



Comparing the social and spatial mobility across UK regions – Evidence from the 1958 and 1970 birth cohorts

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ABSTRACT

Recent years have seen emerging research into regional disparities in social mobility across Britain, with both scholars and government policies recognizing that life opportunities are closely linked to where people grow up. This study presents updated evidence that the problem of social mobility in the UK is related to regional geography. Using data from the 1958 National Child Development Study (NCDS) and the 1970 British Cohort Study (BCS), our analysis finds considerable differences in rates of occupational mobility, in both absolute and relative terms, across different regions of the UK. Building on research that shows the critical role of spatial mobility in understanding patterns of social mobility, we find that internal migration can potentially ‘make up’ for regional disparities in social mobility. This suggests social and spatial mobility interact and influence the measurement of social mobility across regions, which can make spatial disparities appear less significant. We also provide evidence of the South East acting as a regional ‘escalator’ providing better opportunities, but that this primarily serves migrants to the region rather than those who stay in the region throughout their careers.

1. Introduction

Social mobility measures the degree to which children’s life outcomes in adulthood are dependent on their parents’ backgrounds. The idea that everyone should have equal life chances no matter their family background has both moral weight and is important for ensuring talent is not overlooked, which means it has been a focus for empirical research within both sociology and economics. In the UK many scholars have found evidence of increased levels of absolute social mobility in post-war Britain (e.g., Goldthorpe et al., 1987). This suggests more people have found employment in a higher social occupation than their parents. Yet social fluidity as measured by relative mobility has remained stable over the same period (e.g., Goldthorpe & Payne, 1986; Erikson & Goldthorpe, 1992), implying one’s social class destination is still dependent on family background and that children with working-classing parents are still persistently disadvantaged (e.g., Goldthorpe et al., 1987; Payne, 1987; Erikson & Goldthorpe, 1992).

International research on social mobility and income mobility, however, has increasingly highlighted that aggregate rates of social mobility across nations can hide substantial geographic variation within nations (Chetty et al., 2014, 2017; Heidrich, 2017; Acciari et al., 2022;

Connor & Storper, 2020). This may be especially true in the UK because the country has large subnational economic inequalities by international standards (e.g., McCann, 2016; Carrascal-Incera et al., 2020) and these inequalities have been widening with the progression of occupational changes in the labour market (Gardiner et al., 2013). UK focussed research has begun to explore sub-national variation in intergenerational and intragenerational social mobility in the UK context (Champion et al., 2014, 2022). It generally has concluded that there are subnational differences in social mobility with London having rates divergent from the rest of the country.

These geographic inequalities within nations are complicated by the fact that people move. The existing literature suggests that spatial mobility could allow individuals from disadvantaged regions to seek better life opportunities in more prosperous regions, and therefore migration flows between regions may balance out spatial disparities in employment and wealth (Langella & Manning, 2022). It may also mean this movement needs to be conditioned out to identify pure interregional variation in social mobility. However, little is known about the extent this is true as many previous studies do not evaluate how migration factors into geographic differences (e.g., Chetty et al., 2014). The current study advances the literature by examining how internal migration

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contributes to geographic differences in the rates of social mobility. We investigate the relationship between social and spatial mobility by exploring, first, whether individuals who move inter-regionally in the UK are more socially mobile than those who do not; and second, whether spatial mobility mitigates the geographic inequalities in social mobility between regions.

Our analysis shows first that the UK has considerable regional differences in both absolute and relative occupational mobility and second that the interplay between spatial and social mobility is indeed the ‘missing link’ (Savage, 1988) in understanding life inequalities. On the one hand, internal migration assists upward mobility as individuals who move across regions see better occupational outcomes. On the other, conditioning out the effect of spatial mobility presents ‘purer’ patterns of regional disparities, which in some cases are shown to vary between UK regions. In particular, the South East and London does appear to act as a social mobility escalator as other scholars have suggested (Fielding, 1992), although we find this is mostly true for migrants to these regions. These are important contributions to academic understanding of social mobility in the UK and provide a model for how to further analyse regional differences in social mobility in other developed nations.

The rest of our paper is structured into four sections. First, the literature review provides a comprehensive overview of recent contributions to the literature on social mobility and discusses why regional disparities and social mobility are linked. Next, the methodology section describes how the study is designed to fulfil the research objectives and answer the proposed research questions. Third, the results section presents the main findings of our descriptive analysis and the statistical modelling. The last section discusses these findings and outlines the key conclusions.

2. Literature review

There is a long history of social mobility research that uses nationally representative samples to study intergenerational inequalities (e.g., Ganzeboom et al., 1991a, 1991b; Torche, 2015). However, these studies were often limited in their ability to draw inferences about spatial heterogeneity due to insufficient sample sizes. This meant that the implications of geographic inequalities within nations for rates of social mobility were largely overlooked with studies focussing on broad changes in social mobility over time and international comparisons. In recent years there has been a growing use of large administrative datasets that has demonstrated spatial heterogeneity and differences in social mobility are closely linked. Chetty et al. (2014) were pioneers in the use of such data, using 40 million American’s tax records to produce the first estimates of intergenerational income mobility for small local areas of the United States. They found substantial geographic variation in the probability of children in the bottom quintile of the income distribution making it into the top quintile in adulthood. Subsequent studies have confirmed the regional variation in the United States and explored differences in other developed nations such as Canada, Germany, Italy and Sweden (Zwysen, 2016; Corak 2017; Heidrich, 2017; Acciari et al., 2019; Connor & Storper, 2020). Much of this research has focussed on income mobility, but it is increasingly clear geographic variation is an important consideration when trying to understand rates of social mobility within nations.

This variation is related to both economic and social differences within nations. In terms of economic factors, those from lower social class backgrounds are more likely to have their life chances affected by poor local economic conditions, which means that local economic downturns can lead to geographic variation in social mobility (Zwysen, 2016; Morris, 2022). On the social side, social capital accumulation and differences in the quality of education are amongst the factors most often correlated with geographic variation in social mobility. Chetty et al. (2014) note that there is correlation between the variation in income mobility they identify in the United States and indexes of social capital. Elsewhere school quality has been shown to be one of measures

associated with regional variation income mobility in Italy (Acciari et al., 2022). Because these local economic and social conditions themselves often interact identifying precise causal pathways is difficult, but this research literature strongly suggests that when there is geographic variation in economic and social conditions within nations this is likely to be associated with variation in rates of social mobility.

The insights from this growing body of research are of particular significance in the UK context, as the UK is often regarded to as one of the most regionally unequal countries in the developed world (e.g., McCann, 2016; Carrascal-Incera et al., 2020). Since the 1960s the traditional industrial regions in the English North and Midlands have seen a decline in manufacturing and related employment as the economy re-oriented itself towards the service sector (Hudson, 2013). At the same time London became the fastest growing regional economy due to this service sector growth (Dorling & Thomas, 2004; Obolenskaya et al., 2016). It might be expected therefore that these divergent trends would also lead to differences in subnational rates of social mobility.

An increased policy focus on social mobility in England has provided some indications that this is the case. In 2016 the Social Mobility Commission (SMC), a public non-departmental body that monitors progress on social mobility in the England, introduced a framework for monitoring geographical inequalities in the country called the ‘Social Mobility Index’. The index aims to measure access to education, employment, and housing by those from disadvantaged backgrounds. The initial results suggested there are large spatial inequalities in socioeconomic opportunities, with the disadvantaged resident in London boroughs seeing better outcomes than their peers from elsewhere. In the SMC’s updated study, Carniero et al. (2020) found further evidence that one’s geographic origin significantly affects life chances and one’s prospect of breaking cycles of intergenerational disadvantage.

This policy focus has been mirrored by a range of recent papers in academic Sociology exploring subnational variation in social mobility in the UK. Friedman and Laurison (2017) for instance used the Understanding Society Survey and the Labour Force Survey to show there are considerable differences in social mobility across 19 UK regions. Contrary to the SMC’s characterisation of London as playing a leading role in social mobility, they found those living in inner London experience poor social mobility compared to many other regions such as Merseyside, the West Midlands, and Tyne & Wear. By using linked decennial census data from the Longitudinal Study of England and Wales Bell et al. (2022) similarly investigated geographical variation in rates of occupational mobility across 35 regions. Their study found disadvantaged individuals who were originally from areas around London and South East had the best chance of upward mobility, while those who grew up in rural and ex-industrial regions had poor mobility outcomes. Buscha et al. (2021) also found considerable spatial variations in occupational mobility by using cohort samples from the linked decennial census data, concluding that although there has been increase social mobility over time inequalities have remained across regions. While there is some uncertainty about the position of London relative to the rest of the UK therefore, the overriding conclusion from this emerging research is that the economic and social differences in the UK do translate into regional differences in various measures of social mobility.

An important complicating factor in understanding regional variation in social mobility, however, is its interaction with geographic migration between regions. Early research on social mobility often overlooked the interaction between social mobility and geographic migration, leading Mike Savage to refer to this interaction as the “missing link” in social mobility scholarship (Savage, 1988). Yet this interaction is vitally important to consider because if regional inequalities do shape prospects for social mobility this suggests that spatial mobility is one means through which these regional inequalities could be mitigated (Langella & Manning, 2022).

Part of the reason migration can change individuals’ prospects of social mobility is that in some countries there are certain cities or regions that appear to enhance a person’s life chances (van Ham, 2003). In

the UK context Tony Fielding's seminal work on London and the South East of England as an "escalator" region was one of the first studies to make the link between migration and divergent rates of social mobility in UK from an intragenerational perspective (Fielding, 1992, 1995). Using linked census data Fielding found that rates of occupational social mobility were higher in London and the South East for both residents and migrants to the region, which would suggest that the occupational structure of London confers increased prospects of social mobility to both residents and migrants alike and perhaps encourages greater migration to the capital.

Additional studies have explored the link between social and spatial mobility in the UK greater depth, with broadly studies either confirming Fielding's findings or instead viewing migration as a form of social closure. Buscha et al. (2021) for instance recently found evidence closely aligned with Fielding's original thesis using more recent releases of linked census data. They found movers to London had considerably greater prospects of social mobility than those who stay in their home region, although those moving within the North and Wales had the greatest prospects in the most recent cohorts. On the other hand an alternative stream of research has emphasised how many of those migrating to and working in London are themselves from higher parental social class backgrounds (Friedman & Macmillan, 2017; Wielgoszewska, 2018). This it is argued shows that the migratory process itself is one means by which higher social classes protect their occupational position and may in fact limit the prospects of social mobility for those originally resident the city. A nuanced view of migration to London emerges as process that potentially both promotes social mobility and reinforces existing advantages, with those originally from, moving to and leaving the city potentially being affected in different ways.

The findings from this research tend to be ambiguous on if any link between inter-regional migration and social mobility is due to economic differences between regions or characteristics of migrants themselves (SMC, 2020a, 2020b). The causal mechanisms discussed above and Fielding's interpretation of own his findings suggests that changing one's economic surroundings can improve one's prospects of social mobility; there are greater opportunities for social mobility available in strong local labour markets. Alternatively, other scholars have highlighted that migrants may possess characteristics that may make them more likely to be socially mobile regardless of economic circumstances. Ian Gordon (2015) for example found that migrants to London tend to score higher on measures of personal ambition, which may explain why they receive better labour market outcomes in London beyond simply the presence of more labour market opportunities. There is also evidence that migrants who move to regions outside of the greater South East of England tend to have better prospects for social mobility, which suggests that there are personal characteristics shared both by those more likely to migrate and be more socially mobile (Buscha et al., 2021). Part of the contribution of our research is to further understand the link in between regional economic performance and social mobility which will help further identify the role of individual and regional influences.

It is also not immediately clear how spatial mobility may alter the underlying patterns of regional differences in social mobility. Because internal migrants tend to be from higher parental class backgrounds, and potentially also more ambitious than those who do not migrate, they may have a crowding out effect on locals within areas that receive many migrants from elsewhere (Friedman & Macmillan, 2017). On the other hand, the outmigration of those from professional backgrounds from the North of England may create more opportunities for those from lower social class backgrounds in these regions due to there being less competition. There is some evidence that internal migration does crowd out residents in high opportunity areas, with Duta and Iannelli (2018) finding graduate migrants to high density opportunity areas in the UK achieve better than expected social mobility. These same benefits are not present for graduate residents. The main contribution of our research is to add to this research and explore the relationship between geographic migration and social mobility in the UK in detail. We analyse how

underlying regional occupation mobility changes once geographic migration is accounted for. Our findings contribute to both academic understanding of social mobility in the UK and present a model for how to further analyse differences in regional social mobility in other developed nations.

3. Data, samples, and measurements

Two nationally representative datasets were used in our study, the 1958 National Child Development Study (NCDS) and the 1970 British Cohort Study (BCS). The NCDS follows a sample of 17,415 British residents born in one week in March 1958, while the BCS surveys 17,196 individuals born in April 1970 (Elliott & Shepherd, 2006). Both datasets contain rich information on the individual's family backgrounds, educational attainment and socioeconomic outcomes, which means they have been amongst the leading sources for studying patterns of economic and social mobility in the UK. This study focuses on occupational mobility which measures changes in one's occupational status. The National Statistics Socio-economic Classification (NS-SEC) was used to classify classes. This classification was developed from the Goldthorpe Schema and categorises individuals based on their employment relations. We followed the 'conventional' procedure of aggregation, combining classes (III) Intermediate, (IV) Small employers and own account workers, and (V) Lower supervisory and technical because these categories are not hierarchically ordered by economic (dis)advantage (Bukodi et al., 2015; Buscha & Sturgis, 2018). This means our study uses the five-class NS-SEC: (I) Higher Managerial & professional; (II) Lower managerial & professional; (III) Intermediate; (IV) Semi-routine; (V) Routine.

Both the NCDS and the early waves of the BCS did not initially contain NS-SEC classes. We used the reformatted data from Gregg (2012), who coded NS-SEC analytical classes for both studies based on the reported employment occupation. In the NCDS, individual's social class of origin was measured by individual's father's occupation, recorded in wave 2 (1969) when the subject was aged 11. The social class destination was coded based on the occupation of employment reported in Wave 5 (1991), when the subjects were aged 33–34. By linking up cases from both waves, a cohort sample of 7312 was created. For the BCS data, social class of origin was measured by individual's parent's occupation as recorded in childhood sweep 3 (1980), when the individuals were aged 10. In most cases this was the occupation of the father as this had fewer missing values, but if the father's occupation was missing the mother's occupation was used. The social class of destination was recorded from the subject's occupation when aged 30 and the total sample from the BCS was 6363. These sample sizes were limited by the response rates across study waves, and we also excluded cases containing missing values on any variables of study.

The main limitation of our data is the inconsistent regional variables. Locational information was coded using the Registrar General's Standard Region (RGSr) prior to sweep 3 of the NCDS, with these regions including North, North West, East and West Ridings, North Midlands, Midlands, East, South East, South, South West, Wales, and Scotland. In subsequent NCDS waves, region codes were derived from the postcode of the address at interview. In these cases, the regional variables provided were based on Standard Statistical Regions (SSR) and/or Government Office Regions (GOR), both of which are different to the RGSr. The Regional variables in the SSR include North, Yorkshire & Humberside, East Midlands, East Anglia, South East (including London), South West, West Midlands, North West, Wales, and Scotland. The differences in regional units and boundary changes impeded the classification of migration types for the cohort members. We therefore coded a 'wider region' variable which aggregates the data into North England, South England, Wales, and Scotland, with the boundary of North and South England approximately the 'Severn-Wash' line, the spatial mobility is defined as moving across the four wider regions. In the BCS, the SSR classification was used as regional units indicate both the

subjects home region (in 1980) and region of residence in adulthood (in 2000). ‘Movers’ were defined as those who moved to a new region in adulthood, otherwise subjects were classified as ‘Stayers’. For a summary of data and samples, see Table 1.

4. Analytical approach

Following the standard methods of social mobility research, we calculated absolute mobility by counting the proportion of each sample who were in a different class to that of their initial status. We also distinguished between the upward and downward components of mobility, with upward mobility meaning being upwardly mobile to a higher class relative to your parents and downward the reverse. To capture the regional disparities in absolute mobility rates were calculated for each region based on where people were originally from. For testing relative mobility, we used log-linear analysis as it directly addresses the association between social class origin and destination. Following past research (e.g., Breen, 2004), we fitted a series of log-linear models that measured the origin-to-destination (OD) association in terms of a log odds ratio. These models included Conditional Independence (CI) models, Constant Social Fluidity (CSF) models and Uniform Difference (UNIDIFF) models (Erikson & Goldthorpe, 1992; Xie, 1992).

The CI model assumes there is no association between social class of origin and destination and therefore implies a completely mobile society. The formula is given as:

$$\log F_{odr} = \mu + \lambda_o^O + \lambda_d^D + \lambda_r^R + \lambda_{or}^{OR} + \lambda_{dr}^{DR}$$

where F_{odr} is the expected frequency for the cell which is at the three-way interaction of social origin O , social destination D and region R . Taking it into log scale helps to compare between cells via *log-Odds* and overview the patterns of social fluidity via *log Odds Ratio*.

If the CI model fails to fit the data, then the CSF model can be used which constructs an association (λ_{od}^{OD}) between social class origin O and destination D , but with the effect constant across regions. The model is constructed as:

$$\log F_{odr} = \mu + \lambda_o^O + \lambda_d^D + \lambda_r^R + \lambda_{or}^{OR} + \lambda_{dr}^{DR} + \lambda_{od}^{OD}$$

Finally, the UNIDIFF model works to indicate the relative differences in the OD association between one region and another, given as:

$$\log F_{odr} = \mu + \lambda_o^O + \lambda_d^D + \lambda_r^R + \lambda_{or}^{OR} + \lambda_{dr}^{DR} + \lambda_{od}^{OD} + (\phi_r \bullet \psi_{od})$$

Where ψ_{od} describes the strength of association between social class of origin and destination, while ϕ_r gives the region-specific strength of the association. A higher value of ϕ_r will indicate a higher level of OD asso-

ciation relative to the baseline region. To assess the fit of the models, we used the likelihood ratio chi-square statistic G^2 and dissimilarity index DI . The G^2 gives a goodness-of-fit statistic, with a significant statistic suggesting the model fails to fit the data; while a lower DI indicates a lower proportion of cases are incorrectly predicted. If the CSF model fits better than the CI model, it means social class destination is dependent on class origin. If the UNIDIFF model fits better than the CSF, it suggests the strength of OD association is dependent on region. An F-test was used to indicate if the difference between model fits was statistically significant, computed based on the G^2 and Degrees of Freedom (df).

Measuring relative mobility using log-linear models is expected to eliminate macroeconomic and exogenous factors that may influence mobility rates. Past research has used this method to identify temporal changes or cross-country disparities in relative mobility even as the occupational structure has changed over time or space (Bucca, 2020). In this study, we used it to compare social fluidity between regions across Britain while conditioning out the effects of regional disparities in occupational structure. In addition, one methodological principle often underlying previous studies is that individuals were assumed to be consistently living in one country, meaning that the intergenerational transmission of socioeconomic (dis)advantages was considered in the national context. Our study mirrors this by narrowing down the analysis to those who stayed in their home region. As such it can help to provide a ‘purer’ picture of regional disparities in social mobility, as these individuals only use the socioeconomic opportunities their home region provided.

However, the sample sizes of cross-region ‘movers’ were insufficient to perform log-linear models. To further explore the relative mobility and distinguish the effects of cross-region migration, we instead conducted a separate analysis for ‘stayers’ and ‘movers’. We measured relative mobility using odds ratios (OR), where OR were calculated as the ratio of the odds of being in a high-class rather than low-class destination. Following Buscha et al. (2021) we defined high-class occupations as NS-SEC classes I & II (i.e., managerial & professional) and others as ‘low-class’, with these classifications being applied to both social class of origin and destination. A higher OR means a stronger OD association and therefore lower social fluidity. For the test of independence, Pearson’s χ^2 test was used. R (version 4.0.2) was used for the data analysis and visualizations.

5. Results

5.1. Occupational structure change

The first stage of our analysis was to examine changes in social class structure across time. Table 2 shows the results for both the NCDS and BCS. In each cell, the upper figure is for total sample, the middle figure for the ‘stayers’ sample and the lower figure for the ‘movers’ sample. In general, past decades have seen an expansion of service-sector occupations and contraction of wage-earning working occupations (Gardiner et al. (2013)). The NCDS data shows the proportion of high-class occupations, as defined by NS-SEC classes (I) and (II), increased by 2.22 % and 9.78 % points respectively between the origins and destinations measurement. The proportion of (III) Intermediate employments in contrast declined, 38.5 % of cases started in these positions down to 31.96 % by destination. Another major drop was in the (V) Routine class, which saw a decline of 4.96-percentage points in share. For the BCS data, the most significant increase was for (II) lower managerial & professional occupations, only 14.70 % of individuals were originally from this class, but the share increased to 29.45 % two decades later. The proportion of those in NS-SEC class (I) increased from 8.33 % to 12.23 % between 1969 and 1980, but it stood still between 1980 and 2000. In addition, the share in lower-class occupations (III, IV, V) all saw contractions in size, with the proportions dropping by 5.93 %, 1.25 %, and 7.57 %, respectively.

Table 1
Data & samples summary.

	NCDS	BCS
Sample size	7312	6363
Birth cohort	1958	1970
Study period	1969–1991	1980–2000
Ages (childhood; adulthood)	11; 33 or 34	10; 30
SES Class	5-category NS-SEC	5-category NS-SEC
Regional units	RGSr & SSR	SSR
Spatial mobility	Moving across*: South England, North England, Scotland, and Wales	Interregional

* Note: for the RGSr used in Wave 3, North England includes Midlands, North Midlands, North West, East and West Ridings, and North; South England includes East, South East, South West and South. For the SSR in Wave 5, North England includes East Midlands, West Midlands, North West, Yorkshire and the Humber, and North; South England includes East Anglia, South East, and South West.

Table 2
NCDS & BCS Social class structure.

		NCDS			BCS		
		1969	1991	Change	1980	2000	Change
I. Higher managerial & professional	Total	8.33 %	10.55 %	2.22 %	12.23 %	12.23 %	0 %
	Stayer	7.28 %	9.38 %	2.1 %	10.74 %	10.92 %	0.18 %
	Mover	15.66 %	18.72 %	3.06 %	20.00 %	18.95 %	-1.05 %
II. Lower managerial & professional	Total	13.36 %	23.14 %	9.78 %	14.70 %	29.45 %	14.75 %
	Stayer	12.65 %	21.53 %	8.88 %	13.45 %	27.60 %	14.15 %
	Mover	18.39 %	34.50 %	16.11 %	21.15 %	38.94 %	17.79 %
III. Intermediate	Total	38.35 %	31.96 %	-6.39 %	39.07 %	33.14 %	-5.93 %
	Stayer	38.61 %	33.36 %	-5.25 %	39.59 %	34.50 %	-5.09 %
	Mover	36.57 %	22.23 %	-14.34 %	36.45 %	26.16 %	-10.29 %
IV. Semi-routine	Total	17.61 %	16.96 %	-0.65 %	15.47 %	14.22 %	-1.25 %
	Stayer	18.16 %	17.39 %	-0.77 %	16.43 %	14.95 %	-1.48 %
	Mover	13.80 %	14.01 %	0.21 %	10.48 %	10.57 %	0.09 %
V. Routine	Total	22.35 %	17.39 %	-4.96 %	18.52 %	10.95 %	-7.57 %
	Stayer	23.32 %	18.36 %	-4.96 %	19.81 %	12.05 %	-7.76 %
	Mover	15.55 %	10.51 %	-5.04 %	11.92 %	5.38 %	-6.54 %

Significantly the expansion of the higher class share for ‘movers’ was larger than that for stayers, as was the contraction of the lower class share. For example, in the NCDS the (II) lower managerial & professional class share expanded by 16.11 % for ‘movers’. In the BCS data the expansion was 17.79 %. Both expansions were larger than that of the ‘stayer’ samples.

Turning to the regional analysis, we present the structural change for each regional labour market by giving the proportion of individuals in managerial and professional employment over time. As the NCDS data was limited by inconsistent regional variables in this case, we used the BCS data as the primary source for analysis and the NCDS analysis of ‘wider regions’ is included in Appendix 1. As Fig. 1 showed, there was a divide in the growth of high-class employment between Southern regions. The South East (including London) saw the largest expansion of top occupations with the proportion of residents in high-class jobs increasing from 31.7 % to 49.7 %. In contrast, the South West and East Anglia started with a relatively high share of residents in high-class occupations, but saw slow growth in their share up to 2000, increasing by only 7.2 % and 9.0 % points respectively (the smallest increases). In the North of England, the North region and Yorks & Humberside were middle ranked in terms of their overall increase, but these regions still had the smallest proportions of residents in high-class occupations in 2000.

5.2. Absolute mobility

The next stage of our analysis was to examine how the rate of absolute mobility varied by region. Fig. 2 shows the absolute rate of mobility for each region in the NCDS, both overall and for movers (across wider regions) and stayers. Mobility rates were calculated from the number of individuals who were socially mobile and immobile in our five-class schema for each sample and region, and regions were coded based on where people were originally from. At the national level, 42.2 % of individuals were upwardly mobile, 29.2 % were downwardly mobile and 28.6 % stayed at the same occupational level. However, there were considerable regional differences. Scotland saw the highest rate of upward mobility, 47.8 % of residents progressed into a higher social class than their parents. A number of Northern regions, including the North, North West and East and West Riding, also saw over 43 % of residents being upwardly mobile. These regional differences suggest that the North of England saw more upwardly mobility during the early stage of de-industrialization (1969–1991). In contrast, the South East, East and South saw higher rates of downward mobility than elsewhere. This may be because their share of higher status occupations was already relatively high and therefore many children struggled to do better than their parents.

More importantly, individuals who moved across the regional boundaries between the North, South, Wales and Scotland saw higher rates of upward and downward social mobility than those who did not.

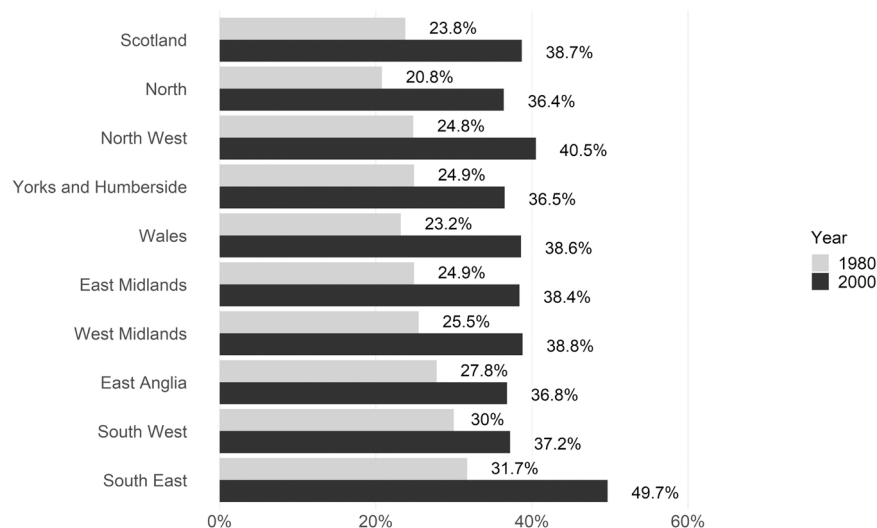


Fig. 1. BCS proportion in managerial and professional employment by region over time.

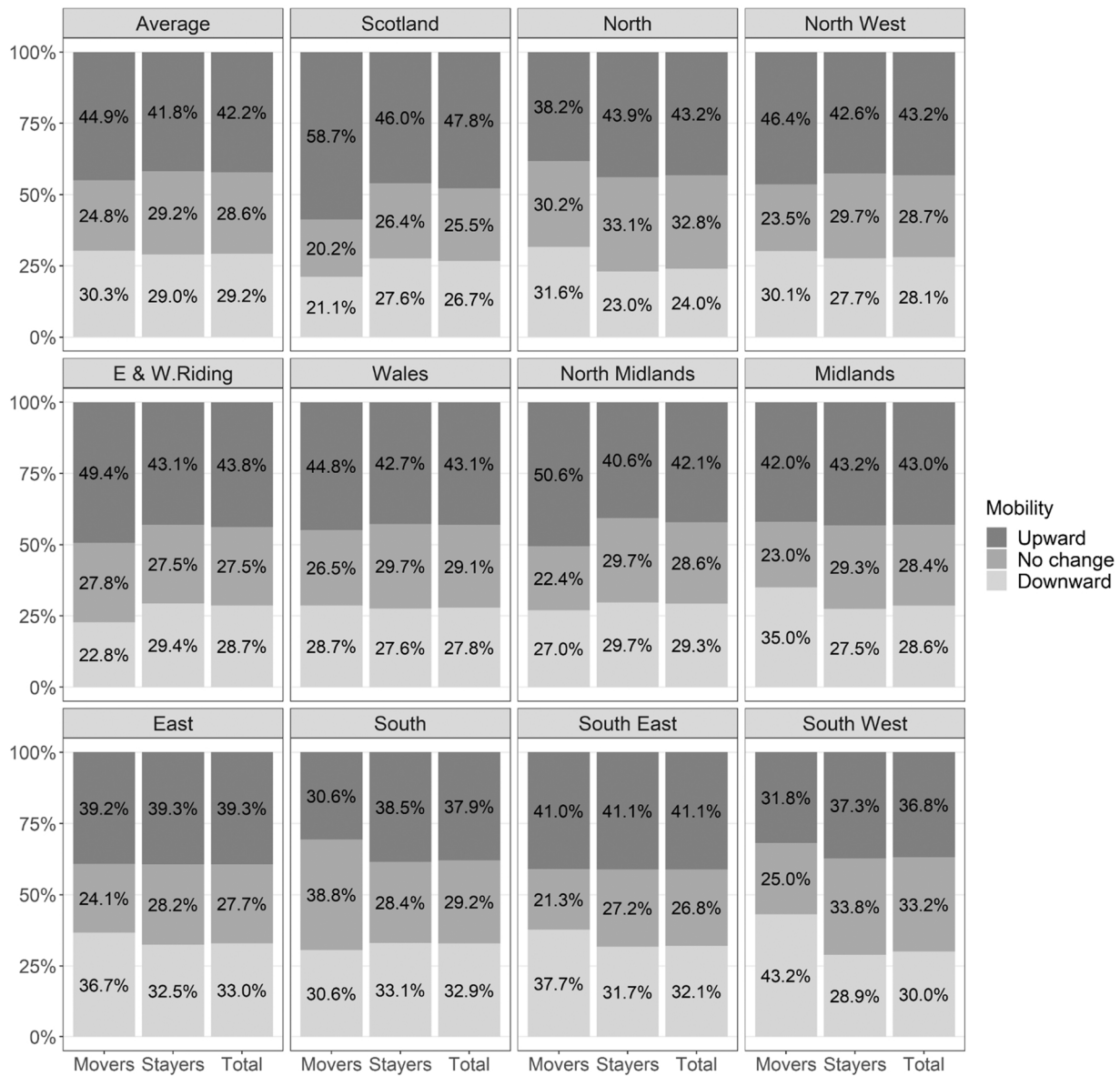


Fig. 2. NCDS Absolute mobility by regions.

At the subnational level, regions saw various patterns of mobility for 'movers' and 'stayers'. The South East and Midlands saw a significantly higher rates of downward mobility for 'movers' than for 'stayers', but the rate of upward mobility varied little between the samples. One possible explanation is that people were 'forced' to move regions for a lower-class job because they lacked other options. Secondly, although the South and South East showed similar rates of upward mobility for both 'movers' and 'stayers', 'movers' from the South East were much more downwardly mobile than those from the South. Finally, Scotland saw a very high rate of upward mobility for 'movers'. As these results are for absolute mobility they do not exclude the effects of occupational restructuring, but the results do suggest limited but significant variation in absolute mobility across regions.

The results from the BCS data are shown in Fig. 3. Nationally, 44.2 % of cases were upwardly mobile, a small improvement over the NCDS sample (42.2 %). The rates of downward mobility and immobility in the BCS were also similar, 28.0 % and 27.8 % respectively. At the regional level, the North and Wales saw the highest rates of upward mobility, both mobility rates were above 48 %. In contrast, East Anglia, South West, Yorks and Humberside, and East Midlands saw relatively low

upward mobility. For downward mobility, again, the North showed the lowest level of downward mobility (24.9 %). The South East, Yorks and Humberside, East Anglia and South West in contrast saw relatively high downward mobility, meaning these regions had a larger proportion of individuals dropping down into to a lower class relative to their parents.

Similar to the NCDS data, individuals in the BCS who moved across regions were found to be more socially mobile than those who stayed in the same region, while 'stayers' were not profoundly different from total sample. However, overall 'movers' saw a higher rate of downward mobility and a lower rate of upward mobility, which was slightly different from the NCDS data. At the subnational level, 'movers' were more socially mobile than 'stayers' for most regions. The exceptions to this rule were the Yorks & Humberside, East Anglia and South West, where 'stayers' were found to have higher rates of both upward and downward mobility than 'movers'. 'Movers' from Wales saw the highest rate of upward mobility, while those from Scotland had the lowest level of downward mobility. In addition, 'stayers' who were originally from the South East were more likely to experience upward mobility and avoid downward mobility than their peers who moved away.

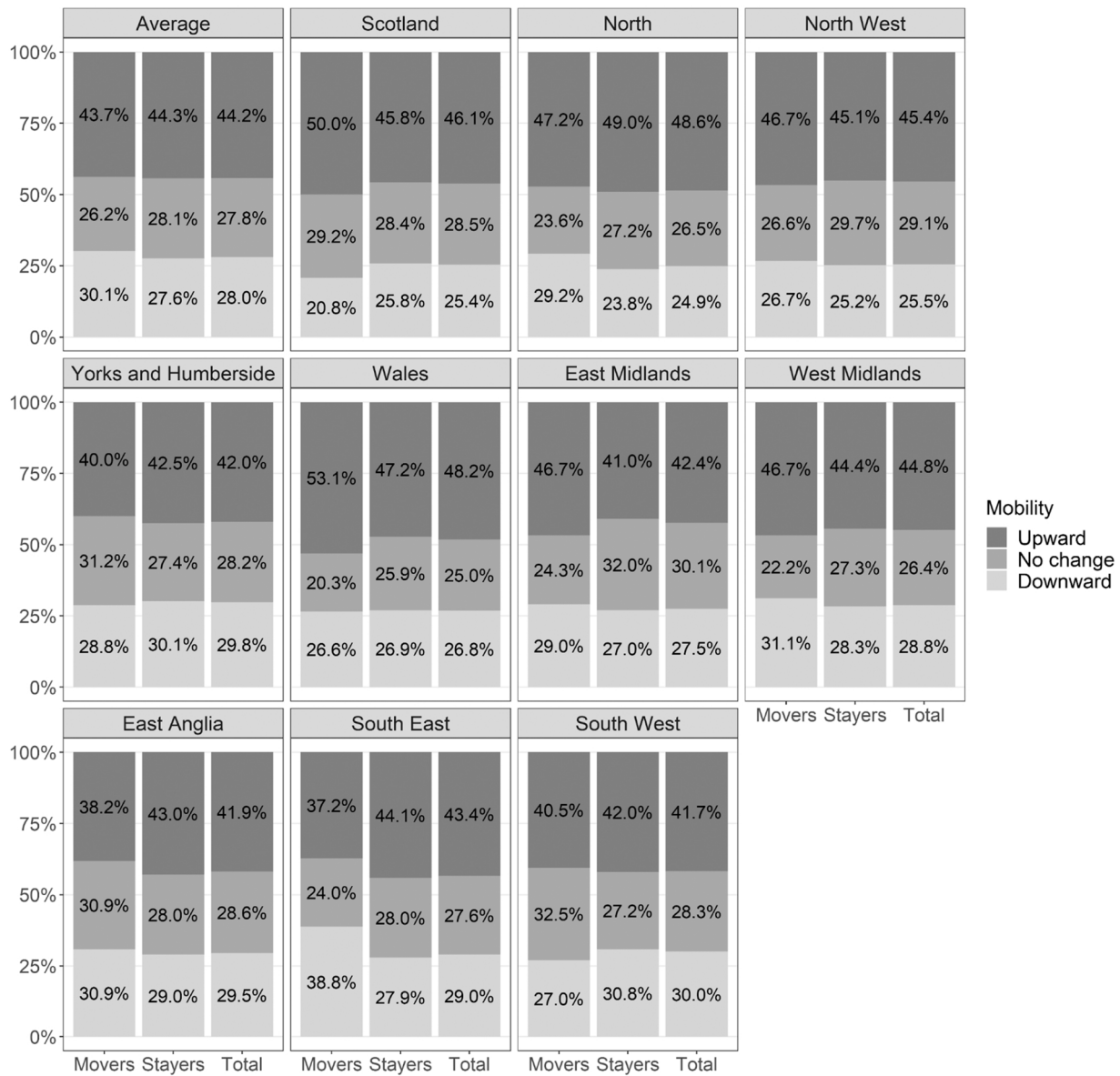


Fig. 3. BCS Absolute mobility by regions.

5.3. Relative mobility

We now turn to the analysis of relative mobility by comparing data fits between log-linear models, with the results shown in Table 3. Models were fitted based on our five-class schema and regions were coded based on where people were originally from. In general, results are consistent

across NCDS and BCS data. For the 'total' sample, the CI model did not fit well to both NCDS and BCS datasets, the p-values were smaller than 0.001 meaning the expected frequencies did not satisfy the model. This result was anticipated because the real world is by no means 'completely mobile'. In contrast, the CSF model performed much better, both the G^2 and DI statistics were declined, the chi-square test showed there was an

Table 3
NCDS & BCS Log-linear models.

NCDS					'Stayer' sample (N = 6399)				
Model:	df	G^2	DI	P-val	df	G^2	DI	P-val	
CI	176	670.26	10.6	<0.001	176	553.25	10.2	<0.001	
CSF	160	180.83	5.5	0.12	160	174.22	6.0	0.21	
UNIDIFF	150	165.55	5.2	0.18	150	165.38	5.6	0.39	
CSF vs UNIDIFF	10	15.28	0.3	0.12	10	8.84	0.4	0.03	
BCS					'Stayer' sample (N = 5353)				
Model:	df	G^2	DI	P-val	df	G^2	DI	P-val	
CI	160	545.49	10.2	<0.001	160	464.41	10.4	<0.001	
CSF	144	143.07	5.0	0.51	144	164.12	6.1	0.12	
UNIDIFF	135	129.40	4.8	0.62	135	146.08	5.7	0.24	
CSF vs UNIDIFF	9	13.67	0.2	0.13	9	18.04	0.4	0.03	

association between social class of origin and destination (NCDS: $p = 0.12$; BCS: $p = 0.51$), and the strength of association was consistent across regions. Finally, the UNIDIFF model was the best fit for both datasets. The p-value was 0.18 for NCDS and 0.62 for BCS, and both suggested an OD association with the strength of this association somewhat conditional on region. However, when using an F-test to compare the goodness-of-fit of the CSF and UNIDIFF models, both results suggested there was not a significant improvement when using UNIDIFF instead of CSF (NCDS: $p = 0.12$; BCS: $p = 0.13$). As such, we concluded that a significant association was found between one's social class of origin and destination, but there was not sufficient evidence of statistically significant variation between regions.

We next compared log-linear models for 'stayer' samples. For both datasets, again the CSF and UNIDIFF models fit the data well, with p-values of 0.21 and 0.39 for NCDS, 0.12 and 0.24 for BCS, respectively. The F-test results however, suggested that the UNIDIFF model was significantly better than the CSF model (NCDS: $p = 0.03$; BCS: $p = 0.03$). This means there were significant regional differences in the strength of the OD association. Because this was true of the stayer sample but not the overall sample, this implies spatial mobility does influence rates of social mobility between regions and this effect needs to be conditioned out to see underlying regional patterns.

Fig. 4 plots the UNIDIFF layer estimates for the NCDS 'stayer' sample, with the South East set as the baseline and the other estimates relative to South East. A higher value means a stronger association between social class of origin and destination and therefore lower relative mobility. The Wales and North Midlands were best-performing regions, while the South West was found to be the most socially immobile. Notably the South West fared significantly worse than the South East, with the coefficient suggesting a 200 % strengthening of the intergenerational association for the South West relative to the South East (including London). The sample size is the main influence on the confidence intervals.

Fig. 5 then plots the UNIDIFF layer coefficients for BCS 'stayers', with again social fluidity being relative to the South East. East Anglia and Yorkshire and the Humber were found to be most socially mobile, showing an approximately 40 % weakening over the OD association compared to the South East (including London), however differences were not significant. Scotland and Wales were ranked bottom in social fluidity, and Scotland was significantly worse than the South East, Yorks & Humberside, and West Midlands.

5.4. Relative mobility in Odds/OR

In the last part of our analysis we measured relative mobility using

odds ratios (OR) for subsamples of 'movers' and 'stayers'. The OR were calculated as the ratio of the odds of being in a high-class (i.e., NS-SEC class I & II) rather than low-class destination. Again, as the NCDS data is limited by the inconsistent regional variables, we only present the results for BCS here (Table 4), with 'movers' divided into those who 'moved to South East' and who 'moved to elsewhere'. 'Stayers' were classified by 'South East' and 'Elsewhere'. The analysis of NCDS is included in Appendix 2.

In general, people who moved across regions had a better chance of progressing into a high-class occupation than their peers who did not move. This is also supported by the NCDS results, which show individuals moving, e.g., across South and North England generally had a better chance of finding a high-class job than those who stayed (see Appendix 2). For those from high-class backgrounds, the odds of remaining in such occupational classes was 3.34 for those 'moved to South East', but only 1.56 for those 'moved to elsewhere' and 1.66 for those 'stayed' in South East. For those from low-class backgrounds, the odds of being upwardly mobile to high class was 1.45 if they 'moved to South East,' and only 0.93 if they 'moved to elsewhere'. The p-values were less than 0.05 for both movement types, suggesting the OD associations were significant.

In addition, 'South East stayers' had better opportunities to progress into high-class occupations than 'Elsewhere stayers', this being the case for those from high- and low- class origins. However, an OR of 2.60 suggests that there was still a 'class' effect on the access to professional occupations for South East stayers. These results suggest the functioning of an 'escalator' region in the South East & London, where young migrants from elsewhere in the country see better opportunities for upward mobility, but the 'escalator' effect here does not appear to erase the differences in upward mobility between people from high and low-class backgrounds. People who 'Moved to Elsewhere' actually showed a weaker OD dependence with the corresponding OR of 1.67. The relatively low social mobility for those who stayed in the South East may again imply a 'crowding out' effect for those originally in the region.

6. Discussion and conclusion

Since 1970s the occupational structure of British society has been reshaped by the expanding proportion of service-class salariat employment (van Ham et al., 2012). This has allowed more children from lower social class backgrounds to progress into higher occupational classes. Nevertheless, recent evidence has shown UK regions have considerable disparities on a wide range of socioeconomic indicators and variation in social mobility is one of the most significant of these disparities (SMC, 2020a, 2020b). Affluent areas can function as 'escalators' that accelerate

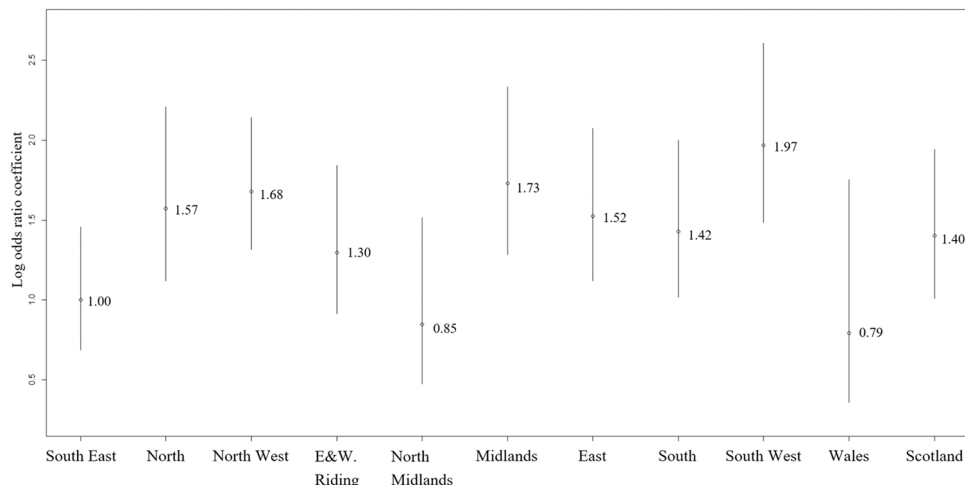


Fig. 4. NCDS UNIDIFF layer coefficients for the 'stayers' sample.

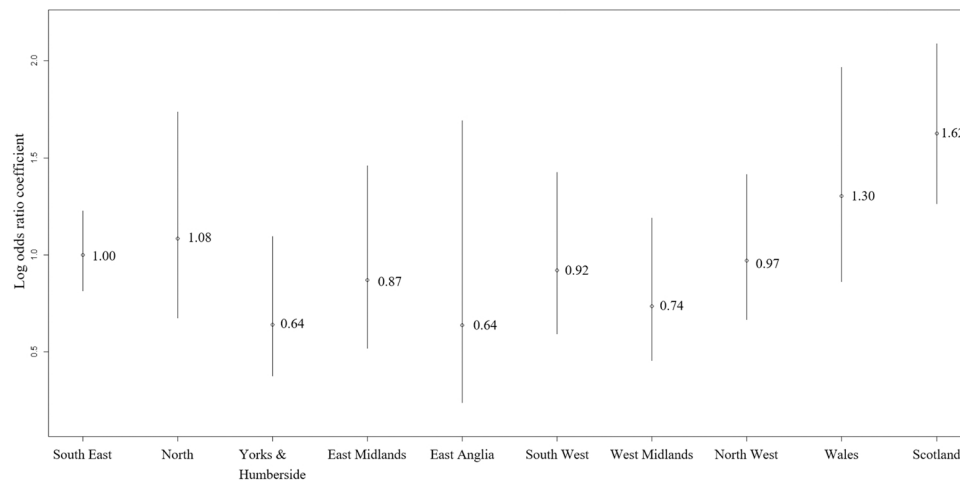


Fig. 5. BCS UNIDIFF layer coefficients for the 'stayers' sample.

Table 4

BCS Relative mobility by Odds/ORs.

Moved to South East (N = 355, $\chi^2 = 12.50$, $p < 0.001$)				
Destination				
Origin		1 = high	0 = low	Odds/OR (95 % CI)
1	1	117	35	3.34
	0	120	83	1.45
2.31 (1.45, 3.7)				
Moved to Elsewhere (N = 685, $\chi^2 = 10.68$, $p = 0.001$)				
Destination				
Origin		1 = high	0 = low	Odds/OR (95 % CI)
1	1	168	108	1.56
	0	197	212	0.93
1.67 (1.23, 2.23)				
South East 'stayers' (N = 1576, $\chi^2 = 73.12$, $p < 0.001$)				
Destination				
Origin		1 = high	0 = low	Odds/OR (95 % CI)
1	1	293	177	1.66
	0	430	676	0.64
2.60 (2.08, 3.25)				
Elsewhere 'stayers' (N = 3747, $\chi^2 = 113.3$, $p < 0.001$)				
Destination				
Origin		1 = high	0 = low	Odds/OR (95 % CI)
1	1	418	399	1.05
	0	909	2021	0.45
2.33 (2.00, 2.73)				

social mobility for both residents and in-migrants, meaning people from more deprived places may need to 'move out to move on' (SMC, 2020a, 2020b). Our work in this paper adds to these discussions by further analyzing subnational disparities in social mobility and the 'missing link' between social and spatial mobility. We show that without subnational migration regional differences in occupational mobility in the UK would be larger, because subnational migration generally does enhance an individual's chance of upward occupational mobility in the UK.

Several findings in our results stand out. First, our analysis reveals there were regional disparities in the patterns of occupational structure change. In common with the existing literature (e.g., Gardiner et al., 2013), we find the regional differences in the UK economy between North and South have largened since the 1970–1980 s. However, while we find that between 1969 and 1991 the South of England saw a stronger expansion of managerial & professional occupations than the North (see Appendix 1), between 1980 and 2000 the expansion was more narrowly centered in London and South East. The South West and East Anglia seemed to 'slow down' the process of occupational restructure in this later period. The persistent expansion of the finance and business sectors has attracted a flow of resources and human capital

to the London and South East over recent decades (Dorling & Thomas, 2004; Cunningham & Savage, 2015). This narrowing may reflect this greater specialization of subsequent service sector expansion.

The patterns of absolute social mobility were also regionally differentiated, but in a counter intuitive fashion. The common perception of the North-South divide implies that the North would struggle South West and East England would be more similar to London and the South East (Sim & Major, 2022). However, our results suggest the UK's social mobility problem seems to have increasingly become one for the South of England. The NCDS analysis suggests that the North of England was more upwardly mobile than South during the early stage of industrial reformation (1969–1991). Likewise, the BCS data showed North and Wales were the regions with the highest rates of upward mobility, whilst the South West and East Anglia had the highest level of downward mobility. These results align with the findings of Friedman and Macmillan (2017), who found that East Anglia, the South West and even some parts of the South East had relatively low upward social mobility compared to other regions.

The patterns of absolute mobility, however, were different for regional 'movers' and 'stayers'. In general, our data showed those who moved between regions were more likely to be socially mobile, concurring with the existing literature and suggesting that migration can indeed equalise life chance between regions. However, our results suggest an importance caveat to that finding, which is that migrants from several southern regions proved to be an exception to this rule of spatial mobility leading to greater social mobility. The NCDS analysis suggested people who moved away from the South and South West had relatively low upward mobility and high downward mobility, while in the BCS data, people who moved from the South East, South West and East Anglia were shown to be least upwardly mobile. This is an interesting contrast to the third section of Fielding's escalator which suggests that migrants stepping off the escalator later in their careers maintain the higher social status they accumulated while in the greater South East (Fielding, 1992). Why North bound migrants experience worse social mobility is unclear from our data, but it may be because the underlying cause of the migration is different. As Fielding (1992) himself notes North bound migrants tend to be younger and are leaving weak labour markets in search of better opportunities. Migrants out of the South may instead tend to be older, and therefore perhaps motivated by a different set of factors which lead to lower mobility rates. Future research should further explore how the personal characteristics of migrants vary according to their migration trajectory.

Spatial mobility also played a significant role in our findings in relation to relative mobility. Our log-linear analysis found significant associations between social class of origin and destination in both datasets, which concurs with research that suggest the UK overall still

suffers from low relative mobility (Erikson & Goldthorpe, 1992). For the whole sample the strength of OD association was not regionally differential, meaning there were no regional disparities in relative mobility. However, when conditioning out the effect of spatial mobility by excluding ‘mover’ cases, we found regional differences in relative mobility were significant in both datasets. This implies that to identify regional variation in relative social mobility it is necessary to only consider those who remain in the region for their whole life, as it is only these individuals who are always conditioned by the structure of their regional labour market. Future research on regional variation in social mobility in the UK and further afield should consider this fact.

Finally, we also compared relative mobility across different migration trajectories estimating an Odds/OR between different migration types. In the BCS analysis, we found an ‘escalator’ effect in London & South East, which provided better employment opportunities for young migrants from elsewhere in the country. However, in a slight contrast to Fielding (1992) who addresses the effect particularly for young migrants from disadvantaged backgrounds, our results indicate the intergenerational persistence was still significant. This implies the ‘escalator’ effect may not help to equalize the risk of upward mobility into professional occupations for people from high-class backgrounds relative to people from lower-class backgrounds. This may be especially problematic given that other research has suggested those from higher social class backgrounds are more likely to move in the first place (Friedman & Macmillan, 2017). Moreover, those originally from the South East and London who stay in the region experienced relatively low mobility in our sample, which may be evidence that the migration of so many individuals to the region has a ‘crowding out’ effect for locals. These findings concur with the possibility that the South of England, particularly London & South East, is an ‘elite metropolitan vortex’ (Cunningham & Savage, 2015) rather than ‘escalator’, where the incoming socioeconomic resources and cultural capitals have solidified a special structure of social classes.

These findings are a significant contribution to academic understanding of the link between spatial and social mobility, but there are also some limitations to our analysis that suggest avenues for future research. The main limitation is that the sample size constrained the range of migration trajectories that could be examined, meaning we had to rely on broad north-south migration trajectories. Future research may be able to use more detailed datasets to understand how the precise patterns of migration influence social mobility. An additional limitation is we are unable to analyze migrants’ personal characteristics and how they may vary from the population at large. We know migrants are rarely a perfect representation of the population. Future research should examine how different kind of individuals experience different trajectories and how this itself may link to social mobility.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data Availability

The data that supports the findings of this study are accessible through UK Data Service at <https://beta.ukdataservice.ac.uk/datacatalogue/series/series?id=2000032> and <https://beta.ukdataservice.ac.uk/datacatalogue/series/series?id=200001>.

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Appendix A. Supporting information

Supplementary data associated with this article can be found in the online version at [doi:10.1016/j.rssm.2023.100767](https://doi.org/10.1016/j.rssm.2023.100767).

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