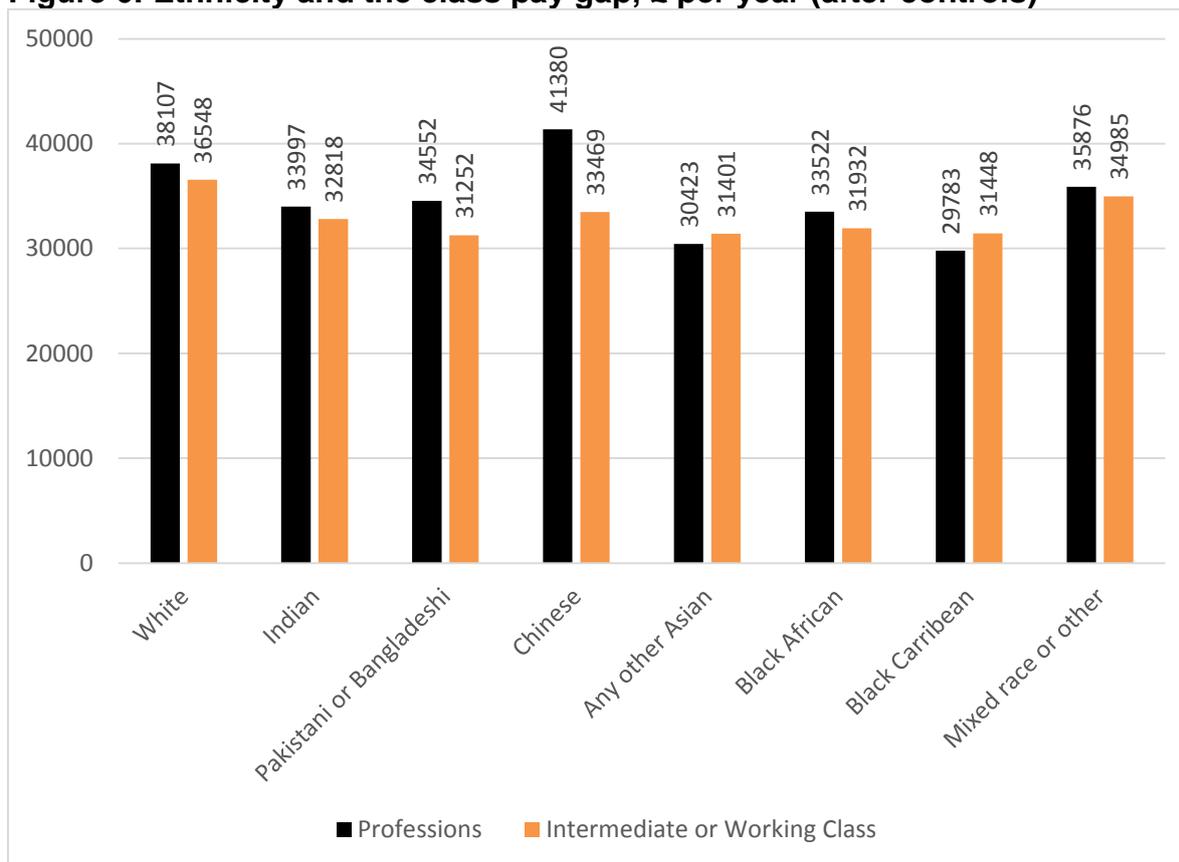


Notes: All individuals age 25-60 with reported parental occupation in July-Sept 2014 or July-Sept 2015 and reporting own NS-SEC of 1 or 2 in any wave. Estimated annual earnings based on reported weekly earnings. Results from models, using survey weights, with all controls described in full model in Figure 3, with an interaction term for class origin and gender. Differences between each group and the reference category (intergenerationally stable men) significant at $p < .05$. Men, Professional or Managerial Origins unweighted N = 3,370, weighted N = 2,408,531. Men, Intermediate Origins unweighted N = 2,715, weighted N = 1,887,723. Men, Working Class Origins unweighted N = 1,604, weighted N = 1,084,093. Women, Professional or Managerial Origins unweighted N = 3,389, weighted N = 2,195,155. Women, Intermediate Origins unweighted N = 2,769, weighted N = 1,743,030. Women, Working Class Origins unweighted N = 1,651, weighted N = 1,024,145.

A similar double disadvantage is evident when looking at most black and minority ethnic (BAME) professionals who have been upwardly mobile. For example, Figure 6 demonstrates that among the upwardly mobile, all BAME professionals (except those who are Chinese) earn less than their otherwise-similar white colleagues. There are also important differences *between* ethnic groups. It is striking that among Black Caribbean and other Asian professionals, coming from an advantaged background is not associated with the same earnings bonus as for other ethnic groups.

The analysis so far has considered those individuals who reported an occupation and were therefore in employment. But what about those who weren't working, either because they were long-term unemployed, sick or disabled or had exited the labour force for other reasons such as looking after the family home. The final section considers intergenerational worklessness: how likely were respondents to be out of work if they came from a workless household at 14 compared to a household where either parent worked?

Figure 6: Ethnicity and the class pay gap, £ per year (after controls)



Notes: All individuals age 25-60 with a reported main parent occupation at 14 in July-Sept 2014 or July-Sept 2015 and reporting own NS-SEC of 1 or 2 in any wave. Estimated annual earnings based on reported weekly earnings. Results from models, using survey weights, with all controls described in full model in Figure 3, with an interaction term for class origin and racial-ethnic group. Differences between each group and the reference category (intergenerationally stable whites) significant at $p < .05$. except: Black African professional origin group and Mixed/Multiple mobile group significant only at $p < .1$, no significant earnings difference between Chinese in either origin group and whites. There are also statistically significant earnings differences by class origin within ethnic groups for Pakistanis and Bangladeshis, and for Chinese people in the UK, and a significant class-origin difference at $p < .1$ for Mixed/Multiple groups (in separate models for each racial/ethnic group, the difference between mobile and stable is also significant at $p < .10$ for Black Africans). White, Prof/Mgr Origins unweighted N = 6,214, weighted N = 4,205,377. Indian, Prof/Mgr Origins unweighted N = 155, weighted N = 113,089. Pakistani or Bangladeshi, Prof/Mgr Orig unweighted N = 39, weighted N = 27,733. Chinese, Prof/Mgr Origins unweighted N = 48, weighted N = 36,040. Any other Asian, Prof/Mgr Origins unweighted N = 52, weighted N = 36,913. Black African Prof/Mgr Origins unweighted N = 75, weighted N = 53,867. Black African Prof/Mgr Origins unweighted N = 28, weighted N = 21,301. Mixed/Multiple groups or other, Prof/Mg unweighted N = 148, weighted N = 109,366. White, Non-Prof/Mgr Origins unweighted N = 7,985, weighted N = 5,189,569. Indian, Non-Prof/Mgr Origins unweighted N = 219, weighted N = 159,513. Pakistani or Bangladeshi, Non-Prof/Mgr unweighted N = 120, weighted N = 90,859. Chinese, Non-Prof/Mgr Origins unweighted N = 42, weighted N = 29,937. Any other Asian, Non-Prof/Mgr Origins unweighted N = 66, weighted N = 45,639. Black African, Non-Prof/Mgr Origins unweighted N = 82, weighted N = 64,291. Caribbean, Non-Prof/Mgr Origins unweighted N = 82, weighted N = 58,711. Mixed/Multiple groups or other, Non-Pro unweighted N = 143, weighted N = 100,472.

5. Culture of Dependency? Intergenerational Worklessness

Key Findings

- *There is very little evidence of generations of families never working, but those who experience a workless household in childhood are more likely to experience their own workless spells in adulthood*
- *Those who end up workless have significantly lower levels of education, but this isn't strongly related to living in a workless household at age 14*
- *Health factors are more important supply-side constraints to labour market participation and these account for more of the intergenerational relationship, suggesting they also vary by childhood worklessness experiences*
- *The combined experience of growing up in both a workless household and being exposed to bad local labour markets creates greater intergenerational worklessness*
- *This suggests that intergenerational worklessness is not driven by welfare dependency as it is almost non-existent in strong labour markets*

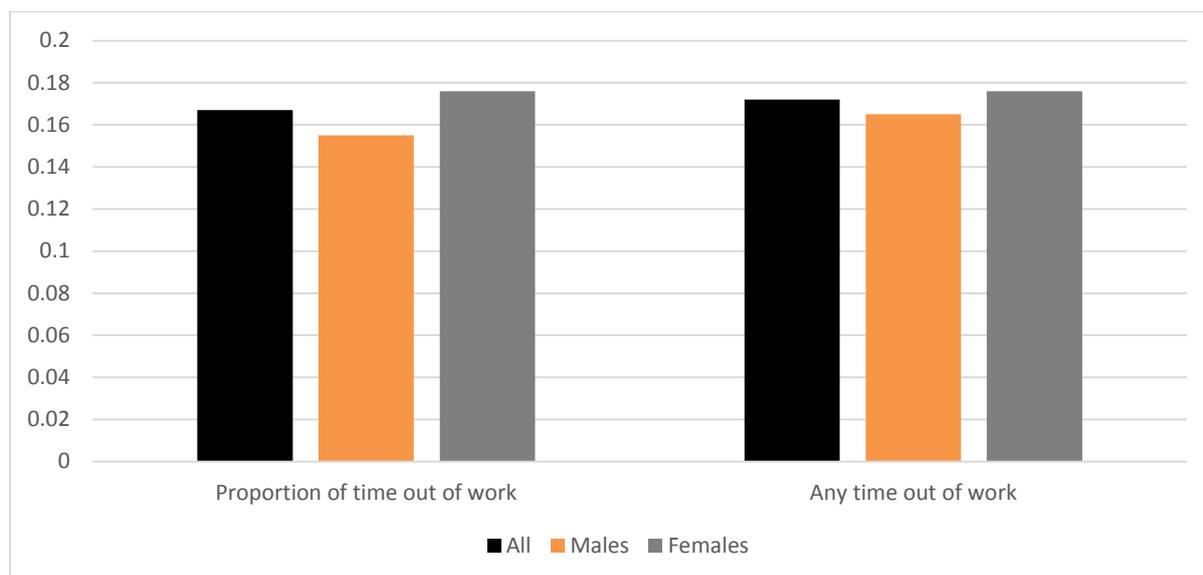
5.1 Persistence in Workless Spells

While there is no evidence to support the idea of multiple generations of families never working (Macmillan, 2011, Shildrick et al., 2012), people from workless households are more likely to experience worklessness themselves. Figure 7 presents results for respondents age 25-60 before splitting the results by gender³². The analysis suggests that respondents from workless households at 14 spend an extra 17 percentage points more time out of work compared to a household where someone worked. They were also 17 percentage points more likely to be out of work at any point during their participation in the LFS compared to respondents from working households. There is not a great deal of gender difference— females are slightly more likely to be workless themselves if they are from a workless household at 14 compared to a working household³³. The results also look broadly stable across ethnic groups (see Appendix Table A14) although there is some suggestion that Pakistani and Bangladeshi families do not experience intergenerational worklessness.

³² See Appendix Table A12 for full regression coefficients and standard errors.

³³ Looking across age cohorts, Table A13 shows that there is not any substantial difference in intergenerational worklessness rates by age, apart from the oldest cohort who have slightly lower chances of being workless if they are from a workless compared to working household at 14 relative to younger cohorts. Macmillan (2014) suggests that highly educated individuals begin to exit the labour market at a faster rate compared to lower educated individuals after age 55. We would therefore expect the difference in workless rates between those from workless compared to working households in childhood decline at this age.

Figure 7: Intergenerational worklessness by gender



Notes: All individuals age 25-60, reporting the main wage earner of parents at age 14 in July-Sept 2014 or July-Sept 2015 and reporting an activity status in any of the five waves. Sample weights are used to calculate standard errors. See Appendix Table A12 for statistical inference.

5.2 The Role of Education and Health

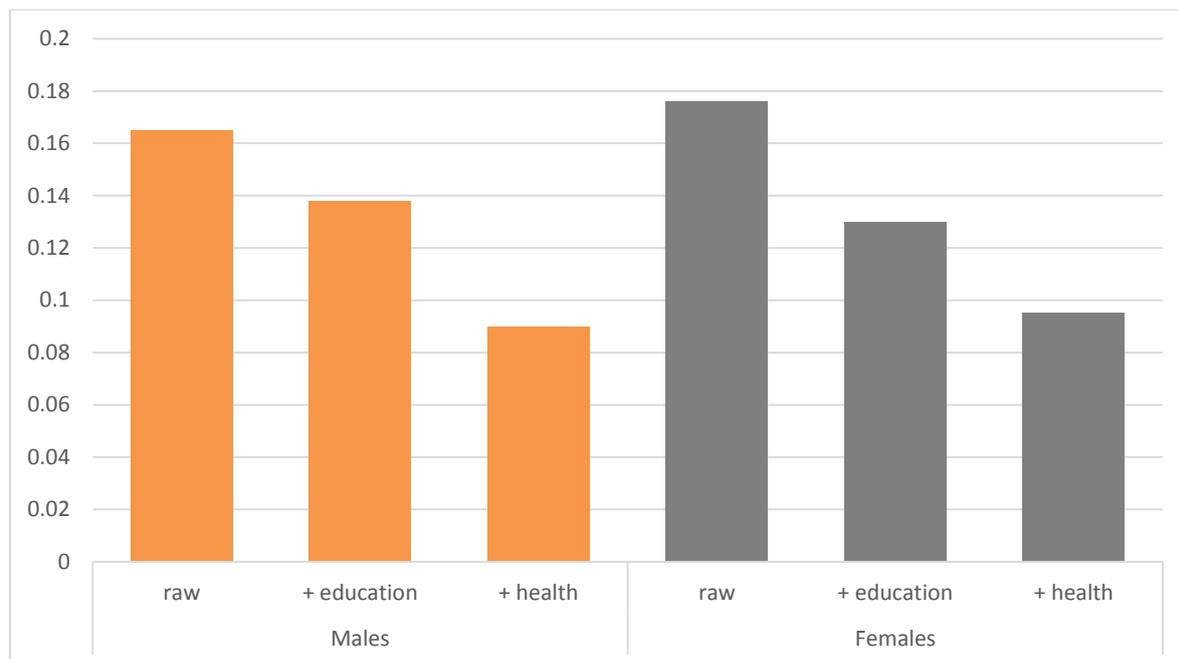
We can explore whether these results are driven by differences in education and health levels (supply-side factors) or unemployment rates where people live (demand-side factor). Is it the case that people living in workless households at 14 get less education and are therefore less employable in the labour market? Do people from workless households have worse health experiences, potentially through the intergenerational transmission of health, and therefore experience more worklessness?

The second bars in Figure 8 show the probability, among individuals with the same levels of education, of spending any time out of work if the respondent is from a workless versus working household at 14. If people from workless households got significantly less education and this resulted in them being less employable in the labour market, we would expect the intergenerational association to fall significantly when comparing individuals with the same education levels. However, even when comparing within education levels, there is still a large association. Males from workless households are still 14 percentage points more likely to experience spells out of work than similarly educated males from working households. Similarly, for females, those from workless households are 13 percentage points more likely to spend time out of work compared to similarly educated females from working households.

However, there are large work penalties to lower levels of education and these are steeper for females compared to males as shown in Appendix Table A15 which reports the underlying marginal effects – those with post-graduate education are 14-18 percentage points less likely to be workless than females with GCSE education only. For males the penalty is 7-11 percentage points. At the other end of the scale,

females with no qualifications are 30 percentage points more likely to be workless than GCSE-educated females, and males with no qualifications are 21 percentage points more likely to be workless than GCSE-educated males. Taken together, this suggests then that while work experiences are associated with educational attainment, there are no big differences in the education attained by those from workless compared to working households. This explains why education does not therefore appear to be a central driver of differences in employment rates between those from workless and working households.

Figure 8: Intergenerational worklessness conditional on education and health



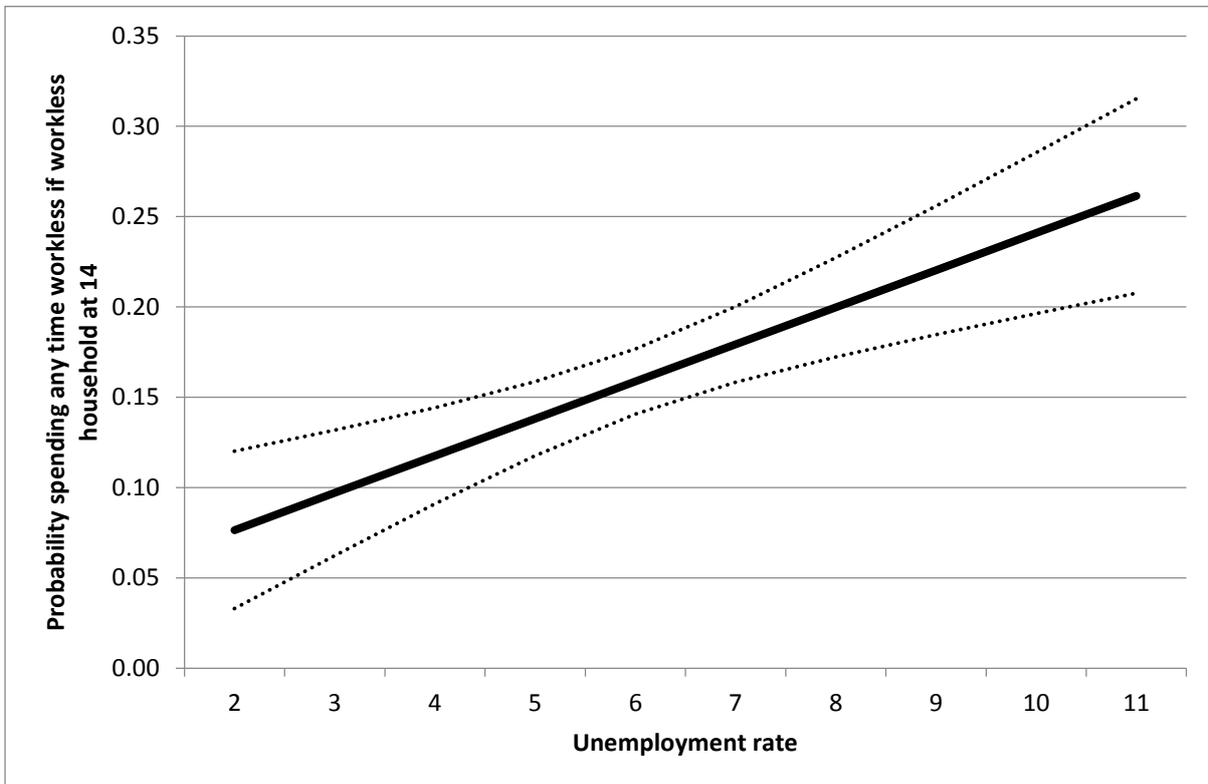
Notes: All individuals age 25-60, reporting the main wage earner of parents at age 14 in July-Sept 2014 or July-Sept 2015 and reporting an activity status in any of the five waves. Sample weights are used to calculate standard errors. The education model includes measures of the highest level of education attained, and the health model adds information on current and past health problems and whether the limit activity. Each subsequent model includes all controls in the preceding model. See Appendix Table A14 for statistical inference.

The third bars in Figure 8 introduce an additional supply-side factor, current and past health problems, to assess whether these might be driving the intergenerational association in worklessness. As can be seen, the inclusion of these health measures reduces the intergenerational association by 4.8 percentage points (35%) for males and 3.5 percentage points (27%) for females. Males that have past health problems that limited their activity are 4.9 percentage points more likely to experience any workless spells while those with current health problems that limit their activity are 18.5 percentage points more likely to experience workless spells. The corresponding figures for females are 3.9 and 18.9 percentage points. The fact that these reduce the overall association implies that those from workless households are more likely to experience these limiting health episodes, potentially through the intergenerational transmission of poor health. This is a significant factor then in accounting for at least some of the relationship in workless spells across generations, although note that there is still a strong association even after accounting for these factors (9 percentage points for males and 9.5 percentage points for females -see Appendix Table A15).

5.3 Local Labour Markets

We can also consider demand-side factors in the form of local area unemployment rates. Do associations arise between parents and children simply because they live in the same area and are therefore exposed to similar labour market conditions? Controlling for where respondents live in our models shows how much of the intergenerational association is spuriously driven by families living in the same place. If it was simply regional differences that were driving the intergenerational association, we would expect intergenerational worklessness to be significantly reduced when adding area level controls. However, this is not the case, intergenerational worklessness does not appear to be driven to any great extent by area differences in labour market conditions (see Appendix Table A16).

Figure 9: Intergenerational worklessness by unemployment rate



Notes: Dotted lines represent 95% confidence intervals. All individuals age 25-60, reporting the main wage earner of parents at age 14 in July-Sept 2014 or July-Sept 2015, reporting an activity status in any of the five waves and reporting a region of residence which an area-level unemployment rate can be matched to.

Instead, it is the combined effect of coming from a workless household at 14 *and* living in an area of high unemployment that leads to a higher chance of experiencing worklessness. Figure 9 illustrates vast differences in experiences of intergenerational worklessness according to local unemployment rates. The figure suggests that for those living in low unemployment areas, there is only a 7 percentage point gap in the probability of experiencing workless spells between those from workless and working households. Contrast this to an area of high unemployment where there is up to 25

percentage points greater probability of being workless if coming from a workless household³⁴. This suggests that living in a workless household at 14 has little harm if you end up living in an area of low unemployment but if you live in a high-unemployment area you are at serious risk of ending up workless as an adult.

³⁴ These differences are stark and consistent with the findings of Macmillan (2014) for a different data source on a much larger scale.

6. Conclusions

This report demonstrates the multiple ways that the new LFS data enriches our understanding of social mobility. In particular it allows us to shine a light on how mobility operates at the top and bottom of British society.

In terms of national rates of mobility, our results are largely in line with previous estimates. This is reassuring, especially considering previous work is based on much smaller sample sizes than we have access to here. We would also stress that while the LFS data currently has limited scope in answering questions about change, as new waves are released it will surely represent one of the most powerful and authoritative sources for addressing the key political question of whether social mobility is increasing or decreasing in Britain.

For now, though, the data's main power lies in answering pressing but previously underexplored questions about specific, and more granular, aspects of mobility. In particular, it provides the most authoritative analysis to-date on mobility into the professions. Here we find not only familiar problems of access in many of our most prestigious occupational domains, but we also uncover a powerful and previously unrecognised class pay gap that requires urgent policy attention. This is worth underlining. Even when we compare those in the professions who have similar levels of education and training, are of the same ethnicity, gender and age, and even who work in the same occupation, we find that those from working class backgrounds earn significantly less than their privileged peers.

We also view mobility through the lens of intergenerational worklessness, a hugely important topic but one rarely discussed in mobility research. Here we show that while there is no evidence of generations of families never working, there is some association in workless experiences across generations. Health-related conditions appear to be one mechanism explaining this association, but the key driver relates to the labour market conditions in a person's immediate environment. Specifically, those from workless households in buoyant labour markets have similar chances of employment to those from working households, whereas those from areas with high levels of unemployment are over 25 percentage points more likely to be workless.

While this new data has allowed us to explore a number of interesting aspects of social mobility, it currently contains significant limitations that prevent us from going further. We therefore strongly recommend that two key questions are added to the current LFS social mobility unit; first, a question asking about parents' education at age 14 to improve estimates of intergenerational earnings mobility and, second, a question asking about the region of origin of survey respondents. This would help to disentangle aspects of geographical mobility from aspects of social mobility and provide much needed evidence on how rates of mobility vary in different parts of the UK. Finally, while it is crucial to continue asking these questions if we want to understand changes in mobility over time, we suggest that the unit could be asked on a biannual basis or every three years, to minimise the cost of including additional background questions.

7. References

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Appendix A – Supplementary Tables and Figures

Table A1: NS-SEC 7 analytic class schema

NS-SEC Analytic Classes	Occupation Examples
1 Higher Managerial and Professional	Directors ; Doctors; Dentists; Lawyers
2 Lower Managerial and Professional	Teachers; Nurses; Journalists
3 Intermediate	Police Officers; Secretaries; Clerical Officers
4 Small Employers and Own Account Workers	Shopkeepers ; Hairdresser and Garage Proprietors
5 Lower Supervisory and Technical	Electricians; Train Drivers; Chefs
6 Semi-Routine	Dental Nurses; Fitness Instructors
7 Routine	Bus Drivers; Waiters; Cleaners; Hairdressers

Source: Office for National Statistics

Table A2: Intergenerational class transition matrix

All Origin	Destination							Σ
	1	2	3	4	5	6	7	
1	4.88	5.84	2.03	1.25	0.71	0.99	0.64	16.3
2	3.91	6.28	2.40	1.36	0.96	1.50	0.94	17.3
3	2.14	3.59	1.81	0.93	0.65	1.23	0.78	11.1
4	1.96	3.78	1.92	2.25	1.14	2.01	1.65	14.7
5	1.74	3.22	1.75	1.17	1.10	1.69	1.11	11.8
6	1.25	2.93	1.68	1.17	1.07	2.05	1.47	11.6
7	1.64	3.80	2.46	1.76	1.53	3.15	2.77	17.1
□	17.5	29.4	14.1	9.9	7.2	12.6	9.4	100

Notes: All individuals age 25-60 with a reported main parent occupation at 14 in July-Sept 2014 or July-Sept 2015 and reporting own NS-SEC in any wave. Unweighted N = 55,308, weighted N =37,149,226. Weighted frequencies reported.

Table A2 illustrates a transition matrix, standard to the literature on intergenerational class mobility, showing the origin (parent) class across the horizontal rows and the destination (respondent) class in the vertical columns. Each cell therefore represents the percentage of people with that specific origin and destination class. These transition matrices are used to calculate summary statistics of absolute and relative mobility. As can be seen, there are higher frequencies in the top left and bottom right corners of the transition matrix compared to the top right, suggesting more people stay in the same class of their parents than move a long way to the opposite end of the scale. Also note that the total percentage in each class grouping (the final row

and column) has changed somewhat dramatically over time. For example, the percentage from working-class (NS-SEC 6 & 7) origins (29%) has declined so only 22% of survey respondents are now employed in working-class occupations.

Table A3: Intergenerational class (3x3) transition matrix

All				
Origin	1	2	3	Σ
1	20.91	8.71	4.07	33.7
2	16.43	12.72	8.47	37.6
3	9.62	9.67	9.44	28.7
□	47.0	31.0	22.0	100

Notes: All individuals age 25-60 with a reported main parent occupation at 14 in July-Sept 2014 or July-Sept 2015 and reporting own NS-SEC in any wave. Unweighted N = 55,308, weighted N = 37,149,226. Weighted frequencies reported

Table A3 shows a collapsed 3x3 transition matrix, where class 1 represents class 1 and 2 from Table A1 and A2, class 2 represents classes 3-5 from Table A1 and A2 and class 3 represents classes 6 and 7 from Tables A1 and A2. Here there are nine possible pairs of odds ratios across groups. Table A4 illustrates the combinations of possible odds ratios and computed odds ratios for each set of class combinations from this collapsed 3x3 matrix. The odds ratios that we present in the main paper do not focus on one class relative to another but instead look at class 1 compared to class 2 and 3 combined in this collapsed table, and class 3 compared to class 1 and 2 combined in this setting. Therefore, while these odds ratios look at the chances of ending up in one class grouping relative to another, the odds ratios that we focus on in the main report consider the chances of ending up in one class grouping relative to *all others*, therefore explicitly taking into account changes in the entire class structure.

Table A4: Odds ratios for each cell of the 3x3 transition matrix

	a	b	c		a	b	c
Odds ratios				Odds ratios			
a	$\frac{F_{aa}}{F_{ab}}$	$\frac{F_{ab}}{F_{ac}}$	$\frac{F_{aa}}{F_{ac}}$	a	1.86	1.43	2.65
	$\frac{F_{ba}}{F_{bb}}$	$\frac{F_{bb}}{F_{bc}}$	$\frac{F_{ba}}{F_{bc}}$	b	1.30	1.47	1.90
b	$\frac{F_{ba}}{F_{bb}}$	$\frac{F_{bb}}{F_{bc}}$	$\frac{F_{ba}}{F_{bc}}$	c	2.41	2.09	5.04
	$\frac{F_{ca}}{F_{cb}}$	$\frac{F_{cb}}{F_{cc}}$	$\frac{F_{ca}}{F_{cc}}$				
c	$\frac{F_{aa}}{F_{ab}}$	$\frac{F_{ab}}{F_{ac}}$	$\frac{F_{aa}}{F_{ac}}$				
	$\frac{F_{ca}}{F_{cb}}$	$\frac{F_{cb}}{F_{cc}}$	$\frac{F_{ca}}{F_{cc}}$				

Table A5: Relative intergenerational occupation mobility by gender

		Males	Females	
β parameter under UNIDIFF		1.00	1.01	
Relative mobility models	G²	df	p	Δ (DI)
Conditional independence	4701.6	72	0.00	11.7
CSF	112.8	36	0.00	1.6
UNIDIFF	112.8	35	0.00	1.6

Notes: All individuals age 25-60 with a reported main parent occupation at 14 in July-Sept 2014 or July-Sept 2015 and reporting own NS-SEC in any wave. Male unweighted N = 26,670, weighted N = 18,830,570. Female unweighted N = 28,638, weighted N = 18,318,656. Unweighted frequencies used in models.

Table A6: Relative intergenerational occupation mobility by age

	29-36	37-44	45-52	53-60
β parameter under UNIDIFF	1.23	1.19	1.07	1.00
Relative mobility models	G²	df	p	Δ (DI)
Conditional independence	4381.3	144	0.00	11.7
CSF	166.4	108	0.00	2.2
UNIDIFF	145.0	105	0.01	2.0

Notes: All individuals in given age range with a reported main parent occupation at 14 in July-Sept 2014 or July-Sept 2015 and reporting own NS-SEC in any wave. Age 29-36 unweighted N = 13,028, weighted N = 8,085,814. Age 37-44 unweighted N = 14,060, weighted N = 9,169,121. Age 45-52 unweighted N = 12,293, weighted N = 8,044,460. Age 53-60 unweighted N = 11,384, weighted N = 8,123,191. Unweighted frequencies used in models.

Table A7: Age differences in intergenerational occupation mobility by gender

Males	29-36	37-44	45-52	53-60
Absolute mobility				
Downward	29.3	25.1	24.5	25.1
Upward	40.3	44.7	46.2	46.9
Horizontal	6.9	7.1	7.1	7.1
Relative mobility				
Ratio of odds of staying in NS-SEC 1 or 2 relative to moving to top	2.68	2.83	2.94	2.35
Ratio of odds of staying in NS-SEC 6 or 7 relative to moving to bottom	2.48	2.57	2.42	2.08
Females	29-36	37-44	45-52	53-60
Absolute mobility				
Downward	31.5	29.7	28.5	28.4
Upward	38.6	42.3	44.4	45.1
Horizontal	6.3	7.9	9.0	9.1
Relative mobility				
Ratio of odds of staying in NS-SEC 1 or 2 relative to moving to top	2.71	2.47	2.24	2.16
Ratio of odds of staying in NS-SEC 6 or 7 relative to moving to bottom	2.61	1.98	2.28	2.06

Notes: All individuals in given age range with a reported main parent occupation at 14 in July-Sept 2014 or July-Sept 2015 and reporting own NS-SEC in any wave. Age 29-36 unweighted N = 13,028, weighted N = 8,085,814. Age 37-44 unweighted N = 14,060, weighted N = 9,169,121. Age 45-52 unweighted N = 12,293, weighted N = 8,044,460. Age 53-60 unweighted N = 11,384, weighted N = 8,123,191. Weighted frequencies used to calculate summary statistics.

Table A8: Relative intergenerational occupation mobility by ethnicity

	White	Indian	Pakistani / Bangladeshi	Chinese	Other Asian	Black African	Black Caribbean	Mixed or other
β parameter under UNIDIFF	1.00	0.95	0.54	0.81	0.98	0.91	0.67	0.94

Relative mobility models	G ²	df	p	Δ (DI)
Conditional independence	4387.3	288	0.00	11.7
CSF	327.6	252	0.00	1.5
UNIDIFF	302.9	245	0.01	1.4

Notes: All individuals age 25-60 with a reported main parent occupation at 14 in July-Sept 2014 or July-Sept 2015 and reporting own NS-SEC in any wave. White unweighted N = 43,432, weighted N = 29,124,563. Indian unweighted N = 1,357, weighted N = 1,011,411. Pakistani/Bangladeshi unweighted N = 865, weighted N = 650,685. Chinese unweighted N = 265, weighted N = 187,402. Other Asian unweighted N = 562, weighted N = 408,883. Black African unweighted N = 687, weighted N = 522,574. Black Caribbean unweighted N = 489, weighted N = 369,176. Mixed or other unweighted N = 1,141, weighted N = 863,525. Unweighted frequencies used in models.

Table A9: Access to Selected Professions (by parental NS-SEC class)

	Professions	Intermediate	Working Class
doctors	73%	21%	6%
journalists	66%	21%	12%
law	62%	25%	13%
life science professionals	60%	31%	9%
management consultants	59%	26%	15%
academics	58%	28%	14%
creative industries	57%	31%	12%
scientists	53%	32%	15%
CEOs	52%	36%	12%
teachers	49%	33%	18%
accountants & related	48%	36%	17%
finance managers	47%	37%	16%
IT	45%	36%	19%
health professionals	43%	37%	21%
public sector	41%	36%	23%
engineers	41%	39%	21%
nurses	39%	37%	25%
police, fire, military	38%	39%	23%
social workers & welfare professionals	38%	36%	26%
Avg all NS-SEC 1 & 2 Destinations	44%	35%	21%
Avg all Destinations (in work)	33%	38%	29%

Notes: All individuals age 25-60 with a reported main parent occupation at 14 in July-Sept 2014 or July-Sept 2015 and reporting own NS-SEC of 1 or 2 in any wave. Academics unweighted N = 239, weighted N = 162,005. Accountants & related unweighted N = 530, weighted N = 366,984. CEOs unweighted N = 100, weighted N = 68,153. Doctors unweighted N = 413, weighted N = 286,003. Engineers unweighted N = 846, weighted N = 578,224. Finance managers unweighted N = 320, weighted N = 220,572. Law unweighted N = 280, weighted N = 196,696. Life science professionals unweighted N = 270, weighted N = 176864. Management consultants unweighted N = 261, weighted N = 175,911. Scientists unweighted N = 374, weighted N = 252,557. Creative industries (film, television, artists, architects, music, design, museums, performing arts) unweighted N = 651, weighted N = 461,878. Journalists unweighted N = 94, weighted N = 64,232. Police, Fire, Military (protective services) unweighted N = 471, weighted N = 314,544. Public sector unweighted N = 789, weighted N = 502,884. IT unweighted N = 1,787, weighted N = 1,257,772. Nurses unweighted N = 1,070, weighted N = 670,188. Teachers unweighted N = 1,943, weighted N = 1,271,743. Health professionals unweighted N = 724, weighted N = 467,934. Social workers & welfare professionals unweighted N = 646, weighted N = 426,909. Total all NS-SEC 1 & 2 Destinations unweighted N = 20,791, weighted N = 13,959,665. Total all destinations unweighted N = 48,672, weighted N = 32,340,312. Weighted frequencies used to calculate summary statistics.

Table A10: Accounting for the Class Pay Gap (all figures £ per year)

	+ demog.	+ educ.	+ human capital	+ work context	+ ind. occup.
Intergenerationally stable (NS-SEC 1 & 2)	Baseline	Baseline	Baseline	Baseline	Baseline
short-range mobile (NS-SEC 3-5)	-4253.1 (367.43) ^{***}	-2359.0 (354.52) ^{***}	-2383.9 (353.42) ^{***}	-1511.7 (318.10) ^{***}	-1174.9 (303.13) ^{***}
Long-range mobile (NS-SEC 6-7)	-7579.5 (407.89) ^{***}	-4371.5 (397.64) ^{***}	-4347.5 (396.7) ^{***}	-2652.2 (361.55) ^{***}	-2241.7 (343.34) ^{***}
<i>R-Squared</i>	0.21	0.28	0.28	0.41	0.48

Notes: All individuals age 25-60 with a reported main parent occupation at 14 in July-Sept 2014 or July-Sept 2015 and reporting own NS-SEC in any wave. Unweighted N = 15,498, weighted N = 10,342,677. Survey weights used in analysis; coefficients for all covariates in each model available in appendix.

Table A11: Class-Origin Pay Gaps, Stable vs All Mobile, Specific Occupations

	Full Model	No Controls
finance managers	-8104 (3008) ^{**}	-13713 (3942) ^{***}
doctors	-6996 (2528) ^{**}	-10218 (3424) ^{**}
IT	-3973 (1123) ^{***}	-4736 (1386) ^{***}
other higher mgrs	-2609 (1094) [*]	-4703 (1266) ^{**}
public sector	-2583 (1009) [*]	-5483 (1462) ^{***}
engineers	-2483 (1171) [*]	-1347 (1469)
other lower managers & business	-1919 (655) ^{**}	-5087 (780) ^{***}
management consultants	-3809 (3378)	-9552 (4051) [*]
protective service	-1925 (1074)	-3103 (1660)
law	-1452 (3485)	-5261 (4703)
academics	-1402 (1620)	-4281 (2467)
life science professionals	-1373 (2034)	363 (3072)
other mgrs mixed	-1319 (1893)	-6851 (2344) ^{**}
other lower profs & skilled work	-1077 (830)	-2746 (1130) [*]

scientists	-1058 (1511)	1470 (1648)
CEOs	-753 (7168)	-4306 (8081)
accountants & related	-735 (2592)	-7867 (3256)*
social workers & welfare professionals	-633 (719)	173 (940)
health professionals	-241 (927)	-288 (1213)
journalists	-195 (6840)	78 (5400)
other higher profs	-194 (1879)	-2292 (2581)
nurses	-83 (461)	199 (648)
teachers	40 (434)	-594 (597)
culture creative	1413 (1713)	3078 (2354)

Notes: Standard errors in parenthesis. * 95% confidence, ** 99% confidence, *** 99.9% confidence. All individuals age 25-60, reporting a main wage earner at 14 and a specific occupation and earnings. Sample weights are used to calculate standard errors.

Table A12: Intergenerational worklessness by gender

	All	Males	Females
Proportion of time out of work	0.167 (0.009)***	0.155 (0.012)***	0.176 (0.013)***
Any time out of work	0.172 (0.009)***	0.165 (0.013)***	0.176 (0.013)***
N	68,171	31,945	36,226

Notes: Standard errors in parenthesis. * 90% confidence, ** 95% confidence, *** 99% confidence. All individuals age 25-60, reporting the main wage earner of parents at age 14 in July-Sept 2014 or July-Sept 2015 and reporting an activity status in any of the five waves. Sample weights are used to calculate standard errors.

Table A13: Intergenerational worklessness by age

	29-36	37-44	45-52	53-60
Proportion of time out of work	0.151 (0.017)***	0.155 (0.017)***	0.148 (0.018)***	0.120 (0.025)***
Any time out of work	0.155 (0.018)***	0.163 (0.019)***	0.153 (0.019)***	0.113 (0.025)***
N	13,998	15,049	17,069	16,127

Notes: Standard errors in parenthesis. * 90% confidence, ** 95% confidence, *** 99% confidence. All individuals age 25-60, reporting the main wage earner of parents at age 14 in July-Sept 2014 or July-Sept 2015 and reporting an activity status in any of the five waves. Sample weights are used to calculate standard errors.

Table A14: Differences in intergenerational worklessness by ethnicity

	White	Indian	Pakistani / Bangladeshi	Chinese	Other Asian	Black African	Black Caribbean	Mixed or other
Proportion of time out of work	0.151 (0.010)***	0.139 (0.078)***	0.010 (0.045)	0.141 (0.148)	0.164 (0.104)	0.222 (0.066)***	0.160 (0.075)**	0.162 (0.051)***
Any time out of work	0.163 (0.011)***	0.181 (0.082)**	-0.008 (0.046)	0.108 (0.148)	0.149 (0.106)	0.213 (0.067)***	0.198 (0.084)**	0.142 (0.053)***
N	52,020	1,705	1,536	325	753	992	651	1,630

Notes: Standard errors in parenthesis. * 90% confidence, ** 95% confidence, *** 99% confidence. All individuals age 25-60, reporting the main wage earner of parents at age 14 in July-Sept 2014 or July-Sept 2015 and reporting an activity status in any of the five waves. Sample weights are used to calculate standard errors.

Table A15: Intergenerational worklessness conditional on education and health

	Males		Females	
Any time out of work	0.138 (0.013) ^{***}	0.090 (0.011) ^{***}	0.130 (0.013) ^{***}	0.095 (0.012) ^{***}
PhD	-0.110 (0.015) ^{***}	-0.051 (0.016) ^{***}	-0.185 (0.022) ^{***}	-0.138 (0.022) ^{***}
Masters	-0.081 (0.010) ^{***}	-0.040 (0.010) ^{***}	-0.161 (0.012) ^{***}	-0.120 (0.012) ^{***}
Post Graduate Education Cert	-0.061 (0.018) ^{***}	-0.018 (0.019)	-0.174 (0.014) ^{***}	-0.132 (0.013) ^{***}
Other Post Graduate Degree	-0.067 (0.021) ^{***}	-0.016 (0.020)	-0.141 (0.023) ^{***}	-0.093 (0.022) ^{***}
Other higher education	-0.074 (0.007) ^{***}	-0.028 (0.007) ^{***}	-0.123 (0.008) ^{***}	-0.087 (0.007) ^{***}
A-Levels	-0.060 (0.009) ^{***}	-0.024 (0.009) ^{***}	-0.010 (0.010) ^{***}	-0.080 (0.009) ^{***}
GCSEs	-0.042 (0.008) ^{***}	-0.026 (0.007) ^{***}	-0.074 (0.009) ^{***}	-0.065 (0.008) ^{***}
Other Qualification	Baseline	Baseline	Baseline	Baseline
No Qualifications	0.018 (0.011) [*]	0.005 (0.017)	0.110 (0.012) ^{***}	0.091 (0.012) ^{***}
No past health problems	0.213 (0.013) ^{***}	0.110 (0.010) ^{***}	0.293 (0.012) ^{***}	0.201 (0.011) ^{***}
Past health problems, no limit to activity		Baseline		Baseline
Past health problems, limit activity		0.005 (0.016)		0.011 (0.017)
No current health problems limits activity		0.049 (0.016) ^{***}		0.037 (0.013) ^{***}
Current health problem limits work a little		Baseline		Baseline
Current health problem limits work a lot		0.185 (0.011) ^{***}		0.189 (0.010) ^{***}
		0.026 (0.008) ^{***}		0.002 (0.008)
		0.414 (0.014) ^{***}		0.295 (0.012) ^{***}
N	31,945	31,945	36,226	36,266

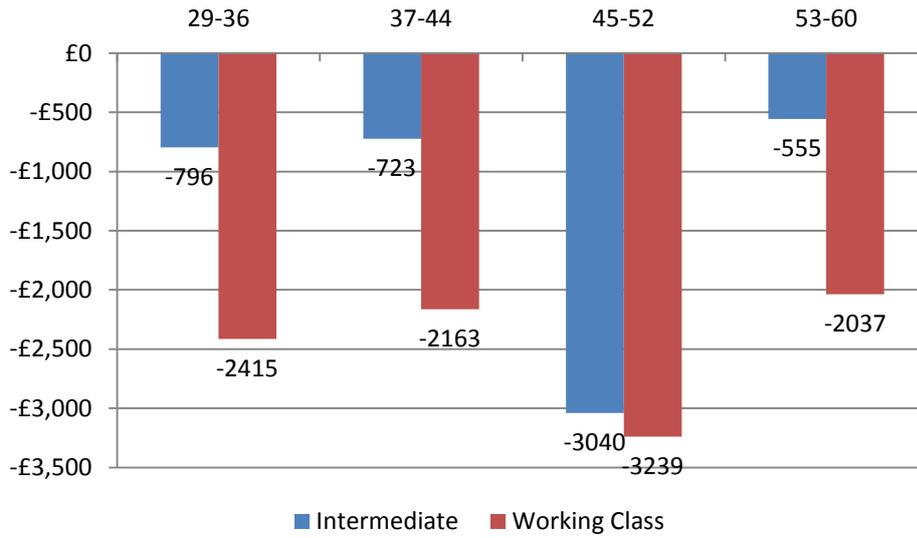
Notes: Standard errors in parenthesis. * 90% confidence, ** 95% confidence, *** 99% confidence. All individuals age 25-60, reporting the main wage earner of parents at age 14 in July-Sept 2014 or July-Sept 2015 and reporting an activity status in any of the five waves. Sample weights are used to calculate standard errors.

Table A16: Intergenerational worklessness by local unemployment

	Any time out of work
Baseline	0.172 (0.009) ^{***}
+ region controls	0.165 (0.009) ^{***}
+ local authority unemployment	0.163 (0.009) ^{***}
+ workless household*local authority unemployment	0.152 (0.009) ^{***}
N	68,105

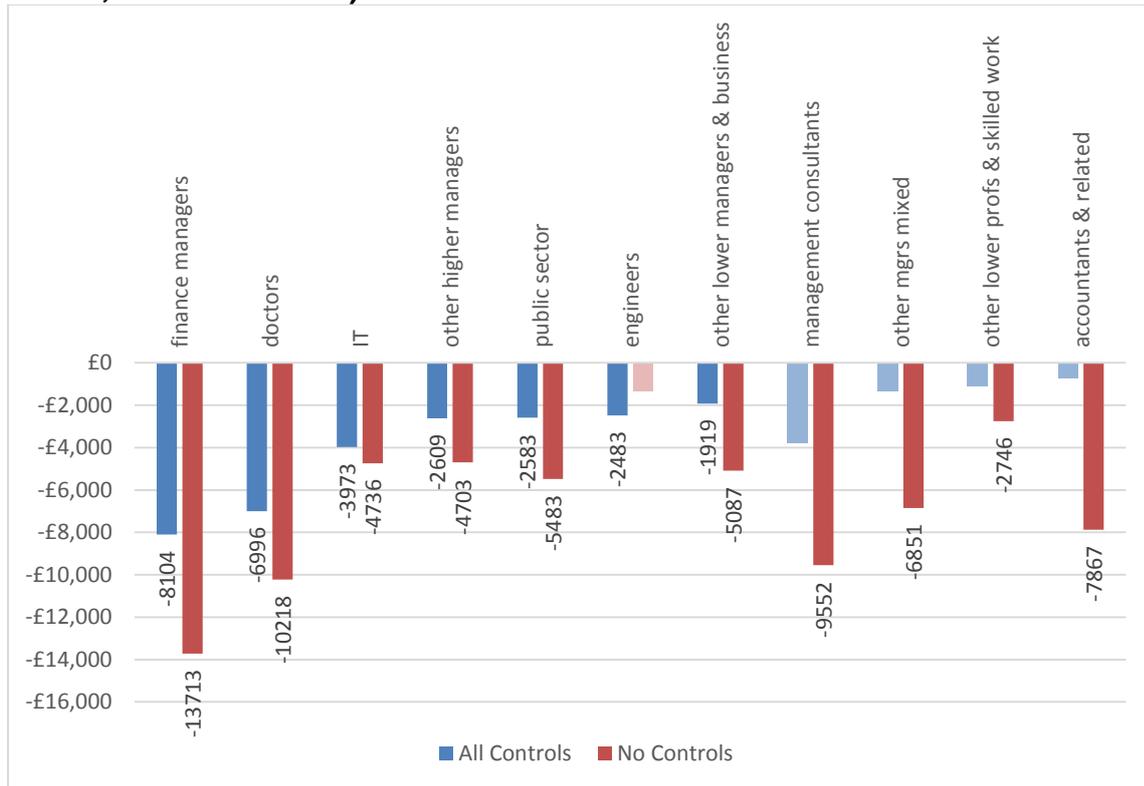
Notes: Standard errors in parenthesis. * 90% confidence, ** 95% confidence, *** 99% confidence. All individuals age 25-60, reporting their region, the main wage earner of parents at age 14 in July-Sept 2014 or July-Sept 2015 and reporting an activity status in any of the five waves. Sample weights are used to calculate standard errors.

Figure A1: Class Origin pay gaps by age groups, £ per year (after controls).



Notes: All individuals age 25-60 with a reported main parent occupation at 14 in July-Sept 2014 or July-Sept 2015 and reporting own NS-SEC in any wave. Survey weights used in analysis.

Figure A2: Class pay gaps by occupation £ per year (all socially mobile vs stable, controls added)



Note: See Figure 4 for full notes

Appendix B – Additional Information about the LFS

Figure B1: Relevant social mobility unit questions from the Labour Force Survey

SMEARNER – Main wage earner when respondent was 14 years old

1. Mother
2. Father
3. Other family member
4. Joint earners
5. No one was earnings

SMOCCT – Occupation of main wage earner when respondent was 14 years old
 Applies to those who answer 1-4 of SMEARNER.

SMSOC10 – Occupation of main wage earner when respondent was 14 years old
 Applies to those who answer 1-4 of SMEARNER.

SMSOC101 – one digit only – Occupation of main wage earner when respondent was 14 years old. Applies to those who answer 1-4 of SMEARNER.

SMSOC103 – three digit only – Occupation of main wage earner when respondent was 14 years old. Applies to those who answer 1-4 of SMEARNER.

SMSOC104 – four digit only – Occupation of main wage earner when respondent was 14 years old. Applies to those who answer 1-4 of SMEARNER.

Table B1: Distribution of class destinations and percent experiencing spells out of work by those who respond to social mobility questions and those who do not (age 25-60)

	Occupation of parent missing	Occupation of parent not missing	Main earner missing	Main earner not missing
NS-SEC 1	17.5	14.8	17.0	15.1
NS-SEC 2	29.4	26.2	28.8	26.6
NS-SEC 3	14.0	13.0	14.0	13.0
NS-SEC 4	9.9	11.0	9.9	11.1
NS-SEC 5	7.2	8.5	7.3	8.4
NS-SEC 6	12.6	14.5	13.1	14.2
NS-SEC 7	9.4	12.0	9.9	11.6
Any workless	13.4	12.7	13.6	12.7
N	55,273	17,868	61,032	14,495

Appendix C – Further Detail on Methodology

Our analysis uses the Labour Force Survey (LFS), a population study of employment for the UK capturing key labour market statistics and background information on education level attained, gender, age and ethnicity. The survey has a rolling panel design over five waves, with one fifth entering the survey and one fifth leaving the survey at each wave. We specifically focus on the July-September Social Mobility (SM) unit, asking questions about the survey respondents parents in childhood. This unit has been included twice in the main LFS at the time of writing, in 2014 and 2015, and asks about the household composition, the main wage earner (including if no parent was earning) and the occupation of the main wage earner when the respondent was 14 (see Appendix B for full questions). We combine this information with standard measures from the LFS, including occupational class, labour market earnings and labour market activity, to answer our main questions.

Given the rolling structure of the LFS, we are able to create a sample of respondents who have answered at least one SM unit from July-September 2013 (answering the SM unit from 2014 in their final wave) up to July-September 2015 (answering SM unit from July-Sept 2015 in their first wave). We are therefore able to observe parental origin class for 64,566 survey respondents aged 25-60, and workless households in childhood for 68,459 survey respondents aged 25-60. Sampling weights are used throughout the analysis from SM unit waves³⁵.

To measure intergenerational occupational mobility, origin class is created using information on the respondent's main earning parent's (80% father) occupation when the respondent was 14. The 4 digit Standard Occupational Classification (SOC) code (SMSOC104, see Appendix B)³⁶ is used to compute their National Statistics Socio-Economic Classification (NS-SEC) using the simple method of coding available from the Office of National Statistics (ONS). NS-SEC is made up of 7 analytic classes and. The destination class of the survey respondent is measured as their current NS-SEC available as a derived variable in the standard LFS data. For those who respond to this question in multiple waves, their first reported NS-SEC is taken as their current class. Summary statistics for both absolute mobility and relative mobility odds ratios are calculated based on cross tabulations of origin and destination NS-SEC classes 1-7 (transition matrices).

To analyse progression within the professions, we use the earnings of the survey respondent. LFS respondents only answer earnings questions in their first and final quarters in the survey. Thus, in order to access earnings data (as well as detailed information for respondents' social origins) we obtained a special license for this data. This allowed us to link records across five quarterly LFS questionnaires so that we had earnings data for as many people as possible who answered the social origin question. This resulted in a sample of 15,881 respondents working in the professions who also have earnings information, and 15,498 with data on all covariates used in

³⁵ With the exception of the relative mobility models where these weights would distort the results.

³⁶ Table B1 in Appendix B suggests that those who report a parental occupation at 14 are from slightly higher NS-SEC classes and slightly less likely to be workless than those who do not.

regression models. Ordinary Least Squares (OLS) regression models were used, both unconditional and conditional, to estimate pay differentials by background.

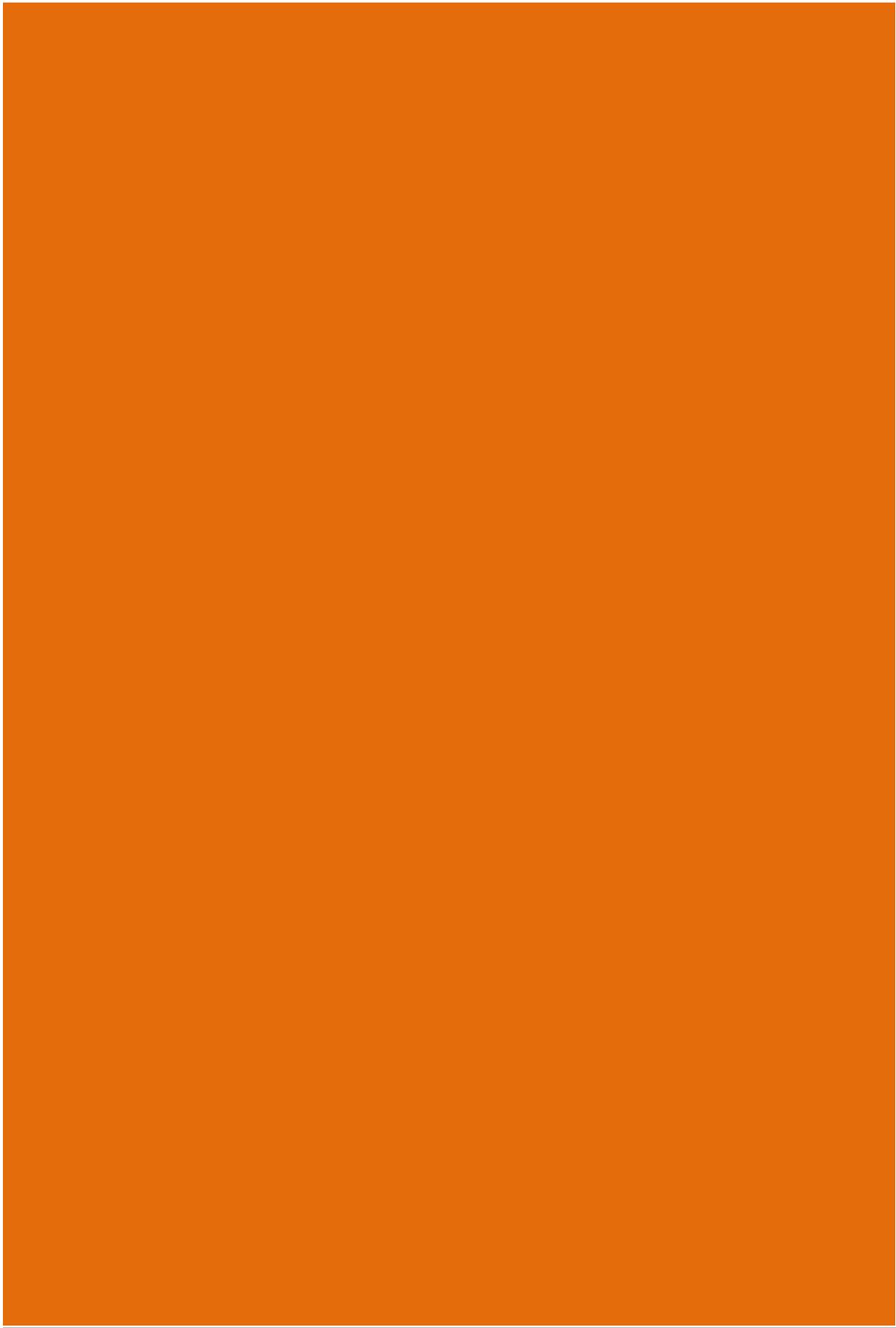
Coming from a workless household at age 14 is defined as reporting that ‘no one was earning’ in response to the question about identifying the main wage earner at 14 (see Appendix B). There are two measures of worklessness used for the survey respondents, with workless spells defined as any spell not in employment or full time education. The first measure calculates the total number of waves spent workless or employed (not in full time education) using all available information across participating waves to create a proportion of time spent workless. The other measure is a binary variable indicating whether the survey respondent experiences any workless spells across participating waves.³⁷ Appropriate OLS and non-linear probit models are used given the outcome variable. Unemployment rates were matched into the data based on unitary local authority unemployment rates from local labour market indicators for July 2014 to June 2015.

While intergenerational earnings mobility cannot be directly estimated based on the existing LFS data as no SM questions were asked on parent’s earnings at 14, a Two-Sample Two-Stage Least Squared (TSTLS) approach³⁸ can be used to impute occupation-level earnings for parents based on the reported 4-digit SOC code of the main earner when the respondent was 14 (see Appendix B). To do this, weekly male earnings for individuals aged 35 to 50 in full time employment were summarised by 3-digit SOC 90 code from the Labour Force Survey for the periods 1993-1996 and 1997-2000. The 3-digit SOC 90 codes were then matched to SOC 2010 codes based on the occupation description and then an occupation-level wage was imputed based on the year that the respondent would have been 14. Given that there is no wage data in the LFS prior to 1993, it is not possible to extend this method beyond those survey respondents age 29-36 (14 in 1993-2000) for this analysis.³⁹ To measure destination wages, the gross weekly wage of the survey respondents was used. As mentioned, wages are reported in waves 1 and 5 of the LFS. Where available an average was taken across the two waves to minimise transitory fluctuations and measurement error. If only one wage is reported, then that wage is used. The bottom 1% of wage and any wages above £3,500 a week are coded as missing.

³⁷ Table B1 in Appendix B suggests that those who respond to SMEARNER are slightly less likely to experience workless spells than those who do not respond. They are also in slightly lower NS-SEC classes.

³⁸ There are a number of potential biases associated with this approach (see Jerrim et al., 2016). This technique would be improved if measures of parental education were also available.

³⁹ Although an alternative source of occupation-wage level data could be used that covers a longer period of time for a more in-depth analysis.





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