

North and south: long-run social mobility in England and attitudes toward welfare

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Received: 14 December 2015 / Accepted: 5 February 2017 / Published online: 17 March 2017
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Abstract In this paper, we examine the long-run social mobility experience in England. We present evidence for surprisingly constant levels of social mobility over the period 1550–1749, despite huge structural changes. Examining regional differences, we show that the North of England exhibited higher rates of social mobility than the South. We link this to the hypothesis that historically high levels of social mobility can lead to a culture of non-acceptance of redistribution and welfare provision. Taking advantage of the fact that welfare provision was determined at the local level at the time, we are able to compare social mobility rates and welfare spending within a single country. Consistent with the hypothesis, we find evidence for historically higher levels of social mobility as well as lower welfare spending and less acceptance of redistribution in the North.

Keywords England · Poor laws · Social mobility · Welfare

JEL Classification J62 · N33

1 Introduction

Recently, there has been great interest in international comparisons of social mobility, mainly due to increasing inequality in many countries. High social mobility is usually considered desirable as it implies “equality in opportunity” such that jobs are filled with those who are best qualified and not those who come from the right background (Corak 2004). In the present work, we present a thorough

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statistical examination of social mobility in historical England over a time period spanning from around 1550–1749. This exercise is possible because micro-level family reconstitution data, linking occupations across generations, are available for historical England thanks to the labors of the Cambridge Group (see Wrigley et al. 1997).

We find evidence of surprisingly constant levels of social mobility for the whole country over the very long run, despite the experience of huge structural changes during the beginnings of the industrial revolution. We are also, for the first time, able to examine how historical mobility differed within the country of England. This is especially relevant considering the very different regional experiences of industrialization during the eighteenth and nineteenth century, followed by heavy decline in the industrialized regions during the twentieth century. Chetty et al. (2014) have recently demonstrated impressive variation in social mobility within the USA today and moreover show that it is correlated with a range of desirable indicators. Our work thus also contributes to a new literature on how social mobility on the subnational level correlates with other economic and social outcomes. We show that the North of England historically exhibited higher rates of social mobility than the South of England.

We link this finding to the idea that a history of high levels of social mobility would in fact make people less accepting of redistribution and welfare spending: if everybody has the same opportunities, there will be less willingness to pay for those who are not able to care for themselves. Although cross-country studies today show that countries with smaller welfare states often exhibit higher income inequality as well as lower rates of social mobility, the acceptance of inequality in a society stems from its long-run mobility experience. Examining historical social mobility rates can thereby help to understand why there are international differences in the extent of redistribution and the development of the welfare state. Already in the early nineteenth century, de Tocqueville (1835) and Marx (1852) observed contrasts in social attitudes in the USA and Europe and ascribed these to differences in social mobility. Piketty (1995) formalized this idea and developed a model demonstrating that historically high levels of social mobility can lead to the development of beliefs in which welfare provision is less accepted. In the present study, we take advantage of the fact that welfare provision in England under the Poor Laws was determined on a very local level until the twentieth century. Eligibility as well as the size of the payment was decided at the parish level. There were large differences in spending, especially between North and South England. Our finding of historically higher levels of social mobility in North England are thus consistent with the notion that this would shape attitudes toward redistribution, as the North also provided lower levels of poor relief.

Previous studies have relied on social survey data or between-country comparisons. Linos and West (2003) show that beliefs about social mobility are negatively associated with support for redistribution using social survey data. Fong (2001) shows that these results hold even when controlling for self-interest in redistribution, by using a subsample of high-income respondents with prospects of upward mobility. Long and Ferrie (2013a) compare historical mobility rates in the USA and Britain and find evidence for higher levels of social mobility in the USA in the

nineteenth century, consistent with the fact that the USA has developed much less of a welfare state than Britain in the twentieth century. By examining within-country variation in social mobility and welfare spending, we are able to control for any type of country-specific factors that might be responsible for differences between two countries, such as the USA and the UK. Moreover, since a large part of the population of the USA is descended from immigrants from the British Isles, we believe that the conjecture made by Long and Ferrie is greatly supported by the finding that the pattern they observe was also true for historical England.

Again considering the different experiences of North and South England during industrialization, might the attitudes and social mobility of the North have helped foster the industrial revolution? The social mobility–welfare nexus suggests that attitudes toward welfare persist, even if opportunities for social mobility change. Might these same factors then present challenges in the very different post-industrial Britain of the twenty-first century? Such questions might provide the motivation to look more into the long-run cultural and institutional differences within countries, rather than simply relying on country averages.

Thus, the next section provides an in depth analysis of social mobility in historical England both over time and between the North and the South of the country. Section 3 investigates the social mobility–welfare nexus, and Sect. 4 concludes.

2 Social mobility over time and space in England

2.1 The data

In order to examine social mobility in historical England, we use family reconstitution data compiled by the Cambridge Group, collected from 26 parishes across England from around 1550–1850. The data underlying our analysis are described by Wrigley et al. (1997). Apart from birth, death, and marriage dates, the data include occupations for around ten percent of the sample. These were recorded at life events, mostly at marriage or death but also at births/baptisms or deaths of children. As occupations are mostly recorded for men, we restrict our analysis to intergenerational occupational mobility between fathers and sons. Using these data to measure social mobility is not without challenges, some of which we address below. Nevertheless, these are the only available data to date which can, to our knowledge, be used to provide some insight regarding this issue for this period.

A number of serious questions have been raised about the usefulness of family reconstitution data and the Cambridge Group data in particular, a good discussion of which is provided by Ruggles (1999). The main concerns include possible non-representativeness of the selected parishes, non-representativeness of the individuals included in a parish, the inability to track individuals as soon as they leave the parish, and mistakes in record linkage. Another issue with these data is that they only include married men: we are therefore unable to say anything about the social mobility of illegitimate sons or of sons who do not get married. However, for the period in question marriage was the norm.

Regarding the first issue, parishes were selected individually and sometimes certain years of data are excluded subjectively for certain parishes because of low data quality. Also, the parishes included in the Cambridge Group data are on average larger than the average parish in England at the time and exhibited higher population growth rates than the average. We have addressed this issue in previous work (Boberg-Fazlić et al. 2011). There, we compared the occupational structure of the data used to that given by other studies. For the period before 1750, the population shares recorded in different occupational groups are close to those reported by Lindert and Williamson (1982), but less representative 100 years later, where the data appear to underreport the groups with higher social status. Time trends in the relative sizes of the occupational groups, however, follow those of other studies. Thus, we restrict the present analysis to the period prior to 1750. A related concern with the occupational information is that our definition of “the North” (for reasons of comparability with the following section) includes just three parishes, Earsdon, Gainsborough, and Gedling, from which a large proportion of our observations come from just one, Gainsborough. We take account of this by including parish fixed effects in our regressions below.¹ Moreover, despite the larger number of parishes in the South, the number of observations is not massively greater, at 1886 in the South compared to 1061 in the North. Table 7 in “Appendix” provides frequencies by occupational group and location.

The second and third issues concern the fact that migrants are not observed before or after they migrate into or out of the parish. For the analysis of intergenerational social mobility, this implies that we will only be able to link fathers and sons if the son stays in the same parish he was born in, and we cannot therefore capture those who are geographically mobile. Whereas we cannot be sure whether those who leave the parish would be upwardly or downwardly mobile, the chances of them being socially mobile might be expected to be relatively high² as geographical mobility often occurred because of either good prospects for upward social mobility or a lack of opportunities to find work in the home parish. Our estimates of social mobility are thus likely to present a lower bound. However, as long as there are no systematic differences in geographical mobility rates in North and South England, between occupational groups, and over time we can still use these data to identify trends and differences in social mobility over time and space.

For the following section, where we take up the question of the relationship between social mobility and welfare spending through an examination of differences between North and South England, it is especially important that there should be no geographical difference in the number of sons leaving the parish before marriage. Geographical mobility generally occurred for different reasons. Outmigration to neighboring parishes was often a consequence of better employment opportunities or marriage into the destination parish. Paupers, on the other hand, often had to travel larger distances to find work (see Clark 1979). Also, seasonal migration was common for laborers finding employment on farms during harvest

¹ We have also run the analysis excluding Gainsborough, and though not significant because we lose a lot of observations, our results are otherwise unaffected.

² And indeed relatively highly skilled (see for example Abramitzky 2009).

(Boyer 1990). For the period we are looking at, no obvious regional pattern has been observed (Clark 1979), besides the fact that London was the most important destination of migration (e.g., Nicholas and Shergold 1987; Owen 1964). Table 1 addresses this issue by calculating the percentage of men dying in their home parish (and thus presumably less geographically mobile) by period, occupation and location.

We observe that the percentage of men still in the parish of their birth at the time of their death is very similar for North and South England, at around 70% for both periods and regions, although there is a slight bias toward geographical mobility in the South, reflecting the aforementioned pull of London. The last four columns show this percentage divided by social group. Again, the South exhibits slightly higher rates of geographical mobility. Within the two regions, however, the percentages are remarkably stable across social groups, although farmers show rather low rates of geographical mobility as would be expected due to inheritance of the farm.

Although we are in no way seeking to dismiss these issues, we nevertheless conclude that the potential biases are too small to mean that we should give up trying to address the important issues raised by the present work. We thus leave it to future generations of cliometricians with superior data to improve on our study, and proceed to categorize the recorded occupations into four groups (white collar, farmer, skilled/semi-skilled, unskilled) following Long and Ferrie (2013a). Some examples of the main occupations included in these groupings are given in Table 8 in “Appendix”.

As mentioned earlier, occupations could be recorded at different points in time. For most individuals, only one record is available or the same occupation was recorded several times. If more than one occupation is available, we use the earliest possible. It would certainly be preferable to have occupations recorded at the same point in life for fathers and sons as in Long and Ferrie (2013a), although, on the other hand, the family reconstitution data have the advantage of providing a certain link between fathers and sons, since this is the basis of how the data were constructed—unlike the census data—and we make use of the same data source for the whole period, thus reducing the risk of potential biases occurring only in some periods.³ We could choose to only include father–son pairs for which we have observations on occupations at marriage for both. Restricting ourselves to this sample, however, severely limits the number of observations, and prevents us from calculating the Altham statistics below. However, our measures of total mobility, and the regressions below, are unaffected if using the restricted sample.

2.2 Mobility matrices and Altham statistics

The most widespread measure of social mobility is based on a standard mobility matrix, i.e., one in which each element represents the frequency with which the son falls into a particular occupational category, given that his father belonged to

³ See Xie and Killewald (2013) for a discussion on potential biases in the data used in Long and Ferrie (2013a). See also Long and Ferrie’s reply (2013b).

Table 1 Geographical mobility in North and South England

		Percentage of men dying in home parish	Farmers	White collar	Skilled	Unskilled
Pre-1650	North	74.90	76.92	81.25	82.61	83.61
	South	65.83	83.54	77.03	68.69	75.28
1650–1749	North	74.98	94.44	81.54	81.28	81.63
	South	69.45	84.92	76.87	75.38	65.38

another category or the same. Social mobility can thus be calculated as the percentage of off-diagonal entries, i.e., all sons that have an occupational category different from their father's. This measure, denoted by \mathbf{M} in the following, does not, however, take into account the degree of mobility which is actually possible in a certain time or place due to the particular occupational structure, and thus makes difficult the sort of comparison of mobility tables we wish to perform, since we might for example expect rather different occupational structures over periods of centuries. In order to address this issue, our analysis follows that described by Long and Ferrie (2013a).⁴

Thus, in order to compare social mobility at different points in time or in different places, the marginal frequencies of one social mobility table are adjusted to be equal to those of the other mobility table. The proportion of off-diagonal entries are then compared (see Altham and Ferrie 2007), where this proportion is denoted by \mathbf{M}' in the following. In this way, social mobility occurring because of different occupational structures is filtered out. We can thus answer questions such as whether social mobility was higher in the North even if it had the same occupational structure as the South, and it allows for the comparison of social mobility rates over time.⁵

A rather more sophisticated way of measuring social mobility is to employ the method developed by Altham (1970).⁶ The Altham statistic measures the distance between the row-column associations of two matrices. This has the advantage that we can get a significance level for the difference in mobility across time or place (see Altham and Ferrie 2007 for a more detailed discussion of this methodology). Thus, for two matrices \mathbf{P} and \mathbf{Q} with r rows and s columns each (in our case 4 by 4 including farmers or 3 by 3 excluding farmers), it is possible to calculate how far the association between rows and columns in \mathbf{P} departs from that in \mathbf{Q} using the following statistic:

⁴ This was made very much easier by the availability of the Stata program for performing the analysis in the appendix of Altham and Ferrie (2007).

⁵ One could also argue that people will only be able to observe social mobility not adjusted for occupational structures and that this should matter for the formation of the sort of beliefs and attitudes toward welfare we discuss in the following section. In our case, differences between the North and the South are in fact larger when comparing unadjusted mobility.

⁶ The method has been criticized for not being able to decompose total mobility into structural and exchange mobility (Hout and Guest 2013). We choose this method to be able to compare our results to those of Long and Ferrie (2013a) and due to the advantages of the method, discussed above and in Long and Ferrie (2013a, b).

$$d(P, Q) = \left[\sum_{i=1}^r \sum_{j=1}^s \sum_{l=1}^r \sum_{m=1}^s \left| \log \left(\frac{p_{ij} p_{lm} q_{im} q_{lj}}{p_{im} p_{lj} q_{ij} q_{lm}} \right)^2 \right| \right]^{1/2} \quad (1)$$

This measure effectively compares the odds ratios of the two mobility matrices \mathbf{P} and \mathbf{Q} and measures the distance in the row–column associations between the two matrices. Using the Altham statistic, we thus provide measures for the total degree of mobility, i.e., the extent of movements between different occupational categories. This includes both upward and downward mobility and does not consider the possible ordering of occupational categories. We therefore decompose these movements to discuss the direction of social mobility in more detail later in this section.

We start by considering the level of mobility in England as a whole. Figure 1 illustrates the simple measure of mobility for each period, \mathbf{M}^t , i.e., the proportion of off-diagonal entries for each period, where each matrix is given the same marginal frequency as that of 1850–1880. Also shown are the Altham statistics, $d(\mathbf{X}, \mathbf{I})$. Here, \mathbf{X} is the social mobility matrix for England as a whole in a given time period and \mathbf{I} is a matrix with all identical entries.⁷ In terms of social mobility, the latter reflects perfect mobility as the occupation of the son is independent of the occupation of the father in this case. $d(\mathbf{X}, \mathbf{I})$ thus gives the distance of the mobility measured for the whole of England to perfect mobility in each period, i.e., the higher the measure, the lower is social mobility. Later, we then split the analysis of mobility by region and also examine in greater detail movements between the groups, which pertains more to the question of a link between historical mobility and welfare acceptance.

The last two periods are taken from Long and Ferrie (2013a). Since their sample includes sons who are geographically mobile, it is not surprising that they find higher mobility rates, but generally there seems to be no clear trend in social mobility over the period 1550–1850.⁸

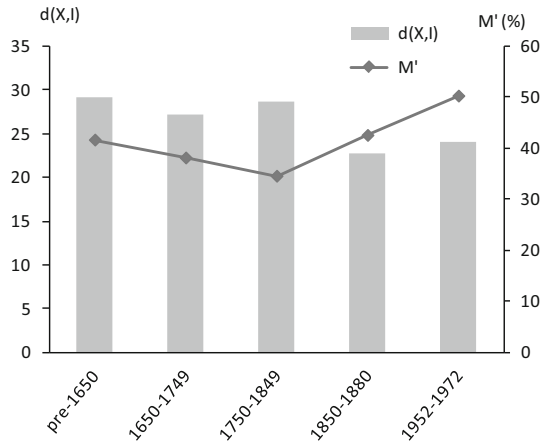
Taken together with the results of Long and Ferrie (2013a), who also find little change in mobility in Britain between the nineteenth and twentieth centuries, our results suggest perhaps surprisingly constant mobility over five centuries.⁹ Work on social mobility before the nineteenth century is limited, although it is touched on by Boberg-Fazlić et al. (2011), who also describe how the Cambridge data is less representative for the period after 1750, which means we might need to take the statistics for the 1750–1849 period with a pinch of salt. Work by Clark (2014) and Clark and Cummins (2015), based on an analysis of surnames, does, however, seem

⁷ Note that \mathbf{M}^t uses marginal frequencies adjusted to the period 1850–1880, but this measure does not give a significance level. $D(\mathbf{X}, \mathbf{I})$ gives a significance level, but measures the difference of the mobility matrix in one period to independence and is thus not adjusted to the period 1850–1880. The choice of the base period does therefore not affect significance levels here.

⁸ The difference is statistically insignificant according to the Altham statistics for the different periods.

⁹ Results for other countries and other time periods suggest considerable diversity across time and space. Long and Ferrie (2013a) find an Altham statistic of around 12 for the US in the late nineteenth century, increasing to almost 21 one century later. Modalsli (2015) finds an Altham statistic of around 22 for Norway in the period 1960–1980. At the other extreme, it is around 100 in India for cohorts after the Second World War (Azam 2013).

Fig. 1 Social mobility in England from the sixteenth to the twentieth centuries. *Note:* Pre-1650: $N = 788$, 1650–1749: $N = 1816$, 1750–1849: $N = 3114$, 1850–1880: $N = 3076$ and 1952–1972: $N = 1123$



to back up our findings. They find little change in mobility rates from medieval England until today, institutional developments such as universal education and suffrage notwithstanding. They thus argue that, given the modest effects of major institutional changes on social mobility, the important determination of persistence is transmission within families.

The data also allow us to consider regional differences in social mobility, and here we focus on differences between the North and the South of England. In order to be able to make the comparison with welfare spending in the following section, we focus on just two periods: First, we consider the years before 1650, which was the period before the Poor Laws were established, and second, we consider the period 1650–1749, which was one in which poor relief was established in all parishes. We do not consider the period 1750–1849, partly because the data are less representative, as noted above, but also because this period is not relevant for the discussion below on whether previous patterns of social mobility impacted on preferences for welfare spending in 1803.

For most of the following, we exclude the group of “farmers,” who are very few in number (see also Long and Ferrie 2013a)—the matrices underlying our subsequent analysis are reported in Tables 9 and 10 in “Appendix.” Apart from that there are relatively few farmers, they also follow a quite different mobility pattern due to the fact that sons would often inherit the farm of their father. Therefore, we often do not observe sons of farmers in all of the other occupational groups and including farmers then leads to zero entries in the social mobility matrices, which makes the calculation of the Altham statistics impossible [see Eq. (1)]. The rather unique pattern of mobility may also pose some problems in applying the same method of measuring mobility to farmers and other occupations (Xie and Killewald 2013).

Table 2 provides summary measures of mobility in England, where we compare the North and the South. Again, \mathbf{M} gives the proportion of off-diagonal entries in the mobility matrix, i.e., absolute mobility occurring in the region in a given time period. \mathbf{M}' provides the proportion of off-diagonal entries in the social mobility

Table 2 Summary measures of mobility in North and South England

		With farmers			Without farmers					
		Obs.	M	M'	Obs.	M	M'	d(N,I)	d(S,I)	d(S,N)
Pre-1650	North	275	40.0	38.8	268	38.8	37.8	8.9***		
	South	520	38.1	37.5	418	34.0	35.8		11.7***	4.0***
1650–1749	North	678	39.7	41.7	656	37.8	35.7	11.5***		
	South	1152	32.8	32.3	1023	29.0	30.6		13.6***	3.6***

** $p < 0.05$; *** $p < 0.01$

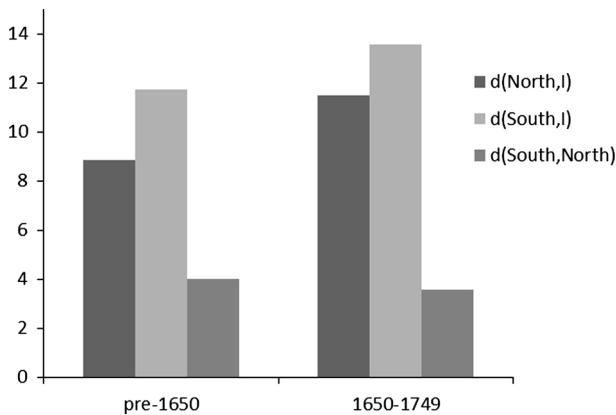


Fig. 2 Altham statistics for North and South England, 1550–1749

matrix with adjusted marginal frequencies. Thus, one can compare absolute mobility occurring in the North and the South (**M**), where the North exhibits higher mobility in both periods. Alternatively, we can compare **M** in the North (South) to **M'** in the South (North) in order to compare total mobility under the same occupational structure. Again, the North exhibits higher mobility than the South. That this difference is indeed significant can be seen from the Altham statistic, where $d(S,N)$ gives the distance between the matrices for the South and the North. The difference is thus significant at the one percent level in both periods. $d(N,I)$ gives the Altham statistic for the North, compared to perfect mobility, as does $d(S,I)$ for the South.

The results in Table 2 demonstrate that social mobility was in fact significantly higher in the North in both periods. Figure 2 illustrates this graphically, where a taller bar implies that the matrix is further from perfect mobility, i.e., social mobility is lower in the given region/period.

It might be interesting to compare the difference between the North and the South here to the difference found between Britain and the USA in the nineteenth century by Long and Ferrie (2013a), which they describe as “substantial.” Interpreting the Altham statistic is difficult. Long and Ferrie find, however, a significant Altham statistic of 13.2 for the nineteenth century and an insignificant Altham statistic for

the twentieth century of 7.9. This compares to our significant difference between North and South with an Altham statistic of around 4. The comparison of the USA and UK reflects to a large extent their different occupational structures, but large Altham statistics can be insignificant if differences in mobility after taking account of this are not great. Our analysis looks at just one country, where the occupational differences are not so important (hence the modest differences between \mathbf{M} and \mathbf{M}'). What we can read from our results is that nevertheless there were great differences in mobility.

We now proceed to decompose the differences in mobility between the North and the South for each period. This allows us to understand further the reasons for the differences. Tables with the components and their contribution to the total difference in mobility between North and South can be found in “Appendix” Tables 11 and 12.

For the pre-1650 period, the two most important factors are about entering skilled rather than white-collar occupations. Together they describe almost half of the difference between mobility in the North and the South. In the South, if you have an unskilled father, you are 16 times more likely to enter a skilled rather than a white-collar occupation, than if you have a white-collar father. In the North this is only four times more likely, i.e., it is roughly four times more likely in the North. This difference is around 3–1 when comparing having a skilled rather than a white-collar father. Moving into white-collar occupations also implies receiving formal education. The difference in total mobility is thus largely due to there being a greater barrier to education and thereby moving into white-collar occupations in the South. Nevertheless, differences in mobility also stem from movements in and out of unskilled occupations. In the South a son is almost three times more likely to enter an unskilled occupation rather than a white-collar occupation when having an unskilled father than he is in the North. Thus, besides a greater barrier to the top, it seems also more difficult to escape poverty in the South.

For the period 1650–1749, the two most important contributors are about entering skilled rather than unskilled occupations. In the South, if you have an unskilled father, your chances of having a skilled occupation rather than an unskilled one are negligible. Although they are also very low in the North, they are nevertheless three times greater than in the South, and this accounts for 28% of the total difference in mobility. Moreover, the difference in the chances of entering a skilled rather than an unskilled occupation if you have a skilled father rather than an unskilled father are two times greater in the South than in the North. So, for sons of unskilled fathers, there is a greater barrier to entering skilled occupations in the South.

To summarize, it seems that much of the difference in mobility between the North and South in both periods is due to the relative ease with which the sons of unskilled fathers are able to move into skilled or white-collar occupations. This implies lower upward mobility in the South. We can also look in more detail at the extent of upward and downward mobility using the matrices in the appendix. Here, we focus on mobility into and out of unskilled professions. In terms of upward mobility, we thus focus on the proportions of sons either in skilled or white-collar occupations, despite having a father in the unskilled category. In terms of downward

mobility, we look at those sons entering unskilled occupations, despite having a father in a white-collar or skilled profession. We then compare the relative sizes of the proportions of sons off the diagonal to determine whether there is more upward or downward mobility out of and into the unskilled occupations. For the period before 1650, in the North 51% of all sons of unskilled fathers moved to skilled or white-collar occupations before 1650, compared to 61% of those in the South. This difference disappears when using the marginal frequencies of the North (both 51%). Turning to downward mobility, in the North 19% of all sons moved into unskilled labor, compared to 11% in the South, but again the difference disappears when using the marginal frequencies of the North (both 19%). This does not contradict the findings above, since the difference in mobility between the North and the South is due to differences in entering skilled versus white-collar occupations, and not differences in moving into or out of unskilled occupations. There is, however, clearly more upward mobility from than downward mobility into the unskilled occupations for the country as a whole.

Turning to the period 1650–1749, mobility out of unskilled occupations is 54% for the North compared to 43% for the South, and this changes very little even when using the marginal frequencies for the North (54 vs. 42%). In terms of downward mobility, 19% moved into unskilled occupations in the North compared with 14% in the South (15% using the marginal frequencies of the North). There is thus more upward mobility than downward, but both upward and downward mobility were greater in the North, and this has nothing to do with differing occupational structures.

2.3 Intergenerational elasticity of earnings

A complimentary way of estimating social mobility to the above is to calculate the intergenerational elasticity of earnings (IGE), i.e., the elasticity of a son's income with respect to that of his father (see for example Solon 1992).¹⁰ To do this, however, we need to assign incomes to our occupations, which we do using the wage estimates by Williamson (1982). He reports wages for 18 occupational groups, where each group comprises a number of similar occupations. If the occupation in our data is available in one of these groups, we assign the wage of that group. If not, we assign an average of similar groups; see “Appendix” Table 13 for details.

Williamson's data also cover various years. However, the earliest wage series is from 1710, so in order to match as well as possible with our observations, we break our data into the same periods as above, and assign the 1710 series to all father–son pairs where the son was born before 1650. Then, for those born between 1650 and 1749, we use an average of the wages from 1710 and 1737. This wage data has been

¹⁰ The size of the intergenerational elasticity of earnings is dependent on the standard deviations in the earnings distributions of fathers and sons, i.e., the earnings inequality. It has therefore been suggested to look at the intergenerational correlation (see Blanden et al. 2004), which adjusts for the ratio of the standard deviations. In general, the intergenerational correlation will be larger than the intergenerational elasticity when inequality increases from fathers to sons. Here, we are interested in differences between North and South rather than the absolute size of the association between fathers' and sons' earnings. We therefore estimate the intergenerational elasticity, also for easier comparison with previous studies.

criticized, especially for its large variation across time for some occupational groups (Jackson 1987; Feinstein 1988), but since this is mostly supposed to be a problem for the later periods, it should not be a problem for our analysis. Moreover, averaging across time removes some of that variation.

In Table 3, we thus regress the logarithm of the father's wage on the logarithm of the son's. We add a dummy for the North of England, and interact this with the son's wage in order to get an estimate of the difference in IGE between North and South. We also add time dummies for our periods, which we also interact with the elasticities. Finally, we include parish fixed effects.

In line with our findings above, we find social mobility to be higher in the North, with an elasticity of 0.273, than in the South, at 0.374. These estimates are rather low, and the difference between North and South is only significant on the 10% level, but this might be due to issues with the wage data. Nevertheless, the elasticities are in line with other studies on two generations, which for modern data range between 0.22 and 0.42 according to a survey by Corak (2006). For the whole of Great Britain, Long (2013) finds an IGE between 0.359 and 0.366 for the period 1851–1881.

Finally, a recent literature has emerged which demonstrates that taking account of the influence of grandparents can substantially reduce estimates of social mobility (see Long and Ferrie 2012 on occupational mobility or Lindahl et al. 2012 on the persistence of human capital). Although Clark and Cummins (2015) finds an elasticity between 0.41 and 0.50 for father–son pairs from the period 1858–2012, this increases to around 0.7 when analyzing multiple generations. This is in fact a result that holds for many different countries at different points in time (Clark 2014). The intuition is that “errors” from one generation to the other, for example a lawyer from a family of lawyers whose son decides to drop out of law school in order to join the circus, are corrected over more than two generations: the grandson is likely to be influenced by the longer family history.

For a relatively small subset of our data, 673 families, we have information on three generations. Table 4 thus repeats our regression above, where we have included the income of grandfathers, but removed the parish and time fixed effects due to the small sample size. In the first column, we estimate the model without the grandfather effects on the new limited sample, for the sake of comparison. Of course, the IGE is higher, since we are now looking at a subsample of extremely immobile people, who have been in the parish for at least three generations.

As expected, and in line with the aforementioned studies, the IGE increases when accounting for the grandfathers, from an elasticity of 0.471–0.503 for the South, and from 0.306 to 0.460 for the North. There is no indication that the size of this effect differs between the North and the South, however.

To sum up, we find some evidence for greater social mobility in the North than in the South of England before 1750, and in the next section, we proceed to relate this to welfare spending under the Poor Laws. What might explain the initial differences in mobility, however? The literature on historical patterns of social mobility is very sparse, and besides, there are no previous attempts to estimate differential rates of mobility between North and South. Answering this question would thus require a detailed study of the cultural norms and social structures of these regions in the early modern period, which is clearly beyond the scope of the present work.

Table 3 Intergenerational elasticity of earnings

	ln(wage)
<i>OLS regression, IGE of earnings</i>	
ln(father_wage)	0.374*** (0.046)
North	0.056 (0.186)
ln(father_wage)*North	-0.101* (0.055)
P1650–1749	-0.037 (0.168)
P1650–1749*North	0.033 (0.037)
ln(father_wage)*P1650–1749	0.008 (0.052)
Constant	2.278*** (0.152)
Parish fixed effects	Yes
R^2	0.14
N	2625

Robust standard errors in parentheses, clustered at the family level
* $p < 0.10$; ** $p < 0.05$;
*** $p < 0.01$

Table 4 Intergenerational elasticity of earnings

	(1) ln(wage)	(2) ln(wage)
<i>IGE of earnings, three generations</i>		
ln(father_wage)	0.471*** (0.05)	0.429*** (0.062)
ln(grandfather_wage)		0.074 (0.056)
ln(father_wage)*North	-0.165* (0.085)	-0.156* (0.09)
ln(grandfather_wage)*North		0.113 (0.075)
North	0.519* (0.282)	0.103 (0.317)
Constant	1.785*** (0.165)	1.682*** (0.176)
R^2	0.144	0.165
N	673	673

Robust standard errors in parentheses, clustered at the family level
* $p < 0.10$; ** $p < 0.05$;
*** $p < 0.01$

3 Cultural differences and poor law spending

3.1 The poor laws in England, and the difference between North and South

Blaug (1964) described the Poor Laws as effectively “a welfare state in miniature.” They were first institutionalized by law in 1601, but administration was handled at the parish level. Although there is no evidence on the parish level as to when the

Poor Laws were implemented, as Webb and Webb (1927) noted, already by 1630 there is some evidence for implementation of poor relief. However, Slack (1990) finds that around 1600 only larger towns had poor relief systems in place, mostly located in the southeast of England. By 1660, this was true for about one-third of the parishes and by around 1700 poor relief was universal. The parishes in the Cambridge Group data, which we discuss below, were rural in character but generally larger than the average parish in England at the time (Wrigley et al. 1997). They were therefore probably not among the first parishes to implement poor relief.

Thus, although all poor were guaranteed relief, exactly how much was offered and who was eligible was decided by the individual parish. In fact, the levels of relief provided, as well as the number of applications turned down, varied greatly. In particular, there seem to have been marked differences in the generosity of relief between North and South England. The South relieved more people than the North. It also gave higher relief per capita, as illustrated in Fig. 3. Even the famous Poor Law Amendment Act of 1834 (the “New Poor Law”) left this structure basically unchanged (Blaug 1963), with the system only falling into decline during the twentieth century, leading to their total abolition after the Second World War, with the introduction of the modern welfare state.

As Fig. 3 shows, Poor Law spending essentially split the country into two, along the thick black line.¹¹ This does not seem to reflect patterns of income or wealth, which after the beginnings of industrialization in the North showed no clear North–South divide, although until the 1790s the North had been relatively poor (Buckatzsch 1950; Schofield 1965; Hunt 1986). Indeed, we demonstrate below that income and wealth do not correlate with spending. Neither is it the case that areas with low levels of poor relief saw higher levels of private charitable giving, as demonstrated by Boberg-Fazlić and Sharp (2017). Another potential explanation could be based on population density caused by higher technological progress leading to larger families. These families could in turn imply less need for poor relief by the parish since there would be a larger kinship network to fall back on. When mapping population density, however, no pattern similar to the distribution of per capita poor relief spending as shown on Fig. 3 emerges. Other measures of the extent of welfare spending would include the amount of poor relief spending per recipient and the number of recipients by population. These maps can be found in Figs. 4 and 5 in “Appendix.” The comparability across counties of these measures is, however, disputed. Boyer (1990), for example, argues that per capita relief spending is the only reliable measure that can be compared across parishes and counties, since parishes counted the number of recipients differently.

3.2 Explanations for the differences in welfare spending

The Poor Law Commissioners themselves expressed the belief that increasing poor relief expenditures during the second half of the eighteenth century were due to

¹¹ It should be noted here that including the southwest of England, Devon and Cornwall, which also had low levels of Poor Law spending, in the ‘North’ makes no difference to our results, since there are few observations from Devon, and none from Cornwall.

“harsh culture of making do,” whereas the South was “more relaxed and inclusive” with a “culture of dependency.” He demonstrates that in general relief was granted later and to fewer people in the North, and they received lower payments than in the South. Also, the process of granting relief was more based on monitoring and in depth investigation in the North. Moreover, there was more focus on giving pensions to the elderly, whereas in the South also younger men in need received relief. In fact, in the North pensions only provided around one-third of subsistence level income, whereas in the South the pension was around subsistence. He thus concludes that there was a deliberate choice to grant lower relief to fewer people—one based on culture.

In order to examine the determinants of poor relief more formally, we examine whether differences in the type of agriculture can explain differences in welfare spending by regressing spending on a measure of the suitability of the soil for arable farming. Since it has also been argued that income inequality was greater in areas more suitable for crops with scale economies, i.e., arable agriculture (see Engerman and Sokoloff 2002; Jewell 1994), including the suitability for arable farming might therefore also provide a measure of income inequality in the area. The data are taken from the Food and Agriculture Organization of the United Nations,¹² which can be subjected to the obvious criticism that it does not necessarily reflect historical conditions. However, to be applicable to earlier periods the suitability for “low input levels” has been used extensively in the cliometrics literature (see, e.g., Easterly 2007; Alesina et al. 2013), as this measure considers the suitability of land using traditional farming methods.

In the first column of Table 5, we therefore include the suitability variable, plus a number of controls which might also be expected to determine welfare spending (see the discussion above): population density (as a proxy for income/agricultural productivity), a dummy for whether the county was one of the five wealthiest counties (from Buckatzsch 1950), and the wage of agricultural laborers (from Hunt 1986).

We find in column (1), consistent with Boyer’s hypothesis, that agricultural structure is indeed highly correlated with welfare spending. However, column (2) reveals that this is not robust to the addition of a dummy for the North. In fact, the North dummy alone explains around 77% of the variation in poor relief spending. Thus, there seems to be more to the regional pattern in welfare spending than differences in agricultural structure. This might be due to the differences in culture described by King, but might of course also potentially reflect a host of other factors. However, we postulate that the difference in social mobility identified in the previous section might provide one possible explanation. In order to add a little more flesh to the culture argument, we look at present day values in North and South England in the following section.

¹² ‘Crop suitability index (class) for low input level rain-fed cereals’, from GAEZ, Global Agro-Ecological Zones, at the Food and Agriculture Organization of the United Nations.

Table 5 Determinants of poor relief

	(1) ln(per capita relief)	(2) ln(per capita relief)
<i>OLS regression, per capita poor relief</i>		
Suitability	0.563** (0.23)	0.0938 (0.215)
North		-0.636*** (0.099)
ln (popdens)	-0.011 (0.087)	-0.117* (0.061)
top5wealth	-0.134 (0.22)	-0.108 (0.14)
ln (wage)	-0.588 (0.386)	-0.084 (0.258)
Constant	0.418 (0.913)	0.179 (0.62)
Regional dummies	Yes	Yes
R^2	0.425	0.773
N	41	41

Regional dummies are defined as NUTS1 regions (North East, North West, Yorkshire and the Humber, East Midlands, West Midlands, East of England, London, South East, South West)

Robust standard errors in parentheses

* $p < 0.10$; ** $p < 0.05$;

*** $p < 0.01$

3.3 Evidence of cultural differences between the North and the South: then and now

The North–South divide is a well-known and oft-debated phenomenon in Britain today, but in fact the division goes back centuries. As a few examples of historical episodes which might have led to cultural and other differences, we can mention: the settlement of the Danelaw in the North of England by the Vikings in the ninth century; King William the Conqueror’s ‘Harrying of the North’ in the eleventh century; the fact that the North of England remained more resistant to the separation from the Catholic Church in the sixteenth century; and of course the fact that the Industrial Revolution emerged in the North of the country. Famously, Gaskell’s novel from 1855 presents a traditional class-ridden South of England and a dynamic industrializing North, a point complemented by a recent study by Billinge (2012, p. 95), who notes that the South exhibited ‘an awareness of rank and a clear recognition of the status which even the lowest position in a strictly hierarchical society conferred’ during the eighteenth and nineteenth century.

Unfortunately, we cannot really test whether there were cultural differences during or before the implementation of the Poor Laws. However, a central point of the idea that historical social mobility experiences shape cultural values and beliefs is that these are rather persistent, irrespective of what is otherwise happening—historical social mobility affects attitudes today, even if this mobility no longer exists. The North was more subject to the benefits and challenges of the industrial revolution, but was harder hit by the deindustrialization of the country during the twentieth century. Now the North is poorer, and more reliant on welfare. Might we then expect the North to be more accepting of welfare today, in contrast to the pattern we observe in Poor Law spending?

Table 6 Differences in answers to selected questions in EVS

Question	Scale	Difference in means (North–South)	<i>N</i>
To what extent are you concerned with the living conditions of...	1 (very much)–5 (not at all)		
Immediate family		0.342*** (0.097)	1144
People in neighborhood		0.22*** (0.074)	1146
People in own region		0.192*** (0.066)	1145
Fellow countrymen		0.261*** (0.064)	1145
Elderly people		0.129** (0.061)	1151
Unemployed people		0.061 (0.066)	1142
Sick and disabled		0.15** (0.059)	1150
Children from poor families		0.067 (0.058)	1151
Individual versus state responsibility that everyone is provided for	1 (individual)–10 (state)	–0.096 (0.139)	1148
How much freedom of choice and control over the way your life turns out	1 (none at all)–10 (a great deal)	0.152 (0.127)	1150

Standard errors in parentheses

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$

We use the results of the European Values Survey from 2008 to 2010,¹³ to give us an idea as to cultural differences between the North and the South today, at a time when of course welfare decisions are decided centrally. We consider several questions from the European Values Survey, which we believe reflect more underlying values rather than opinions which might be influenced by the current economic conditions in a particular region. Table 6 summarizes the results.

The answers to the first eight questions reveal a significant difference between North and South, and indicate less of a concern for the living conditions of others in the North. Additionally, although here the difference is not significant, people in the North seem to believe that it is more the individual's responsibility to provide for oneself and they feel that life is less predetermined. Although the differences are small, considering the huge changes since the period we look at, and the relative poverty of the North, which might make them more biased toward an acceptance of welfare, this points toward differences in cultural values.

Putting all this together, it seems probable that the fact that less welfare was provided in the North is due to cultural differences, a finding which is compatible with that of historically higher social mobility in the North.

¹³ See <http://www.europeanvaluestudy.eu> for a full list of the questions.

4 Conclusion

We have presented a novel analysis of social mobility levels for historical England. We find surprisingly constant levels of mobility for England as a whole over a very long time period, despite structural changes and the beginnings of the industrial revolution. Examining regional differences for the first time, we show that social mobility, both upwards and downwards, was greater in the North than in the South. This holds true when comparing different measures of social mobility. Comparing this to the pattern of welfare spending, this finding is consistent with the hypothesis that high levels of historical social mobility yield lower willingness to provide welfare spending. This first indicative evidence brings up interesting questions, such as whether this might also have played a role for the industrialization of the North.

In line with the emerging literature on social mobility across more than two generations, we have also presented evidence that social mobility rates are overstated when comparing only fathers and sons. Taking also the occupation of the grandfather into account, we find that this has explanatory power besides the father's occupation and that estimated social mobility is thus lower.

Acknowledgements We would like to thank Gregory Clark, Nicholas Crafts, Carl-Johan Dalgaard, Marc Klemp, Andreea-Alexandra Maerean, Karl Gunnar Persson, Ulrich Pfister, Eric Schneider, Jacob Weisdorf as well as participants at seminars and conferences for their help and suggestions. Thanks also to the Cambridge Group for allowing us to use the family reconstitution data.

Appendix

See Figs. 4 and 5 and Tables 7, 8, 9, 10, 11 and 12.

We have coded all the occupations in the dataset according to the HISCO classification scheme. HISCO, the historical version of the ISCO scheme, gives a code to each occupation based on the duties and tasks performed in the occupation. These are then grouped together into different “social classes” according to the degree of supervision exercised and whether the occupation was manual or non-manual. This scheme is called HISCLASS and gives a total of 12 “social classes”, with class 12 being the lowest and class 1 the highest. For more details on HISCO and HISCLASS, see also van Leeuwen et al. (2002) and van Leeuwen and Maas (2011).

Whenever the specific occupation/HISCO code in our data is not available in one of Williamson's wage groups we assign an average of one or several, similar wage groups to the occupation according to the HISCLASS it is in. We do this according to the following scheme: Table 13.

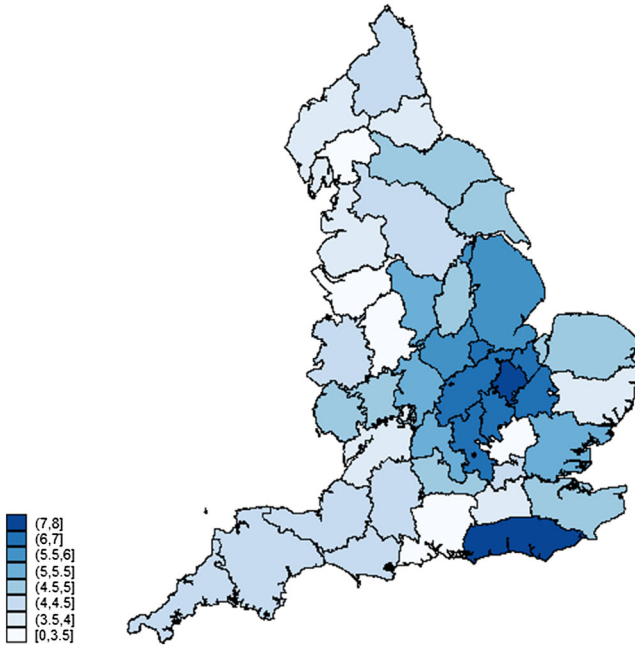


Fig. 4 Relief spending per recipient by county, 1803. *Source:* Marshall (1834)

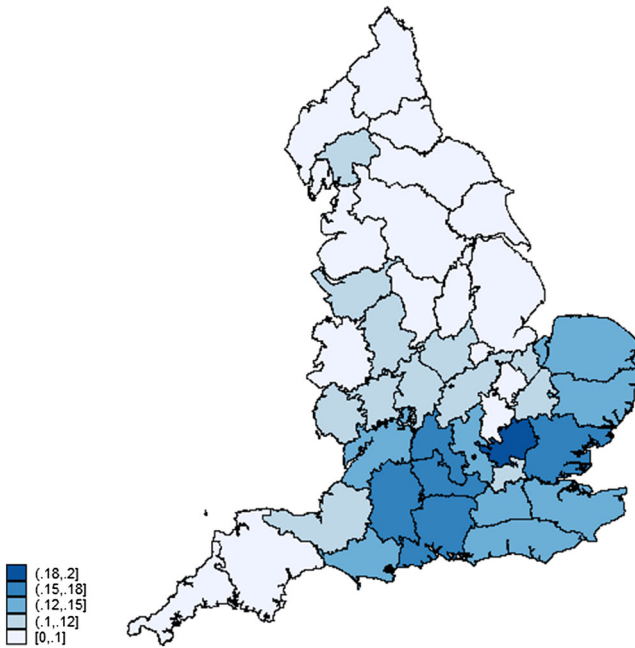


Fig. 5 Number of poor relief recipients by county, 1803. *Source:* Marshall (1834)

Table 7 Frequencies of observations by occupational group and location

	Farmers	White collar	Skilled	Unskilled	Total
<i>North</i>					
Earsdon	2	11	94	17	124
Gainsborough	20	109	546	258	933
Gedling	0	1	3	0	4
<i>Total</i>	22	121	643	275	1.061
<i>South</i>					
Aldenham	2	0	3	0	5
Ash	17	5	14	7	43
Austrey	32	3	71	16	122
Banbury	12	52	370	128	562
Bottesford	10	0	37	14	61
Bridford	1	2	3	4	10
Dawlish	0	0	3	0	3
Great Oakley	8	1	8	13	30
Ipplepen	1	0	0	0	1
Lowestoft	2	13	55	13	83
March	0	0	0	1	1
Morchard Bishop	5	0	2	0	7
Odiham	44	31	161	14	250
Reigate	28	55	188	61	332
Shepshed	6	1	97	25	129
Southill	13	15	109	108	245
Terling	0	0	1	0	1
Willingham	0	1	0	0	1
<i>Total</i>	181	179	1.122	404	1.886
	Total	Min.	Max.	Mean	
<i>North</i>					
Farmers	22	0	20	7	
White collar	121	0	109	40	
Skilled	643	0	546	214	
Unskilled	275	0	258	92	
<i>South</i>					
Farmers	181	0	44	10	
White collar	179	0	55	10	
Skilled	1.122	0	370	62	
Unskilled	404	0	128	22	

Table 8 Examples of occupations in the four groups

	<i>N</i>	Percent
<i>White collar</i>		
Mercer, draper	98	32.67
Merchant, dealer	37	12.33
Innkeeper	33	11.00
Victualler	19	6.33
Chandler	15	5.00
Others	98	32.67
<i>Total</i>	<i>300</i>	<i>100</i>
<i>Skilled/semiskilled</i>		
Husbandman	174	9.86
Butcher	137	7.76
Shoemaker	133	7.54
Taylor	118	6.69
Baker	83	4.70
Carpenter	82	4.65
Weaver	78	4.42
Tanner	73	4.14
Others	887	50.25
<i>Total</i>	<i>1765</i>	<i>100</i>
<i>Unskilled</i>		
Laborer	486	71.58
Sailor	84	12.37
Coal porter	28	4.12
Others	81	11.93
<i>Total</i>	<i>679</i>	<i>100</i>
<i>Farmer</i>		
Farmer	199	98.03
Grazier	4	1.97
<i>Total</i>	<i>203</i>	<i>100</i>

Table 9 Mobility tables, intergenerational occupational mobility in Northern England, 100-year periods

		Pre-1650	Father's occupation				Total
			White collar	Farmer	Skilled/ semiskilled	Unskilled	
Son's occupation	White collar	11	1	20	4	36	
	Farmer	0	1	3	0	4	
	Skilled/ semiskilled	16	0	124	26	166	
	Unskilled	5	2	33	29	69	
	<i>Total</i>	32	4	180	59	275	
		1650–1749	Father's occupation				Total
			White collar	Farmer	Skilled/ semiskilled	Unskilled	
Son's occupation	White collar	32	0	36	7	75	
	Farmer	3	1	8	3	15	
	Skilled/ semiskilled	28	4	291	88	411	
	Unskilled	12	3	77	85	177	
	<i>Total</i>	75	8	412	183	678	

Table 10 Mobility tables, intergenerational occupational mobility in Southern England, 100-year periods

		Pre-1650	Father's occupation				Total
			White collar	Farmer	Skilled/ semiskilled	Unskilled	
Son's occupation	White collar	32	5	27	4	68	
	Farmer	2	46	25	3	76	
	Skilled/ semiskilled	21	20	213	41	295	
	Unskilled	8	1	41	31	81	
	<i>Total</i>	63	72	306	79	520	
		1650–1749	Father's occupation				Total
			White collar	Farmer	Skilled/ semiskilled	Unskilled	
Son's occupation	White collar	42	5	37	9	93	
	Farmer	4	48	33	3	88	
	Skilled/ semiskilled	42	22	540	96	700	
	Unskilled	11	14	102	144	271	
	<i>Total</i>	99	89	712	525	1152	

Table 11 Components of d(North,I), d(South,I) and d(South,North), pre-1650

Pre-1650 contrast	d ⁱ (North,I)	Odds ratio	d ⁱ (South,I)	Odds ratio	d ⁱ (South,North)	Pct. of total
[(US)/(UW)]/[(WS)/(WW)]	2.99**	4.47	5.50***	15.62	2.50***	38.7
[(SS)/(SW)]/[(WS)/(WW)]	2.90***	4.26	4.97***	12.02	2.07***	26.5
[(UU)/(UW)]/[(WU)/(WW)]	5.54***	14.30	6.87***	41.00	1.33***	10.9
[(US)/(UU)]/[(WS)/(WU)]	2.55**	0.28	1.37	0.50	1.17***	8.5
[(SS)/(SU)]/[(WS)/(WU)]	0.32	1.17	1.37	1.98	1.04***	6.7
[(SU)/(SW)]/[(WU)/(WW)]	2.58**	3.63	3.61***	6.07	1.03***	6.6
[(SS)/(SW)]/[(US)/(UW)]	0.95	0.95	0.52	0.77	0.43***	1.1
[(SU)/(SW)]/[(UU)/(UW)]	2.96***	0.23	3.26***	0.20	0.30***	0.6
[(SS)/(SU)]/[(US)/(UU)]	2.87***	4.19	2.74***	3.93	0.13***	0.1

Table 12 Components of d(North,I), d(South,I) and d(South,North), 1650–1749

1650–1749 contrast	d ⁱ (North,I)	Odds ratio	d ⁱ (South,I)	Odds ratio	d ⁱ (South,North)	Pct. of total
[(US)/(UU)]/[(WS)/(WU)]	1.63**	0.44	3.49 ***	0.17	1.87 ***	27.7
[(SS)/(SU)]/[(US)/(UU)]	2.59***	3.65	4.14 ***	7.94	1.56 ***	19.3
[(SS)/(SW)]/[(US)/(UW)]	0.88	0.64	0.63	1.37	1.51 ***	18.1
[(UU)/(UW)]/[(WU)/(WW)]	6.96***	32.38	8.23 ***	61.09	1.27 ***	12.8
[(SU)/(SW)]/[(WU)/(WW)]	3.48***	5.70	4.71 ***	10.53	1.23 ***	12.0
[(SS)/(SW)]/[(WS)/(WW)]	4.45***	9.24	5.36 ***	14.59	0.92 ***	6.7
[(US)/(UW)]/[(WS)/(WW)]	5.33***	14.37	4.73 ***	10.67	0.60 ***	2.9
[(SS)/(SU)]/[(WS)/(WU)]	0.96	1.62	0.65	1.39	0.31 ***	0.8
[(SU)/(SW)]/[(UU)/(UW)]	3.47***	0.18	3.52 ***	0.17	0.04 ***	0.01

Table 13 Link from HISCLASS to Williamson wage groups

HISCLASS	Average of wage groups
1	1H
2	1H,7H,8H,10H,11H,12H
3	1H
4	5L
5	9H
6,7,8	2H,3H,4H,6H
9	2L
10,11,12	1L

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