

**Was there ever a Ruling Class?
1,000 years of Social Mobility**

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Dear Workshop Participants

My presentation at the workshop will be about how we can measure the speed and completeness of long run social mobility using surnames, and what these measures imply for England 1066-2010.

As background below is work in progress from a planned book on social mobility over the long run. Included are very rough drafts of the first three and a half chapters.

1. Introduction
2. Surnames and Social Classes

Class Free Societies

3. England, 1066-2010: Common Surnames
4. England, 1560-2010: Rare Surnames (part)

Introduction

What is the fundamental nature of human society? Is it stratified into enduring layers of privilege and want, with some mobility between the layers, but permanent social classes? Or is there, over generations, complete mobility between all ranks in the social hierarchy, and complete long run equal opportunity?

Specifically, will the unemployed youths of the French banlieues, the English council estates, and the American projects, be the founding fathers of unending lineages of want? Are the students at Choate, Hotchkiss and Groton, or at Eton, Harrow and Rugby, representatives of a timeless elite?

To ordinary opinion it is near axiomatic that privilege perpetuates privilege, and want breeds want. The wealthy orbit social circles distinct from those of the poor. They marry their peers. They invest enormous time and money in the care and raising of their children. These children, in consequence, inherit not just wealth, but education, socialization, and connections. Richard Herrnstein and Charles Murray notoriously argued in *The Bell Curve* that modern America has acquired both an entrenched meritocratic elite, and an entrenched underclass, with prospect of little future mobility between these strata.¹

And when people think of class ridden societies, England strikes them as a particularly clear example. Take, for example, the history of the Earls of Derby in England. Figure 1 shows the current holder of the earldom, Edward Richard William Stanley, 19th Earl of Derby, pictured below in festive mood with Lady Derby. Also shown in figure 1.2 is the Stanley family home, Knowsley Hall, which sits 15 minutes from the council estates of Liverpool in 2,500 acres of parkland.

The current Earl of Derby can trace his ancestry all the way back to Ligulf of Aldithley who was an English landowner in the Domesday Book of 1088. The family adopted the name Stanley in the early twelfth century, and by the time of John Stanley (1350-1414) they were knights. The modern ascent of the family was secured by Thomas Stanley, who playing an important role in the Tudor victory at the Battle of Bosworth Field, was created first Earl of Derby in 1485. Since then important members of the family included Edward Smith-Stanley, 14th Earl, who was conservative Prime Minister of the United Kingdom three times, in 1852, 1858-9,

¹ Herrnstein and Murray, 1994.

Figure 1.1: Earl and Lady Derby in Festive Mood



Figure 1.2: Knowsley Hall, Home of the Stanleys



and 1866-8. The town of Stanley, capital of the Falkland Isles was named in Smith-Stanley's honor.

The assumption of persistent class privilege also underlies the public provision of education, demands for inheritance taxes, and affirmative action programs in hiring and education.

Social sciences such as economics and sociology have measured the connection between children and parents. But they have been unable to measure the long run dynamics of class, because modern social science databases have existed for only a couple of generations.

This book systematically exploits a new method of tracing social mobility over many generations, surnames, to measure the persistence of classes over as much as 800 years, 24 generations. It looks at societies where surnames are inherited, unchanged, by children from fathers. In such cases they thus serve as a tracer of the distant social origins of the modern population (and interestingly also as a tracer of the Y chromosome).

In this role surnames are a surprisingly powerful instrument for measuring long run social mobility. The results they reveal are clear, powerful, and a shock to our casual intuitions.

(1) In England, where we can trace social mobility back to 1066 using surnames, there were never any long persistent ruling and lower classes for the indigenous population: not in medieval England, and not now. About 5-6 generations were, and are, enough to erase most echoes of initial advantage or want. For the English class is, and always was, an illusion. Histories such as those of the Stanley family turn out to be rare exceptions, not the rule.

(2) Paradoxically, while England reveals complete long run mobility, the rates of social mobility per generation, better measured by looking over multiple generations, turn out to be lower than is conventionally estimated. But the mathematics of mobility is such that even such slow regression to the mean, over time, will completely erase initial advantage and want.

(3) The rate of social mobility in England was as high in the middle ages as it is now. The arrival of the whole apparatus of free public education in the late nineteenth

century, and the elimination of nepotism in government and private firms, has not improved the rate of social mobility.

(4) The extraordinarily complete long run mobility of England is likely typical of other western European societies. But other countries, in contrast, do exhibit persistent social classes over hundreds of years. In the US, for example, the Black population has persisted at the bottom of the social order, and the Jewish population at the top. In Chile surname evidence shows the indigenous population has remained at the bottom since the Spanish conquest of 1541.

(5) There is tentative, but disquieting, evidence that after 800 years of complete long run social mobility, modern England, and other parts of Europe also, are becoming class societies, with persistent groups of privilege and want. Recent immigrants from Africa, the Caribbean, and south Asia are not exhibiting the same generalized social mobility of the indigenous population.

(6) India over the last 150 years, despite the caste system, does not exhibit persistent social classes, but does show a much lower rate of long run social mobility than a society like England. Thus in Bengal in 1870 nearly 10% of the Indian elite bore the Brahmin surname “Muckerji”. By 2010 the share of the elite in Calcutta with this surname was just 3.4%. Thus India has been experiencing significant social mobility. But since the share of the population in Calcutta in 2010 with the surname “Muckerji” was only 0.9%, this group is still heavily overrepresented in the elite, and social mobility in India has been at a much lower rate than in England.

(7) Though parents at the top of the economic ladder in any generation in pre-industrial England did not derive any lasting advantage for their progeny, there was one odd effect. Surname frequencies show that there was a permanent increase in the share of the DNA in England from rich parents before 1850. After 1850 a frequency effect operated, but in reverse. Surname frequencies show the DNA share of families in England who were rich in 1850 declined relative to that of poor families of the same generation by 2010.

(8) The different demographic correlates of social status before and after 1800 mean that in the modern world social mobility tends to be predominantly upward, while in the pre-industrial world it was mainly downward.

(9) In stratified societies, with distinct and persistent groups of rich and poor, there is still mobility within each strata.

What is the meaning and explanation of these results? This is a much more contentious and difficult area. The book argues for the following conclusions:

A. Why can't the ruling class in a place like England defend itself against downwards mobility? If the main determinants of economic and social success were wealth, education and connections then there would be no explanation of the consistent tendency of the rich to regress to the society mean. Only if genetics is the main element in determining economic success, if nature trumps nurture, is there a built-in mechanism that ensures the observed regression. That mechanism is the intermarriage of the rich with those from the lower classes. Even though there is strong assortative mating, since this is based on the phenotype created in part by chance and luck, those of higher than average innate talent tend to systematically mate with those of lesser ability and regress to the mean.

This in turn has three implications:

The world is a much fairer place than we intuit. Innate talent is the main source of economic success, not inherited privilege.

The upper classes have tended to vastly over-invest in the care and raising of their children, to no avail in preventing long run downwards mobility. The wealthy Manhattan attorneys who hire coaches for their toddlers to ensure placement in elite kindergartens cannot prevent the eventual regression of their descendants to the mean.

Government interventions to improve social mobility are unlikely to have much impact, unless they impact the rate of intermarriage between the levels of the social hierarchy.

B. Racial, ethnic and religious differences allow long persisting social stratification through the barriers they create to this intermarriage. Thus for a society to achieve complete social mobility it must achieve cultural homogeneity. Multiculturalism is the enemy of long run equality.

C. The existence in England of complete social mobility before the Industrial Revolution further shows that institutional barriers do not explain the long delay in the timing of the Industrial Revolution. Even medieval England was not a society where most of the talent was trapped under the yoke of serfdom, but a place where abilities and skills constantly rose to the top.

Chapter 2: Surnames and Social Mobility

The question posed here is what social mobility is like in different societies over many generations. Are there persistent privileged and deprived groups in the typical society? Here I explain how we can use surnames to answer this question for a broad range of societies where surnames are inherited unchanged from generation to generation.

The evidence on social mobility in the *long run*, aside from obvious racial, ethnic or religious minorities, is surprisingly limited. The reason for this is that most studies of social mobility look only at parents and children. Partly this has been because the main focus of concern has been the rate of social mobility between generations. But partly it is because tracking families through three or more generations is difficult, and has not ever been done systematically on a large scale.

Modern longitudinal databases span 50 years or less, and even then do not maintain the same panel of families over their entire length.² National censuses give information on named individuals back as far as 1841 in England and the USA. But while establishing links between parents and children in the censuses is possible, tracing individual families back generations through censuses is impractical. Extending links to a third or fourth generation results in severe attrition of cases, and the era of publicly available censuses data spans just 1841-1911.

Mobility studies consistently do find Galton's "regression to the mean." The children of the rich are poorer than their parents, the children of the poor are richer than their parents. Regression to the mean applies to all characteristics that can be measured for parents and children: income, wealth, education, height.

Thus if we measure the logarithm of the income or wealth of the parents relative by y_0 , and that of the children by y_1 , then we can estimate empirically the value of the coefficient b in the expression

² Biblarz, Bengtson, and Bucur, 1996, look explicitly at three generations, but consider only the nature of parent-child linkages across different generations.

$$y_1 = a + by_0 + u_0 \tag{1}$$

The extent of regression to the mean is given by b . In practice modern estimates of b vary between 0.2 and 0.6, implying substantial regression to the mean.³ A b of 0.5 implies that if a parent has income double the national average then their children on average would have an income level only 50 percent above the national average.⁴

Observing the intergenerational regression of income, wealth and status to the mean, some free market advocates such as Gary Becker have argued that with enough time we are in a society of complete social mobility. The argument is by iteration. Assuming for every generation that

$$y_{n+1} = a + by_n + u_{n+1}$$

then
$$y_n = a^*_n + b^n y_0 + u^*_n \tag{2}$$

where

$$u^*_n = b^{n-1}u_0 + b^{n-2}u_1 + \dots + u_n$$

$$a^*_n = a + ab + ab^2 + \dots + ab^{n-1}$$

As n becomes large,

$$b^n \approx 0, \text{ so } y_n \approx \frac{a}{1-b} + u^*_n$$

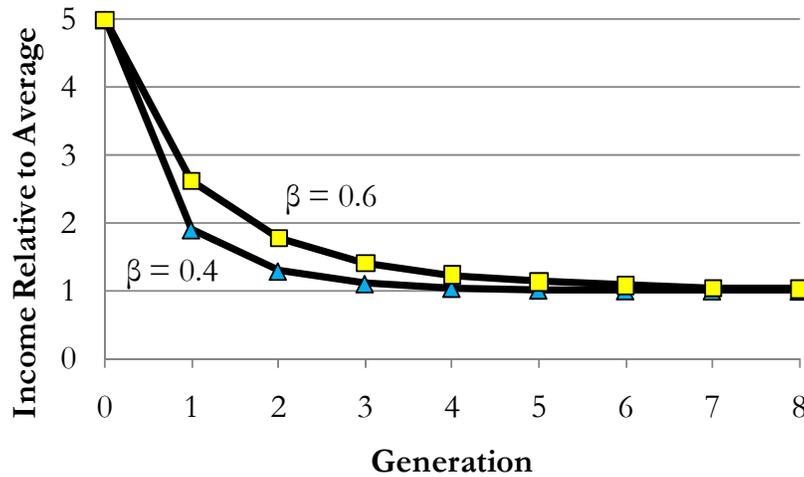
The expected log income of descendants after a large number of generations, whatever the initial income, is $a/(1-b)$, the mean of the population. All variations from this mean are just the cumulation of accidents over the generations.

The regression of expected income to the mean for the society will occur very quickly if b has a commonly estimated value such as 0.5. If the parents, for example, have an income 500 percent of the social mean, then for grandchildren it will be 150 percent, and for great-grandchildren 122 percent. Figure 2.1 shows how rapid the process of regression to the mean will be between generations for values of b even

³ Solon, 1999.

⁴ With a stable distribution of wealth or income over time, b also indicates how much of the variation in income in societies is explicable from inheritance. The share so explained will be b^2 . This means that with a b of 0.5, only about 0.25 of the variance of incomes in each generation is explained by inheritance.

Figure 2.1: Regression to the Mean by generation



as high as 0.6. Thus Becker concludes:

Almost all earnings advantages and disadvantages of ancestors are wiped out in three generations. Poverty would not seem to be a “culture” that persists for several generations (Becker and Tomes, 1986, S32).

However there are reasons to suspect this reasoning on both theoretical and empirical grounds. The theoretical doubt is that the Becker argument assumes that the *only* information relevant for the prediction of the economics success of the current generation is the success of the previous generation. If there are important genetic elements determining economic and social success then this assumption will not hold. The economic and social position of grandparents, and even earlier ancestors will all be predictive of current outcomes.⁵ The assumption also will not hold if membership of a social group or cast is an important determinant of outcomes.

The empirical reason to doubt Becker’s reasoning is that in the USA where we can distinguish families by race or ethnicity, we find that children in these groups are in fact regression to means that are different from the population mean. This shows if we instead estimate the expression

⁵ That is why breeders of thoroughbred racing horses maintain elaborate pedigrees for the animals.

$$y_1 = a_i + by_0 + u_0 \quad (3)$$

where a_i is estimated separately for different sub-groups of the population. If all subgroups in the population are regressing to a common mean, a_i will be the same for all groups.

Thomas Hertz carried out exactly such an exercise in a recent study of the link between parental and child income in the USA where he grouped people by race – white, black and Latino – and by religion. Table 1 shows his estimated regression coefficients, with and without dummies for race, for a sample of 3,568 parental incomes in 1967-71, and the income of adult children in 1994-2000. As can be seen simply knowing the race of someone in the USA has a powerful effect on the ability to predict their income, even once we control for the family income of the parents. It also significantly increases regression to the mean, though this time to the group mean. This holds true even if we control for all other measured attributes of parents in 1967-71 such as education, occupation, and household cleanliness.⁶ These results suggest that indeed the modern USA is a society divided by class, where there is no sign of the ultimate regression to the mean and social mobility that Becker expected.

Hertz's study looked just at the identifiable correlates of class: race and ethnicity. There may be within these populations further hidden divisions of class – but divisions that are not marked by such outward signs as race or religion. All societies might thus have groups persistently at the top, and those persistently at the bottom, that the simple analysis of regression to the mean cannot capture. If such families are otherwise indistinguishable from the general population, then only by observing them over many generations would we know whether there was for such groups complete long run social mobility.

A simple example of society with hidden classes would be the following, where income depends on parental income, but also an unobserved fixed class or group membership effect, a_i , so that

$$y_1 = a_i + by_0 + e_1.$$

⁶ Hertz, 2005.

Table 1: Regression to the mean controlling for race, USA

| Independent Variable | No controls | Only Race | All Observable Parental Characteristics |
|--------------------------|-------------|-----------|---|
| Ln Family Income Parents | 0.52** | 0.43** | 0.20** |
| Black | - | -0.33** | -0.28** |
| Latino | - | -0.27** | -0.15 |
| Jewish | - | - | 0.33** |

Notes: ** = significant at the 1 percent level. Only 3 percent of the sample was Latino.

Source: Hertz, 2005, table 6.

In this case if we estimate the connection between y_t and y_0 , using the misspecified expression, $y_t = a + by_0 + u_t$, we will observe classic regression to the mean. But the estimated coefficient \hat{b} will be

$$\hat{b} = 1 - (1 - b) \frac{\sigma_u^2}{\sigma_a^2 + \sigma_u^2}$$

where

$$\sigma_u^2 = \sigma_e^2 \left[\frac{1}{1 - b^2} \right]$$

Now over many generations the estimated coefficient between current and earlier income will not converge on 0, but instead on $1 - \frac{\sigma_u^2}{\sigma_a^2 + \sigma_u^2}$.⁷

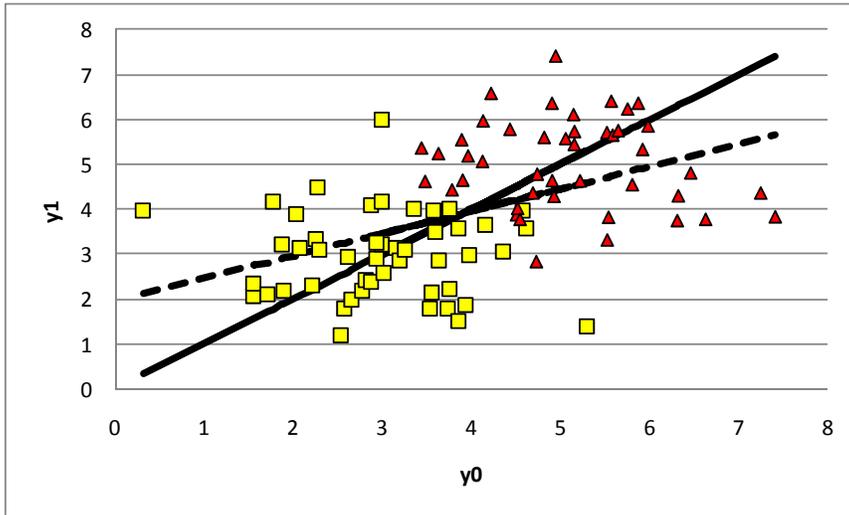
⁷ The regression coefficient for descendants n generations distant will be $\hat{b}_n = 1 - (1 - b^n) \frac{\sigma_u^2}{\sigma_a^2 + \sigma_u^2}$.

Figure 2.2 shows a simple simulation of this society of hidden classes where there are two social classes, with the first (shown by the squares) having an underlying inherited component of income 3, and the second (the triangles) an inherited component of 5, and where the true b is 0. In this case there are social classes that persist. But if we just pool the raw data and estimate the coefficient b , then the estimated value is 0.5. The dashed line shows the estimated connection.

In this example, the estimated b linking grandparents and grandchildren, and even more distant generations will always be 0.5. After one generation there will be no further regression to the mean. As can be seen in figure 2 the two groups can never merge in income with this specification, because the groups are regressing to different mean incomes. In the example, once we included separate intercepts for each class, the estimated b becomes close to the true 0 (-0.04 for this simulation). There are persistent classes.

But if we do not know a priori what the social strata are – because, for example, they are distinguished by race or religion - then there will be no way of disentangling the various social classes. Presented with the raw data we would observe just the general regression to the mean of the world of complete long run mobility. So to observe whether there are persistent social classes in any society we need to be able to look at families across multiple generations.

Figure 2: Regression to the mean with different social classes



Surnames

The idea of this book is not to look at specific family linkages across generations, but instead to exploit naming conventions as a way to track families across generations. We can track economic and social mobility using surnames in a society like England because, from medieval times onward, children inherited the surname of their father. Surnames thus trace the patrilineal descendants of men of earlier generations.⁸ Adoption in England before the nineteenth century was rare, so surnames also trace the path of the Y chromosome, and their later frequency can also measure reproductive success.

In looking at mobility from surnames in England I use two types of analysis. The first concerns common surnames – those held by many people – such as Smith, Clark and Jones. These surnames attached to the population in the Middle Ages,

⁸Illegitimate children in England bore the mother's surname. Thus there is still a linkage through the surname to ancestors, just a different ancestor in this case. But illegitimacy was uncommon in most of English history.

starting with the upper classes, and moving down to the general population.⁹ By 1381 surnames were near universal.¹⁰

At the time of establishment many surname types were a marker of economic and social status. Many people were named after their occupation. By 1881 in England 9.9 percent of surnames derived from an occupation: Smith, Wright, Shepherd, Butcher, and so on. But there were also a class of individually rarer surnames that indicated high status individuals. Thus we can use the social and economic distribution of surnames in later periods as a measure of the mobility of people between social classes, stretching back to the heart of the medieval era in England. By counting the share of their bearers in the population we can also measure reproductive success.

In particular, for the achievement of complete mobility every common surname must be equally likely to be found at all levels of the social hierarchy – criminals, workmen, traders, clergy, members of Parliament, the wealthy. Using various data sources that give the names of the elite and the underclass – members of Oxford and Cambridge Universities, rich testators, the county court indicted – for the years 1066-2010 we can test whether pre-industrial England achieved complete social mobility, and also how long the process took.

We shall see that after 1600 most common surnames lost any information on economic and social status, as a result of the extraordinarily complete social mobility of the English in the years 1300-1600. The indigenous common surnames all became equivalent in status. However, there is a class of common surnames that still convey information on social mobility, and these are the distinctive surnames of immigrants to English society over the years – including immigrants from Scotland, Ireland, Pakistan, India, Bangladesh and China, as well as Jewish immigrants.

For the indigenous English, however, we can still trace long run mobility through surnames, but now using rare surnames.

⁹ The Domesday book of 1086, records surnames, including combinations of Saxon forenames with Norman family names.

¹⁰ Surnames developed because of the limited variety in forenames. Four or five common male and female first names covered the majority of people before 1800. Surnames became essential to identification in England because it was commercial and mobile by the thirteenth century.

In England there always has been a significant fraction of the population holding rare surnames. We have a good measure of what surnames were rare in England after 1540 from a variety of sources: from 1538-1840 Boyd's marriage index (together with various supplements) which lists 7 million surnames of people married in England, and the national censuses of 1841-1911. Figure 2.3, for example, shows the share of the population holding surnames held by 50 people or less, for each frequency grouping, for the 1881 census of England. The vagaries of spelling and transcribing handwriting mean that, particularly for many of the surnames in the 1-5 frequency range, this is just a recording or transcription error. But for names in the frequency ranges 6-50 most will be genuine rare surnames. Thus in England in 1881 5 percent of the population, 1.3 million people, held 92,000 such rare surnames. Such rare surnames arose in various ways: immigration of foreigners to England, name mutations from more common surnames, or just names that were always held by very few people.

Through two forces – the fact that many of those with rare names were related, and the operation of chance – the average wealth levels of those with rare surnames will vary greatly at any time. We can thus divide people post 1600 into constructed social and economic strata by focusing on those with rare surnames.

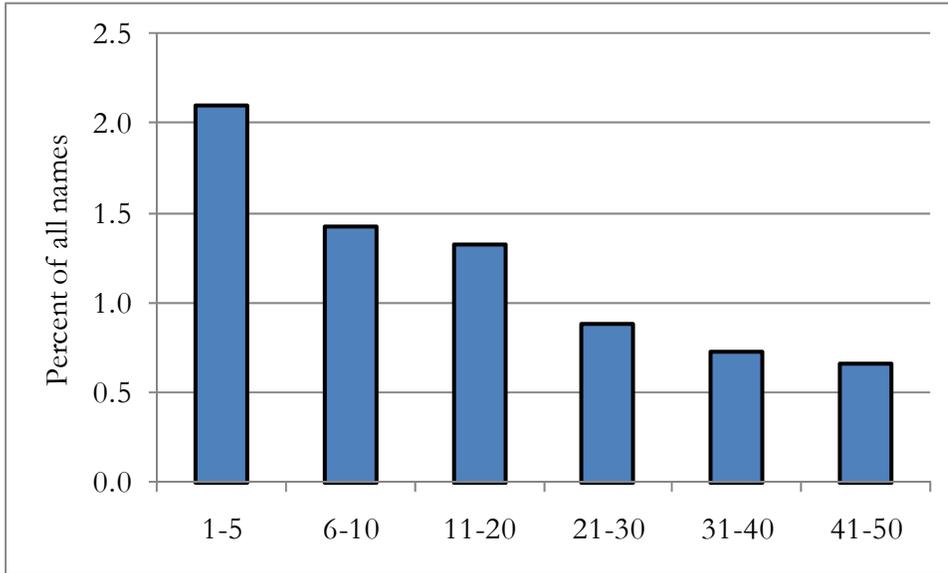
We can follow the economic and social success of those with rare surnames all the way from 1600 to 2010 using a variety of sources. The first are probate records which after 1858 give an indication of the wealth at death of everyone by surname.¹¹ The second is the death register which allows me to calculate the age at death of most people with rare surnames dying in England 1841-66, and of all people 1867-2005.¹² Average age at death in all periods is a good index of socio-economic status. The third are public records of address and occupation, such as the electoral register, which become available for later years.

We can also follow people with rare surnames from 1600 to 1858 and later, picking out those of high and low status in the earlier period by using records of wills and of criminal convictions.

¹¹ Those not probated typically have wealth at death close to 0.

¹² For people dying 1841-1866 with rare names we can infer age at death for most of them from the censuses and the birth register.

Figure 2.3: Relative Frequency of Rare Surnames, 1881 Census, England



The rare surnames allow us to answer two questions. First we can establish there was complete long run mobility in England, 1600-2010. Second we can measure the rate of that mobility for various periods: before the Industrial Revolution, and after the onset of mass schooling in the 1870s. Indeed a bonus with using the rare name cohorts which allow us to look across more extended generations is that we can actually derive better measures of b , the degree of persistence in income or wealth, than current methods tend to allow. A problem with all measures of b is the measurement error inherent in measures of income, wealth, and occupational status, and also the fact that all of these are but imperfect proxies for the social status of persons. People trade off wealth for other satisfactions, such as the character or prestige of their employment, or the amenities of their location. Thus conventional measures will always tend to overstate the degree of social mobility, and underestimate the persistence of status.

Suppose W_{ij} is the logarithm of measured wealth of person i with a rare surname in generation j . Wealth is always measured with error, and wealth is an imperfect proxy for some underlying index of status, so that

$$W_{ij} = w_{ij} + u_{ij}$$

where w_{ij} is the true “wealth.”

Suppose that for two people within the same generation with the same rare surname there is a correlation of true “wealth,” so that¹³

$$w_{ij} = aw_{kj} + e_{ik}, i \neq k$$

If we estimate a by OLS using the observed W_{ij} and W_{kj}

$$E(\hat{a}) = a \left(\frac{\sigma_w^2}{\sigma_w^2 + \sigma_u^2} \right) = a\theta \quad .$$

θ is the attenuation factor caused by measurement error in $W = w + u$.

Suppose we now observe the log wealth of a person with this rare surname in generation $j+1$. Assume their wealth is related to that of their parent through

$$w_{ij+1} = bw_{ij} + e_{ij+1} \quad .$$

In this case the connection between their wealth and any other person of their parent’s cohort (other than their own parent) will be

$$w_{ij+1} = b[aw_{kj} + e_{ik}] + e_{ij+1} \quad .$$

Because of measurement error, the expected value of the OLS estimate of ab will be

$$E(\widehat{ab}) = ab \left(\frac{\sigma_w^2}{\sigma_w^2 + \sigma_u^2} \right) = ab\theta$$

As long as the measurement error has the same variance across generations, the attenuation factor θ will be the same in this case as within a generation.

Now

$$E\left(\frac{\widehat{ab}}{\hat{a}}\right) = \frac{ab\theta}{a\theta} = b \quad .^{14}$$

Thus as long as the attenuating factors in estimating the connection between rare name cohorts remains the same we can actually get better estimates of the underlying b with families from these measures. When I employ this idea in chapter 4 for England 1858-2010 the implication is that rates of wealth mobility turn out to be

¹³ Here we normalize wealth to the average to get rid of the constant.

¹⁴ The only complication in this procedure is that it is derived assuming we do not include in the intergenerational regression parents and children. But in practice this is impossible to avoid.

lower than is generally estimated from parents to children. Yet because this mobility persists across generations, paradoxically mobility is much more complete than our ordinary intuitions allow.

Chapter 3: Common Surnames, England 1066-2010

Here I show that England in the years 1066-1650 showed surprisingly rapid and complete social mobility. The landholding medieval elite of 1250 was largely displaced from its place among the wealthy, in the universities, in the church and in Parliament by 1650. Those with very modest occupations at the time of formation of hereditary surnames for such groups, 1250-1350, such as *Shepherd*, had ascended fully in proportion to their share of the population into the upper reaches of society. We can also observe the descent fully into the criminal classes of the progeny of the elite and the middle classes in 1300. The implied rate of social mobility is as fast as for England 1300-1650 as in the years 1650-2010.

Common surnames in medieval England had at least six different origins, as shown in table 3.1. First are “locative” surnames, formed from the place – town, village, county – the bearer originated from, or had their estate in. In the medieval period they were typically preceded by “de”, though over time this was largely dropped. Thus “Roger de Pakenham” became “Roger Pakenham.” The next category are “toponymic” surnames, which refer to the location of the person’s house or farm within the community.¹⁵ Patronymic names were formed typically from the father’s name. A father called William could thus produce children with the surnames William, Williams, Williamson, Wilson, Wilkins, Wilkinson, Wilcocks, Wilcox: the latter being pet names for William. Nicknames were formed from personal characteristics of the person. Occupational names were formed from the occupation of the bearer, and were often initially preceded by “le.” Thus “Robert le Smith,” “John le Taylor.”¹⁶ Occupational surnames are the names that most directly convey the original social status of the founder of the line. Table 3.1 also shows the calculated frequency of surname types among taxpayers in 1327-1332, taxpayers being a relatively prosperous group.

¹⁵ In early years they were often preceded by the English “at” or “atte”, though this was later dropped or incorporated into the name. Thus “William atte Helle”, “Edward atte Grene.”

¹⁶ The occupations which gave rise to these names were typically those where there was only one such person in a village or settlement: thus Smith, Clerk, Shepherd, Cooper, Carter. Very few people were called “laborer” or “farmer” as their surname.

Table 3.1: Types of English Surnames

| Surname Type | Examples | Percent Taxpayers 1327-32 | Percent Population 1881 |
|-------------------------|-------------------------------|--|--|
| Locative | Walsham, Pakenham, Merton | 27 | 12.8 |
| Toponymic | Hill, Green, Wood, Lane | 13 | |
| Patronymic | Williamson, Wilson, Adams | 20 | |
| Nicknames | Brown, White, Little, Hardy | 19 | |
| Occupations | Smith, Taylor, Wright, Baxter | 10 | 9.9 |
| Other | - | 11 | |

Source: McKinley, 1990, 23; 1881 Census.

In medieval England there is a strong association between surname types and economic status. We get evidence on upper class surnames in the thirteenth century from such sources as the *Inquisitions post Mortem*. *Inquisitions post mortem* were inquiries at the death of feudal *tenant in chief* (direct tenants of the crown), to establish what lands were held, and who should succeed to them. The holders of these properties were typically members of the upper classes of medieval England. What is distinctive about their surnames is that they commonly had the locative form, where the surname itself referred to the place where they had their major residence. Table 3.2 shows the distribution of surname types for this wealthy group between 1236 and 1299. 1,598 of 2,138 named deceased – some were just referred to as Earl of Warwick and the like - had names of the explicit “de” form. Only 8 had lower class occupation surnames (Archer, 3, Fletcher, 1, Taylor, 4). Patronyms and toponyms were also very rare: 18 and 4 respectively of the 2,138.

Table 3.2: Surnames of the rich, 1236-1299

| Type of Surname | Subclass | Number | Percent of surnames |
|------------------------|-------------------|---------------|----------------------------|
| Locative | - | 1,598 | 74.7 |
| Toponymic | - | 4 | 0.2 |
| Patronymic | - | 18 | 0.8 |
| Nicknames | - | 44 | 2.1 |
| Occupations | higher status | 36 | 1.7 |
| Occupations | artisan and lower | 8 | 0.4 |
| Other/Unknown | - | 430 | 20.1 |
| No Surname | - | 159 | |
| | | | - |

Source: Public Record Office, 1904, 1906.

Table 3.3: Surnames 1381 Poll Tax, Suffolk

| Type of Surname | Number | Percent |
|--------------------------|---------------|----------------|
| Locative | 149 | 9.6 |
| Toponymic | 72 | 4.6 |
| Patronymic | 91 | 5.8 |
| Nicknames | 92 | 5.9 |
| Occupations –high status | 37 | 2.4 |
| Occupations – artisans | 233 | 14.9 |
| Other/Unknown | 886 | 56.8 |
| All | 1,560 | 100 |

Source: Fenwick, 2001.

The first source we get of all surnames for England comes from the 1379-81 Poll Tax returns. These taxes, levied to support the wars of King Richard II in France and Scotland, were assessed on the entire adult population (except clerics) regardless of income or status. A still incomplete analysis of the 1381 returns for Suffolk suggests the name type distribution shown in table 4. The problem here is that more than half of the surnames are of unknown origin (at the moment). But the share of lower class occupational surnames is still 15 percent, radically higher than for the rich of the IPM. The share of locative surnames is less than 10 percent, though this might be increased once the unknown names are added. Thus we can see the clear class distinction in early English surnames between the rich and the average person.

Even though the 1381 tax was fixed at 12d per head, and always 12d per person is accounted for in the returns, the individual amounts assessed per person in the village often varied from the 12d. A minority paid significantly more or less: 571 out of 1,470 payers where the assessment was given. It is clear that the actual payments were based on wealth. Thus for 1381 we have measures both of the general surname distribution, and also of the association with status.

Of the 60 taxpayers who paid 24d per head or more for their households, only one had an artisan surname (Skynner), and only one a patronym (Gerard). Nine had locative surnames beginning with the “de.” In contrast among the rest of the assessed, 12 percent had artisan surnames (including shepherd and carter). This meant that of 221 lower level artisan surnames with assessed tax listed, only 1 was among the richest tax payers. If artisan names were evenly distributed across wealth we would expect 9 such surnames among the wealthy. Similarly of 144 persons with locative surnames, 15 were among the top 60 tax payers (as compared to an expected 6). Thus still in 1381 there was a class distinction in surname types.

There are various sources that give the names of the English elite in the late middle ages and later. Alfred Emden, for example, published a complete listing of all known members of Oxford university for the years 1180-1540 (Emden, 1957, 1974).¹⁷ From 1180 to 1499 this records 14,654 faculty and students. The overwhelming majority of these university members, even from the earliest years, had surnames.

¹⁷ Emden published similar volumes for Cambridge University also.

Figure 3.1: Artisan Names among Members of Oxford University, 1180-1499

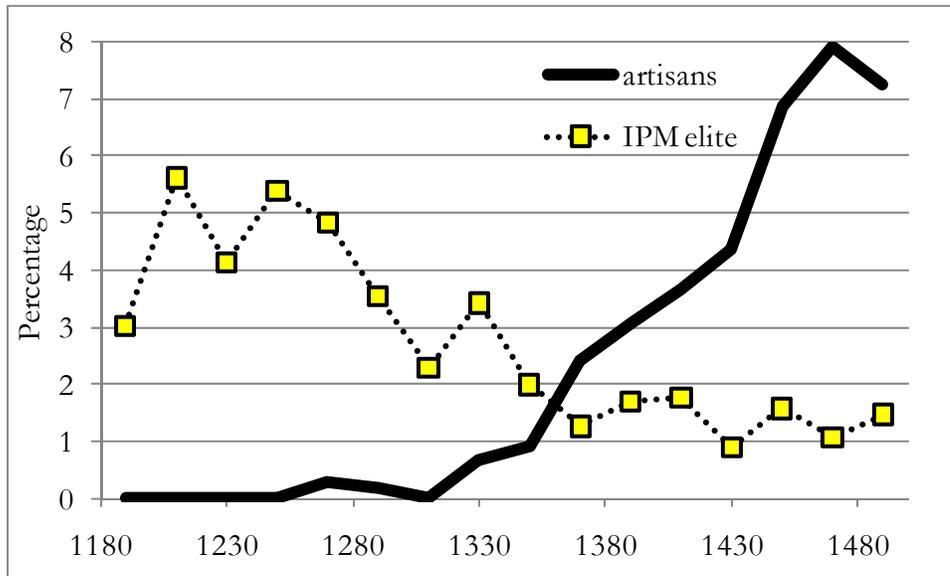


Figure 3.1 shows the percentage of university members, by the year of their first appearance in the record, who had artisan surnames. There is a clear and sharp rise in such members from 0 percent before 1260 to over 7 percent by the 1440-59 interval. Thus by the 1450s the share of those of artisan origin attending Oxford university is close to the estimated share of those of artisan origin surnames in the general population in later years. Oxford by the thirteenth century was a prestigious and well known center of learning, and a vehicle for access to the upper levels of the medieval church. Also shown in the figure are the percentage of students and faculty with surnames the same as a 10 percent sample of the medieval elite identified in table 3.2. In the thirteenth century these elite names constituted 4.7 percent of university members, implying that the whole of the elite identified in the Inquisitions Post Mortem could have been as much as 47 percent of the members of Oxford then. But with the arrival of the descendants of artisans, by the fifteenth century members bearing such names from the 10 percent sample had fallen to 1.3 percent of Oxford members. This as we shall see was still well above the likely share of such names in the population in these years, but there is a clear displacement of the original upper class.

Another source for the diffusion of artisan names into the upper classes, is the records of the Exchequer and Prerogative courts of the archdiocese of York in the north of England from 1267 to 1501. Until 1858 church courts were where wills were proved in England. There was a hierarchy of such courts, beginning with archdeaconry courts, then bishop's courts, then the archbishop's courts of York and Canterbury. The appropriate court for filing for probate of a will was theoretically determined by where the real property of the deceased lay. If it was in more than one bishopric then it should be filed in the Archbishopric Courts. So the archbishopric courts dealt with the elite amongst property owners. The Exchequer court dealt with people lower down in the social scale – such as clergy without benefices (endowed positions).

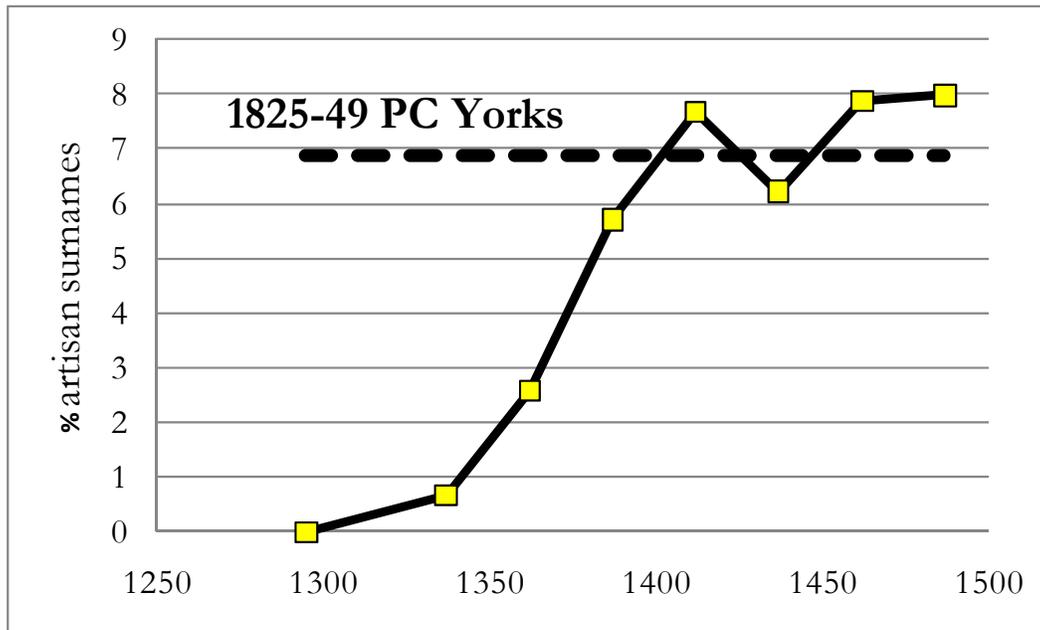
Figure 3.2 shows the percentage of testators in these courts with artisan names. To establish a baseline, the percentage in the Prerogative Court of York with such names is shown for 1825-49. Interestingly by 1400-24 the share of testators in these courts with artisan surnames had already risen to that of the general population. Social mobility again seems rapid in the late middle ages.

We also have available an index of surviving wills filed in the Prerogative Court of Canterbury (PCC) 1384-1858. Canterbury was the most important of the ecclesiastical courts that probated wills, dealing with relatively wealthy individuals living mainly in the south of England, and Wales.

More than 1 million of these wills survive, with Table 3.4 showing the frequency in terms of distribution by century. Normalizing by the number of adult deaths per year gives an impression, in the last column, of the share of the population they covered. By the eighteenth century 4 percent of those dying in England and Wales would leave wills probated in the Canterbury court. Allowing for those dying intestate, and the fact that will makers were more likely male, represented perhaps the top 10 percent of wealth distribution. In earlier years PCC wills represented a much smaller fraction of deaths, so they may represent a smaller share at the top of the wealth distribution.¹⁸

¹⁸ One problem is that Prerogative Court of Canterbury wills include anyone in England dying abroad, which would include numbers of relatively poor sailors and soldiers from the outposts of the British Empire. Where possible mariners dying abroad were excluded from the counts.

Figure 3.2: Artisan Names in the York Courts Wills



Source: Index of the Exchequer and Prerogative Courts of York, Borthwick Institute, York.

Table 3.4: Distribution of Prerogative Court of Canterbury Wills

| Century | PCC wills | Population (millions) | Wills/year/death |
|---------|-----------|--------------------------|------------------|
| 1384-99 | 87 | 2.5 | .0002 |
| 1400-99 | 5,915 | 2.3 | .002 |
| 1500-99 | 45,555 | 3.3 | .010 |
| 1600-99 | 218,624 | 5.2 | .029 |
| 1700-99 | 361,827 | 6.7 | .040 |
| 1800-58 | 384,119 | 14.6 | .036 |

Source: *Index to the Prerogative Court of Canterbury Wills.*

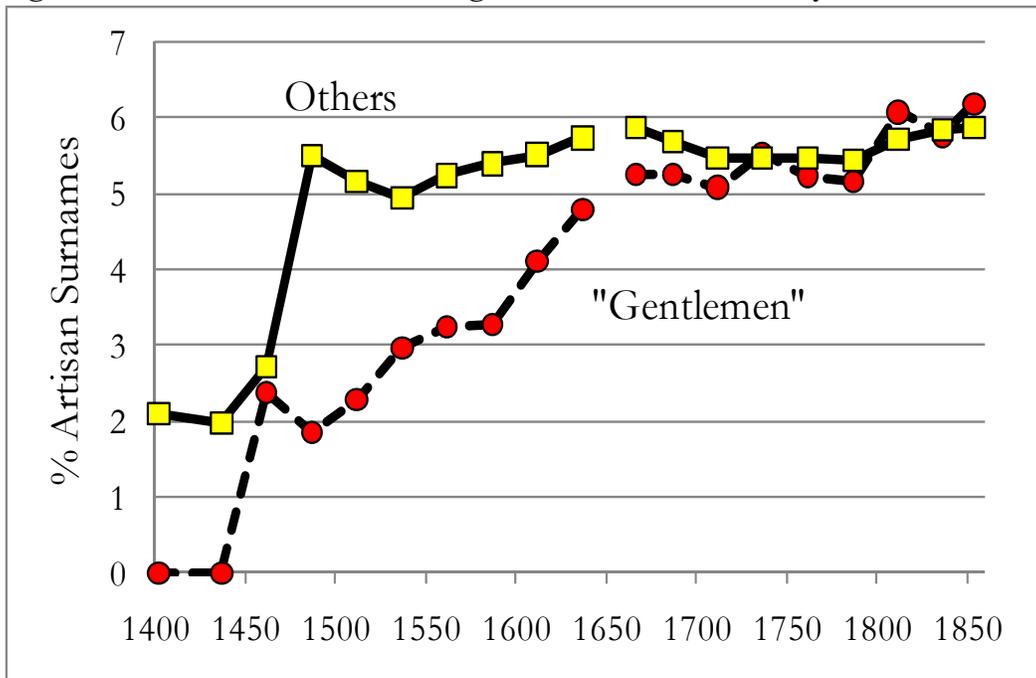
Over time, particularly over the years 1400-1500, the distribution of names in the Prerogative Court of Canterbury wills changed markedly. Names associated with lower class origins were not found in any PCC wills before 1400, but by 1500 they had risen to what was likely close to the shares of these names in the general population. Figure 3.3 shows this process for a sample of names associated with artisans such as smith, tailor, baker, butcher, cook, wright. There was a rapid increase in the share of these names among PCC wills in the fifteenth century, followed by a rough constancy of shares thereafter. Thus it took only about 150-250 years, 4-7 generations, for the descendants of the original modest artisans to be absorbed completely representatively into the wealthier groups in England.

We can get an even finer slice of the rich from the PCC wills by focusing on those labeled with “gentleman,” “sir,” “lord” and other such honorifics. This came to stabilize at about 16 percent of all those leaving PCC wills by 1550 and later.¹⁹ These individuals represented the richest of the PCC testators, and thus typically the top 1% or less of the wealth distribution of England. Figure 3.3 also shows the fraction of all “gentleman” testators with lower artisan surnames. Again there is convergence of a stable share of such surnames, though the convergence takes much longer and is not complete until after the 1660s. This implies that in the course of 260 years the artisan class of the middle ages moves from the lower end of the income distribution to being fully represented among the richest in the society. There is complete long run mobility.

These sources together suggest that late medieval England was a world of remarkable social mobility. By 1500 much of the upper reaches of society, though not the very top, had been fully entered by the members of the artisan class of around 1300.

¹⁹ Earlier most wills have no indication of the occupation or status of the testator.

Figure 3.3: Artisan Names in Prerogative Court of Canterbury Wills

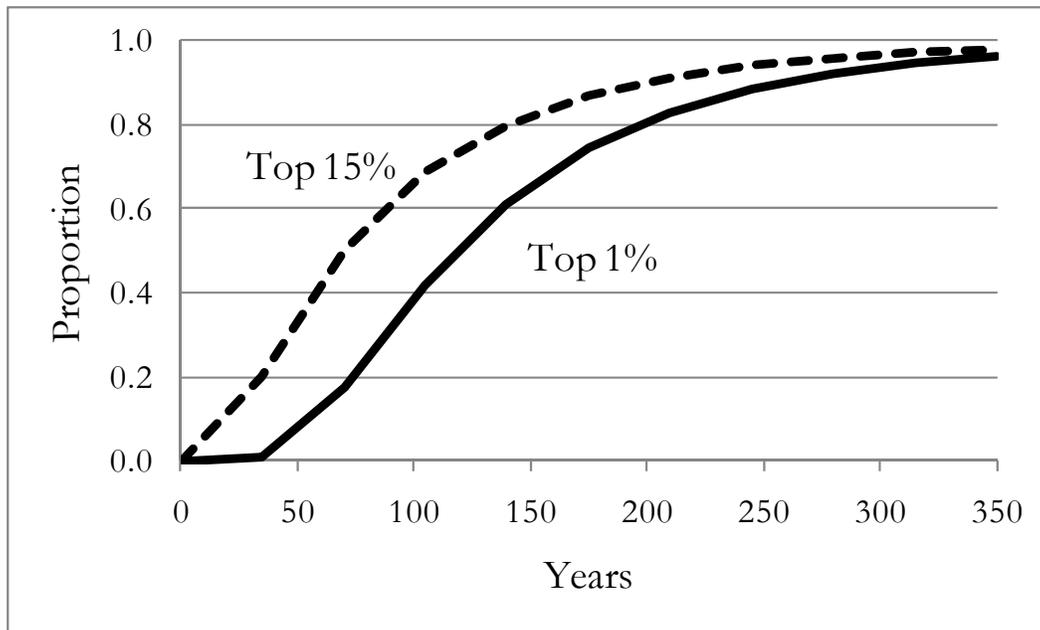


Source: *Index to the Prerogative Court of Canterbury Wills.*

Notes: This graph is drawn for a subset of all artisan surnames.

Though there is complete mobility, how fast was it? The speed of this observed social mobility in the medieval period depends on when inherited surnames amongst the lower classes first widely appeared. If that was by 1200 then it would have taken 350 years for regression to the mean to have worked its magic. If it was 1350 then the process took only 200-250 years to near completion, which is six or seven generations. Judging whether surnames were inherited, or were merely temporary by-names, is difficult, however, from the existing tax and court lists of the medieval period. In 1381 occupational surnames still correlated with actual occupations. Vastly more than a chance number of people worked in the occupation that would be implied by their surname. Of 35 carpenters, for example, 7 bore the name “wright.” If surnames by then had become completely hereditary, then either they were formed within a very few generations of 1381, or there was strong intergenerational persistence of occupations.

Figure 3.2: Simulated share of artisans at the top of the wealth distribution if they started at the 33rd percentile.



Note: A generation is assumed to be 35 years.

How strong is the regression to the mean compared to that of modern times? What is the implied b ? We can try and estimate that, as is done below, by looking at the connection between the wealth of rare surname cohorts. That suggests a value for b of 0.6-0.7 for the years 1750-1900. Suppose that b was 0.7 also in 1400. Later data from wills suggests that the average artisan in England in the 1620s would on average have a wealth that placed them one third the way up the wealth distribution. Figure 3.2 shows the proportionate representation, relative to their frequency in the general population, of artisan descendants in the top 15% and top 1% of the wealth distribution over each generation.²⁰ This suggests that it would take about 6 generations for artisans to become close to proportionately represented among the

²⁰ In this simulation a crucial element is the variance of the shocks to wealth in each generation. This is determined through the formula

$$var(y) = \frac{\sigma_u^2}{1 - \beta^2}$$

The variance of $\ln(\text{wealth})$, y , was estimated from the wealth of testators in the 1620s and 1630s.

top 15% of the wealth distribution (meaning having at least 90% of their numbers compared from the expected share in the population), and 8 generations to achieve such representation in the top 1% of wealth. Thus the diffusion of artisan surnames into the upper classes is at a pace that is compatible with (as we shall see) a degree of regression towards the mean that would be the same or little higher than that of modern England.

The 1381 data suggests that at this date surnames carried significant information about the economic status of the bearers. It is puzzling, however, that the frequency of occupational surnames is greater than in later populations, even populations as early as 1600. Table 6 thus shows the frequency of a group of common artisanal surnames in Suffolk in 1381. In comparison it shows these surname frequency in three samples of names in the 1850s: the PCC wills, the accused at the Old Bailey criminal court in London, and the population at large. Somehow the share of artisanal names declined over time.²¹ I posit an explanation of this decline below, but since we do not know when this decline occurred, it implies that it is possible that there had not been complete convergence towards the mean by 1600 by those with artisanal surnames.

However, I can check this by using measures of name frequency at the very lowest end of the income/status spectrum for these years, which were the surnames of laborers who also were criminals, typically petty criminals. These are derived from the assize indictments of Essex for the years 1559-1625, which yields 2,153 male surnames for laborers: the majority of the indicted were “laborers”. As table 3.5 reveals, leaving aside the “smiths”, the percentage of those with artisan names among this group was only modestly higher than for the PCC will makers: 4.2 percent versus 3.9 percent. Regression to the mean was largely complete by 1600, in the sense that those with artisan forbears had diffused almost equally into the top and the bottom rungs of the society.

The upward mobility of the artisan surnames implies equivalent downward mobility of the names associated with the upper classes in the middle ages, and also of their descendants. Since the upper classes were typically named after their main

²¹ The large share of the name “smith” among the accused in the Old Bailey records seems to come from the accused giving false names. Also in the criminal records circa 1600 “smith” is surprisingly common.

Table 3.5: Surname Type Frequencies

| Group | Number | Percent “Smith” | Percent Other Artisan Names |
|-----------------------------------|---------------|----------------------------|--|
| Suffolk, 1381, Poll Tax | 1,560 | 1.6 | 9.2 |
| England, all, 1853 | - | 1.4 | 3.8 |
| PCC wills, 1850-8 | 66,807 | 1.3 | 4.0 |
| London, indicted, 1850-9 | 15,705 | 3.0 ^a | 4.1 |
| PCC wills, 1600-24 | 31,690 | 1.2 | 3.9 |
| Indicted Laborers, Essex, 1559-99 | 1,262 | 1.7 ^a | 4.1 |
| Indicted Laborers, Essex, 1600-25 | 891 | 2.2 ^a | 4.4 |

Notes: ^aThe share of “smiths” among the indicted is always unexpectedly high, presumably because some criminals use alias’s, and in doing so choose the most common name. This table is drawn using a smaller set of artisan surnames than in figures 4 and 6.

Sources: Fenwick, 2001, Annual Report of the Registrar General, 1856, *Index to the Prerogatory Court of Canterbury Wills*, *The Proceedings of the Old Bailey*, Cockburn, 1978, 1982.

place of residence we do not, however, expect there to be a high frequency of any particular upper class name. They all started out as relatively rare names. We thus have to form a pool of these names and, see what happens to its frequency over time.

With rarer names there is a problem of their mutation over time. Since they are not anchored to a well known form, like “smith”, they can and will mutate, especially for names of foreign origin if their original meaning and significance is lost. Thus in

forming a 10 percent sample of the upper class names of 1236-1299 from the *Inquisitiones Post Mortem* I have deliberately favored those names that correspond to places in England since this will tend to anchor the form of the name over time. Names in this sample included Baskerville, Berkeley, Beaumont, Essex, Hilton, Lancaster, Maundeville (Mandeville), Neville, Normanville, Percy, Somerville, Wake.

Table 3.6 shows the frequency of these surnames in the PCC from 1380 to 1858 compared to the frequency of these names in the general population. The frequency of names in the general population is estimated in 1381 from the Poll Tax. In 1500-1858 it is estimated from name frequencies in Boyd's marriage index 1538-1840. The surnames of the medieval elite are initially heavily overrepresented in the PCC wills, but relative to their frequency in the general population the overrepresentation declines steadily over time. Interestingly nearly six hundred years after the identification of this group of names with the rich it is still the case that the bearers, 16 generations later, were better represented among the rich than among those accused of crimes. By 1800-58 it is still there, but is only 4%. Thus the tale of the Stanley's discussed in the introduction turns out to be an exception. The medieval elites are not able to maintain their position among the rich over time. Regression to the mean takes its toll. The Beckerian vision of the profound equality of societies once a long enough time interval is considered is once again vindicated.

We can also look at the descent of the descendants of the medieval elite into the criminal underclass. Table 3.7 shows the relative frequencies of the 10% sample of the surnames of this elite among both the accused at the Old Bailey in London, and among victims named in the Old Bailey Records. Those with elite surnames are always less likely to be accused than to be victims, but the differential is greatest in the earliest period 1600-99. Figure 3.5 shows these converging name frequency trends for this elite in the tops and bottom of the socio-economic distribution over time.

Table 3.6: Surname Frequencies of the Medieval Upper Class

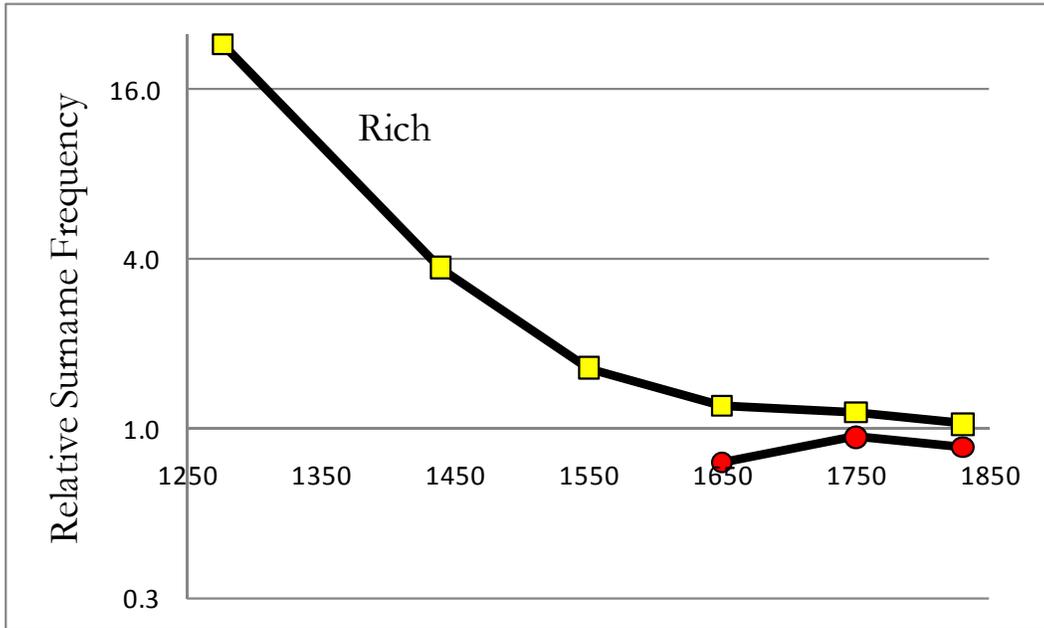
| Period | Share Wealthy (%) | Share All (%) | Relative Frequency Wealthy |
|---------------|------------------------------|--------------------------|---|
| 1236-99 | 10.43 | (0.45) | 23.23 |
| 1380-1499 | 1.67 | 0.45 | 3.73 |
| 1500-99 | 0.90 | 0.55 | 1.64 |
| 1600-99 | 0.69 | 0.57 | 1.21 |
| 1700-99 | 0.67 | 0.58 | 1.15 |
| 1800-58 | 0.61 | 0.59 | 1.04 |

Note: Set of wealthy defined 1236-99 as those with Inquisition Post Mortem, and 1380-1858 as those with a PCC will.

Table 3.7: Medieval Upper Class in Old Bailey Records

| Period | Share Accused (%) | Share Victims (%) | Relative Frequency Wealthy among accused |
|---------------|------------------------------|------------------------------|---|
| 1600-99 | 0.68 | 0.90 | 0.75 |
| 1700-99 | 0.61 | 0.66 | 0.93 |
| 1800-58 | 0.47 | 0.55 | 0.86 |

Figure 3.3: Relative Frequency of the Surnames of the Medieval Elite among the Rich and among Criminals, 1236-1858



Note: The vertical axis has a logarithmic scale. The upper line is the relative frequency of the surnames of the medieval elite among the wealthy compared to their general population frequency. The lower line is the relative frequency of the surnames of the medieval elite in the accused of the Old Bailey compared to crime victims. The population frequency of the medieval elite's surnames in 1236-99 is assumed the same as in 1380-1499.

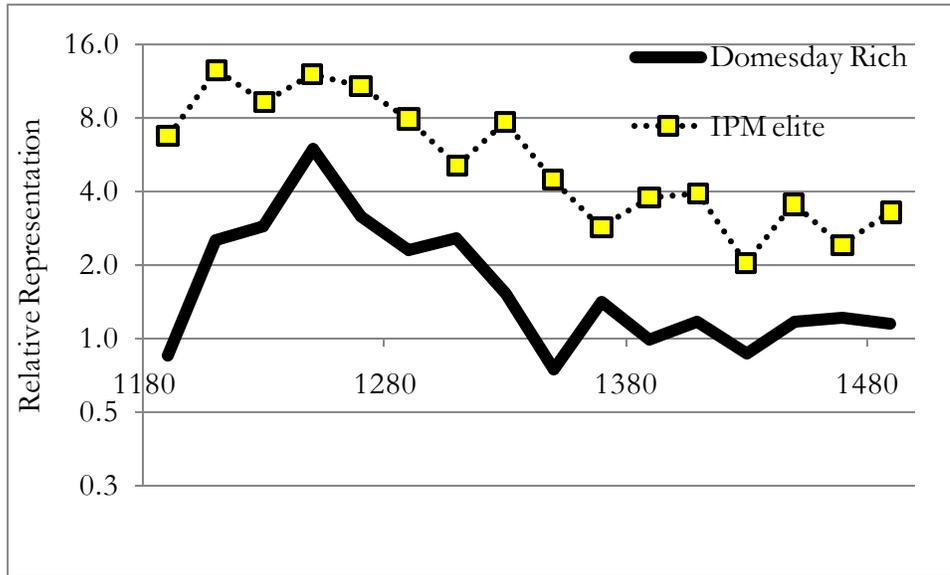
Sources: *Index to the Prerogatory Court of Canterbury Wills. The Proceedings of the Old Bailey.* Fenwick (2001). Public Record Office (1904, 1906).

The Norman Conquerors of 1066

We can even push back the study of mobility in medieval England to 1066 using surnames. In particular the Domesday book of 1086, and associated charters and other documents, allows us to identify a subset of English names which are of Norman origin only, and which were held by the new ruling class installed by William I (Keats-Rohan, 1999). These names include such well known English names as Balliol, Baskerville, Darcy, Glanville, Lacy, Mandeville, Percy, Sinclair, and Venables. Most of these names were drawn from the home village of a member of William's invasion force in Normandy, Brittany or Flanders. Thus Baskerville is from the village of Bacqueville in Normandy, Venables from Venables, Ivry from Ivry-la-Bataille. As the ruling class imposed by force in 1066, how quickly was this group assimilated into the general population in medieval England?

A group of 236 names of this form was compiled. The frequency of these names in the later medieval population (1368-1449) was estimated at 0.9 percent based on a sample of enrollment lists for English armies and garrisons. What was the relative representation of this conquering elite at Oxford university by the thirteenth century, assuming their name share in the general population was 0.9 percent? Figure 3.4 shows this by 20 year periods from 1180. In the thirteenth century these surnames were on average three times as frequent at the university as in the general population. However, their representation fell rapidly in the fourteenth century, so that by the late fourteenth century these names were only about 10 percent more common at the university than in the general population. This would seemingly imply that the Domesday elite of 1086 had by 1350, less than 300 years later, descended in status on average to the level of the general population. But we shall see that there is contradictory evidence in this case. Among the fighting elite of 1368-1449 the names of these original Norman warriors continue to be greatly overrepresented.

Figure 3.4: The Domesday Elite at Oxford, 1180-1499



Common English surnames thus largely lost any association with social status by 1600. However, the nineteenth century saw substantial migration into England, principally by the Irish. By 1841 there were 289,000 people of Irish birth living in England. Many Irish surnames, particularly those of Gaelic origin, are quite distinct from those of England. Table 3.8 also shows the share of defendants and victims in the Old Bailey in London in 1830-1859 with such Irish surnames. For comparison the same percentages are shown for English artisan surnames (except for the surname “smith”, for the reasons discussed above), as well as for the distinctive surnames of Scottish immigrants. Also shown is the share of PCC wills made by people with these artisan or Irish surnames resident in London or Middlesex in 1850-8. The later date for the wills was adopted because the Irish population would have been relatively young and growing over time.²²

²² The percent of victims and defendants with names of distinctively Scottish origin is included as another control. If the low ratio of victims to accused for the Irish was a consequence of their immigrant population having a skewed age structure then we would expect that other recent immigrant groups such as the Scots would show a similar pattern.

Table 3.8: Immigrant Group Surnames in London, 1830-59

| Surname Group | PCC wills (%) | Old Bailey Victims (%) | Old Bailey Accused (%) |
|----------------------|--------------------------|---------------------------------------|---------------------------------------|
| Artisans | 3.82 ^a | 3.90 | 4.25 |
| Irish | 0.67 ^a | 1.18 | 3.69 |
| Scottish | - | 2.04 | 2.01 |

Note: ^aThe PCC will shares here are for London and Middlesex in the years 1850-8, to partially control for the youth of the Irish immigrant population compared to the general population, and its concentration in urban locations.

Source: *Index to the Prerogatory Court of Canterbury Wills. The Proceedings of the Old Bailey*

For native artisan names, the share of will makers, victims and defendants is very similar. The bearers of artisan surnames are spread evenly from top to bottom of the social hierarchy. However, the bearers of Irish surnames are heavily concentrated at the bottom of the social ladder. They are three times as likely to be the defendant in a criminal trial, than the victim of a crime. They are also between 5 and 6 times as likely to be a criminal defendant, than to make a will proved in the high status Canterbury Court. Thus we can potentially use such immigrant groups to measure, using common names, the rate of upward mobility in the years 1800 and later. In the 150 years between 1850 and 2009 have the Irish achieved complete upward mobility within English society?²³

²³ This test is complicated by continuing Irish immigration into England between 1850 and 2009, but a large share of the modern stock of people with distinctively Irish surnames in England in 2009 would have ancestors who arrived before 1914.

Social Mobility 1560-2010: Rare Surnames

After 1600 common surnames lose most of their information on status, because of the complete mobility demonstrated by medieval English society. We can, however, use rare surnames from 1560 onwards to continue to trace long run social and economic mobility in England. What we can do is find for given periods in the past rare surnames whose holders were then on average wealthy, and rare surnames whose holders were then on average poor. We can then follow the descendants of these groups over many generations. What we shall observe in England through the years 1560-2010 is that there is steady convergence to the social mean by the descendants of any such original groups of wealthy and poor. England continued after 1600 to be a society of complete long run mobility, for the indigenous population and for immigrants from Europe. However, there are signs that the rate of social mobility was no faster in the modern period compared to the years before 1600.

Rich vs Poor 1858-2010

I formed two samples of people with rare surnames for the period 1858-87, 1858 being the beginning of the period of a universal probate registry in England and Wales. A rare surname was taken as one held by 40 or fewer people in 1881. The rich group was a group of people where a member was probated in 1858-61, and the average estate value of those probated in 1858-87 was £8,000 or more. The poor group was one where a member of the group was identified as a criminal defendant in 1858-61, or as a pauper in 1861, and in addition no-one of that surname had a probated estate of £2,000 or more in 1858-87. Table 4.1 shows the characteristics of these two artificially declined classes for the initial generation, 1858-87. Also shown are the characteristics of the general population in the same period. Rare surnames included a mix of those of foreign origin (Bazalgette, Angerstein), unusual surnames present in England from the earliest times (Blacksmith, Binford), and unusual spellings of otherwise common names (Apletree).

Table 4.1: Rich and Poor with Rare Surnames, 1858-61

| Sample | Number of Surnames | Adults Dying 1858-87 | Percent Probated 1858-87 | Average Estate Value of those Probated (£) | Average Estate Value of all (£) |
|-----------------------|-----------------------------------|-------------------------------------|---|---|--|
| Rich | 28 | 197 | 61.5 | 44,822 | 27,566 |
| Poor | 33 | 225 | 9.9 | 416 | 41 |
| General Population | - | - | 16.9 | 6,105 | 1,032 |

Note: The average estate value of all adults is estimated here assuming those not probated have 0 wealth.

Even among the rich group only 61 percent of adult men were probated.²⁴ Estates not probated were likely small. Part of the evidence for this is that a check with the 1861 census listing of occupations shows that in 1862 only 2% of male laborers dying had probated estates at death, compared to 61% of male professionals.²⁵ Among the poor surnames sample only 10 percent of men were probated, compared to 17 percent in the general population. Taking every adult with the surname who died in this interval and was not probated as having an estate of value £0, the average wealth at death of the rich surnames 1858-87 was £27,566 compared with £41 for the poor surnames, and £1,032 for the general population.

²⁴ I use the share of men probated since in earlier years married women did not usually leave wills, their property automatically belonging to their husband's, and even after this ended in 1882 a larger fraction of men left wills still.

²⁵ I have not yet been able to determine the legal limit for estates to escape the requirement of probate. In the records estates of value as low as £5 were probated. But the 1857 Probate Act contains no mention of a legally set lower limit for probate being required (Jebb, 1858). Currently in the England estates of total value less than £5,000 need not be probated, while the average estate has a net value in excess of £200,000.

We can trace the fortunes of these two groups from 1858 to 2010 in a number of ways. Life expectancy in England, for example, has since at least the nineteenth century been dependent on socio-economic status. Thus in 2002-5 life expectancy for professionals in England and Wales was 82.5 years. For unskilled manual workers it was only 75.4. For England 1837-2005 we have a register of all deaths, with age at death given for deaths 1867 and later.²⁶

Figure 4.1 shows the average age of death of members of both groups by generation, where a generation is taken as 30 years. Thus the generations are 1858 (1858-87), 1888 (1888-1917), 1918 (1918-1947), 1948 (1948-1977), and 1978 (1978-2005). In the first generation there is an extreme difference in average age at death: 54 for the rich, 31 for the poor. Also shown is the average age at death of all those with surname "Baker" in the same interval, 31. But over time, for the descendants of the original generation, that difference declines, and by the fifth generation age at death for both groups is indistinguishable from the general population. By inference the economic status of the two groups has by then equalized.

The reason for the extreme difference in life expectancy in the first generation is actually that the poor surname group has a much higher fertility, resulting in many more infant and child deaths. Thus in 1858-87 51 percent of the poor died age 21 and above, compared to 61 percent for the rich group.

However, as figure 4.2 shows, there were important demographic differences between these two groups. Looking just at those dying at age 21 and above the relative number of adults dying in each generation rose by 70 percent from 1858-87 to 1978-2005 in the poor group relative to the rich. The poor group had significantly higher fertility. Since this would affect the measured average age at death, to partially control for this figure 4.3 measures just the average age at death of those dying aged 21 and above. The differences in average age at death is now less dramatic, but shows the same pattern of an initial sharp difference, followed by convergence in 4 generations. This data seems to suggest that England in 1858-2005 was still, for the indigenous population and European immigrants, a society of generalized regression

²⁶ We can infer age at death for the years 1858-1666 for holders of rare names from the censuses of 1851 and 1861, and from the birth register.

Figure 4.1: Average Age at Death by Generation, 1858-2005, Rich vs. Poor

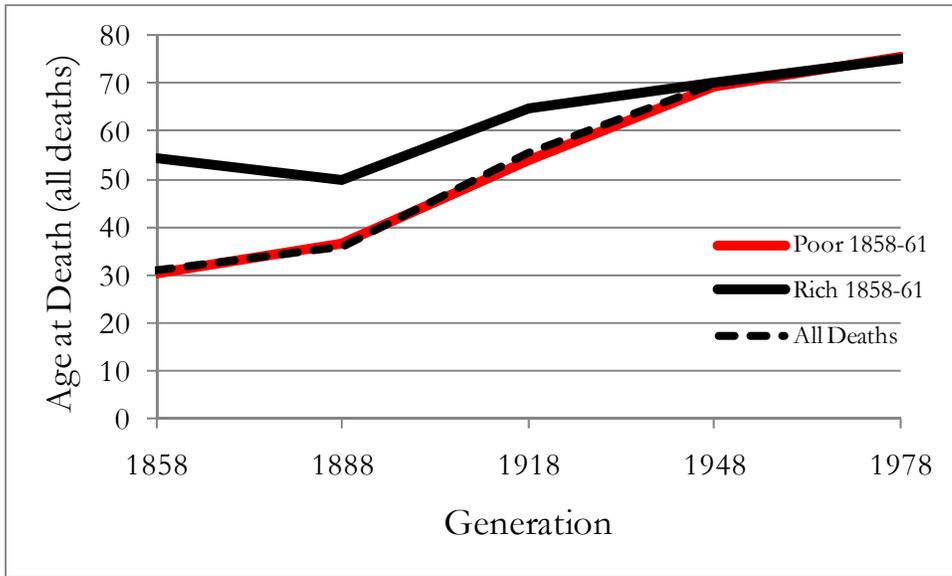


Figure 4.2: Relative Numbers by Generation, 1858-2005, Rich vs. Poor

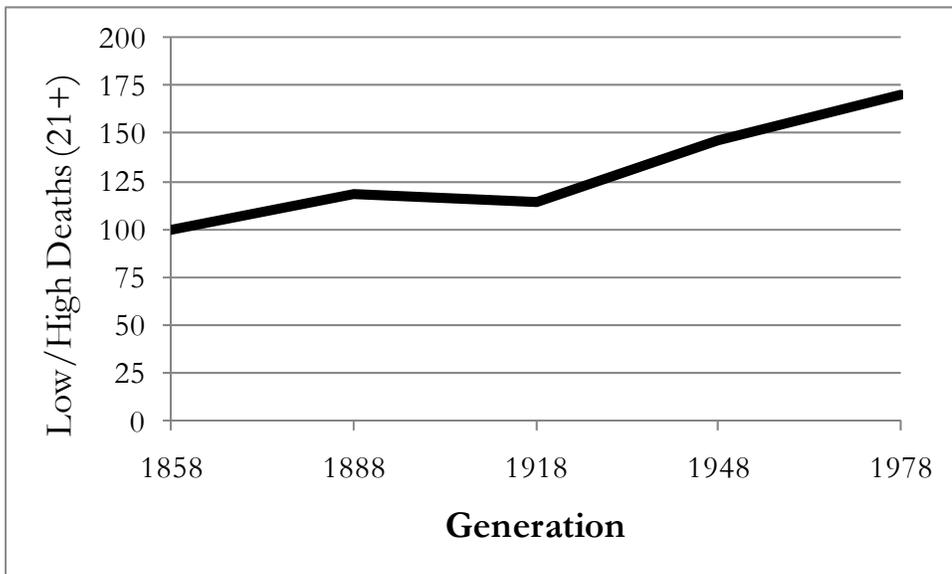
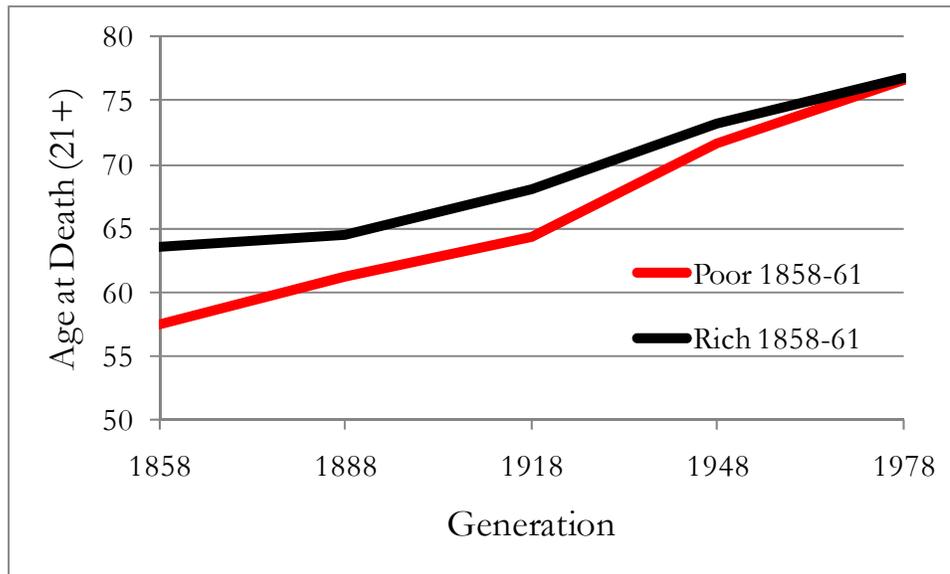


Figure 4.3: Average Age at Death of Adults by Generation, 1858-2005, Rich vs. Indicted



to the mean, with no permanent class structure. The age at death data also suggests relatively rapid social mobility.

When we turn to the information on wealth at death, there is again clear regression to the mean. Wealth, however, seems potentially more persistent than average age at death, though it is too early to tell for sure. The first way we can look at this is just by calculating the average of \ln wealth for each generation for the rich and poor surnames, counting those who died without probate as having some minimal assumed wealth. At the moment I only have the probate values for this group for the years 1858-1941, so that we can only project the likely convergence in mean \ln wealth in later generations.²⁷ Table 4.2 shows the elements of this calculation, for the case that I assume for the missing a wealth of £1, and where I assume a wealth of £50. As can be seen from 1858-1941 the share of the rich group

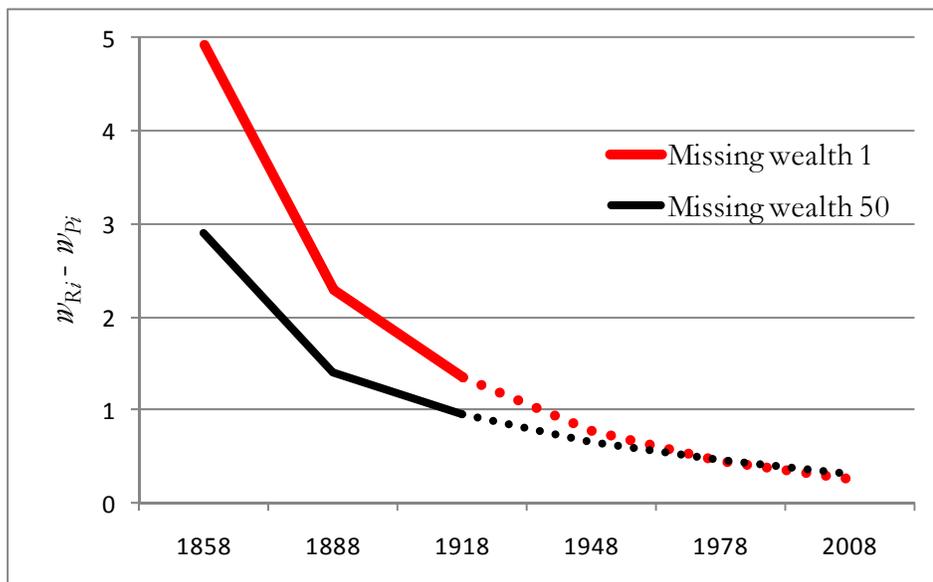
²⁷ The probate values are available 1942-2010, but only from the office of the Principle Probate Registry in London.

Table 4.2: Rich and Poor with Rare Surnames, 1858-2007

| Period | Poor | Poor | Rich | Rich | Wealth | Wealth |
|-----------|---------------------------|------------------|---------------------------|------------------|---|--|
| | Ave Ln Wealth Prob. | Percent Prob. | Ave Ln Wealth Prob. | Percent Prob. | Difference (ln) (missing = £1) | Difference (ln) (missing = £50) |
| 1858-1887 | 5.50 | 9.9 | 8.89 | 61.5 | 4.92 | 2.90 |
| 1888-1917 | 5.46 | 14.1 | 8.27 | 37.1 | 2.30 | 1.40 |
| 1918-1947 | 6.28 | 18.5 | 8.87 | 28.2 | 1.34 | 0.96 |
| 1948-1977 | - | - | - | - | (0.78) | (0.66) |
| 1978-2007 | - | - | - | - | (0.46) | (0.45) |
| 2008-2037 | - | - | - | - | (0.27) | (0.31) |

Notes: (..) indicates projected wealth differences.

Figure 4.4: Average Ln Wealth difference of Rich and Poor by Generation



probated drops, and that of the poor group rises, a sign of their convergence in average wealth.

If we define w_{Ri} and w_{Pi} as the average of ln wealth for generation i for the rich and poor groups, then the persistence of wealth is measured by b , where

$$w_{Ri+1} - w_{Pi+1} = b(w_{Ri} - w_{Pi})$$

The last two columns show $(w_{Ri} - w_{Pi})$ under both assumptions about the wealth of those not probated. The b implied for the first period is 0.47 if those not probated are assumed to have £1 of wealth, and 0.48 if they are assumed to have £50. However this b will be biased downwards by the tendency of the rich in the first period to have a positive measurement error, and those of the poor to have a negative error (the two groups were chosen based on their first period wealth). The b observed in the transition from period 2 to 3 should, however, be an unbiased b . This ranges from 0.58-0.69 depending on the assumption about the missing probates. The rest of these last two columns shows the implied difference in average ln wealth between the two groups if we project forward to 2008-2037 based on these b s. The projection (which we can check with the actual data) is that by 2008-37 there will still be a 30-37 percent advantage in average wealth by the rich surname group. Thus the bulk of the wealth difference, even between these groups at the extremes of the wealth distribution will be eroded in the course of 5 generations.

What the data implies is thus somewhat paradoxical. On the one hand the Beckerian vision of ultimate regression to the social mean seems to apply to modern England as well as late medieval England. In the long run no social class is able to stop from regressing to the mean. And the poor similarly regress upwards. However, the estimated persistence of wealth is higher than in most modern studies, and much higher than Becker and Thomes (1989) assumed. A b of 0.65 or thereabouts would imply much more persistence of wealth between children and parents in modern Britain than is generally assumed. We shall see indeed that this number is as high as the b we can estimate for England in the years 1550-1800

For a broader sample of 283 rare surnames that included the rich in the above test, also an intermediate group of moderately prosperous surnames, but not the poor, the data has been collected for average wealth at death also in 1996-2010. In

Table 4.3: Estimated b Coefficient Linking Ln Wealth by same Rare Surname

| | 1858-79 | 1888-1909 | 1996-2010 |
|-----------|-------------------|-------------------|------------------|
| 1858-79 | 0.334** (.059) | 0.232** (.041) | 0.039 (.032) |
| 1888-1909 | - | 0.184** (.047) | -0.006 (.032) |
| 1996-2010 | - | - | 0.132* (.049) |

Notes: Standard errors in parentheses. ** significant at 1% level, * significant at the 5% level.

analyzing this data, however, I chose to just ignore the deaths which did not result in a probate and look at average wealth for those probated, and at the correlations between such average wealth over time. Table 4.3 shows the average b estimated within and between each of three periods - 1858-79, 1888-1909, and 1996-2010 – when regressing the ln wealth of one surname holder on other holders of the same surnames in 1858-79, 1888-1909, and 1996-2010. These b 's are much lower than those we estimated from the convergence of the rich and poor surname groups above. This is because what these b s estimate is the connection, for example, of the wealth of each person with the name “Binford” in this generation to each person with that same surname in the previous generation, who may or may not be related to them in any close way. However, two things stand out. The first is that by the time we get to the 4.5th generation in 1996-2010 there is no correlation with the first generation in wealth. The second is that, as discussed in chapter 2, if we assume a

Figure 4.5: Estimated b coefficients for people of same rare surname between 1858-79 and later generations.

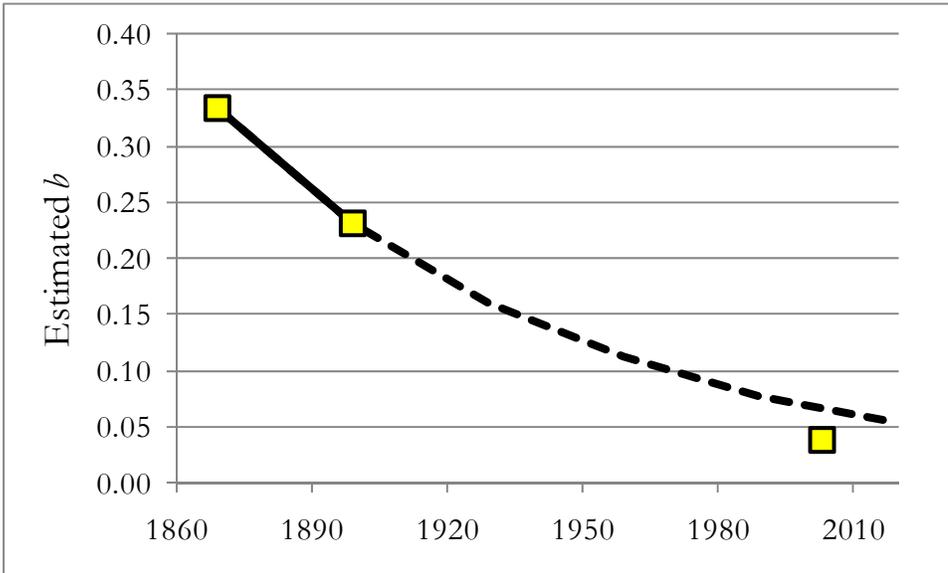
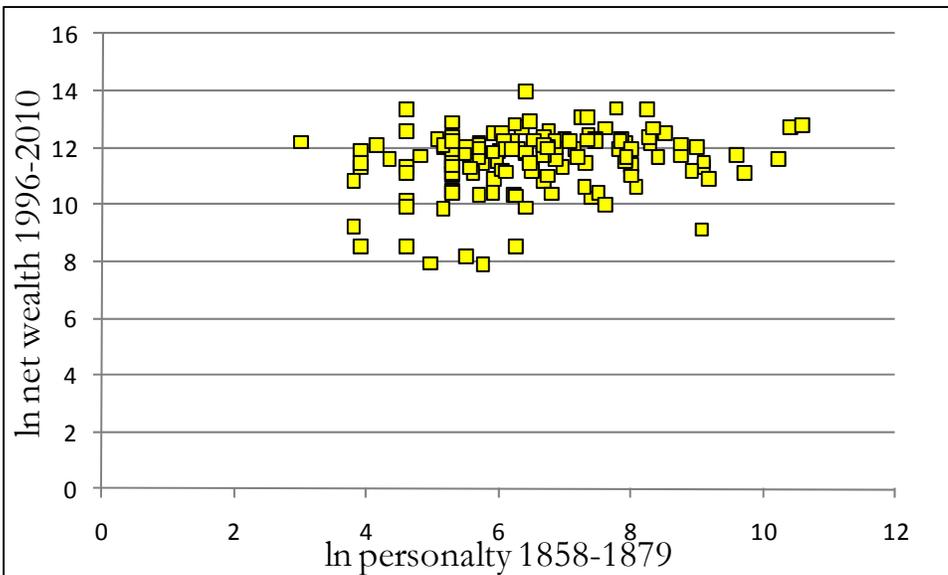


Figure 4.6: The Connection Between Average Wealth by Surname, 1858-2009 and 1996-2010



constant measurement error across time, we can derive the underlying b as the ratio of the coefficient in the middle of the top row, and the coefficient at the left of the top row.

$$E\left(\frac{\widehat{ab}}{\widehat{a}}\right) = \frac{ab\theta}{a\theta} = b$$

This ratio is here 0.69, which is quite consistent with the earlier estimate, and again implies high levels of persistence. But as noted, over 4.5 generations this is enough to eliminate any correlation between the names which were formerly highwealth and the ones which are now high wealth. Figure 4.5 shows in the dotted line what happens when we project forward to 2010 using this rate of attenuation. The implied results for the link between wealth in 1858-79 and 1996-2010 are close to the observed link. Thus the results seem consistent with low but persistent rates of regression to the mean.

Interestingly while there is complete social mobility, there is more sign of geographic persistence. There were 54 English and Welsh counties in 1858. The chance of any two people being drawn from same county (at their 1851 populations) was 4.1%. In fact rare surnames were not drawn at random from counties. They were heavily concentrated in London and Surrey (31%), and infrequent in the north and in Wales. Given their distribution across counties the chance that any two at random would be drawn from the same county was 9% in 1858-79. In practice 40% of people with the same rare surname lived in the same county then. Over time the percentage of people with the same rare surname living in the same county declined. But if we look at the distribution of rare surnames in 1996-2010 compared to 1858-1879, we still find that for any surname the chances that earlier it was located in the same county was still 10%. Looking at the distribution of the names across counties in 1858-79 and 1996-2010, the chance that by random they would be in the same county is only 6%. Thus there is some geographic persistence of rare surnames, even after 140 years. Geographic mobility may indeed be less than social mobility.

Table 4.6: Fraction of Surnames in Same County

| | 1858-79 | 1888-1909 | 1996-2010 |
|-----------|------------|-----------|------------|
| 1858-79 | 0.40 [.09] | 0.29 | 0.10 [.06] |
| 1888-1909 | - | 0.27 | 0.11 |
| 1996-2010 | - | - | 0.17 |

Note: Surnames were located within the 54 counties in England and Wales in 1851 in all periods.

A further interesting aspect of social mobility in England in the years since 1858 emerges from figure 4.2 above. Since the poor group had higher fertility than the rich mobility would tend on average to be upwards if the socio-economic distribution of positions remained constant over time. The rich of 1858 not only had their descendants regress to the mean of the society. Also they had fewer descendants by 2005 than did the poor of 1858. So the average movement between generations must have been upwards.

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