

How Long do Wealth Shocks Persist? Less than three generations in England, 1700-2026

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What happens across generations to wealth shocks? Do they endure and even magnify, or do they dissipate? By implication, how much modern wealth is attributable to events before 1900? This paper uses random shocks to family size in England before 1880, that created wealth shocks for the children, to measure the persistence of wealth shocks. Fertility in England before 1880 was a biological lottery. For richer families, family size strongly influenced child wealth. This paper finds that such biology-induced wealth shocks had no impact on descendent wealth by three generations later. Since wealth itself persisted across more than five generations this implies that, in the long run, wealth mainly derives from sources other than inherited wealth. The observed link between nineteenth century and modern wealth does not lie in wealth transfers alone. Wealth persisted because of the familial inheritance of behaviors associated with wealth accumulation and retention.

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1. Introduction

There has been considerable attention recently to the persistent effects of wealth disparities, or wealth transfers, in the nineteenth century in terms of current wealth and social status (Hall et al., 2014, Creamer, 2024, Gilbert, 2022, Derenoncourt et al., 2024). Thus the compensation paid to British slave owners with the emancipation of slaves in the British Empire in 1834 has been argued to be still a foundation of the wealth of many richer Britons now, including David Cameron, the former Conservative Prime Minister, and Peter Bazalgette, former Arts Council Chair (Hall et al., 2014). Even cultural institutions, such as the Booker Prize for literature, are alleged to have been ultimately funded in part by 1834 slave compensation (Creamer, 2024). Many British country houses, museums, and charitable institutions have also been associated with the taint of slave and Colonial wealth (Gilbert, 2022).

In the USA profound differences in Black and White wealth after the Civil War in 1865 have been argued to be the foundation of the large current White-Black wealth gaps. A recent paper notes that “The main reason for such a large and lasting gap is the enormous difference in initial wealth between Black and white Americans on the eve of the Civil War.” (Derenoncourt et al., 2024, p. 695).

It is certainly the case that inherited wealth is significant relative to all current wealth in the modern UK. A recent survey showed 35% of British households have received an inheritance (Nolan et al. 2022). The amount of such inheritances, expressed relative to lifetime earnings, averages 14% for those born in the 1980s. But this rises to over 50% for the top 10% of inheritors (Bourquin, Joyce and Sturrock (2020, figure 5.4, p.32)). Palomino et al. (2022) argue that inheritance accounts for 36% of wealth inequality in the UK.

However, the fact that inherited wealth has significant value relative to all wealth does not show that inheritance explains a significant share of modern wealth holdings. Inherited wealth can be saved and invested, or it can be consumed. The change to the stock of wealth had these inheritances not occurred is unknown.

In this paper we seek to use demographic accidents that affected wealth bequests in the nineteenth century to measure what the effect of exogenous wealth transfers was on the second to the fifth generations of families. How much of an additional wealth bequest showed up in gains to the wealth of children, grandchildren and later generations? Do shocks to wealth persist across multiple generations? Or does unexpected, unearned wealth dissipate quickly,

so that, for example, none of the Booker Prize money can be attributed to slavery, and none of David Cameron's or Peter Bazalgette's assets face that same taint?

In this paper we look at shocks to wealth caused by biological accidents of fertility for marriage in England before 1880. We show that family size in these years was uncontrolled and effectively random. This resulted in huge variation in completed family sizes from 1 to 20 children. Since wealth was relatively equally distributed among children, sibship size was an important predictor of child wealth in a family.

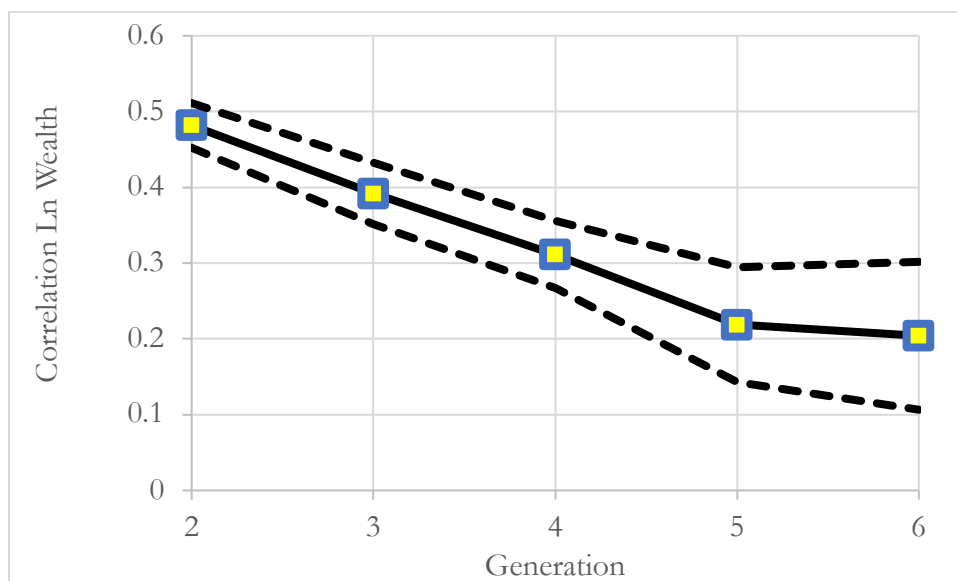
Family size in one generation, however, was very weakly inherited across subsequent generations. The raw correlation across generations in family size for marriages before 1880 was only 0.05. One child in the first generation could be followed by 12 in the next, and children from families of 12 were almost as likely as those from families of 1 to produce 1 child themselves. This meant that shocks to wealth from family size variation were one-time, transitory, events.

In the paper we trace the effect of these one-time wealth shocks on the wealth of descendants through 3 to 5 generations: grandchildren, great-grandchildren and great-great-grandchildren. We find that wealth shocks were still perceptible in the third generation, the grandchildren, but not in the fourth or fifth generations.

If we look at the intergenerational persistence of wealth among men in England 1700-2026 then we do observe a strong persistence of wealth at death, even across six generations. Figure 1 shows the correlation of wealth at death for men across 2-6 generations, where the initial testator married before 1880, and had above average wealth. The wealth data used here is from Families of England (FOE) database, which is described below. The correlation in wealth across six generations is still 0.20, and even for a modest sample of 539 such cases, highly significant statistically.¹ In this case the average birth year of the first generation was for men born 1769, and for the sixth generation men born 1925.² At the observed rate of decline, there will still be a correlation in wealth even after 12 generations.

By implication, the attributes that ultimately determine family wealth, and the distribution of wealth in society, are not wealth transfers themselves, but instead the abilities and attitudes of families that are being strongly transmitted across generations, as is shown in Clark (2023).

Figure 1: Wealth Correlations across 2-6 generations, men, England 1700-2026



Notes: Wealth measured as ln wealth at death relative to average for the death decade. Pearson correlations of sons in each generation with the father of generation 1. The dotted lines show the 95% confidence interval of the correlation. Standard errors clustered by initial testator. The initial set of fathers had above average wealth at death, and married before 1880. The numbers of sons in generation 2 to 6 are 5,168, 5,009, 3,365, 1,625 and 539.

Source: FOE database.

2. Families of England Database

The database is a genealogy of a set of English families, 1600-2026, who carried one of 510 rarer surnames, where we track every holder of the surname, no matter what their location. This database currently has 448,358 individuals.

These surnames fall in two groups. The first is a set of 240 rare surnames, 63,458 people, which had significantly higher wealth than average in the mid nineteenth century. This group was used to measure the persistence of wealth in England 1858-2026. This set of surnames includes some well-known in English history including Courtauld, Pepys, Cornwallis, Lane-

Fox, Sebag-Montefiore, de Havilland, Bazalgette, Champion de Crespigny, Rothschild, Baring, Pigou, and Rusbridger.

The second, larger, group is a set of 270 rarer surnames, 384,900 people, that had close to average social status in the nineteenth century. This group is representative of the general population of England.

Using census records 1841-1921, the population survey of 1939, marriage records 1837-2022, probate records 1796-2026, voting rolls 1999-2026, and other ancillary sources we can measure for many of these persons their educational attainment, their occupational status, their dwelling value, their wealth at death, their reproductive outcomes, and their adult longevity.

In constructing the FOE database we directly compiled 437 of the 510 surname lineages (with 124,197 persons). The other 73 lineages (324,161 people) were obtained mainly from an appeal to members of the *Guild of One-Name Studies*, an organization devoted to tracing the history of particular rare surnames. These lineages incorporate everyone with a rare surname of interest, wherever they reside, as well as spelling variants of the surname. Thus the Mitchelmore lineage, for example, incorporates the surnames Michelmore, Mitchelmore, Mitchamore, Mitchmore, Mouchemore, Muchamore, and Muchmore. Similarly the Auty lineage encompasses Auty, Autey, Awty, Otty, and Ottey

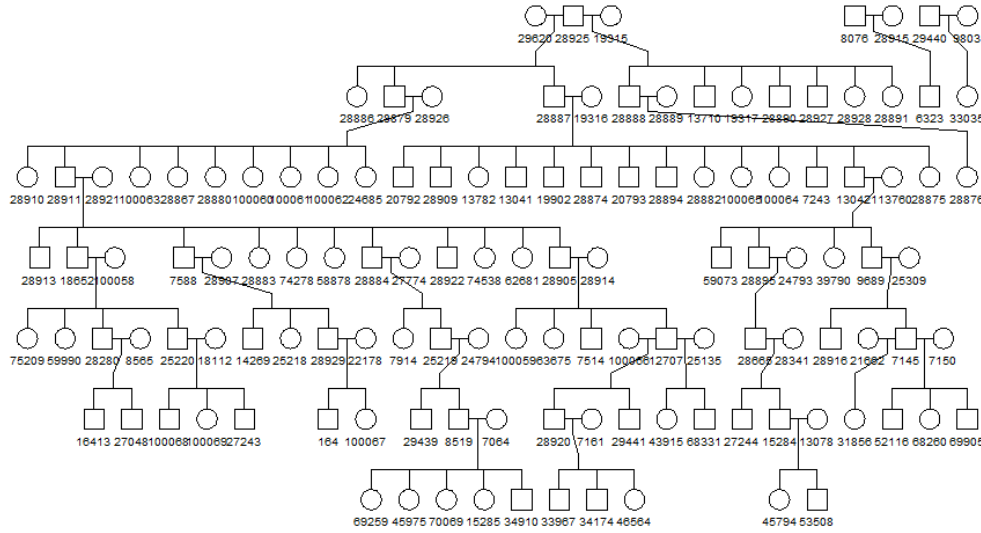
In cases where we only had access to published lineages, these did not typically contain details of any living holders of the surname. In these cases we added that information ourselves from public records of births, marriages and addresses. Lineages were chosen for inclusion based on their completeness, and either the public posting of the lineages, or their creators' willingness to share the data with us for inclusion in the study.

The decision to incorporate families with rarer surnames into the genealogy was in part adventitious. For an earlier study of social mobility using surnames to link generations we had assembled data on elite and underclass wealth in England by rare surname 1858-2012. But focusing on rare surname individuals allows a high degree of linkage across generations.³ In the FOE database for 84% of individuals born with a rare surname and living to adulthood we can identify the father and mother. For those born 1800-1939 the percentage linked to their parents is even higher at 92%.

Figure 2 shows an illustrative fragment of the FOE database, showing linkages across 7 generations. Average completed family size in England in the nineteenth century was 3 adult children, but this varied enormously across families. The bulk of adults in each generation

came from larger than average families, so that average sibship size then was 6. Table 1 gives an outline of the source of the data, and its distribution across time, and between general and elite lineages.

Figure 2: Sample of the FOE database



Notes: A sample section of the FOE database, showing linkages across 7 generations. The squares denote men, the circles women. *Source:* FOE database.

Table 1: Families of England Database Outline

Birth Period	All	General Lineages	Elite Lineages
1600-99	5,904	5,500	404
1700-99	28,918	23,675	5,243
1800-49	66,260	55,429	10,831
1850-99	117,434	101,504	15,930
1900-49	80,953	71,563	9,390
1950-2026	48,951	42,449	6,502
All	448,358	384,900	63,458

Notes: Significant numbers of people have no date of birth observed. *Source:* FOE database.

Since the focus of the genealogy is descent on the patriline, family size is measured as the numbers of births associated with each father, as well as the numbers of children attaining ages 14 and 21.

The Principal Probate Registry, 1858-2026, records for each testator the value of the estate. For those not probated, whose estate value fell below the value requiring probate, we attribute a value which is half the minimum value for probate. Thus for 1950 when the minimum value for probate was £500, we assume each person not probated had an estate of value £250. To allow for changing price levels and average wealth, we normalize each estate value by dividing by the average estate value in that decade. Thus the average normalized wealth at death will be 1 in all periods for average lineages. Since wealth is highly skewed, the great majority of people in each decade had wealth below average.

In the years 1796-1858 a value was also attributed to each estate at probate. For wills proved in the highest probate courts, the Prerogative Court of Canterbury and the Prerogative Court of York, we get a record of the probate value also in these years.⁴ These wills were typically those of wealthier individuals.

For 87,527 individuals we have an estimate of wealth at death. 23,874 of these had wealth at death above average for their decade of death. In this study where we are seeking to measure the effects of wealth shocks we use individuals both from the general and the elite lineages.

3. Demographic Shocks to Wealth, Marriages pre-1880

Family size in England before 1880 was largely determined by biological factors outside individual control. There is no evidence of any attempt to control fertility within marriage. Couples did not, for example, delay the onset of fertility after marriage, space births more widely, or terminate fertility before menopause in marriages. The absence of any fertility control within marriage was detailed by Wrigley et. al. (1997) for the years 1540-1837. Further evidence of “natural fertility” in pre-industrial England is also found in Wilson (1984), Wilson and Woods (1991), and Woods (2000). The age at first marriage of brides was correlated with total births, but even here there is no evidence that marital age was chosen with an intention to limit fertility.

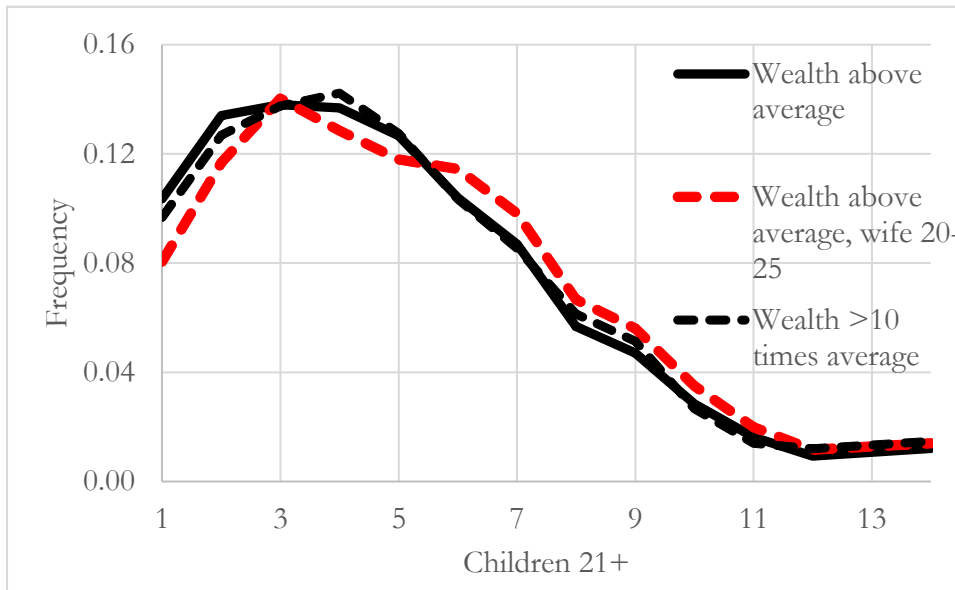
There is a theoretical literature in economics assuming that fertility is always a choice variable (see Becker 1993, Galor 2005). There have also been more recent claims of evidence of parity-

specific birth control within marriage before 1837 from English parish data from Cinnirella et al. (2017). But Clark and Cummins (2019) show that the claims from Cinnirella et al. (2017) are an artifact of their empirical methods.

Clark, Cummins and Curtis (2020) go further, and use twins to identify the effect of a shock extra child on completed family size for marriages before 1880. They find that a twin birth at any parity adds precisely one extra birth to families in pre-Industrial England. This would not happen unless families were not targeting family size within marriage in this era.

Within this natural fertility regime, which dominated for first marriages before 1880, the primary variable that affected family size, which was under parental control, was wife age at marriage. But in the FOE database controlling factors potentially affecting marital fertility - wife age, husband age, and measures of husband social status - explain only 7% of the variance in family size. 93% of the variance was, from the perspective of an outside observer at least, random variation. To illustrate this note that while the overall variance in family size in the FOE database was 7.95, the variance in size for men marrying women aged 23 in their first marriage was still 8.07.

Figure 3: Family Sizes among Wealthy Testators, England, marriages pre-1880



Notes: The figure shows the distribution of family sizes, measured as children reaching age 21, for 2,463 male testators of above average wealth, and 1,498 male testators above 10 times average wealth, whose first marriage was pre-1880. The red dashed line shows the size distribution for 856 men above average wealth, whose only wife was aged 20-25 at the marriage. *Source:* FOE database.

Within the natural fertility period, marriages before 1880, completed family size varied enormously. Figure 3 shows for 2,463 marriages before 1880, where the father left an estate at death of above average value, the distribution of family sizes, measured as the number of children who attained at least age 21.⁵ In this biological lottery some marriages produced just 1 child, while others with parents who were very similar in wealth and social status, produced 10 or more children. The figure shows also the adult child numbers distribution for men of wealth above 10 times average. These men show a very similar dispersal of family sizes. As we shall see below these shocks to family size created substantial shocks to child wealth relative to fathers.

Figure 3 also shows the distribution of family sizes for men of above average wealth whose wife was 20-25 at marriage, and who married only once. As can be seen the range in family size even for this restricted set of marriages, in terms of wife age, was nearly as great as the overall range in sizes. Shocks to child wealth for families with wealth were largely random.

4. Inheritance of family size

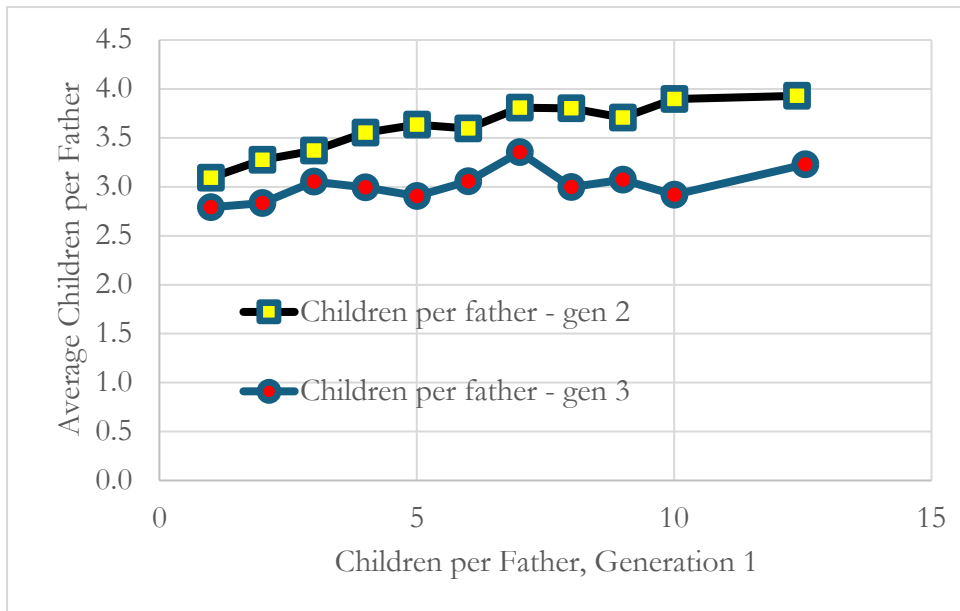
Did fathers with large families produce children who also had large families? In that case the effects of family size on wealth in the initial generation would be further magnified in later generations.

The correlation in family sizes for fathers and sons was actually very low, illustrating the largely random source of family size variations. Thus in the sample of fathers marrying first before 1880, and with wealth at death above average, the correlation between their family size and that of their sons was only 0.032.⁶ However, all the fathers in the first generation have at least one adult child, while those in the second can have 0 adult children. The correlation between fathers and sons in numbers of adult children, where only sons with one or more children are included, rises to 0.093, but is still very low.⁷ These results are consistent with a meta-study of fertility transmission across generations, which found that pre-transition populations generally had weak fertility inheritance (Murphy, 1999, figures 1 and 2).

By the third generation, the correlation between grandfathers and their grandsons in numbers of adult children becomes insignificantly different from 0, even when only including grandsons with at least one adult child. Thus there is a slight echo in the second generation of large or small family size, but no echo by the third generation. Family size really is a transient influence on wealth.

Figure 4 shows this effect graphically. The horizontal axis shows the number of adult children from each father in the first generation. The first line shows the number of adult children on average from each of their sons who had adult children. This line has a positive slope of 0.073. If the grandfather went from 1 adult child to 11, their sons would be expected to have 0.73 additional adult children. So there is some echo of previous generation fertility in the first generation. But by the third generation, net fertility is the same across all men, independent of what their grandfather's fertility was.

Figure 4: Adult Children per Father, by Generation



Notes: The figure shows the number of adult children per father in the patriline in the second and third generations as a function of family size (adult children) in the first generation, counting only fathers with at least one child. The initial set of fathers were those with above average wealth at death, marrying before 1880. There were 3,256 sons in the second generation, and 3,232 in the third generation. *Source:* FOE Database.

Figure 4 implies the negative shock to wealth created by many children in an initial generation will be transmitted across subsequent generations largely unchanged. A man with few children will typically have few grandchildren and few great-grandchildren. A man with many children will have many grandchildren and great grandchildren. If inheritance is the main source of wealth, the grandchildren and even great grandchildren of a wealthy man with few adult

children in a marriage before 1880 will have greater wealth, all other things being equal, than the grandchildren or great-grandchildren of a man with many children.

5. Family Size and Child Abilities

Though it has a surprisingly weak empirical base, there is a popular belief in economics of a substantial child quantity-quality tradeoff (see, for example, Becker, 1993, Galor, 2005). Such a tradeoff would potentially amplify the negative effects of family size on child wealth. With larger size, not only would each child inherit less parental wealth, but they would also have less economic ability themselves, and also hence less wealth at death. Since marriage was assortative, these negative effects of larger family size would also be found in the economic abilities of grandchildren and great-grandchildren (see Clark and Cummins, 2022).

We can measure the first and second generation effects of family size before 1880 as a random shock looking, for example, at male occupational status. Controlling for father occupational status, what is the effect of family size on son occupational status in the second generation? The answer is that each additional adult child reduces estimated son occupational status by 0.2%, on a scale of 0-100. So, unlike for wealth, there is a slight negative effect of family size on occupational status. When we look at the grandchild generation, again increases in family size in the first generation, controlling now for grandfather status, have the same slight negative effect. Each additional adult child reduces estimated grandson occupational status by 0.2%.

Thus quality-quantity effects would slightly magnify the long run impacts of family size in a given generation on wealth in subsequent generations. Since we find below that such size effects on wealth dissipate within two subsequent generations, quality-quantity effects just reinforce the conclusion that random wealth shocks dissipate within three generations.

6. Family Size and Child Wealth

For families with father's bequeathing wealth, family size, the number of adult children, had a significant effect on average child wealth relative to the father. When there were multiple heirs, birth order had only modest effects on the amount bequeathed to each child. The oldest son was typically about ten percent wealthier at death than his younger brothers. Sons,

however, seem to have been bequeathed more than daughters. Thus family size, as well as the gender composition of siblings, was an important determinant of wealth inheritance for all children. The huge variation in family size implies that for equally wealthy fathers, their children would inherit very different amounts.

To illustrate this, consider Edward Cazalet (1827-1883), who married Elizabeth Marshall (1837-1888) in 1860, when Elizabeth was 23. Despite her youth, the marriage produced just one child, a son. Edward Cazalet died with wealth £0.346 m, and that one son with wealth £0.652 m.⁸ In contrast Richard Thomas Pulteney (1811-1874) married Emma Dalison (1826-1884) in 1845, and fathered 14 children, 12 of whom outlived him. His wealth at death was £0.500 million. Those twelve children left an average of only £0.027 m. each, £0.323 m. in total. For families with wealth, size mattered for wealth per child.

Table 2, columns 1 and 3, shows the effects of family size on child wealth, controlling for father wealth. It reports a regression of the logarithm of wealth at death of children versus log father wealth, log sibship size and an indicator for female. Wealth is reported as wealth relative to average wealth for testators dying in the same decade. The logarithm of wealth was used as the wealth measure because wealth at death is highly positively skewed, so that with wealth reported in levels a few highest wealth individuals would have disproportionate influence on the outcome.

As table 2 shows there was a strong relationship between father and child wealth at death. But controlling for father wealth, child wealth also strongly depended on the size of their sibship. This is true where we consider all men with wealth at death above average, or a more restrictive sample of men with wealth at death at least 10 times the average (compare columns 1 and 3). Figure 5 (a) shows the adult sibship size versus the relative wealth of children. Because the ratio of child wealth to father is very asymmetric, and ranges from 0 to 302, this is estimated by quantile regression as the median child/father wealth ratio. Clearly sibship size strongly influences median child/father wealth.

Table 2, columns 1 and 3, also shows that daughters overall showed 44% less wealth than sons. If we look just at the richer fathers, daughters on average had 59% less wealth at death than sons. In looking at the long run effects of these demography driven wealth shocks we will be following the patriline in families, since the FOE database records complete fertility only on the patriline. So we need to also check that the same effects as in table 2, columns 1 and 3, appear if we concentrate just on the patriline.

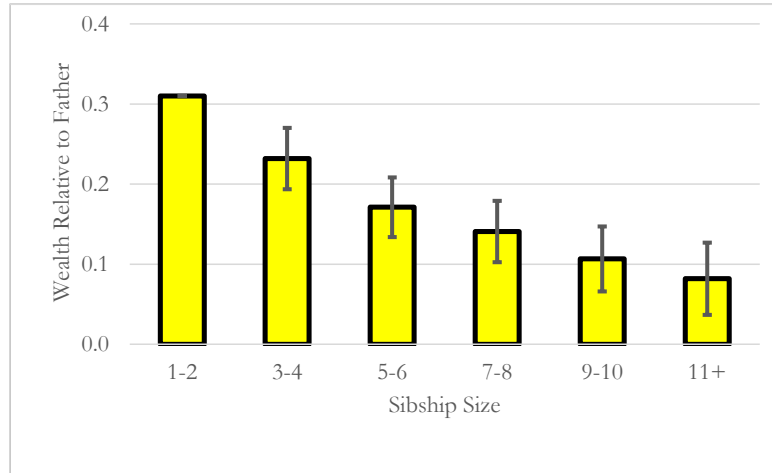
Table 2, columns 2 and 4, reports estimates of the determinants of son wealth for sons born to fathers first married before 1880. Two things stand out compared to table 2, columns 1 and 3, showing all children. First the connection between father wealth and son wealth is stronger than the connection for daughters. Wealth is very strongly inherited among sons. Second the negative effect of sibship size on son wealth is almost as strong as for all children.

Table 2: The Determinants of Child Wealth at Death, Parental Marriages before 1880

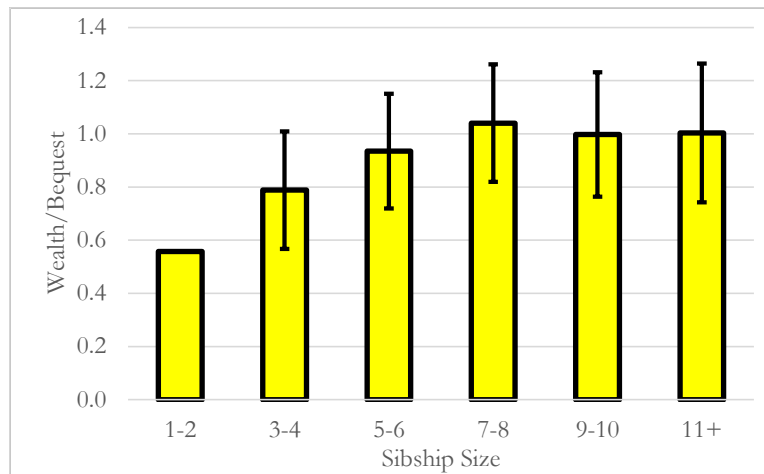
Variable	Father Wealth ≥ 1		Father Wealth ≥ 10	
	(1) All	(2) Sons Only	(3) All	(4) Sons Only
Ln(wealth father)	0.665** (0.020)	0.788** (0.024)	0.611** (0.034)	0.774** (0.044)
Ln(adult sib size)	-0.395** (0.061)	-0.336** (0.076)	-0.450** (0.076)	-0.390** (0.095)
Female	-0.582** (0.060)		-0.882** (0.073)	
Observations	9,101	5,168	5,951	3,235
Fathers	2,431	2,175	1,495	1,346
R ²	0.185	0.236	0.108	0.122

Notes: Male and female children. Standard errors clustered by father. ** = significant at 1% level. Wealth measured relative to average wealth at death for that decade. Fathers with first marriage before 1880. Children attaining at least age 21. *Source:* FOE database.

Figure 5: Median Child Wealth at Death by Family Size



(a) Relative to Father



(b) by Expected Inheritance

Notes: In both panels, the horizontal axis shows the sibship size, with wealth measured relative to average wealth at death for that decade, where father wealth ≥ 1 . The 95% error bars are relative to sibship 1-2. In panel (a), the vertical axis shows median child wealth at death by sibship size, relative to father wealth, for fathers with wealth greater than average. Estimated from a quantile regression (9,101 observations). In panel (b), we report median child wealth/expected inheritance, by adult siblings, for fathers marrying pre-1880. Children in sibships of 1-6 have less wealth than their expected inheritance. Children in sibships 7 and above have equal or more. Estimated from a quantile regression (9,101 observations). Wealth measured relative to average wealth at death for that decade. *Source:* FOE database.

Table 2 suggests that children's wealth is not mechanically derived from inheritance. The average amount of wealth inherited per child within the family will be $\frac{\text{father wealth}}{\text{adult sibship size}}$. If child wealth was determined only by inheritance, then the coefficient on $\ln(\text{adult sibship size})$ should be the same as on $\ln(\text{father wealth})$. But we see in table 2 that the effect of the sibship size is much less than that of the wealth of the father. The amount children inherit is less predictive of their wealth at death than the overall wealth of the father.

Figure 5 (b) illustrates why sibship size had less effect than expected on wealth. The figure shows the median ratio of wealth at death of children to their expected inheritance, by sibship size. If this ratio is less than 1 then the child dies with less wealth than their expected inheritance. If the ratio is greater than 1 the child dies with more than their expected inheritance. For adult sibship sizes of 1-6, children die with less wealth than their expected inheritance from their father. But for sibships of 7 or more children die with as much or more wealth than inherited from their father. Only for sibships 1-2, however, is the estimated coefficient statistically less than 1. For sibships 1-2 the coefficient is also statistically lower than the estimate for all other sibship sizes. So in at least the smallest families, where children inherit more, they consume more of their inheritance. In larger families, since average wealth levels were increasing over time, children were typically accumulating wealth above what they inherited.

One behavioral interpretation of these patterns observed in tables 2-3 and figure 5 (b) is that children adjusted their wealth to their social status. If they were in a small sibship and inherited a lot, they tended to consume some of that inheritance. If they were in a large sibship, and inherited little, they tended to preserve inherited wealth or even accumulate wealth in their lifetime.

7. Wealth Shocks Across Multiple Generations

To measure the multi-generational effects of wealth shocks we estimate the parameters in the expression

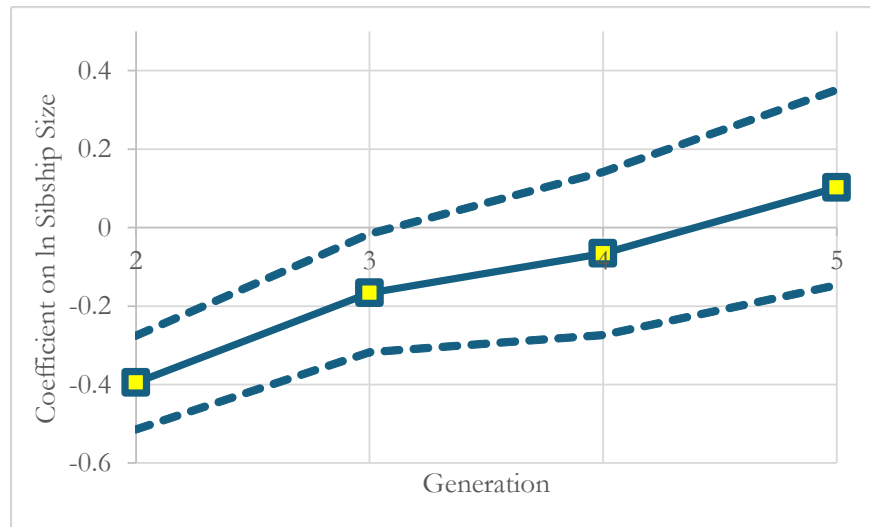
$$\ln(\text{Wealth})_{ijk} = a + b_0 \ln(\text{Wealth})_{j0} + b_1 \ln(\text{AdultChildren})_{j0} + e_{ijk} \quad (1)$$

for $k = 2, 3, 4, 5$ where j indexes fathers, i indexes each child, and k indexes the generation. This expression thus measures the effects of initial family wealth, and family size (measured as adult children) in the first generation, on wealth at death in four subsequent generations.

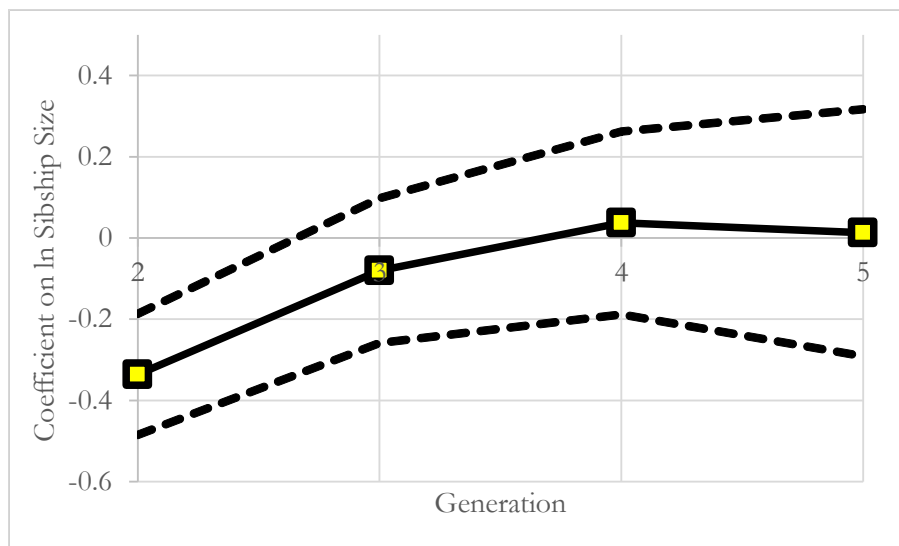
Wealth, as before, is measured relative to average wealth at death for that decade. With this specification we are following just the patriline in terms of wealth inheritance. In the fifth generation, for example, we are looking at all the children of the sons of the sons of the sons of the original testator. As noted above sons inherited substantially more wealth than daughters, so these paths are the ones most of the wealth flows down.

Table A1, reported in the appendix, columns 1 to 4, shows these estimates for the second to fifth generations, where the initial father wealth was at or above average. There is still a strong correlation between grandfather and grandchild wealth across generations 2 to 5. But the estimated size of the effect of larger family size falls significantly in the third generation, the grandchildren. In the fourth and fifth generations this coefficient is no longer significantly different from 0.

Figure 6: Effects of Initial Sibship Size on Wealth Across 2-5 Generations (wealth ≥ 1)



(a) All



(b) Sons

Notes: The figure shows the estimated effect of $\ln(\text{sibship})$ on $\ln(\text{wealth})$ for descendants in generations 2-5 of men marrying pre-1880 and dying with above average wealth. Wealth measured relative to average wealth at death for that decade. The dotted lines show the 95% confidence intervals.

Source: Table A1, columns 1 to 8.

Table A1, columns 5 to 8, shows these same estimates, but where we restrict the child generation to be males only. This produces a stronger correlation between initial generation wealth and wealth in subsequent sons. The effects of initial family size we see again are strongly negative in the 2nd generation. The estimated effect of family size is still negative in the 3rd generation, but insignificantly different from 0. The point estimate of the effect of family size by the 4th and 5th generations is actually positive, but again insignificantly different from 0.

Figure 6 (a) shows the point estimates of the effects of family size on wealth across generations 2 to 5 from table A1, columns 1 to 4, and the associated 95% confidence intervals, for all children in that generation. Figure 6 (a) suggests that the effects of a wealth shock from family size dissipate completely within 3 generations. Figure 6 (b), for sons only, shows the point estimates of the effects of family size on wealth across generations 2 to 5 from table A1, columns 5 to 8, and the associated 95% confidence intervals. Figure 6 (b) suggests that the effects of a wealth shock from family size similarly dissipate completely within 3 generations among sons.

Table A1, columns 9 to 12, shows for richer fathers pre-1880, those with wealth at death at least 10 times the average, the effect of sibship size in the second generation on wealth at death in generations 2 to 5. The results in table A1, columns 9 to 12, echo those columns 1 to 4, for fathers with wealth above average. Sibship size matters for the wealth of children. It has a negative but statistically insignificant effect on the wealth of grandchildren. But there is no measured effect on generations 4 or 5. So even in the very rich wealth shocks from sibship size dissipate within three generations.

8. Gender Composition and Inherited Wealth

As noted above, another source of wealth shocks is the gender composition of the children in the initial generation. This is so because sons typically inherited substantially more than daughters, at least in the years before WWI. And these gender composition shocks appear completely random.

Suppose sons pre 1914 inherited typically twice the amount of their sisters. For a family of five adult children, with a given bequest by the father of £1 million, children in a family with five sons will inherit less on average than would the children in a family with only one son. With five sons the average inheritance is £200,000 per son. With only one son, that son inherits with such a gender imbalance in bequests £333,000. Similarly, if there are five daughters they each inherit £200,000, while with one daughter the female inheritance is only £111,000. Thus for both men and women, the average amount inherited relative to the wealth of the father drops the larger the share of the siblings who are male.

Table 3 shows the estimated effects of gender composition in the second (child) generation on later wealth, controlling for the initial sibship size for all male bequestors (columns 1 to 4), and for men with wealth greater than 10 times average (columns 5 to 8). In both cases we clearly observe the expected negative effect of the fraction of children male on wealth per child. As the fraction male goes from 0 to 1 average wealth falls by 36% for all, and 45% for the very wealthy. In both cases the decline is statistically significant at the 1% level.

In both cases this negative effect of the initial fraction of children male has disappeared by the 5th generation in the point estimates. But the standard errors are much larger than for the sibship size coefficient, so that we learn little about whether the gender composition effect has really become 0 by the 5th generation. It reinforces the idea that there are demographic shocks

to wealth, but does not offer much precision in estimating how persistent these wealth shocks are.

We also see in table 3 that daughters were significantly less wealthy than sons, but that the relative wealth of daughters compared to sons rose across each generation. By the fifth generation, those born around 1900, the disparity against women was only ten percent. Note that, because of the way the FOE database was constructed, in these tables we follow the patriline from the original bequestor until the 2nd, 3rd, 4th or 5th generation. In the last generation in each case, we note the wealth of both sons and daughters.

Table 3: Wealth at Death and Gender Composition, 2nd to 5th Generations

Variable	Wealth ≥ 1				Wealth ≥ 10			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	2nd gen	3rd gen	4th gen	5th gen	2nd gen	3rd gen	4th gen	5th gen
Ln(initial wealth)	0.664** (0.020)	0.489** (0.025)	0.376** (0.028)	0.277** (0.039)	0.613** (0.034)	0.443** (0.040)	0.361** (0.040)	0.282** (0.062)
Ln(initial sibship)	-0.413** (0.062)	-0.219** (0.087)	-0.086 (0.112)	0.136 (0.143)	-0.474** (0.076)	-0.195 (0.101)	-0.117 (0.130)	0.130 (0.157)
Fraction male (initial sibship)	-0.451** (0.166)	-0.337 (0.208)	-0.133 (0.290)	0.211 (0.407)	-0.593** (0.208)	-0.658** (0.232)	-0.647* (0.327)	-0.003 (0.449)
Female	-0.681** (0.062)	-0.404** (0.061)	-0.154* (0.072)	-0.115 (0.110)	-1.006** (0.077)	-0.520** (0.071)	-0.254** (0.084)	-0.064 (0.128)
Observations	9,101	8,706	5,607	2,617	5,951	6,128	4,029	1,828
Initial fathers	2,431	1,651	986	495	1,495	1,072	669	361
R ²	0.186	0.126	0.084	0.055	0.110	0.061	0.039	0.028
Average birth year child	1847	1868	1885	1900	1842	1864	1882	1899

Notes: Standard errors clustered by father are in parentheses. Wealth is measured relative to average wealth at death for that decade. ** $p < 0.01$; * $p < 0.05$.

Source: FOE database.

Implications

The estimates above suggest that, at least for England post 1880, pure wealth shocks – random wealth changes not associated with family characteristics – dissipated completely within three generations. Shocks to wealth from sibship size, occurring to the children of a testator, were still observable in the grandchildren at their death, though of much smaller size. But these shocks disappeared by the time of the deaths of great-grandchildren.

There was still a strong correlation of wealth between men and their great-grandchildren, as shown in figure 1. This implies that the main mechanism of wealth transmission across generations, at least in England, was not the wealth transfers themselves. Random wealth shocks from family size variation had no effect on heirs within three generations. So wealth transfers uncorrelated with social abilities have no long run impact on descendant wealth. If what mattered was just inheritance of wealth, then the demographically induced wealth shocks observed from marriages before 1880 would persist beyond even five generations.

The source of the long-run persistence of wealth within families must then be other family attributes correlated with wealth that transmit strongly across generations – educational and occupational status, for example. The long run intergenerational correlation of these social abilities in England 1600-2022 was around 0.79 (Clark, 2023). This persistence is similar to the long-run persistence of wealth implied by figure 1, where the implied underlying correlation is around 0.72.

This has two implications. First, for English families now wealthy, even where we can trace that wealth back through inheritance to the nineteenth century, there is no causal connection between their nineteenth century wealth inheritance and current wealth. The wealthy in England are typically distinguished from the rest of the population not just by the accidental creation or inheritance of money from years past, but by higher educational and occupational abilities. In the famous, but fictive, exchange where F. Scott Fitzgerald notes “The rich are different from you and me” and Ernest Hemingway responds “Yes, Scott, they have more money”, Fitzgerald is the truth teller.⁹

The second implication is that, again for England, wealth holdings of individuals stem largely from their social and economic abilities. It is this which links them strongly in figure 1 across six generations to the wealth of their great-great-great-grandfathers, not the actual wealth that they have inherited from those forbears. Why these social abilities persist so strongly, or what mechanisms within families cause the persistence is not known.

How do these conclusions fit with estimates of the importance of inheritance in explaining current wealth distributions? There has, however, been debate in the literature about what share of wealth in modern society in each generation is inherited, with estimates varying widely from 8% to 89% (Atkinson, 2018, Kotlikoff and Summers, 1981, Ohlsson, Roine, and Waldenström, 2014, Piketty, Postel-Vinay, and Rosenthal, 2014). The typical such study compares wealth holdings at a point in time with wealth transfers through inheritance to infer the inheritance share.

The high quality data from deaths in Paris, 1870-1922, where we have records for each individual of wealth at death, and the capitalized value of inheritances they received, suggests inheritance explained 70% of wealth (Piketty, Postel-Vinay, and Rosenthal, 2014). However, this calculation assumes that for both savers and spenders, if wealth inheritances fell by a franc, then wealth at death would fall by a franc. We see in the effect of family size shocks to wealth in England that this assumption is not correct. Children from small sibships, who inherit more, tend to spend more of their inheritance. Children from large sibships, who inherit less, tend to accumulate more wealth. Based on applying this behavioral response we observe in the English data to Paris in 1922, if all bequests had been reduced to zero, wealth would not fall by 70%, but instead by substantially less.

This interpretation fits with other evidence from the UK, such as Davenport, Levell and Sturrock (2021). They find, using data from the British Household Panel Survey, and the Understanding Society study (post 2009) that about 50% of wealth persistence is due to education and earnings persistence, and “a significant amount of the inequalities in wealth by parental background appear to be due to other channels through which parents transmit advantages to their children”.¹⁰ Palomino et al. (2022) argue that inheritance accounts for 36% of wealth inequality in the UK. Once they net out family background, the inheritance contribution to overall inequality is a maximum of 22% for the contemporary UK.¹¹ Whilst this is substantial, these studies together with ours, suggest that the persistence of wealth is not primarily due to direct inheritance.¹² Random shocks to inheritance fade from dynastic wealth rapidly.

Bibliography

- Atkinson, Anthony B. 2018. "Wealth and Inheritance in Britain from 1896 to the Present," *Journal of Economic Inequality*, 16(2): 137–169.
- Becker, Gary S. A treatise on the family: Enlarged edition. Harvard University Press, 1993.
- Bourquin, Pascale, Robert Joyce and David Sturrock. 2020. "Inheritances and Inequality within Generations," IFS Report R173, London: Institute for Fiscal Studies.
- Cinnirella, Francesco, Marc Klemp, and Jacob Weisdorf. 2017. "Malthus in the bedroom: Birth spacing as birth control in pre-transition England." *Demography* 54(2): 413–436.
- Clark, Gregory. 2023. "The Inheritance of Social Status: England, 1600–2022." *Proceedings of the National Academy of Sciences*, 120(26).
- Clark, Gregory and Neil Cummins. 2015. Intergenerational mobility in England, 1858–2012. Wealth, surnames, and social mobility. *Economic Journal* 125, Issue 582: 61–85. <https://doi.org/10.1111/eoj.12165>
- Clark, Gregory and Neil Cummins. 2019. "Randomness in the Bedroom: There is no Evidence for Fertility Control in Pre-Industrial England." *Demography*, 56(4): 1541–1555.
- Clark, Gregory and Neil Cummins. 2022. Assortative Mating and the Industrial Revolution: England, 1754–2021. LSE Economic History Working Papers #337.
- Clark, Gregory, Neil Cummins and Matthew Curtis. 2020. "Twins support the absence of parity-dependent fertility control in pretransition populations." *Demography*, 57(4): 1571–1595.
- Creamer, Ella. 2024. "Booker prize urged to consider name change over slavery link" *The Guardian*, 25/4/2024.
- Davenport, Alexander, Peter Levell and David Sturrock. 2021. "Why Do Wealthy Parents Have Wealthy Children?," IFS Report R196, London: Institute for Fiscal Studies.
- Derenoncourt, Ellora, Chi Hyun Kim, Moritz Kuhn, Moritz Schularick, 2024. Wealth of Two Nations: The U.S. Racial Wealth Gap, 1860–2020, *The Quarterly Journal of Economics*, 139(2): 693–750, <https://doi.org/10.1093/qje/qjad044>
- Galor, Oded. 2005. "From stagnation to growth: unified growth theory." In Philippe Aghion and Steven N Durlauf (eds.), *Handbook of economic growth*, 1A, pp. 171–293.
- Gilbert, Isabel. 2022. "The Colonial Money Trail." History Workshop Digital Magazine. <https://www.historyworkshop.org.uk/empire-decolonisation/the-colonial-money-trail/>
- Gregg, Paul and Ricky Kanabar. 2023. "Intergenerational Wealth Transmission in Great Britain," *Review of Income and Wealth*, 69 (4), pp. 807–837.
- Hall, Catherine, Nicholas Draper, Keith McClelland, Katie Donington, and Rachel Lang. 2014. *Legacies of British Slave-Ownership: Colonial Slavery and the Formation of Victorian Britain*. Cambridge: Cambridge University Press.

- Kotlikoff, L. and Summers, L. 1981. 'The role of intergenerational transfers in aggregate capital accumulation', *Journal of Political Economy*, 89(4): 706–32.
- Murphy, Michael. 1999. "Is the relationship between fertility of parents and children really weak?." *Social biology* vol. 46,1-2: 122-45. doi:10.1080/19485565.1999.9988991
- Nolan, Brian, Juan C. Palomino, Philippe van Kerm and Salvatore Morelli. 2022. "Intergenerational Wealth Transfers in Great Britain from the Wealth and Assets Survey in Comparative Perspective," *Fiscal Studies*, 2022, 43 (2), pp. 179–199.
- Ohlsson, H., Roine, J. and Waldenström, D. 2014. 'Inherited wealth over the path of development: Sweden, 1810–2010', Working Paper, Uppsala University.
- Palomino, Juan C., Gustavo A. Marrero, Brian Nolan and Juan G. Rodríguez. 2022. "Wealth Inequality, Intergenerational Transfers, and Family Background," *Oxford Economic Papers*, 74 (3): 643–70.
- Piketty, T., Postel-Vinay, G. and Rosenthal, J.-L. 2014. 'Inherited vs self-made wealth: theory and evidence from a rentier society (Paris 1872–1927)', *Explorations in Economic History*, 51: 21–40.
- Wilson, Chris, "Natural Fertility in Pre-industrial England, 1600-1799," *Population Studies*, 1984, 38 (2), 225–240.
- Wilson, Chris and Robert Woods, "Fertility in England: A Long-Term Perspective," *Population Studies*, 1991, 45 (3), pp. 399–415.
- Woods, Robert, *The Demography of Victorian England and Wales* Cambridge Studies in Population, Economy and Society in Past Time, Cambridge University Press, 2000.
- Wrigley, Edward A., Ros S. Davies, James E. Oeppen, and Roger S. Schofield, *English population history from family reconstitution, 1580-1837*, Cambridge: Cambridge University Press, 1997.

Appendix

Table A1: Wealth at Death, 2nd to 5th Generations

Variable	All children (wealth ≥ 1)				Sons (wealth ≥ 1)				All children (initial wealth ≥ 10)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Generation:	2	3	4	5	2	3	4	5	2	3	4	5
Ln(initial wealth)	0.665** (0.020)	0.490** (0.024)	0.376** (0.027)	0.277** (0.039)	0.791** (0.024)	0.557** (0.030)	0.412** (0.030)	0.265** (0.047)	0.611** (0.034)	0.440** (0.041)	0.353** (0.040)	0.282** (0.063)
Ln(initial sibship)	-0.395** (0.061)	-0.167* (0.077)	-0.066 (0.106)	0.102 (0.127)	-0.336** (0.076)	-0.080 (0.091)	0.037 (0.115)	0.013 (0.155)	-0.450** (0.076)	-0.093 (0.089)	-0.008 (0.121)	0.130 (0.137)
Female	-0.582** (0.060)	-0.401** (0.061)	-0.153* (0.072)	-0.113 (0.111)	—	—	—	—	-0.882** (0.073)	-0.513** (0.072)	-0.253** (0.084)	-0.064 (0.129)
Observations	9,101	8,706	5,607	2,617	5,168	5,009	3,365	1,625	5,951	6,128	4,029	1,828
Initial fathers	2,431	1,651	986	495	2,175	1,501	891	426	1,495	1,072	669	361
R ²	0.185	0.125	0.084	0.055	0.227	0.154	0.097	0.048	0.108	0.059	0.036	0.028
Average birth year	1847	1868	1885	1900	1848	1873	1890	1905	1842	1864	1882	1899

Notes: Standard errors clustered by father are in parentheses. Wealth is measured relative to average wealth at death for that decade. Initial sibship is the number of adult children. ** $p < 0.01$; * $p < 0.05$. The Female indicator is not applicable in the sons-only sample.

Source: FOE database.

¹ The standard error of the estimate is 0.050. Ln wealth is used since wealth is highly skewed, to make the wealth measure have a distribution closer to normal.

² Since wealth is measured at death, and average age of death is now above 80, most people born after 1945 have yet to die.

³ Clark and Cummins, 2015.

⁴ For estates in the Canterbury Probate Court the estate value is listed in the Probate Act Books, available at the English National Archives in Kew. For estates in the Prerogative and Exchequer Courts of York, the Probate Index, 1796-1857 shows the estate value.

⁵ Families without any adult children were not included.

⁶ Though with a standard error of 0.012, this is statistically significant at the 1% level. Size measured as numbers of children attaining at least age 21.

⁷ With a standard error of 0.015 this is again highly statistically significant.

⁸ These are all the nominal amounts reported.

⁹ This exchange was mistakenly reported by the literary critic Lionel Trilling, in a review of a collection of Fitzgerald writings in 1945.

¹⁰ Davenport, Levell and Sturrock (2021), pp. 1 and 44.

¹¹ Palomino et al. (2022), p. 646. They state “However, since parental background is measured using a single crude variable (parental occupation or education) with limited granularity, the role of this factor might be underestimated in our case.” Palomino et al. (2022), p. 663.

¹² One possibility however is that as average wealth rises over time, the importance of inheritance increases. Suggestive of this is the upward trend in the observed correlations of wealth across generations reported by Gregg and Kanabar (2023), using the Wealth and Assets Survey. But this study cannot directly estimate how much of the increased correlation is due to greater inheritance (p.828). Inheritances matter. But the vast majority of inequality is due to other factors. Palomino et al. (2022) summarise the literature; “However, the literature on the nature of the relationship between inheritance and wealth inequality gives mixed messages on whether inheritances are best seen as reducing wealth inequality rather than contributing to it, with findings varying with the analytical approach employed” (p.644).