Declining Social Mobility? Evidence from five linked Censuses in England and Wales 1971-2011

Buscha, F. and Sturgis, P.

1. Introduction

The past ten years have witnessed an unprecedented increase in academic and policy interest in intergenerational social mobility. The political appeal of social mobility is undoubtedly that it is a 'valence' issue (Clarke et al, 2004), which is to say that improving social mobility is consensually agreed to be a desirable objective in itself, disagreement relates only to how the objective should be achieved. Thus, no political party can be found which lists *reducing* social mobility amongst its policy objectives. However, while politicians and media commentators appear increasingly fixated on the idea that social mobility in the UK has 'ground to a halt', or even 'gone into reverse', academic research is still some way from consensus on the matter. Partly this is a result of disciplinary differences in preferred measures of socio-economic position, with economists focusing on income and earnings and sociologists on occupation-based measures of class and status. However, it is also because few existing datasets meet the stringent requirements necessary for robust estimation of intergenerational mobility rates (Black and Devereux, 2011). Much of what we think we know about social mobility, in the UK as elsewhere, is grounded on a thin base of evidence (Grusky, Smeeding and Snip, 2015).

The upsurge of high-level interest in a topic which had, until quite recently, the status of an arcane sub-discipline of sociology can be traced to an influential report by a team of economists at the London School of Economics (Blanden et al 2004). Using data from the National Child Development Study (NCDS) and the British Cohort Study (BCS), the authors showed that the correlation between the self-reported earnings of adult study members and those of their fathers had increased between the cohorts born in 1958 and 1970. It appeared, therefore, that the economic standing of adult citizens had become more strongly determined by the economic status of their parents, during a period of educational expansion and social liberalisation which might reasonably be assumed to have increased equality of opportunity . Yet, despite the nuanced conclusions of the authors themselves in this and subsequent publications (Blanden and Machin, 2007; Blanden et al 2013), the idea that social mobility had 'stalled', quickly took hold in the popular imagination and was soon integrated into a familiar narrative of national decline. Over the past ten years it has been equally common to hear social commentators treating declining social mobility as an established fact, as it has to observe politicians blaming one another for causing the apparent decline in the first place (Saunders 2011; 2012; Goldthorpe, 2012).

Empirical research on the question of whether and how social mobility changed in the latter decades of the 20th Century is, though, far from consistent in its findings. Within the past ten years, researchers have concluded that social mobility in the UK has declined (Blanden et al 2004; 2013), increased (Lambert et al 2007; Li and Devine 2011; Bukodi et al 2015) and remained more or less static (Goldthorpe and Jackson 2007; Goldthorpe and Mills 2008). Logically, of course, it is hard to envisage the circumstances in which all three positions can be correct. This lack of clarity about the direction of recent trends is problematic because it is difficult to devise policies to increase social mobility, if we do not even know whether mobility has changed in the recent past. It is ironic then, that as social mobility has risen ever higher up the political agenda, the evidence base for understanding how it has been changing has not only failed to keep pace with the public debate but has, arguably, deteriorated (Bukodi et al, 2015).

Our objective in this paper is, therefore, to present new evidence on recent trends in intergenerational social mobility in the UK using high quality data from a source that has been surprisingly under-utilised by mobility researchers, the Office for National Statistics Longitudinal Study (ONS-LS). The remainder of the paper is structured as follows. First, we review the existing evidence on post-war trends in intergenerational social mobility in the UK. Following this, we provide a detailed description of the ONS-LS data set and the measure to be used in our analysis. We then set out our analytical approach before presenting the key findings from our analyses. We conclude with a discussion of what these results tell us about recent trends in social mobility in the UK.

2. Trends in Social Mobility in the UK

Before reviewing the evidence on trends in social mobility in the UK, it is necessary to note an important distinction, which is that between absolute and relative rates of social mobility. Absolute mobility is the simple difference between an individual's socio-economic position in adulthood and that of his or her parent(s) when the individual was a child. Absolute mobility makes no adjustment for structural change in an economy over time. For this reason, rates of absolute mobility will change if, for example, the ratio of middle to working class jobs in an economy alters, as was the case in Britain in the middle of the 20th Century (Goldthorpe et al, 1987). Relative mobility, or 'social fluidity', in contrast, adjusts for changes in the size and composition of an economy over time, yielding measures of the *relative risk* of different socio-economic destinations across the distribution of origin states (Erikson and Goldthorpe, 1992). It seems clear that people's lived experiences of intergenerational mobility relate to its absolute rather than its relative form (Breen, 1987; Hout and Hauser, 1992). This is because most adults will be aware of how their own socio-economic status compares to that of their parents. Moreover, individuals may be psychologically affected, in either a positive or a negative way, by the nature of the contrast between their socio-economic origin and destination states (Dolan and Lordan, 2013; Hadjar and Samuel, 2015). It would appear unlikely, in contrast, that citizens have any real appreciation of how their relative chances of different socio-economic destinations have changed over time, compared to more or less advantaged individuals when they were children. However, as a gauge of fairness and distributional equity in a society, relative mobility is the more important dimension to consider as it conditions out the kinds of transient and exogenous macro-economic factors which appear to determine rates of absolute mobility (Duncan, 1966). Much of the confusion in political and policy debate around social mobility appears to stem from a seemingly unintentional elision of its absolute and relative forms (Goldthorpe, 2012; Saunders, 2012).

Prior to the findings of Blanden and colleagues, research into social mobility in the UK was dominated by a group of sociologists based at Nuffield College, Oxford. The Nuffield tradition of mobility research uses categorical class schema, derived by coding occupational unit groups in terms of their ‘employment relations’ and ‘conditions of employment’ to different social class categories (see Rose et al 2005; Bukodi et al, 2012). Absolute and relative rates of intergenerational mobility are then estimated through analysis of tables representing the cross-classification of parent and child class positions. Because most cross-sectional survey designs sample adults and not their parents, socio-economic origins are generally measured by asking adult respondents what their parents’ occupations were when sample members were children. With regard to absolute mobility, the primary conclusions of the 1972 Oxford Mobility Study were that upward mobility had increased significantly during the middle decades of the twentieth century as a result of the substantial expansion in ‘white collar’ and corollary retraction of ‘blue collar’ jobs that occurred at this time (Goldthorpe et al 1987). This same pattern of increasing upward and decreasing downward mobility was confirmed by later studies covering the same period but using different data sets (cf. Erikson and Goldthorpe, 1992).

For the later decades of the twentieth century, the evidence on trends in absolute mobility is less consistent. Using the first (1991) wave of the British Household Panel Survey (BHPS), Paterson and Ianelli (2007) report an increase in downward and a corresponding decline in upward mobility across cohorts born in the 1960s and the 1970s (their analysis did not consider men and women separately). Goldthorpe and Mills (2004; 2008) find no change in upward or downward mobility for men between 1972 and 2005, using a range of different cross-sectional surveys. These authors do, however, report an increase in upward mobility and a decrease in downward mobility for women over the same period. Payne and Roberts (2002), meanwhile, find increasing upward mobility (for men) between 1972 and 1992 but declining upward mobility between 1992 and 1997 using the British Election Study (BES) series of cross-sectional surveys. Covering an overlapping, though somewhat later period, Li and Devine (2011) find a small reduction in upward and a somewhat larger increase in downward mobility for men between 1991 and 2005 (using the 1991 wave of BHPS and the 2005 General Household Survey (GHS))[1]. For women, Li and Devine report a small increase in upward mobility but no change in downward mobility, the difference being accounted for by an increase in 'horizontal' mobility between class categories that do not have an ordinal structure. Most recently Bukodi et al (2015) estimate mobility rates using the 1946, 1958, and 1970 birth cohort studies in conjunction with the first wave of the UK Household Longitudinal Study (UKHLS). Inclusion of the UKHLS enables them to update the trend to the early 1980s but only by taking the destination state at age 27, which might be considered too early in the life-cycle to capture occupational maturity. They find increasing downward and decreasing upward mobility for both men and women when destination class is measured at age 27. This pattern is maintained, albeit more weakly, when destination is measured at age 38, though the two trends are not strictly comparable because the latter necessarily omits the cohort born in the 1980s.

While existing studies clearly differ in the detail of changes in upward and downward mobility in the twentieth century, when considered in broader terms they are in greater accord. For any twentieth century cohort considered across studies, around 70-80%[2], experienced some form of social class mobility, with the remaining 20-30% ending up in the same social class as their parents. Of the socially mobile, somewhere between 35-45% were upwardly mobile and the remaining 25-35% were downwardly mobile. The pattern of evidence in existing studies is also broadly consistent with a move toward increasing downward and declining upward mobility in the later decades of the twentieth and the first decade of the twenty-first centuries (cf. Bukodi et al, 2015).

[1] In the 2005 sweep, the GHS was integrated within the European Union Survey of Income and Living Conditions (EUSILC).

[2] The estimated proportion varies as a function of the number of social class groups in the schema used.

Despite these high rates of absolute mobility, the majority of existing studies have found rates of *relative* social mobility to have remained more or less static from the early to the latter decades of the twentieth century (Goldthorpe et al, 1980; Heath, 1981; Goldthorpe and Payne, 1986; Erikson and Goldthorpe 1992). Analysis of more recent trends, albeit based on an assemblage of unevenly spaced and inconsistent survey designs, suggest that relative mobility continued to flat-line until the middle of the first decade of the twenty-first century (Goldthorpe and Mills, 2008). While small changes in fluidity have been evident between periods, this appears to represent little more than 'trendless fluctuation', the so-called 'constant flux' pattern (Erikson and Goldthorpe 1992). So, despite the numerous egalitarian social and educational reforms enacted over this period, the main body of evidence appears to show that the *relative* advantage in occupational attainment enjoyed by middle over working class children did not weaken in any discernible way. Others, indeed, have argued that static mobility in the UK is a trend that stretches back considerably further in time (Clark, 2014). There have, though, been some exceptions to the constant flux pattern. Heath and Payne (2000) and Payne and Roberts (2002) report a small but consistent increase in fluidity between 1983 and 1992 using the British Election Studies series of cross-sectional surveys, while Lambert et al (2007) find a shallow but positive upward gradient in fluidity over the course of the twentieth century using a measure of occupational status rather than social class. Li and Devine (2011) also report a small but significant increase in fluidity between 1991 and 2005, as do Bukodi et al (2015) between the early 1970s and the late 2000s.

One might be tempted to characterise this body of evidence as indicating a shift from static mobility in the early and middle decades of the twentieth century to a small but discernable increase in social fluidity around the turn of the millennium. However, such an interpretation is complicated by the highly influential findings of Blanden et al (2007; 2013) noted at the outset of this paper, which show a significant *decrease* in relative mobility between 1958 and 1970 using income as the measure of economic position. The divergent nature of the evidence on relative mobility is compounded by Goldthorpe's own analyses of the 1958 and the 1970 cohort studies (Goldthorpe and Jackson 2007; Erikson and Goldthorpe 2010) in which he and his colleagues find no evidence of declining social fluidity using a measure of social class rather than income.

How, then, can we make sense of these contradictory findings on trends in social mobility? One possible explanation is simply that studies have used different measures of socio-economic position. Thus, it may be the case that, because social class and income identify different dimensions of socio-economic advantage they exhibit, as a consequence, different true patterns of inter-generational association over time (Beller and Hout, 2006; Blanden et al, 2013). This is certainly plausible. However, conceptual differences between measures of socio-economic position are confounded with various methodological inconsistencies, which make it difficult to disentangle true change from artefact. For example, some studies have focused on periods (Payne and Roberts 2002; Lie and Devine; Goldthorpe and Mills 2008), while others have taken a cohort approach, with cohorts defined by year of birth (Blanden et al, 2004; Erikson and Goldthorpe 2010; Bukodi et al 2014), or by banded age ranges (Heath and Payne, 2000; Paterson and Ianelli 2007). Studies have also fixed origin and destination ages at different points in the life-cycle, when it is well-known that this can have a strong influence on mobility estimates and, relatedly, that 'single-shot' measures of socio-economic position generally produce biased estimates of inter-generational elasticity (Haider and Solon, 2006; Mazumder and Acosta, 2015). Derivation of socio-economic origin also varies between studies, with some using father's status only and others using some combination of mother's and father's position (Beller, 2009; Torche, 2015). Comparability is also hampered by differential nonresponse and attrition across surveys, as well as by how missing data are treated in statistical models. Finally, scholars have pointed to measurement error in self-reported income as an explanation, in whole or in part, of differences in intergenerational correlations between cohorts (Erikson and Goldthorpe 2010; but see also Blanden et al 2013).

In sum, the number and range of conceptual and methodological problems facing scholars wishing to drawing comparisons between existing studies of social mobility is formidable. No single study is ever likely, it would seem, to be capable on its own of definitively solving 'the mobility puzzle'. The goal of the research community should, in consequence, be to assemble as much high quality evidence as possible which sheds light on this increasingly important policy issue. It is to this collective endeavour that we aim to contribute in this paper.

3. Data and Measures

To examine changing mobility patterns we use the Office of National Statistics Longitudinal Study (LS). The LS is a one per cent sample of linked census records of the population of England and Wales. The LS was initially created from the 1971 and 1981 censuses by selecting all individuals born on one of four (undisclosed) birth dates and linking records across years at the individual level. This procedure has been repeated at each subsequent census, using the same four birth dates, with the records for the same individuals linked across years and new members joining if they are born, or have immigrated to England and Wales from another country, since the previous census. Data linkage ceases if a study member dies or emigrates from England and Wales. The LS thus provides representative cross-sectional and longitudinal information about the population of England and Wales for the years 1971, 1981, 1991, 2001 and 2011. Scotland and Northern Ireland are not considered in our analyses because the respective studies commenced in 1991 and do not therefore allow comparisons over the period of interest.

The LS has a number of advantages over other potential data sources for our purposes here. First, it has an extremely large sample size, with between 500,000 to 550,000 individuals present in every wave between 1971 and 2011. Second, due to the census' high rates of compliance and linkage rates of approximately 90% from one census to the next, the LS has excellent coverage of the target population. And third, it is possible to link the census records of all other individuals who were enumerated in the LS member's household at the time of the census to the LS member's records. This so-called 'non-member' information can be used to derive a measure of the socio-economic origin of LS members, via the occupation of co-resident parents recorded when the LS members were children. The ability to link records within households in this way means that it is not necessary to rely on the potentially error-prone recollections of adult respondents about what their parents' occupations were decades earlier, as is usually required in studies of intergenerational class mobility. We use whichever is the higher of the social class status of LS members' fathers and mothers to derive our measure of socio-economic origin, the so-called 'dominance approach' (Erikson, 1984)[3].

The structure of the LS means that parental information for LS members is only available for those who were co-resident with at least one parent at the time of the census. The rate of missing parental information therefore increases substantially for LS members who were sixteen or above in any census year, as this is the age at which people generally begin to leave home. We therefore limit our analysis to individuals who were aged 16 or below at relevant census years. Where either parent is not in employment at the time of census we use their most recent occupation. This allows us to observe the origin state for approximately 90% of the eligible birth cohorts at any given census. It is difficult to calculate exact attrition rates for the LS due to incomplete recording of immigration and other reasons for no longer being an eligible sample member. However, tracking rates are

[3] The results we present here are robust to other treatments, such as taking the father's class only, or taking the mother's class only in cases where the father's class is not available.

somewhere between 80% and 90% for our target population of individuals in employment.[4]

Another attractive feature of the LS is that study members' 'destination' states are measured at more than one point in the life-cycle. For example, we can observe the occupation of a study member who was 15 years of age in 1971 when they are 25, 35, 45, and 55. Unlike cross-sectional studies, this enables estimation of mobility rates across the life-course, as opposed to a single and often arbitrary point in time, which can bias estimates of intergenerational associations (Haider and Solon, 2006). Additionally, due to its unusually large sample size, we are able to estimate mobility rates for successive cohorts defined by year of birth, rather than via banded age ranges. Year on year cohort comparisons are not generally possible with cross-sectional surveys because sample sizes are too small to yield anything other than very imprecise estimates. For example, using the LS we can compare mobility rates for the cohort of individuals who were born in 1960 to those born in 1961, 1962, 1963, and so on. This is useful because it enables us to assess the year on year stability of mobility rates, when this can usually only be done 'pair-wise' for two cohorts. Finally, the structure of the LS also allows comparisons to be made between 'same age' cohorts across decades. For instance, we can compare mobility for people who were 35 years of age in 1991 with people who were 35 in 2001 and those who were 35 in 2011. Table 1 shows sample sizes by census year and cohort for our analytical sample. For example, the sample size for the age 30 to 36 cohort is approximately 54,000 for men and women and for the age 40 to 46 approximately 39,000 for men and women. Thus, while certainly not free of limitations[5], the LS has many desirable properties for the study of social mobility and, moreover, provides a number of novel ways in which recent trends in intra and inter-generational mobility may be assessed.

TABLE 1 HERE

We use the National Statistics Socio-economic Classification (NS-SEC) which is a measure of employment relations and conditions of occupations. NS-SEC has been used in official statistics to classify individuals by socio-economic position since 2001 and replaced the previously used Registrar General's Social Class (RGSC) measure. To

[4] Platt (2005) finds that attrition from the LS is related to social class origin, although making a correction for this makes little substantive difference to mobility rate estimates.
[5] The primary limitations of the LS are the long intervals between waves, the limited number of variables measured, and the instability of variable definitions and measurements over time.

compute NS-SEC all LS members (and non-members) aged 16-74 have their current occupation, employment status and workplace employee's responses assessed. This information is then used to derive a relevant NS-SEC score for each individual by census year. For individuals who are not currently employed the most recent occupation is used. It should be noted that by nature the census is a survey and therefore the accuracy of individual responses to employment and occupational related questions might be queried. Although a definitive answer cannot be given, the census is subject to high levels of data quality assurance. The 2011 Census Data Quality Assurance Strategy (ONS, 2011) makes it clear that economic activity and occupation are key variables that are subject to additional quality assurance checks.[6]

However, NS-SEC is only inherently derived in the LS in years 1991, 2001 and 2011 so a version must be constructed for 1971 and 1981. This is done using a read-over table[7] which allocate SOC70 and SOC80 codes to the SOC90 classification. NS-SEC can then be derived for the 1971 and 1981 LS samples by using the publically available SOC90 to NS-SEC look-up table provided by the Office for National Statistics. In addition, no employer size information is available for the 1971 and 2011 census so to ensure comparability we use the simplified NS-SEC measure based on occupational coding and employment status only.

4. Analytical Approach

We estimate absolute and relative rates of social mobility for cohorts born in the late 1950s and early 1960s and compare these to cohorts born one and two decades later. The most recent cohorts for which we are able to estimate rates of intergenerational mobility were born between 1975 and 1981. While this may seem an unsatisfactorily historical focus, it is an under-acknowledged but necessary feature of any analysis which seeks to estimate trends in social mobility. Because intergenerational mobility cannot be assessed until an individual reaches 'occupational maturity', which is generally set at some point in their thirties or forties, the earliest cohorts for which social mobility can be robustly estimated will have been born at least thirty years prior to the time at which data were collected. We estimate the population proportions who experienced upward and

[6] For example, comparator data is used and statistical tolerances are carefully examined. An example would be farmers in central London. Additional information on data quality for earlier LS waves can be found in Hattersley and Creeser (1995).

[7] This code has been constructed and provided to us by Bukodi and Neuburger (2009) as part of their ESRC study under the Gender Network Grant, 'Changing occupational careers of men and women', Reference: RES-225-25-2001.

downward mobility, respectively, with the remainder being those who were immobile. Total mobility is defined as the proportion of cases that lie in cells off the main diagonal in the cross-classification of origin and destination states.[8] Following conventional procedure (Breen, 2004; Buokdi et al, 2015) movements between NS-SEC classes 3, 4, and 5 are treated as immobility because these categories are not hierarchically ordered with regard to economic (dis)advantage. For consistency, we also use the 5 class NS-SEC measure (collapsing classes 3, 4, and 5) for estimates of total mobility.[9] For relative mobility, we fit loglinear models of increasing complexity: the Conditional Independence (CI) model, the Constant Social Fluidity (CSF) model and the Uniform Difference (UNIDIFF) model (Erikson and Goldthorpe 1992). The models have the following form: let f_{ijk} be the observed frequency in the i^{th} row ($i = 1,\ldots,I$), of the j^{th} column ($j = 1,\ldots,J$) and the k^{th} layer ($k = 1,\ldots,K$) in a three-way mobility table between origin *i* (O), destination *j* (D) and cohort *k* (C). The Conditional Independence model omits the ODC and the OD interactions from the fully saturated model:

$$\text{Log}(f_{ijk}) = \lambda + \lambda_i^O + \lambda_j^D + \lambda_k^C + \lambda_{ik}^{OC} + \lambda_{jk}^{DC} \qquad (2)$$

Where $\text{Log}(F_{ijk})$ is the natural logarithm of the expected frequency in cell *i*, *j*, *k*. The CI model imposes a restriction of zero association between origin and destination classes, net of their marginal distributions. Clearly, this is not a realistic assumption as it is well known that socio-economic origin and destination states are strongly related. The CI model serves, though, as a useful baseline against which less restrictive models can be contrasted. The Constant Social Fluidity (CSF) model releases the zero constraint on the λ_{ij}^{OD} term in (2) to give:

$$\text{Log}(f_{ijk}) = \lambda + \lambda_i^O + \lambda_j^D + \lambda_k^C + \lambda_{ik}^{OC} + \lambda_{jk}^{DC} + \lambda_{ij}^{OD} \qquad (3)$$

[8] Our comparative approach compares cohorts rather than the general population over time. We prefer the cohort focus because cross-sectional estimates aggregate different cohort groups, making it difficult to interpret observed changes in mobility. Moreover, existing research shows that change in mobility over time is driven primarily by differences between cohorts (Breen and Jonsson, 2007).

[9] When 7 class NS-SEC is used we find an almost identical pattern of mobility rates, though with somewhat higher total mobility, as should be expected when there is a greater number of classes for individuals to move between.

If the fit of equation (3) to the observed data is a significant improvement on equation (2), we conclude that there is a non-zero association between origin and destination states for these cohorts. The CSF model implies that the association between origin and destination is constant across cohorts, which is to say that social mobility does not change over the period/cohorts examined. However, adding the ODC interaction to (3) would yield the 'saturated' model, which reproduces the observed cell frequencies and has no over-identifying restrictions that can be used to test the fit of the model to the data. To test for changing relative mobility over time, we set $\lambda^{OD}_{ij} + \lambda^{ODC}_{ijk} = \psi_{ij}\beta_k$ to give the so-called log-multiplicative, or 'uniform difference' model (Xie, 1992):

$$\mathrm{Log}\left(f_{ijk}\right) = \lambda + \lambda^{O}_{i} + \lambda^{D}_{j} + \lambda^{C}_{k} + \lambda^{OC}_{ik} + \lambda^{DC}_{jk} + \psi_{ij}\beta_k \qquad (4)$$

Where ψ_{ij} denotes the cell-specific scores that are the baseline pattern of association between origin and destination, and β_k denotes layer-specific scores that express the strength of the origin and destination association in each cohort. Finally, (4) implies that the conditional log-odds ratios for each cohort, C, take the form[10]:

$$\mathrm{Log}\left(\theta_{ij|k}\right) = \left(\psi_{ij} + \psi_{(i+1)(j+1)} - \psi_{(i+1)j} - \psi_{i(j+1)}\right)\beta_k \qquad (5)$$

and, therefore, the ratio between any two cohort (C) parameters, β, expresses by how much, in relative terms, the association between the origin and destination states has grown uniformly stronger or weaker across the relevant cohort parameters. To assess the fit of these alternative models we use the likelihood-ratio chi-square statistic:

$$G^2 = 2\sum_{i=1}^{I}\sum_{j=1}^{J}\sum_{k=1}^{K} f_{ijk}\log\left(\frac{f_{ijk}}{F_{ijk}}\right) \qquad (6)$$

The difference in G^2 between nested models is distributed as chi square and can therefore be used as a parametric test of the difference in fit, with degrees of freedom equal to the number of additional parameter restrictions in the more constrained model. In addition to G^2 we also assess model fit using the dissimilarity index (DI). This index takes a value between 0 and 100 with lower values representing better fit. The DI is given by:

[10] Where $\mathrm{Log}\left(\theta_{ij|k}\right) = \mathrm{Log}\left(F_{ijk}\right) + \mathrm{Log}\left(F_{(i+1)(j+1)k}\right) - \mathrm{Log}\left(F_{(i+1)jk}\right) - \mathrm{Log}\left(F_{i(j+1)k}\right)$

$$DI = \sum_{i=1}^{I}\sum_{j=1}^{J}\sum_{k=1}^{K}\frac{|f_{ijk} - F_{ijk}|}{2N} \times 100 \qquad (7)$$

5. Results

We first present descriptive statistics for NS-SEC across successive censuses, representing people born in the late 1950s, the late 1960s and the late 1970s, respectively. Table 2 shows the NS-SEC distribution for these three cohort groups at the same point in the lifecycle, when they are aged in their early to mid 30s. There was an increase over successive cohorts in the proportion in managerial and professional occupations when aged 30 to 36. The proportion of men working in higher managerial or professional occupations increased from 12% for the 55/61 cohort to 19% for the 75/81 cohort. The proportion of women in these classes also increased, from 4% for the 55/61 cohort to 14% for the 75/81 cohort. A similar picture emerges for lower managerial and professional occupations, which expanded over successive decades, particularly for women. For intermediate occupations, there is little change for men, while for women there is a decline from 29% to 22% between the 55/61 and the 65/71 cohorts, although this change did not continue over the ensuing ten years. For both men and women there were falling proportions of between 3% and 8% in semi-routine and routine occupations over the three cohorts.

TABLE 2 HERE

The rate of increase in service class occupations clearly slows between the second and third cohorts for men. The tailing off of middle-class expansion is also evident, though less strongly, for women. The trends we observe in the social class distribution in the LS, then, are in line with those found in other UK data sets; a slowing expansion in professional and managerial classes and a concomitant decline in routine and semi-routine occupations in the latter part of the twentieth century (Breen and Liujkx, 2004; Goldthorpe and Mills, 2008).

5.1 Absolute mobility

We now consider trends in absolute mobility across the three aggregated cohorts. We first present cohorts defined by banded age ranges before disaggregating into cohorts defined by year of birth. We do this because it is informative to observe how the banded aggregates decompose into their component year of birth cohorts. Figure 1 presents the proportion in each cohort who experienced upward and downward mobility, and who were immobile when aged 30 to 36 (panel a) and 40 to 46 (panel b). Neither men nor women experienced substantial change in absolute mobility over successive cohorts. The rate of total mobility remains more or less stable at approximately 70% for both men and women across the three cohort groups.

FIGURE 1 HERE

However, within this picture of stable total mobility, there is some evidence of change over time in upward and downward rates, for both men and women. By their early to mid-thirties, men experienced a small increase in downward mobility (28% to 30% between the 55/61 cohort and 75/81 cohorts) and a concomitant small decrease in upward mobility (from 40% to 38%) across successive cohorts. Conversely, for women there was an increase in upward mobility (34% to 39%) and a decrease in downward mobility (35% to 29%) between the late 1950s and late 1970s. If the 'destination' age range is set to between 40 and 46 years (panel b), the pattern for men is somewhat more evident but, for women, there is now no discernible difference in rates of absolute mobility between the two cohorts. This could be a result of women switching from higher to lower status occupations following a period out of the labour market for the purposes of child rearing.

We now consider the same trends for cohort groups defined by year of birth rather than banded ranges. The ability to disaggregate in this way is, we believe, a unique feature of the LS, as other UK data sets either focus on particular cohort years (e.g. the birth cohort studies), or have insufficient sample size to disaggregate cross-sectional estimates by cohort years (e.g. the British Household Panel Survey). The absolute mobility rates for cohorts aged 30 to 36 and 40 to 46 are presented separately for men (upper panel) and women (lower panel) in Figures 2 and 3, respectively. Note that this analysis combines a 'cohort' and a 'population' approach; comparison on the vertical level (i.e. comparing blue, red, and green points at the same age) shows mobility rates for the same cohort at different time points, while comparison on the horizontal level (comparing different points of the same colour) shows mobility rates for different cohort groups at the same point in time. For men aged 30 to 36, we see essentially the same pattern of upward, downward, and total mobility as was observed for the aggregated cohorts in Figure 1, although the small increase in downward mobility is now only really evident between cohorts when aged 35 and 36. While the differences in upward and downward mobility for men between the first and the second and the second and the third cohorts respectively are small and inconsistent, there is better evidence of a shift toward more downward and less upward mobility between the cohorts born in the late 50s and the late 70s. The pattern for women when using cohorts defined by birth years again shows a small but consistent shift toward increased upward mobility from one cohort to the next, although the size of the increase narrows at the upper end of the age range. The magnitude of the increase in downward mobility over time is somewhat larger, though less consistent across cohorts; while the youngest cohorts always show lower rates of downward mobility compared to the oldest, the difference between the oldest and the middle cohorts actually reverses from ages 33 to 36, albeit that these differences are not statistically significant.

FIGURE 2 HERE

Volatility in point estimates of this nature should be anticipated as a result of sampling and measurement error. Nevertheless, the patterns we observe when moving from banded age ranges to individual year of birth cohorts demonstrate a useful methodological point; that studies which consider intergenerational associations for ‘snap-shot’ cohort years may well provide a misleading picture of an underlying trend. Likewise, cohort analysis based on banded age ranges may be unduly influenced by arbitrary decisions regarding the location of the band thresholds. Disaggregating by individual cohort years when destination state is taken in the early to mid forties shows a consistent trend for men, with every cohort year exhibiting the same pattern as was observed in Figure 1; cohorts born in the late 1960s show higher rates of downward and lower rates of upward mobility compared to the corresponding cohorts born a decade earlier. For women, there is some evidence of a shift in the same direction as men, with somewhat higher rates of downward and lower rates of upward mobility, although this is only apparent from ages 43 to 46. We therefore see the same apparent reversal in the direction of change depending on the point in the life-cycle that destination state is observed; increasing upward mobility is apparent in the early to mid thirties but this changes to increasing downward mobility across cohorts by the early to mid forties.

FIGURE 3 HERE

5.2 Relative mobility

We now turn to an assessment of relative mobility. As with absolute mobility, we present results for cohorts defined by banded year age ranges before disaggregating into individual cohort years. Table 3 shows estimates for models fitted to the 7 class NS-SEC schema for men who were aged 30 to 36 in the 1991, 2001 and 2011 censuses and 40 to 46 in the 2001 and 2001 censuses). The OD association for the first cohort (born in 1955-61) is constrained to 1, so that the β parameters for the later cohorts are interpreted relative to this reference group. Because the β coefficients are multipliers of the strength of the origin/destination association for the reference cohort, they can be interpreted as percentage changes in the baseline association, where values greater than 1 denote a decrease in fluidity (a strengthening of the OD association), values less than 1 denote an increase in fluidity (a weakening the OD association). Table 3 shows that for men aged 30 to 36, the UNIDIFF model does not fit the data using an exact fit test ($p<0.05$), it represents the best fitting of the three models. The estimates of β for the UNIDIFF model indicate that for men at age 30 to 36, there was a weakening in the intergenerational association (β = 0.826) between the 1955-61 cohort and the 1965-71 cohort, such that the strength of the inter-generational association declined by approximately 13%. This increase in social fluidity between the late 1950s and the subsequent decade was maintained in the cohort born in 1975-81 (β = 0.827), although there was no further increase in fluidity between the later two cohort groups. The increase in fluidity between the late 1950s and late 1960s is still apparent, though somewhat weakened, when men reached their early to mid forties, with a β coefficient of 0.898, that is a weakening of the intergenerational association of approximately 10%.

TABLE 3 HERE

Table 4 shows that the trend in social fluidity for women was similar to that for men, the UNIDIFF model provides the best fit to the data (though not itself fitting using an exact fit test) when destination age is set at 30 to 36 and at 40 to 46. The estimate of β for the 1965-71 cohort is 0.864, indicating a similar increase in relative mobility from the late 1950s to the late 1960s for women, as was the case for men. However, the UNIDIFF parameter for the 1975-81 cohort is 0.947, which is not significantly different from the reference group at the 95% level of confidence. Thus, while we cannot conclude that there was a significant *decline* in fluidity between the 1965-71 and the 1975-81 cohorts, neither can we conclude that there was a significant increase in fluidity between the first and the last cohorts. As was the case for men, extending the destination age to 40 to 46 years for women shows that the increase in fluidity was still evident, though somewhat attenuated, with a β coefficient of 0.912 and a 95% confidence interval that does not include 1.

TABLE 4 HERE

In summary, the LS shows evidence of a significant increase in relative social class mobility for men and women between the cohorts born in the late 1950s and those born in the late 1960s, whether the destination age is set in the early to mid thirties or the early to mid forties. By the late 1970s, the point estimate of the layer effect suggests that the increase in fluidity since the 1950s had been maintained, though not increased for men. However, for women the difference in fluidity between the late 50s and late 70s cohorts could not be statistically distinguished from no change.

Next, we present summary results for loglinear models using NS-SEC fitted to cohorts defined by year of birth. Figure 4 plots β coefficients for the UNIDIFF model for each of the seven cohort groups for men (left panel) and women (right panel). Despite the large total sample size of the LS, disaggregating by both sex and individual year of birth results in rather imprecise estimates of β. We therefore focus our attention on trends across and between cohorts, rather than on strict tests of statistical significance for individual point estimates. Model fit statistics and confidence intervals for all models in Figure 4 can be found in the Appendix. For men, the same general pattern as in table 3 is observed for individual cohort years; there was an increase in social fluidity between the cohorts born in the late 1950s and those born in the 1960s but no notable or consistent change in fluidity between cohorts born in the late 1960s and those born in the late 1970s. For women, the pattern is less consistent when a more fine-grained cohort definition is employed. There is some movement from the reference point of 1959 from one cohort to the next, although this is small in magnitude.

FIGURE 4 HERE

Six of the seven coefficients are below 1 for the cohorts born in the late 1960s compared to those born in the late 1950s but there is no evidence of difference between these cohort groups and those born in the late 1970s. A more consistent pattern emerges when we set the destination class age in the 40s (Figure 4). Now it is clear that, for both men and women, there was an increase in social fluidity between the late 1950s and the late 1960s for all but one cohort year. Although some of the differences are small in magnitude, it is notable that they are in the same direction for every cohort group.

6. Discussion

Economic inequality in the UK, as in most countries around the world, has increased sharply over the past twenty to thirty years (OECD, 2011; Stiglitz, 2012). While opinion diverges over the causes and consequences of this trend (Pickety, 2014; Wilkinson and Pickett, 2009), there is little or no disagreement on the basic fact that inequality has increased. The empirical record of heightening economic polarisation across a broad set of indicators is substantial, clear, and undisputed. The consensus around increasing inequality appears to have led many commentators to assume, if only implicitly, that mobility between the socio-economic positions of parents and children has pursued a parallel downward track. However, the fact that the distribution of economic outcomes has become more unequal over time need not also imply that the *opportunity* to attain socio-economic returns has followed the same trajectory. It may indeed be the case that social fluidity has declined as disparities in wealth and income have widened but this cannot simply be assumed on theoretical grounds alone. It is an empirical question. And, while citizens' life-chances in the UK have long been, and remain, heavily determined by the socio-economic circumstances into which they were born, the evidence supporting the idea that British society has become *less* socially fluid between generations is both weak and inconsistent.

As we noted at the outset of this paper, the inconclusive nature of the evidence on social mobility is attributable to a number of factors. One is that there are many different ways of measuring socio-economic position, as there are of estimating the association between individuals' socio-economic origin and destination states. Another is that conventional study designs for the analysis of social mobility suffer from methodological limitations relating to sample size, nonresponse, attrition, measurement error, and so on which render accurate estimation of mobility rates and comparability between studies problematic. Perhaps most importantly, though, is the simple lack of data sets containing the requisite variables for mobility analysis. Our objective in this paper has, therefore, been to broaden and deepen the evidence base on recent trends in social mobility in the

UK through analysis of a surprisingly neglected, high quality data resource; the Office for National Statistics Longitudinal Study.

Our analysis considered both absolute and relative rates of social mobility, separately for men and women for cohorts born between 1955-61, 1965-71, and 1975-81. Destination states were taken in 1991, 2001, and 2011 when study members were in their early to mid thirties and, additionally, for the first two sets of cohorts, in their early to mid forties. Regarding absolute mobility, for men the LS shows a small increase in downward and a concomitant decline in upward mobility between the first (late 1950s) and the second set of cohort groups (late 1960s). While this pattern was still evident for the cohorts born in the late 1970s, there was no evidence of a continued decline in upward mobility from the 1960s to the 1970s. The same trend was observed between the first and second sets of cohorts irrespective of whether destination state was taken when men were in their thirties or their forties. For women, we find a trend in the opposite direction, with increasing upward and decreasing downward mobility across the three sets of cohorts when destination state is set in the early to mid thirties. However, this pattern is reversed when the first two sets of cohort groups had reached their mid-forties, with a shift toward increased downward and reduced upward mobility from the first to the second set of cohorts when women were aged 43 to 46. A possible explanation for this reversal is 'perverse fluidity', the effect on mobility rates of women from working class backgrounds taking up lower status occupations than they left following a period of child-rearing (Goldthorpe and Mills, 2004). This is an interesting hypothesis which, if true, should lead us to question whether what we are seeing here is really a case of downward mobility. That is to say, if social class were measured at the level of the household rather than the individual, the trend to disappear, or even reverse. Although beyond the scope of this paper, we believe this represents an interesting avenue of further research as the number and timing of births to female study participants is recorded in the LS.

It is difficult to assess how our findings on absolute mobility fit with those of existing studies because, as we noted earlier, survey designs as well as the periods considered differ to an extent that precludes exact comparisons. Having said that, the LS data can be said to reveal the same broad pattern as existing studies, with around 70% of the population experiencing some form of class mobility during this period and the remainder ending up in the same social class they were born into. Of the class mobile group, around 40% move into a higher and approximately 30% move into a lower social class. Another point of agreement with existing studies is our finding of a small but discernible trend toward greater downward and less upward mobility (Goldthrope and Mills, 2008; Li and Devine, 2009; Bukodi et al 2015), although as we noted earlier, this effect is different for men and women and contingent on the point at which destination state is observed. The trend toward increasing downward mobility is, at least in part, a result of the high rates of upward mobility in previous generations. As higher proportions of the population start out in service class occupations, the risk of downward mobility increases, without continued service class expansion (Bukodi et al, 2015). This is a trend that appears likely to continue across future generations.

With regard to relative mobility, the LS shows a small but significant increase in relative social class mobility for both men and women between the cohorts born in the late 1950s and the late 1960s. This was maintained when the same cohorts were ten years older, aged 40 to 46. The increase in fluidity from the late 1950s to the early 1960s was still evident in the cohorts born in the late 1970s, although there was no evidence of a continuation in the trend of increasing openness between the late 1960s and the subsequent cohorts. Our findings, then, provide no support at all for the widely held belief that social mobility has stalled, or gone into reverse. Indeed, the LS shows a clear, albeit small, trend toward increasing social fluidity.

Our relative mobility results, then, are counter to prevailing beliefs about social mobility and are in the opposite direction to the findings of Blanden and colleagues, who report income correlations of 0.211 for the cohort of men born in 1958 and 0.278 for the 1970 cohort (Blanden et al, 2011). For the same cohorts[11] our estimate of the β parameter from the UniDiff model is 0.804, representing a 20% reduction in the strength of the origin-destination assocation. Because social class and earnings all measure somewhat different dimensions of socio-economic position, we should not expect the intergenerational associations they produce to be identical. However, it is worthy of note that the mobility rates estimated using the LS are not just different by degree but in the opposite direction to those of Blanden et al. Moreover, our findings are in accord with a number of recent studies which have reported either no change or a small shift toward increased social class fluidity in the latter decades of the twentieth century (Goldthorpe and Mills, 2008; Bukodi et al, 2015; Li and Devine, 2009;). The slight trend toward increasing social fluidity that we observe differs somewhat from the patterns found in existing studies. However, given the many differences in study designs and time periods

[11] The LS cohorts are born in the same years as those considered by Blanden et al, although LS origin states are taken at age 13 and 11 for the '58 and '70 cohorts respectively (age 16 in the cohort studies) and destination states are taken at 33 and 31 in the LS (33 and 30 in the cohort studies).

covered, it would be unwise to speculate about the underlying causes of these small discrepancies.

This does not, of course, imply that the findings of Blanden et al with regard to income are wrong but it does increase the robustness of the evidence base against any decline in relative *social class* mobility during the same period. Our results do add one additional point of insight on the issue of trends. Recent evidence on social mobility in the UK comes either from the cohort studies, or from cross-sectional surveys. Both designs are limited in what they can reveal about trends in mobility from one cohort to the next. The LS, in contrast, enables mobility rates to be estimated for multiple adjacent cohorts and at different points in the life-course. What analysis of this kind reveals is that conclusions regarding trends based on only two or three cohorts will be sensitive to the particular cohorts selected, and the ages at which destination state is measured. This, then, points to a requirement for caution when making inferences about trends when only a small number of data points are available. As a robustness check, we have replicated our analysis for relative mobility using an alternative measure of socio-economic position, the Cambridge Social Interaction and Stratification Scale (CAMSIS) (Prandy and Lambert, 2003). These show the same pattern of a small but significant increase in fluidity from the late 1950s/early 1960s over the ensuing decades (see Appendix). We can, therefore, be confident that this key finding is not specific to the NS-SEC measure of social class we have used.

In concluding, it is necessary to note two important caveats, lest our findings relating to increased social fluidity be interpreted in an overly positive manner. First, the increase in relative mobility that we do observe is small in magnitude and represents change from a base of substantial inequality. For example, in the most recent cohorts considered in our models - people born between 1975 and 1981 - the odds of an individual born into the highest social class group being in that class at the age of thirty were approximately 20 times higher than an individual born into the lowest social class group. Second, the most recent cohort of individuals considered in our analyses were born in 1981, which is approximately the time at which economic inequalities began to widen substantially in the UK. While we can say with some confidence that we find no evidence of these cohorts experiencing lower rates of relative mobility than previous generations, it is too early to tell what might have happened subsequently.

REFERENCES

Black, S. and Devereux, P. (2011) "Recent Developments in Intergenerational Mobility," *Handbook of Labor Economics*, Elsevier.

Beller, E. (2009) Bringing intergenerational social mobility research into the twenty-first century Why mothers matter. *American Sociological Review*, 74: 507-528.

Beller, E. and Hout, M. (1996) Intergenerational social mobility: The United States in comparative perspective. The Future of Children 16: 19-36.

Blanden, J., Goodman, A., Gregg, P. and Machin, S. 2004 ‘Changes in Intergenera- tional Mobility in Britain’ in M. Corak (ed.) *Generational Income Inequality*, Cambridge: Cambridge University Press.

Blanden J, Gregg P, Macmillan L. (2013) “Intergenerational Persistence in Income and Social Class: The Impact of Within-Group Inequality”. *Journal of Royal Statistical Society Series A: Statistics in Society*, Vol. 176, No. 2, pp. 541-563.

Blanden, J. and Machin, S. (2010) Intergenerational inequality in early years assessments. *In Children of the 21st Century: the First Five Years* (eds K. Hansen, H. Joshi and S. Dex), pp. 153–168. Bristol: Policy Press.

Breen, R. 2004 ‘Statistical Methods of Mobility Research’ in R. Breen (ed.) *Social Mobility in Europe*, Oxford: Oxford University Press.

Breen, R., and Luijkx, R. (2004) “Social Mobility in Europe between 1970 and 2000” In R. Breen (Ed.), *Social Mobility in Europe*. (pp. 37-75). Oxford: Oxford University Press.

Breen, R. and Jonsson, J. (2007) “Explaining Change in Social Fluidity: Educational Equalization and Educational Expansion in Twentieth–Century Sweden”, *American Journal of Sociology*, Vol. 112, pp. 1775-1810

Breen, R. and Goldthorpe, J.H. 2001 ‘Class, Mobility and Merit: The Experience of Two British Birth Cohorts’, *European Sociological Review* 17(2): 81–101.

Bukodi, E. Dex, S. and Goldthorpe, J. (2011) The conceptualisation and measurement of occupational hierarchies: a review, a proposal and some illustrative analyses, *Quality and Quantity*, 45, 623-639.

Bukodi, Erzsébet and Goldthorpe, John H. and Waller, Lorraine and Kuha, Jouni (2014) The mobility problem in Britain: new findings from the analysis of birth cohort data *The British Journal of Sociology*.

Chan, T.-W. and Goldthorpe, J. H. 2007 ‘Class and Status: the Conceptual Distinc- tion and its Empirical Relevance’, *American Sociological Review* 72: 512–32.

Clark, G. (2014) *The son also rises: Surnames and the history of social mobility*, Princeton University Press.

Clarke, H., Sanders, D., Steward, M., and Whiteley, P. (2004) *Political Choice in Britain*, Oxford University Press.

Dolan, P. and Lordan, G. (2013) *Moving up and sliding down: An empirical assessment of the effect of social mobility on subjective wellbeing* CEP Discussion Papers, ECPDP1190. Centre for Economic Performance, London School of Economics and Political Science, London, UK.

Duncan, O. (1966) Methodological issues in the study of social mobility. In *Social structure and mobility in economic development*, eds. Seymour Martin Lipset and Neil J. Smelser, 51-97. Chicago, IL: Aldine.

Erikson, R. 1984 'Social Class of Men, Women and Families', *Sociology* 18: 500–14.

Erikson R. and Goldthorpe J. H. (1992) *The Constant Flux: A Study of Class Mobility in Industrial Societies*, Oxford: Clarendon Press.

Erikson, R. and Goldthorpe, J. H. (2010) "Has social mobility in Britain decreased?: reconciling divergent findings on income and class mobility", *British Journal of Sociology*, Vol. 61, pp. 211–230.

Goldthorpe, J. (2012) "Understanding – and Misunderstanding – Social Mobility in Britain: The Entry of the Economists, the Confusion of Politicians and the Limits of Educational Policy", Barnett Papers in Social Research, Oxford Institute of Social Policy and Nuffield College, University of Oxford, January.

Goldthorpe, J. H., Llewellyn, C. and Payne, C. (1980) *Social Mobility and Class Structure in Modern Britain*, Oxford: Clarendon Press.

Goldthorpe, J.H and Payne, C. (1986) "Trends in intergenerational class mobility in England and Wales 1972-1983", *Sociology*, 20: 1-24.

Goldthorpe, J. H. and Mills, C. (2004) Trends in intergenerational Class Mobility in Britain in the Late Twentieth Century, in R. Breen (ed.), *Social Mobility in Europe*, Oxford: Oxford University Press.

Goldthorpe, J. H. and Jackson, M. (2007) Intergenerational Class Mobility in Contemporary Britain: Political Concerns and Empirical Findings, *British Journal of Sociology*, 58: 526-46.

Goldthorpe, J. H. (with Llewellyn, C and Payne, C.) 1987 Social Mobility and Class Structure in Modern Britain, 2nd ed., Oxford: Clarendon Press.

Grusky, D., Smeeding, T. and Snipp, C. (2015) A New Infrastructure for Monitoring Social Mobility in the United States, *The Annals of the American Academy of Political and Social Science*, 657, January, 63-82.

Hadjar, A. and Samuel, R. (2015) Does upward social mobility increase life satisfaction? A longitudinal analysis using British and Swiss panel data, Research in Social Stratification and Mobility, 39 (March), 48-58.

Haider, S. and Solon, G. (2006) Life-cycle variation in the association between current and lifetime earnings. *American Economic Review* 96(4): 1308-20.

Hattersley, L and Creeser, R. (1995) *Longitudinal Study 1971-1991 History, organisation and quality of data*, Series LS No 7., Office of Population, Censuses and Surveys, London: HMSO

Heath, A. (1981) *Social Mobility,* London: Fontana.

Hout, M. (2015) A Summary of What We Know About Social Mobility, *The Annals of the American Academy of Political and Social Science*, 657, January, 27-36.

Hout, M. and Hauser, R. (1992) Symmetry and hierarchy in social mobility: A methodological analysis of the CASMIN model of class mobility. *European Sociological Review*, 8(3): 239-265.

Lambert, P., Prandy, K. and Bottero W. (2007) “By slow degrees: Two centuries of social reproduction and mobility in Britain”, *Sociological Research Online*, Vol. 12, No. 1.

Li, Y. and Devine, F. (2011) Is Social Mobility Really Declining? *Sociological Research Online*, 16 (3) 4.

Mazumder, B. and Acosta, M. (2015) Using occupation to measure intergenerational mobility, *The Annals of the American Academy of Political and Social Science*, 657, January, 174-193.

Office of National Statistics (ONS) (2011) *2011 Census Data Quality Assurance Strategy*, 2011 Census Programme

Organisation for Economic Cooperation and Development (OECD) (2011) *Divided we stand: Why inequality keeps rising.* Paris: OECD Publishing.

Paterson, L. and Ianelli, C. (2007) Patterns of Absolute and Relative Social Mobility: a Comparative Study of England, Wales and Scotland, *Sociological Research Online*, 12 (6) 15.

Payne, G. (1987) *Mobility and Change in Modern Society*, London: Macmillan.

Piketty, T. (2014) *Capital in the twenty-first century*. Cambridge, MA. Harvard University Press.

Prandy, K. and Lambert, P. (2003) “Marriage, social distance and the social space: an alternative derivation and validation of the Cambridge Scale”, *Sociology*, Vol. 37, pp. 397-41.

Rose, D., Pevalin, D. and O’Reilly, K. (2005) *The National Statistics Socio-Economic Classification: Origins, Development and Use*, Basingstoke: Palgrave Macmillan.

Saunders, P. (2011) *Social Mobility Myths*, London: Civitas.

Saunders, P. (2012) “Social Mobility Delusions: Why so much of what politicians say about social mobility is wrong, misleading or unreliable”, Civitas discussion paper.

Stiglitz, J. (2012) *The price of inequality: How today’s divided society endangers our future*. New York, NY; W. W. Norton.

Swift, A. (2004) “Would Perfect Mobility be Perfect?” *European Sociological Review*, Vol. 20, No. 1, pp. 1-11.

Torche, F. (2015) Analyses of intergenerational mobility: An inter-disciplinary review, *The Annals of the American Academy of Political and Social Science*, 657, January, 37-62.

Wilkinson, R. and Pickett, K. (2009) The Spirit Level: Why more equal societies almost always do better, London: Bloomsbury Press.

Xie, Y. (1992) ‘The Log-Multiplicative Layer Effect Model for Comparing Mobility Tables’, *American Sociological Review,* 57(3): 380–95.

Acknowledgements

The permission of the Office for National Statistics to use the Longitudinal Study is gratefully acknowledged, as is the help provided by staff of the Centre for Longitudinal Study Information & User Support (CeLSIUS). CeLSIUS is supported by the ESRC Census of Population Programme (Award Ref: RES-348-25-0004). The authors alone are responsible for the interpretation of the data

Disclaimer

TABLES AND FIGURES

Table 1: ONS-LS sample sizes by year and cohort

	1971 census		1981 census		1991 census		2001 census		2011 census	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
1955-1961 cohort	Age 10-16		Age 20-26		Age 30-36		Age 40-46			
sample of LS-respondents from 1971 census	28,174	26,524	24,349	23,600	22,551	22,701	21,607	22,152	-	-
+ for whom parental occupation is observed	25,063	23,953	22,098	21,605	20,510	20,771	19,641	20,325	-	-
+ for whom parental occupation is observed	-	-	19,069	14,364	**19,752**	**17,630**	**18,825**	**19,135**	-	-
1965-1971 cohort			Age 10-16		Age 20-26		Age 30-36		Age 40-46	
sample of LS-respondents from 1981 census	-	-	29,870	28,522	22,716	23,276	22,185	23,802	21,960	23,413
+ for whom parental occupation is observed	-	-	26,543	25,560	20,442	20,979	20,074	21,487	19,814	21,140
+ for whom parental occupation is observed	-	-	-	-	18,791	18,877	**19,829**	**20,739**	**19,597**	**20,583**
1975-1981 cohort					Age 10-16		Age 20-26		Age 30-36	
sample of LS-respondents from 1991 census	-	-	-	-	22,669	21,713	16,154	16,440	16,688	17,747
+ for whom parental occupation is observed	-	-	-	-	20,230	19,352	14,841	14,884	15,258	16,019
+ for whom parental occupation is observed	-	-	-	-	-	-	12,373	12,146	**15,107**	**15,548**

Source: ONS-LS 1971-2011. Figures in bold represent the samples used in this study.

Table 2: 7-point NS-SEC distributions at ages 30 to 36

NSSEC	Cohort - Men			Cohort - Women		
	55/61	65/71	75/81	55/61	65/71	75/81
Cohort aged 30 to 36						
1 - employer large organisations, higher manager & professionals	12.0	17.4	19.2	4.4	8.5	13.5
2 - lower managers & professionals or higher supervisors	22.2	26.2	28.4	23.1	29.9	35.3
3 - intermediate occupations	9.7	6.6	10.0	29.0	20.8	21.8
4 - employers in small organisations & own account work	15.2	11.6	12.1	4.7	4.9	4.9
5 - lower supervisor & technical occupations	13.4	15.3	10.9	3.1	5.9	4.5
6 - semi-routine occupations	12.0	9.8	8.9	21.2	20.1	14.1
7 - routine occupations	15.5	13.2	10.5	14.5	9.9	5.9

Source: ONS-LS. Cohorts aged between 30 and 36 at point of measurement.

Table 3: Log-linear models using NS-SEC for men aged 30 to 36 and 40 to 46

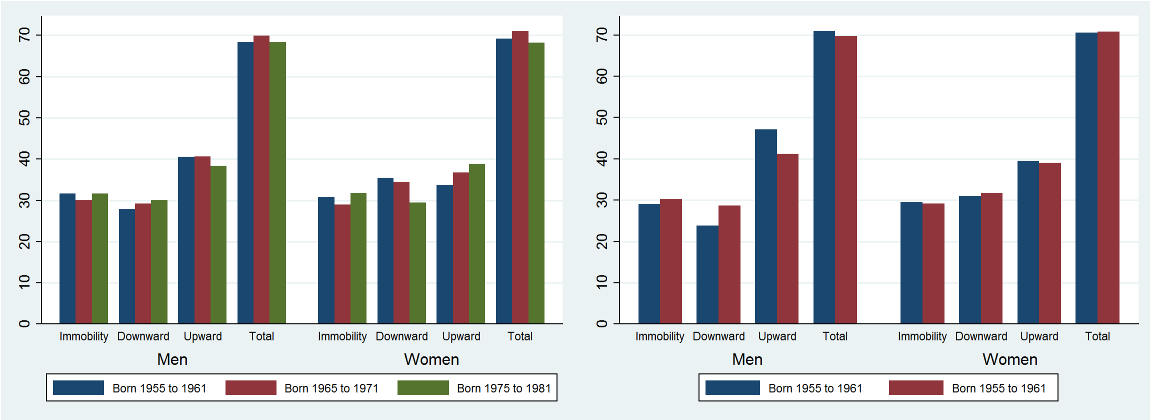
	N	df	G^2	P-val	DI
Men at age 30 to 36					
Independence	54688	108	6498.1	0.000	14.1
CSF	54688	72	162.7	0.000	2.1
UNIDIFF (multiplicative)	54688	70	100.0	0.010	1.0
Difference CSF and UNIDIFF		2	62.7	0.000	1.1
Unidiff Layer scores (*b*)	Coef.	S.E.	Lo. 95% CI	Up. 95% CI	
1955 to 1961 cohort in 1991 census	1.000	-	-	-	
1965 to 1971 cohort in 2001 census	0.826	0.027	0.772	0.879	
1975 to 1981 cohort in 2011 census	0.827	0.031	0.766	0.887	
Men at age 40 to 46					
Independence	38422	72	4022.3	0.000	13.3
CSF	38422	36	74.1	0.000	1.8
UNIDIFF (multiplicative)	38422	35	63.7	0.000	1.6
Difference CSF and UNIDIFF		1	10.4	0.001	0.2
Unidiff Layer scores (*b*)	Coef.	S.E.	Lo. 95% CI	Up. 95% CI	
1955 to 1961 cohort in 2001 census	1.000	-	-	-	
1965 to 1971 cohort in 2011 census	0.898	0.035	0.829	0.967	

Table 4: Log-linear models using NS-SEC, for women aged 30 to 36 and 40 to 46

	N	df	G^2	P-val	DI
Women at age 30 to 36					
Independence	53917	108	4902.8	0.000	11.1
CSF	53917	72	111.7	0.010	1.7
UNIDIFF (multiplicative)	53917	70	96.7	0.030	1.5
Difference CSF and UNIDIFF		2	15.0	0.001	0.2
Unidiff Layer scores (*b*)	Coef.	S.E.	Lo. 95% CI	Up. 95% CI	
1955 to 1961 cohort in 1991 census	1.000	-	-	-	
1965 to 1971 cohort in 2001 census	0.864	0.035	0.796	0.933	
1975 to 1981 cohort in 2011 census	0.947	0.040	0.869	1.024	
Women at age 40 to 46					
Independence	39718	72	2713.8	0.000	10.1
CSF	39718	36	46.6	0.010	1.2
UNIDIFF (multiplicative)	39718	35	41.4	0.030	1.2
Difference CSF and UNIDIFF		1	5.2	0.023	0
Unidiff Layer scores (*b*)	Coef.	S.E.	Lo. 95% CI	Up. 95% CI	
1955 to 1961 cohort in 2001 census	1.000	-	-	-	
1965 to 1971 cohort in 2011 census	0.912	0.043	0.828	0.995	

Figure 1: Absolute mobility rates by cohort, 5 point NS-SEC

a) at age 30 to 36 b) at age 40 to 46



Source: ONS-LS 1971-2011.

Figure 2: Absolute mobility rates by cohort years, ages 30 to 36, 5 point NS-SEC

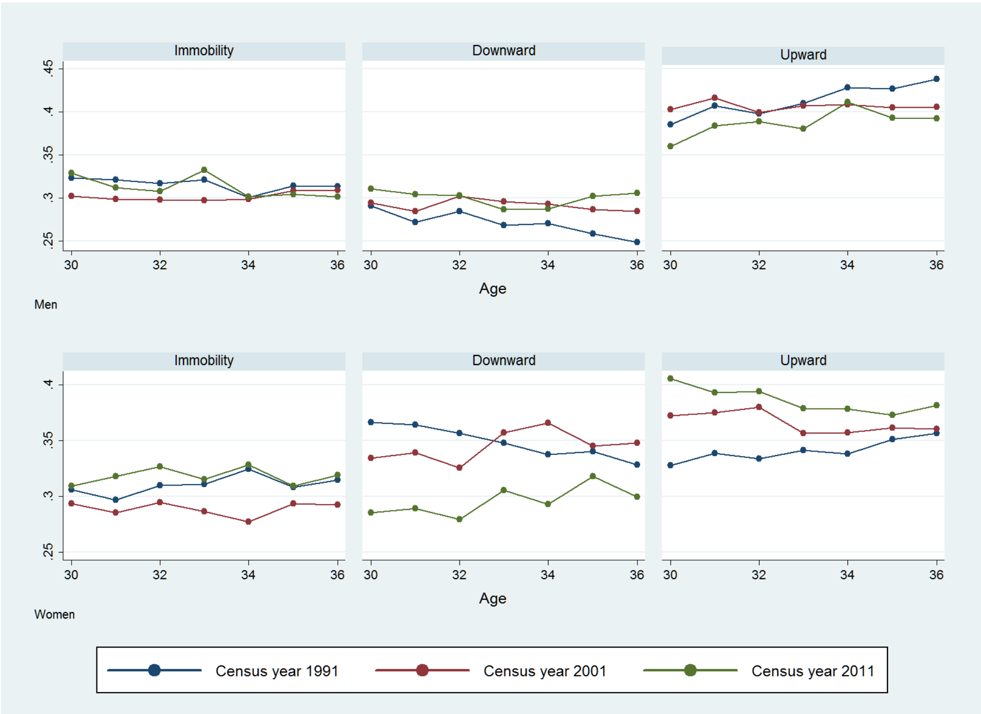


Figure 3: Absolute mobility rates by year cohort years, ages 40 to 46, 5 point NS-SEC

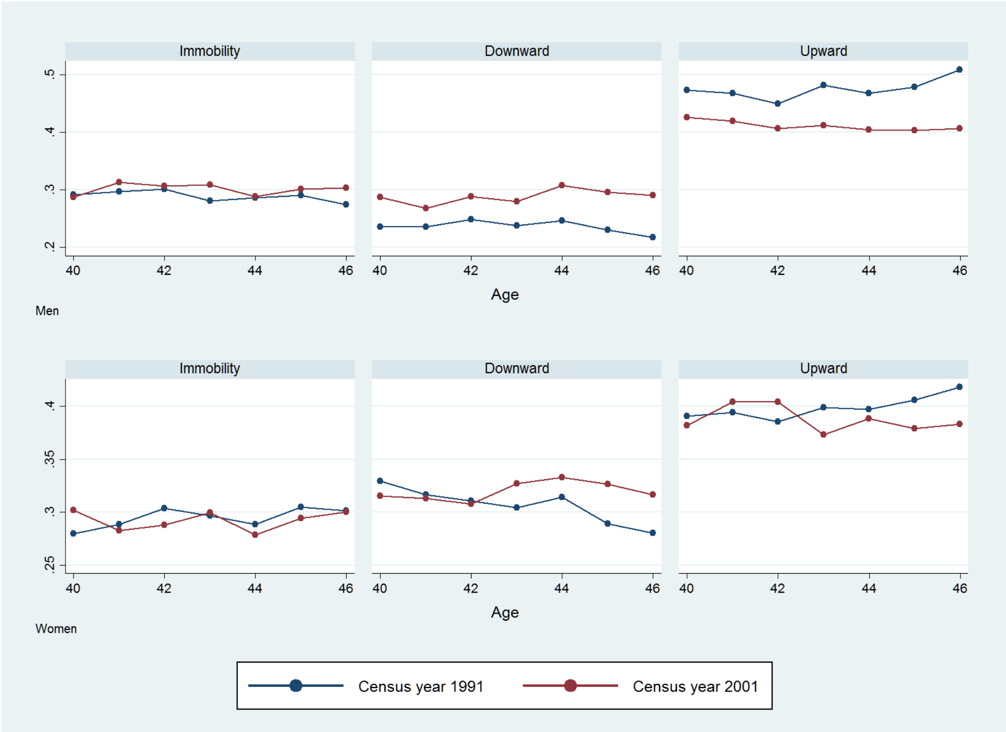
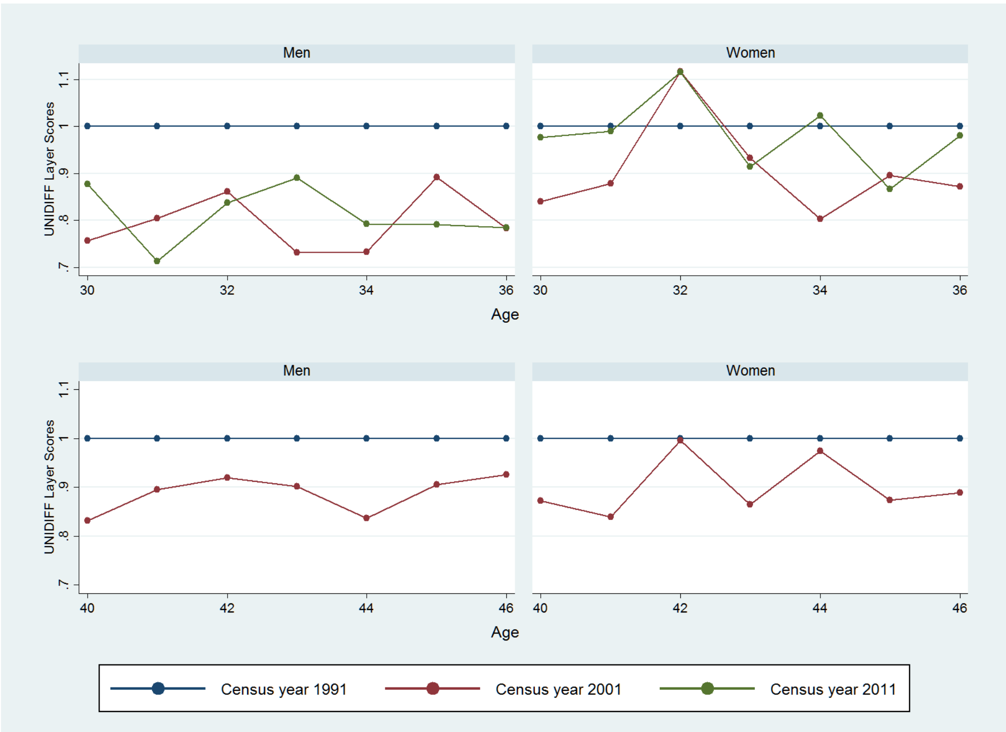


Figure 4: Fluidity coefficients by sex and cohort years



APPENDIX

Table A1: Confidence Intervals and UNIDIFF Fit Statistics for Men aged 30 to 36

UNIDIFF Fit Statistics	Independence model		CSF model		UNIDIFF model		CSF G^2 - UNIDIFF G^2	P-value
Age	N	G^2	N	G^2	N	G^2		
30	7932	1145.8	7932	106.2	7932	93.5	12.7	0.002
31	8122	1061.7	8122	81.6	8122	64.4	17.2	0.000
32	7647	1027.8	7647	95.8	7647	81.1	14.7	0.001
33	8132	1052.8	8132	58.8	8132	55.3	3.5	0.174
34	7465	871.2	7465	113.8	7465	100.8	13.0	0.002
35	7583	926.6	7583	65.4	7583	59.5	5.9	0.052
36	7807	1109.5	7807	86.6	7807	74.8	11.8	0.003

Table A2: Confidence Intervals and UNIDIFF Fit Statistics for Women aged 30 to 36

UNIDIFF Fit Statistics	Independence model		CSF model		UNIDIFF model		CSF G^2 - UNIDIFF G^2	P-value
Age	N	G^2	N	G^2	N	G^2		
30	7696	773.0	7696	70.7	7696	66.9	3.8	0.150
31	7816	782.9	7816	75.8	7816	73.7	2.1	0.350
32	8072	910.3	8072	95.0	8072	93.3	1.7	0.427
33	7643	805.7	7643	66.6	7643	65.7	0.9	0.638
34	7541	795.9	7541	89.8	7541	81.8	8.0	0.018
35	7549	741.2	7549	60.7	7549	58.8	1.9	0.387
36	7600	768.1	7600	85.2	7600	82.9	2.3	0.317

Table A3: Confidence Intervals and UNIDIFF Fit Statistics for Men aged 40 to 46

UNIDIFF Fit Statistics	Independence model		CSF model		UNIDIFF model		CSF G^2 - UNIDIFF G^2	P-value
Age	N	G^2	N	G^2	N	G^2		
40	5490	581.8	5490	49.3	5490	45.5	3.8	0.150
41	5439	755.2	5439	40.9	5439	39.0	1.9	0.387
42	5734	674.0	5734	28.0	5734	27.0	1.0	0.607
43	5550	640.0	5550	39.1	5550	37.8	1.3	0.522
44	5462	567.8	5462	36.3	5462	32.7	3.6	0.165
45	5392	581.1	5392	39.2	5392	38.0	1.2	0.549
46	5355	655.1	5355	33.9	5355	33.1	0.8	0.670

Table A4: Confidence Intervals and UNIDIFF Fit Statistics for Women aged 40 to 46

UNIDIFF Fit Statistics	Independence model		CSF model		UNIDIFF model		CSF G^2 - UNIDIFF G^2	P-value
Age	N	G^2	N	G^2	N	G^2		
40	5646	488.1	5646	38.9	5646	37.2	1.7	0.427
41	5552	432.8	5552	30.6	5552	28.0	2.6	0.273
42	5892	540.9	5892	34.9	5892	34.0	0.9	0.638
43	5806	555.0	5806	33.9	5806	31.6	2.3	0.317
44	5797	497.6	5797	39.8	5797	39.5	0.3	0.861
45	5608	494.2	5608	35.1	5608	33.3	1.8	0.407
46	5417	473.4	5417	33.7	5417	32.5	1.2	0.549

Replication using CAMSIS scale

The Cambridge Social Interaction and Stratification (CAMSIS) scale (Prandy and Lambert, 2003) is derived from a multiple correspondence analysis of cross-classified tables representing the occupations of individuals and their spouses, or cohabiting partners. The cells of this table represent the frequency of marriage/partnership between different occupational unit groups taken from the standard occupational coding classification. The data used to produce the CAMSIS scale are the decennial census, via the Sample of Anonymised Records (SARs). The validity of the CAMSIS scale as a measure of socio-economic position rests on the assumption that people choose partners from occupations that have a similar level of social status and material advantage to themselves. For example, a lawyer is likely to marry a doctor but unlikely to marry a refuse collector. Thus, a measure of an individual's position within the social stratification hierarchy can be constructed indirectly as a 'revealed preference' from information about relative partnership propensities across occupational unit groups (see also Chan and Goldthorpe (2007) for a similar measure based on friendship dyads). The CAMSIS scale is derived separately for men and women because the relative status-ranking of male and female occupations is somewhat different. New CAMSIS scales are derived for each census year to account for the changing nature of occupations and their associated level of prestige over time. To make CAMSIS more readily comparable cross-nationally and over time, it is rescaled so that the mean for the population is set to 50, with a minimum of 0, a maximum of 100, and a standard deviation of 15. CAMSIS is an inherently relative measure of socio-economic position because it is not possible for the total stock of occupational prestige in a society to change over time, only the relative ranking of occupations within the status hierarchy. CAMSIS is strongly correlated with a range of important indicators of social and material advantage, such as earnings, education, health, job satisfaction, and political engagement (Blanden, et al 2009).

We specify the following Ordinary Least Squares (OLS) regression equation for CAMSIS:

$$Y_i^D = \alpha_i + \beta\, Y_i^O + \gamma X_i^O + \varepsilon_i \tag{1}$$

where Y_i^D is the destination CAMSIS score, Y_i^O is the origin CAMSIS score, ε_i a randomly distributed error term with the usual assumptions, and β is the intergenerational correlation. We control for parental age in years (including age squared) at origin as denoted by X_i^O. We estimate equation (1) at destination ages between 30 to 36, and 40 to 46, reflecting 20 and 30 year gaps between origin and destination states, respectively.

Table A5 shows the intergenerational CAMSIS correlations for men and women separately. The intergenerational correlation for men when aged 30 to 36 is 0.400 for the 1950s cohort. This drops to 0.370 and then to 0.332 for the 1960s and 1970s cohorts, respectively. At age 40 to 46 the coefficient declines from 0.359 to 0.342 between the 1950s and 1960s cohorts. These results are, then, essentially the same as those for NS-SEC, which also showed an increase in social fluidity over these periods. However, the CAMSIS measure shows a stronger trend toward increasing fluidity over time, with a significantly lower coefficient for the 1975 to 1981 compared to the 1965 to 1971 cohort when destination state is measured in the early to mid thirties.

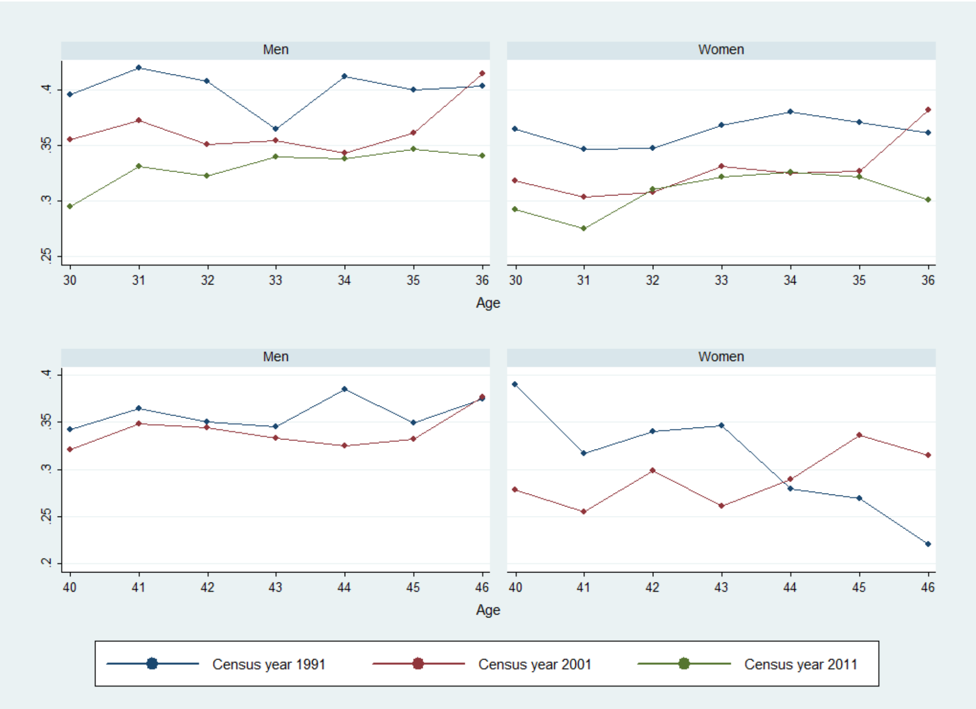
For women, the CAMSIS results show a more consistent trend toward increasing relative mobility across successive cohorts compared to NS-SEC. Women who were born in the late 1950s have a CAMSIS correlation of 0.355 when aged between 30 and 36, which fell, successively, to 0.333 and 0.311 for successive cohorts. As with the NS-SEC results, the increase in social fluidity is evident when women reach their early to mid forties, with a CAMSIS correlation of .302 for the late 1960s cohort, compared to .337 for the late 1950s cohort. CAMSIS correlations for cohort groups defined by year of birth are presented in Figure A1. This shows a similar pattern to the NS-SEC schema for both men and women, though with some divergences across individual cohorts. Social fluidity increased for both men and women from the late 1950s to the late 1960s, a trend which is apparent when destination is measured in the thirties or the forties. However, using CAMSIS, this trend reverses for women at the upper end of the age range when destination is measured in the forties. For men, there is evidence using CAMSIS of a continued trend, albeit small in magnitude, toward increasing fluidity from the late 1960s to the late 1970s, although this is not the case for women where not consistent pattern of change between these cohort groups is evident.

Table A5: Intergenerational CAMSIS correlations for men and women aged 30 to 46

	Men			Women		
	N	Coeff	Std. Err.	N	Coeff	Std. Err.
Age 30 to 36						
1955 to 1961 cohort in 1991 census	19394	0.400	(0.007)	17464	0.355	(0.007)
1965 to 1971 cohort in 2001 census	18771	0.370	(0.007)	19675	0.333	(0.007)
1975 to 1981 cohort in 2011 census	13725	0.332	(0.008)	14091	0.311	(0.008)
Age 40 to 46						
1955 to 1961 cohort in 2001 census	18729	0.359	(0.007)	19105	0.337	(0.007)
1965 to 1971 cohort in 2011 census	18724	0.342	(0.007)	19658	0.302	(0.007)

Controlling for parental age at origin [12]

Figure A1: CAMSIS correlations by gender and individual age groups



[12] Sample sizes are slightly smaller than NSSEC sample sizes due to missing values in parental age.