Trends in intergenerational home ownership and wealth transmission

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Abstract
Prior research on trends in intergenerational mobility in economic status has focused chiefly on income and earnings. There is hardly any research on trends in intergenerational wealth transmission, at least in part because of the rarity of cross-generational data with wealth measures good enough for a cross-time analysis to be undertaken. In the intergenerational setting, housing tenure data is more widely available than good data on total wealth. This paper uses cross-time changes in intergenerational associations in home ownership to generate evidence on trends in intergenerational wealth mobility. Both home ownership and the value of main residence are shown to be strongly associated with wealth accumulation. The strength of the intergenerational link in home ownership in the UK has grown over time and, as parental home ownership displays a strong relationship with an individual's future wealth, this can be informative about trends in intergenerational wealth transmission. Taken together, the results indicate that intergenerational wealth transmission has strengthened over time in Britain.

Key words: housing, intergenerational mobility, wealth, cohorts
JEL codes: R31; J11; D31; J62

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1. Introduction

A large body of empirical research in social science has assessed the extent to which economic and social outcomes are transmitted across generations. In the economics literature, a heavy focus has been placed on studying earnings or income mobility, and on refining methods to accurately pin down the intergenerational earnings or income elasticity, a measure of how sensitive earnings or income of children (as adults) are to their parents' earnings or income. Some of the more recent work studies changes over time in the intergenerational persistence of earnings or income (see the reviews in Black and Devereux, 2011, Blanden, 2019, or Solon, 1999).

Less attention has been placed on intergenerational wealth correlations. The few studies with such a focus consider the extent of transmission at a single point in time (see Mulligan, 1997; Piketty, 2000; Charles and Hurst, 2003; Black et al, 2015; and Fagerang, Mogstad and Rønning, 2018). Evidence on changes in the extent of transmission over time is virtually non-existent. Rather, any studies of relevance to trends in wealth transmission either tend to focus on the richest dynasties rather than the relationships found among the majority of the population (for example, Piketty, 2014; and Clark, 2014) or study the impact of parental wealth on child economic or social outcomes (for example, Pfeffer, 2018, documents the growing importance of wealth for children's educational outcomes in the US).

Despite this, intergenerational transmissions of wealth, and their change over time, are of considerable interest to researchers and policy makers. Firstly, wealth determines long-term living standards. It can be used to smooth consumption in the case of income shocks, and returns from wealth can be used to generate income flows and accumulate further wealth (Fagerang et al, 2020). Second, and crucial in the context of this paper, wealth can be directly passed on to the next generation (Laitner, 2002, Fagerang, Mogstad and

Rønning, 2018). Third, wealth is much less equally distributed than income, with around half the population having no wealth at all (Keister and Moller, 2000; Piketty, 2014; Wolff, 2016, Crawford, Innes and O'Dea, 2016).

Figure 1 shows Gini cofficients for net worth and income for selected OECD countries, and there is clearly more inequality in wealth than income[1]. The UK is close to the average, with a Gini for income of 0.36 and for wealth of 0.72. Wealth inequality has also been growing over the last few decades in many countries (Piketty 2014, Roine and Waldenström, 2014). And it is notable that the wealth-capital ratio has risen in developed countries from 200–300% in 1970 to 400–600% in 2010 (Piketty and Zucman, 2014). Piketty (2014) predicts further growth as returns to capital exceed economic growth (a return to the historical norm). All of these patterns provide further reason for intensifying focus on wealth in the study of trends in intergenerational mobility.

A significant constraint facing researchers interested in studying trends in intergenerational wealth transmisson is the difficulty of obtaining data on wealth across multiple, integenerationally linked, generations. Lack of data means that another approach is needed. In this paper, we draw on more readily available data on key wealth components - home ownership and housing value. For many people, property is the most important wealth component, and many data sources contain housing tenure data for children and parents at different points in time.

Housing equity is the largest component of overall wealth in the US (Wolff, 2017) and Great Britain (Crawford, Innes and O'Dea, 2016), and inequality in home ownership is

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[1] Due to difficulties in capturing wealth data, the wealth Gini should be interpreted with extreme caution. The Credit Suisse global wealth reports (from which we derive our estimates) provide a detailed discussion of how these are constructed and the problems with them. Nevertheless, as noted by the annual reports, for countries with both income and wealth data, it is almost always the case that Lorenz curved for wealth lie everywhere below those for income. To mitigate measurement error we only plot wealth Gini's for countries who have data quality classed as good.

an important driver of wealth inequality. This has received attention in the context of the black-white wealth gap in the US (Charles and Hurst, 2002, Boehm and Schlottman, 2004) and growing inequalities between older and more recent cohorts in the UK (Griffith, 2011; Cribb et al, 2016; Clarke et al, 2016). In addition, Aaronson (2000) and Pfeffer (2018) confirm the centrality of home ownership to the intergenerational impacts of wealth by showing that the connection between wealth and children's educational outcomes is well-proxied by home equity and home values, respectively.

The centrality of home ownership for wealth is especially pertinent in the UK context where house prices have grown particularly fast by international standards, as demonstrated in Figure 2. As returns to housing tenure have outstripped returns to other financial assets, the importance of getting onto the 'housing ladder' has increased as a determinant of wealth accumulation over the course of one's life. This has led to concerns that more recent generations of younger individuals have been struggling to get onto the ladder when compared to previous generations.

From an intergenerational perspective, if one's chances of home ownership become more heavily dependant on parental resources, this will strengthen the link between parental and child housing wealth. A recent narrative in the UK is that young people's initial forays into the housing market are increasingly being funded by the so-called Bank of Mum and Dad (as discussed in Wood and Clark, 2018). The proportion of first-time buyers who report receiving direct contributions from family and friends towards a deposit increased from 22% to 29% between 1996 and 2016 (English Housing Survey, 2017). An important role for parental background also emerges in Lindley and McIntosh (2019) who show that, even among young people with professional and managerial occupations, those with parents from higher social classes have a higher probability of home ownership.

In this light, it may seem surprising that the study of intergenerational correlations in home ownership, and their trends, has not been a prime focus of research.[2] This paper presents evidence on this question from a variety of UK data sources. For different cohorts, an individual's home ownership status is related to that of their parents when they were young. A consistent picture emerges – those that reside in owner occupied housing as children are much more likely to themeslves be home owners in middle age. Importantly, it is also possible to study trends. The analysis finds strong evidence of a significant rise in the intergenerational persistence of home ownership, in particular between 2000 and 2010, the period when younger people were finding it difficult to get into the housing market.

How can this be linked to changes in the pattern of intergenerational wealth transmission across generations? The paper presents a series of connected empirical tests to look at this by assessing how closely home ownership, and the value of main residence, are associated with wealth accumulation at different points in time. Considering this in conjunction with the intergenerational home ownership trends, and incoporating both into a model calibration, the paper concludes that intergenerational wealth transmission has strengthened over time in Britain.

The rest of the paper is structured as follows. Section 2 describes the data. Section 3 details the two main sets of results on trends in intergenerational home ownership and on the relationship between wealth and parental home ownership. Section 4 brings together these two sets of findings, developing a model calibration framework to shed light on what they mean for the changing integenerational relationship between parental and child wealth. Section 5 concludes.

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[2] A notable exception is Jenkins and Maynard (1983) who investigate this issue using data from the Rowntree Study of families in York, with the second generation observed in the late 1970s.

2. Data

The initial focus is on the intergenerational correlation in home ownership, because as already stated, wealth data is not frequently recorded in datasets with intergenerational matching. Multi-purpose datasets that do collect wealth data have drawbacks (a good example being the British Household Panel Survey) in that large numbers of respondents fail to answer questions relating to their wealth holdings and among those that do, many answer in a way that is wildly inconsistent with the joint wealth holdings reported by others in their household.[3]

These measurement issues that pertain to wealth do not apply to home ownership status, and to a lesser extent to valuation of one's main residence, both of which are collected regularly in longitudinal data sets. These data allow us to investigate the extent of intergenerational correlation in home ownership and to study how it has changed over time. We can then study the links betweeen home ownership and wealth.

Data to Study Trends in Intergenerational Home Ownership

Several data sources are drawn upon to study trends in intergenerational home ownership. The main analysis looks at individuals at age 42 and relates their home ownership status to that of their parents when they were growing up. We focus on individuals aged 42 because, in intergenerational studies, income at this age of the life cycle has been shown to be representative of permanent income (Haider and Solon, 2006), and it is a key point of observation in two of our datasets. The specific years when we can observe 42 year olds and their parents are as follows:

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[3] Banks et al. (2002) and Crossley and O'Dea (2010) provide a detailed description of wealth data in the BHPS.

a) In 2000 from the National Child Development Study (NCDS), a cohort of all individuals born in a week of March 1958, with parental home ownership measured at cohort member age 16 in 1974.

b) In 2012 from the British Cohort Study (BCS), a cohort of all individuals born in a week of April 1970, with parental home ownership measured at cohort member age 16 in 1986.

c) In 2011 and 2015 from two waves of the Wealth and Asset Survey (WAS) that permit the matching of individuals aged around 42 (40-44) years with their parents' home ownership status recalled from when they were age 14; around 1983 and 1987.

We strive for comparability in terms of the samples and variables used across the datasets, but whilst we can get close it is not possible to make all three data sets fully consistent (see the Data Appendix for more detail). The main point to note is that cross-cohort NCDS and BCS 2000-2012 comparisons and the WAS 2011-2015 comparisons are completely consistent. And, as will be shown below, the estimated intergenerational correlations from 2012 in the BCS and 2011 in WAS are also remarkably similar.

Table 1 shows descriptive statistics. The first two rows shows a fall in the owner-occupancy rate of 42 year olds between 2000 and 2015 from 80 percent to 69 percent.[4] The pattern for the cohort members' parents is notably different with a rise in owner-occupancy from just over 50 percent to over 70 percent between the NCDS observed in 1974 and first WAS observation that is centred on 1983. It is notable that the statistics for the first WAS survey from 2011 and the BCS in 2012 are extremely similar, giving us confidence that we can extend the trends observed in the NCDS and BCS cohort datasets with estimates based on the Wealth and Assets Survey.

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[4] This is in line with estimates derived from the Labour Force Survey that show an owner occupancy rate of 76% for 40-44 year olds in 2000 falling to 61% in 2015.

The second block of numbers give an early indication of the extent of intergenerational links by presenting the home ownership rates of 42 year olds by parental home ownership status. In all cases, there is a substantial and statistically significant gap between the home ownership rates of those with parents who are home owners and those who did not own their own home. This rose substantially from 2000 (the NCDS) and 2011/12 (the BCS and WAS) increasing from a gap of 14 percentage points to 22 percentage points. The data from the 2015 WAS shows a gap of 27 percentage points, indicating a further increase in more recent years.

Data to Study Links Between Home Ownership and Wealth

Some of the same, plus additional, data sources can be used to hone in on the changing relationship between home ownership and wealth. The best source of wealth data is the WAS, which asks detailed information on a comprehensive list of wealth components and over-samples the wealthiest so as to get a good estimate of national wealth. The information obtained from the existing five waves of the WAS is largely consistent with the information obtained from adminstrative data (see Data Appendix).

The cohort studies also feature rudimentary information on wealth components, but these are collected sporadically and their quality is variable. We make use of information on the wealth held in several types of savings and investments for NCDS cohort members in 1991 (at age 33).

Table 2 shows descriptive statistics for these wealth measures. Columns 1 and 2 provide information on individuals aged 42 in the 2011 and 2015 WAS data. These show mean net wealth of £323k in 2012 prices in 2011, rising to £380k in 2015, with the average value of the main residence and the value of savings and investments also rising (albeit by a smaller amount) over this period. Panels 3-7 provide information on wealth for 33 year olds across the four years when we can observe this group. As we have data from 2007 and

2011 we can observe the decline in household wealth associated with the financial crisis which is quite steep with mean net wealth declining from £220k in 2007 to £157k in 2011. After 2011 average wealth, house value, and the value of saving and investments stay constant.

3. Main Results

Trends in Intergenerational Home Ownership

The home ownership status of 42 year olds in the four survey years between 2000 and 2015 is related to the home ownership status of their parents when they were a teenager. We use linear probability models of the determinants of home ownership (OO^{42}) for individual *i* in year t:

$$HO_{it}^{42} = \alpha_t + \beta_t HO_{is}^{parent} + \sum_{j=1}^{J} \gamma_{j,t} X_{it}^{42} + \sum_{j=1}^{J} \delta_{j.s} X_{is}^{parent} + u_{it}^{42} \qquad (1)$$

where HO_{it}^{42} is a dummy that equals 1 if individual i observed at time t, is a home owner at age 42. HO_{is}^{parent} is the home ownership status of individual i's parents when i was a teenager in time period s. X_{it}^{42} are a set of basic controls related to family structure at age 42 and X_{is}^{parent} considers comparable information for the parents during the child's teenage years. These compositional controls include the gender of the individual, whether they have a partner, whether the father lives with the teenager, each parent's age, and the square of these. The time specific intergenerational estimate in equation (1) is given by $\beta_t = \Pr[HO_{it}^{42} = 1 | OO_{it}^{parent} = 1 \mid X_{it}^{42}, X_{is}^{parent}]$.[5] The temporal change in intergenerational transmission between time period t and t' is $\Delta\beta_{t't} = \beta_{t'} - \beta_t$.

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[5] The X variables are a number of compositional controls for individuals and their parents (see the notes to Table 2).

Table 3 presents estimates of β_t from equation (1) for four years (t = 2000, 2011, 2012 and 2015) and of $\Delta\beta_{t't}$ between 2000 and 2015. Panel A shows estimates of the basic unconditional intergenerational transmission. Panel B adds a set of composition variables measuring characteristics of individuals and their parents. The first four columns of Panel A show the extent of intergenerational transmission of home ownership. For the earliest cohort of 42 years olds – the 1958 birth cohort observed in the year 2000 – home ownership is around 14 percentage points higher for those whose parents owned their own property in 1974.[6] This moves higher to 22 percentage points in both 2011 and 2012 and even further to 27 percentage points by 2015.[7] Column (5) indicates that by 2015, the dependency between the home ownership status of 42 year olds and that of their parents is much stronger than it was in 2000.

Panel B confirms that these patterns are robust to the inclusion of basic composition controls. The change over time between both 2000 and 2011/12 and from 2011/12 to 2015 reduces slightly on their inclusion, but the overall increase in intergenerational persistence is still strongly significant.[8]

Wealth and Parental Home Ownership

Links between wealth and parental home ownership are studied using the Wealth and Asset Survey. Several aspects are considered, beginning with wealth differences between home owners and renters conditional upon parental home ownership status, then

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[6] When parental home ownership at age 10 is the main explanatory variable the coefficients are .120 and .200 for the NCDS and BCS respectively, the change is almost identical to the results based on measures at 16. It is notable that associations are slightly stronger for ownership at 16 as owner occupation in the teenager years is available for the majority of our datasets.

[7] The log odds ratios for the upper panel are 0.946 (0.059), 1.011 (0.113), 1.063 (0.065), and 1.167 (0.134)

[8] The slight reduction in the change in coefficients is driven by the inclusion of the individual's partnership status. Those with parents who are owner occupiers are more likely to be in a partnership at age 42, and those with partners are more likely to own their own home.

moving to consiser housing wealth in the same way, and then on to changes in the realtionship between wealth and parental home ownership over time.

First consider differences in wealth between home owners and renters.[9] Figure 3 draws on 2011 and 2015 WAS data to show real (2012 prices) levels of household wealth across the four possible combinations of individual and parental home ownership status. The Figure shows that home owners whose parents also owned their home have the highest mean wealth levels in both years and that, if anything, there are bigger wealth gaps connected to intergenerational home ownership in 2015.

Figure 4 considers connections between wealth and more detailed measures of housing wealth – the value of the main residence (home value) and the same value less any outstanding mortgage on the property (home equity) – showing mean wealth percentile rank plotted against home value or equity percentile rank. There are strong associations, and, whilst home equity has the strongest relationship with a rank-rank slope of 0.829, there is also a strong relationship between the value of one's main residence and wealth. Moving up ten percentiles in the distribution of house values moves a household, on average, 7.4 percentiles up the wealth distribution.

The strength of these contemporaneous relationships between housing tenure, housing wealth, and total wealth suggests that trends in the intergenerational assocations between parental and child housing variables may be of use for evaluating trends in wealth mobility. Ideally, we would have wealth data for multiple cohorts of individuals matched to the wealth of their parents. This does not exist, but the Wealth and Asset Survey does allow

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[9] In practice, those who do not own a home could live rent free, squat, or report 'other' as a form of housing tenure. For simplicity, this group is referred to as renters as renting is by far the largest form of tenure amongst those who do not own their own home.

us to look at the relationship between the percentile rank of an individual in the wealth distribution and their parents' home ownership status.[10]

The results shown in Table focus on 42 year olds in 2011 and 2015 and extend the intergenerational model to look at the relationship between wealth and parental home ownership. The upper Panel A of Table 4 reproduces the home ownership results, whilst Panels B and C consider the relationship between wealth percentiles, log(total wealth), and parental home ownership. Whilst it comes as no surprise that those whose parents owned their home are significantly wealthier, the associations between wealth percentile rank or log(total wealth) and parental home ownership rises across the two years: going from 15 to 19 percentile points for the rank analysis and showing a coefficient rise of 0.330 for log(total wealth).

The data sources other than the WAS are more limited in the data they contain on wealth. The NCDS does contain information on the value of investments and savings, but only collects this in the 1991 wave at age 33 (rather than age 42, - the primary age of interest in this paper). Despite this, the information is useful as it can be used to generate a further cross-time comparison with the WAS. Results for 33/34 year olds are shown in Table 5. As the main analysis reported earlier was presented only for the 42 year olds, the upper Panel shows the intergenerational home ownership transmission trends for this younger age group. A similar finding arises, with their being a sizable increase in intergenerational home ownership persistence over time. In the NCDS in 1991, there is an 18 percentage point gap in ownership between the two groups, which rises to 32 percentage points by 2007 and further to 35 by 2015.

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[10] Strictly speaking the WAS asks about owner occupancy of parents during teenage years but prompts individuals to use age 14 as a benchmark.

Panel B of Table 5 considers the relationship between savings and investments and parental ownership. In 1991 savings and investments were 13 percentile points higher for NCDS cohort members whose parents were home owners, and this rises to 17 percentile points higher in the 2015 WAS. The 4 percentile point rise shown is column (5) is on the margins of statistical significance (with low precision due to small WAS sample sizes), but in line with the results of Table 4 is suggestive of a strengthening relation between wealth and parental home ownership.

4. Intergenerational Wealth Transmission

The results so far show an increase in the intergenerational transmission of home ownership and, at the same time, a strengthening empirical association between wealth and parental home ownership. This section pulls these together to draw out the implications for trends in intergenerational wealth transmission.

Intergenerational Wealth Correlations

There is one UK data source - the British Household Panel Survey (BHPS) - where it is possible to look directly at intergenerational correlations in housing values to proxy for wealth correlations. Although there are clear limitations owing to limited sample size, this is potentially informative since Figure 4 showed an almost one-to-one relationship between housing values and net wealth.

The BHPS began in 1991 and allows intergenerational matching between original sample members and their offspring from then onwards. Table 6 shows results from the BHPS for a sample focused around age 42 in 2016 (i.e. people born in 1974 who would be aged 17 and who are intergenerationally matchable as they would still be living in the parental BHPS household in 1991) and around age 33/34 in 2011 and 2016.

For these samples, panel A of Table 6 shows what happens when we reproduce the earlier intergenerational home ownership regressions. Despite the small sample sizes, the results for the BHPS are strikingly consistent with the results presented earlier from the bigger size samples. The estimates are numerically extremely close. And, as with the earlier analysis, the coefficients from the linear probability regression of home ownership on parental home ownership is larger for those observed in their 30s as compared to those observed in their 40s. Moreover, there is again evidence of increasing persistence from 2011 to 2016 but, with sample sizes of 330 in 2011 and 211 in 2016 this increase is very imprecisely determined.

The strong similarity of intergenerational home ownership transmissoon gives us confidence to look more closely at the BHPS wealth data in these samples. Results in Panel B show the relationship between individuals' home value and parental home ownership. Parents owned their own home are 25-30 percentiles higher in the distribution of housing value in early middle age than those whose parents rented. Results for 42 year olds are broadly comparable and corroborate the WAS estimate in Table 4. Finally, the results in Panel C measure the intergenerational association in home values between the two generations. The results show a rank correlation in a range of 0.36 to 0.42 between housing value across generations.

These results are useful as they open up the opportunity for undertaking a calibration exercise where intergenerational wealth transmissions, and their trend, can be assessed. First of all, they indicate that intergenerational housing wealth persistence is higher than comparable estimates of intergenerational income persistence in the UK (Blanden et al, 2004, 2013 and Rohenkohl, 2020 suggest that income persistence is around 0.30).[11] It is

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[11] Estimates from our own age 42 sample, in the 2016 BHPS, accord closely with a coefficient and associated standard error of 0.317 (0.085)

worth noting that this pattern is in line with US results in Charles and Hurst (2003) for the US. Second, given the close connections between home value and wealth shown earlier in the WAS data, they give scope to transfer over the arguments to changing intergenerational wealth transmission. The case for this is very much strengthened by the fact that they are so similar in magnitude to the other comparable estimates presented earlier.

Changing Intergenerational Wealth Correlations

It is now possible to put together the findings reported to date into a calibration framework to consider trends over time in intergenerational wealth transmission. This uses the intergenerational rank slopes in housing values, together with the linearity of the relationship between the value of one's home and one's total wealth, and the trends in intergenerational home ownership.

First, consider the regression of the value of an individual's home at age 42 on the value of their parental home when they were a teenager. In (2) and HV_{is}^{parent} and HV_{it}^{42} are percentile ranks in the relevant generation's home value distribution.

$$HV_{it}^{42} = \eta_0^{parent} + \eta_1 \, HV_{is}^{parent} + \varepsilon_{is}^{parent} \tag{2}$$

The following measurement equation's for age 42 individuals, and their parents, in their respective generations s and t relates wealth ranks, W, to the value of one's main residence, HV:

$$HV_{ij}^k = \pi_0^k + \pi_1^k W_{ij}^k + \omega_{ij}^k \text{ for } \{j = s,t\} \text{ and } \{k = parent, 42\} \tag{3}$$

Under suitable assumptions about the relationship between W and HV, it is possible to obtain estimates of the wealth rank-rank slope. Obviously if housing wealth was the only component of wealth, where the π_1 parameters in linear projections of housing value on wealth (are equal to one) then the η_1 parameter in (3) would be the intergenerational

parameter of interest. More generally, however, substituting the projection equations for parents and age 42 individuals into (3) enables a calibration of intergenerational transmission, and its change over time, to be undertaken.

The framework can obtain a relative measure of intergenerational transmission across the two generations s and t to be obtained. This can then be anchored to the BHPS estimate to study trends over time. Essentially this rescales the estimate of the rank-rank slope in housing values of Table 6 by dividing through the coefficient, estimated for those aged 42 in 2016, by $\pi_1^{\text{parent}} \big/ \pi_1^{42}$. In the case when the relationship between the value of one's main residence and wealth is stable over time, or if the relationship is the same for those in generations s and t, the rank slope in housing values is the same as the underlying wealth correlation.

As wealth and ownership are observed jointly in the Wealth and Asset Survey, we can get some idea of the magnitude of the two π_1^k coefficients. In the WAS data, running from 2006/08 to 2014/16, and focusing on the age 42 sample, differences in wealth ranks by percentile of house values range from 59 to 65 percentile points. An upper bound estimate for the wealth correlation can be obtained by dividing though the BHPS coefficient of 0.415 by 59/65, with a lower bound obtained by dividing though by the inverse, 65/59.

The idea is that home ownership moved parents at most 65, and at least 59, percentile rank points up the wealth distribution at the time of measurement. One might worry that the relationship between wealth rank and ownership, when viewed over a longer time frame, might be very different to the estimates taken from the narrow window available in WAS. To appraise the credibility of this approach, we take the earliest available data that we can find that contains information on both wealth and housing values – the 1995 release of the

BHPS.[12] This can be used to gauge the extent to which the relationship between ownership and wealth has remained stable over a 20-year period. Reassuringly the coefficient (0.617 with an associated standard error of 0.026) from this sample is at the midpoint between the upper and lower bounds estimated from the WAS.

The calibration has a range in the 2016 rank-rank slope of parent and child wealth between 0.377 and 0.457. Turning to consider changes over time, because we only have estimates of rank slopes in housing wealth for a single cross section then additional assumptions are required. These can then be relaxed in an upper/lower bounds exercise. A first assumption is that the difference between the intergenerational ownership correlation and the housing wealth slope is constant over time. A second is that the ratio of the ownership correlation and the rank slope in housing values has remained constant over time - put differently, that the percentage change in housing rank slopes over time match the percentage changes in home ownership correlations.

Adopting these assumptions enables a backing out of rank slopes in housing values derived from the intergenerational home ownership correlations reported in Table 2. The first requires adding 0.148 – the difference between the 2016 BHPS ownership correlation and the rank slope in housing values – to the top panel of Table 2. The second needs multiplying through by 1.55 – the ratio of the rank slope in housing value and the ownership correlation estimated from the 2016 BHPS - to get intergenerational housing value rank slopes from the scaled home ownership correlations. As show in the previous section, a bounding exercise can then be undertaken to obtain implied rank slopes in wealth from the implied rank slopes in housing values. This is done by scaling by a range of plausible values

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[12] The BHPS measure of wealth excludes pension wealth, but includes savings, investment assets such as ISAs, debt outstanding and home equity. We do not use BHPS wealth data in our main sample due to the low sample size once individuals are matched to their parents and those with missing/incomplete wealth data are removed from the sample.

of the $\pi_1^{parent} \big/ \pi_1^{42}$ ratio. The upper and lower bound estimates, under both sets of assumptions on how housing rank slopes relate to ownership correlations, are plotted in Figure 5. Alongside these, the underlying ownership correlations are also plotted. The midpoints on the bounds are the imputed relationship between parental and child housing values from which the wealth correlation is derived - the constant scaling case when $\pi_1^{parent} \big/ \pi_1^{42} = 1$. The vertical lines span the correlation implied by varying the adjustment ratio from 65/59 to 59/65.

Figure 5 very much confirms that the main result of an upward trend in intergenerational persistence holds for wealth as well as for homeownership. The Figure shows that when one compares the implied upper bound of the wealth correlation in the two cohort studies (for those aged 42) with the lower bound of the correlation implied by the BHPS and WAS estimates there is a rise in the intergenerational transmission of wealth over time. Therefore, the results point to a fall in intergenerational wealth mobility over time.

It should also be noted that the result of increased wealth persistence (lower wealth mobility) holds under both of the assumptions are adopted Under either assumption, and under a range of plausible values for the projection of wealth ranks onto housing value ranks, the same qualitative finding emerges.

5. Conclusion

This paper focuses on an understudied area of social mobility and inequality research - trends in intergenerational wealth transmission. The scarcity of research on whether the intergenerational transmission of wealth has shifted through time is not because of lack of interest. Rather, the ideal data with which to study trends in intergenerational wealth

transmission is not available. In this paper, we estimate changing intergenerational patterns of home ownership and connections between home ownership and wealth and use these results to infer trends in intergenerational wealth transmission.

There is evidence of a strong upward trend in the intergenerational persistence of home ownership status which increased substantially between 2000 and 2015. At the same time there is evidence of strong empirical relationships between measures of wealth and home ownership of parents and children. Combining these in a model calibration to derive upper and lower bounds on the intergenerational transmission of wealth over time, the principal finding of the paper is that intergenerational wealth transmission strengthened over time in Britain at the start of the 21st century.

Figure 1: Income and Wealth Inequality, Selected OECD Countries
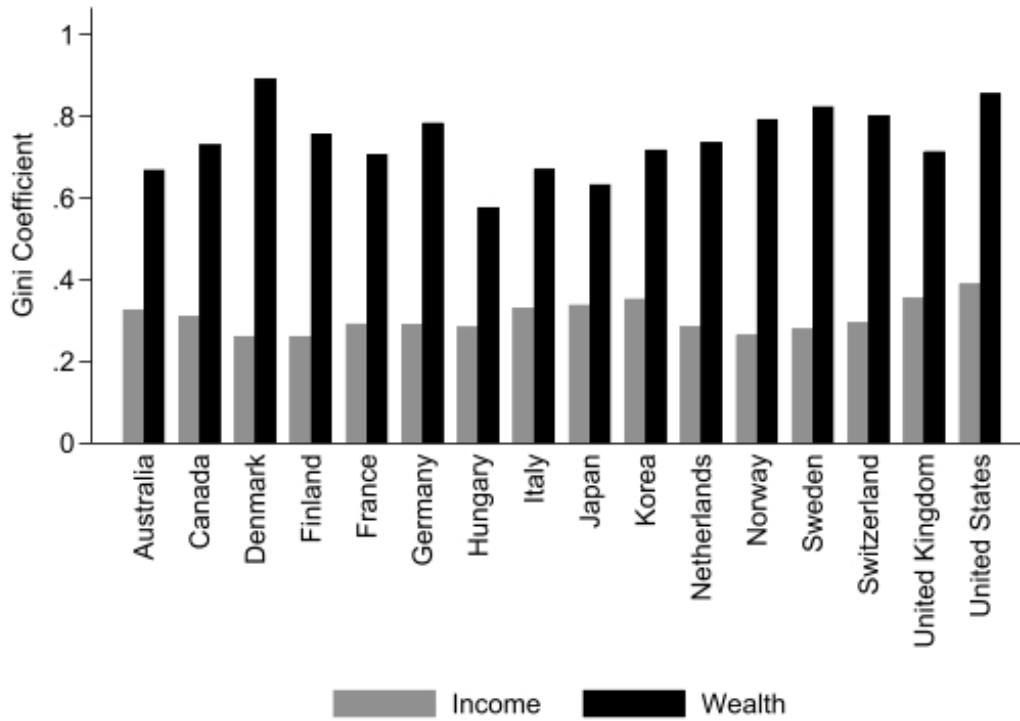
Notes: estimates of income and wealth inequality are taken from the OECD (income) and the annual Credit Suisse wealth report (wealth). Income is disposable income after taxes and transfers.

Figure 2: House Price Growth, 1970-2019
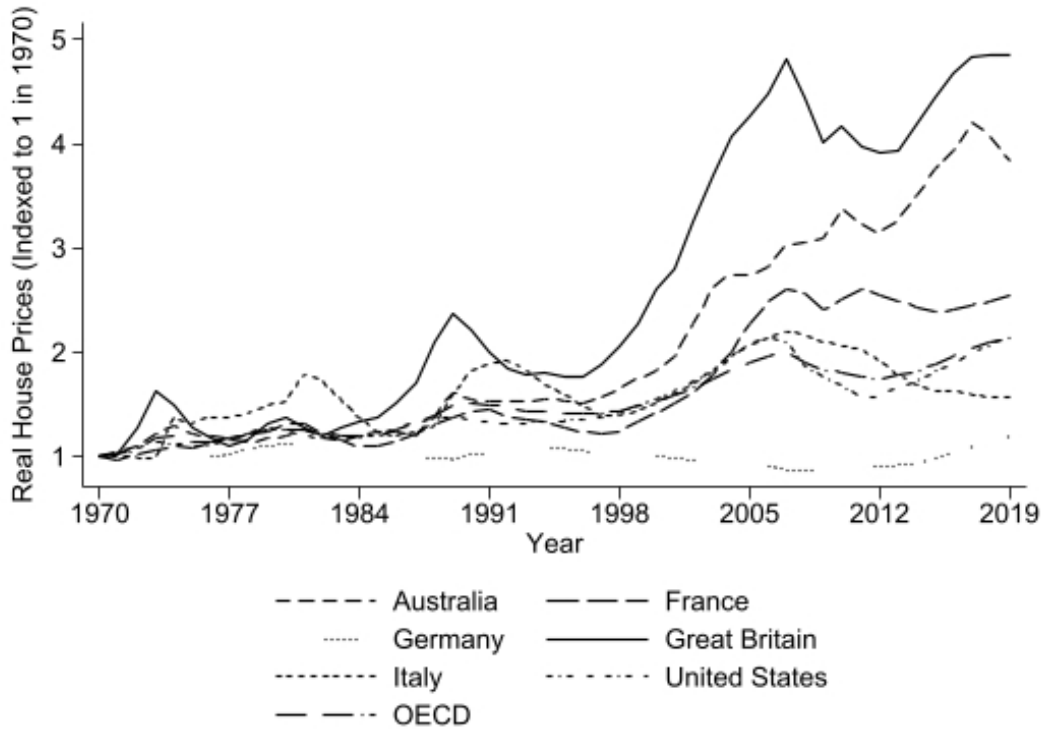
Notes: Author's own calculations using OECD house price indices. Figure refers to real house price growth.

Figure 3: Wealth and Parental Home Ownership
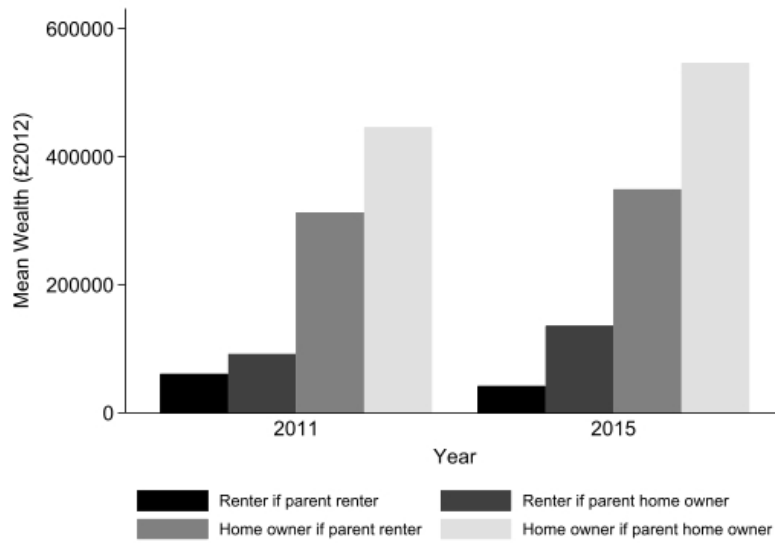
Notes: Figure 3 uses total net wealth data provided by waves 3 and 5 of the Wealth and Asset Survey. Age and ownership are measured with respect to the household reference person. Results are averaged over ages 40-44 to avoid small sample sizes. Total wealth is in 2012 prices

Figure 4: Wealth and Home Value or Home Equity

Rank-Rank Slope = 0.741 (0.011)

Rank-Rank Slope = 0.829 (0.012)
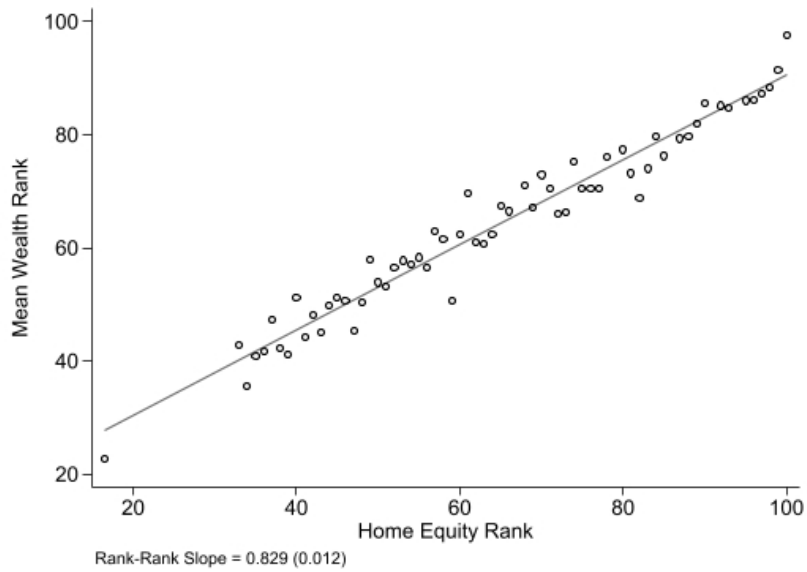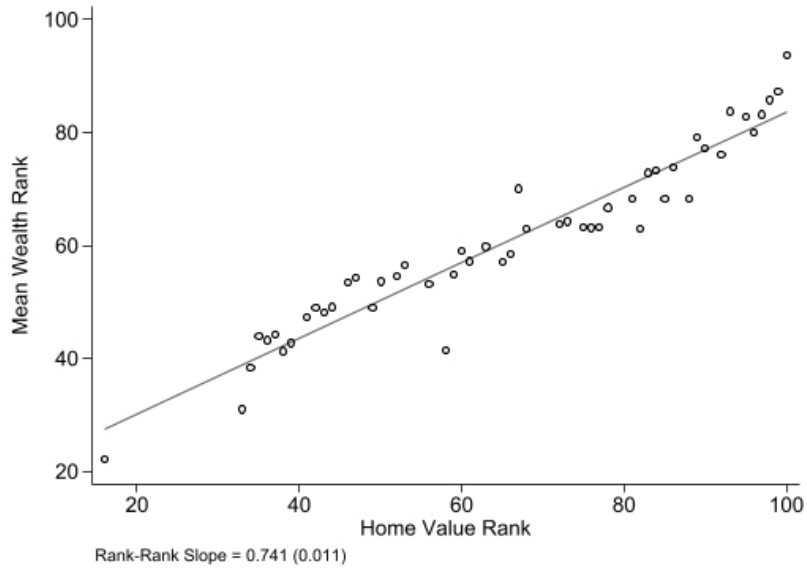
Notes: Figure 5 plots the average percentile of wealth within each percentile bin of home equity and home values using data from the 2015 WAS. Bins are not of equal size because percentiles are calculates using all ages and household weights. As a result of this, we remove bins with fewer than five observations. Rank-rank slopes are calculated from the underlying microdata.

Figure 5: Bounds for Intergenerational Wealth Rank-Rank Correlations
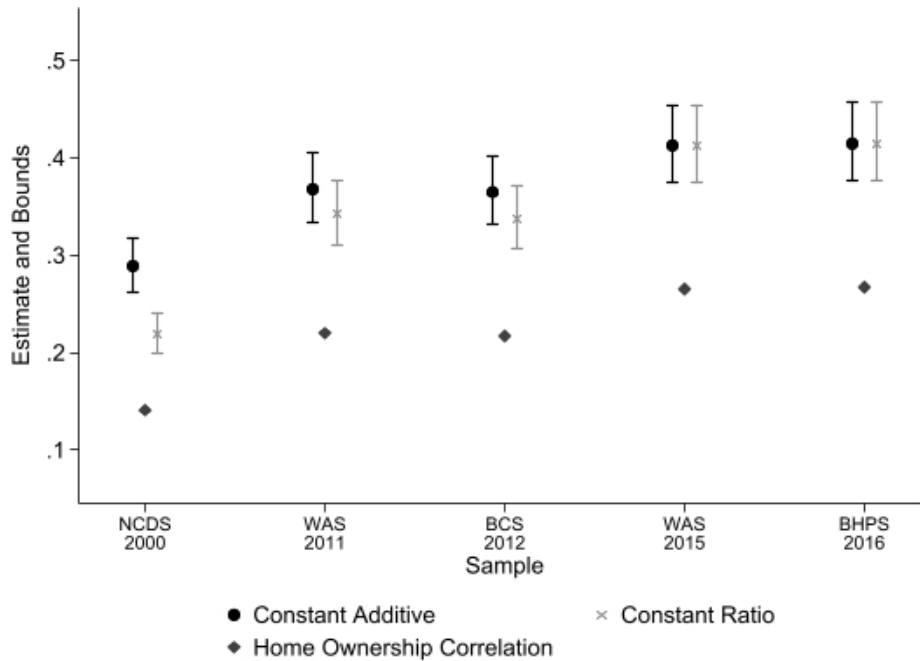
Notes: This Figure uses estimates of intergenerational home ownership correlations (taken from the BCS, NCDS, BHPS, and WAS), the estimate of the rank slope in parental and child housing values (taken from the BHPS), and estimates of the relationship between home ownership and wealth, taken from the WAS, to provide bounds on the rank-rank slope between parental and child wealth. We convert the estimates of home ownership correlations to estimates of rank slopes in housing wealth using two separate assumptions - a constant difference in these two coefficients over time (labelled Constant Additive) and a constant ratio of the coefficients (Constant Ratio). As we can estimate both the ownership correlation and the housing values rank slope in the 2016 BHPS, we an estimate the difference as 0.148 and the ratio as 1.55. The Table 2 estimates, which play a key role in deriving the estimates above, are presented as diamonds in the figure.

Table 1: Data to Study Trends in Intergenerational Home Ownership, Descriptive Statistics

	NCDS	WAS	BCS	WAS
	(1)	(2)	(3)	(4)
% Home owner	81.0	71.1	75.4	68.6
% Parent home owner	51.3	72.8	76.5	74.1
% Home owner if parent home owner	87.9	77.1	80.5	75.5
% Home owner if parent not home owner	73.7	55.1	58.8	48.9
% Gap	14.2 (0.9)	22.0 (2.6)	21.7 (1.4)	26.6 (3.1)
Home ownership year	2000	2011	2012	2015
Parent home ownership year	1974	1983	1986	1987
Sample Size	8352	1771	6181	1271

Notes: The NCDS and BCS are single year birth cohorts matching cohort members at age 42 to parents at age 16. The WAS are multiple year birth cohorts matching individuals aged 40-44 (with centred age 42) to parents at age 14. Standard errors are reported in parentheses.

Table 2: Data to Study Links Between Wealth and Parental Home Ownership, Descriptive Statistics

	WAS (1)	WAS (2)	NCDS (3)	WAS (4)	WAS (5)	WAS (6)
Mean net wealth (2012 prices)	£323,745	£380,285	Not available	£221,785	£157,501	£176,950
Mean value of main residence, for home owners (2012 prices)	£255,393	£275,764	Not available	£238,275	£203,808	£190,765
Saving and investment (2012 prices)	£42,069	£43,380	£11,929	£27,940	£19,651	£19,899
Sample Size	2011	2015	6774	1269	1159	898
Year	1771	1271	1991	2007	2011	2015
Age	42	42	33	33/34	33/34	33/34

Notes: The NCDS is a single year birth cohorts matching cohort members at age 33 to parents at age 16. The WAS are multiple year birth cohorts matching individuals aged 33/34 and 40-44 (with centred age 42) to parents at age 14.

Table 3: Trends in Intergenerational Home Ownership Transmission

	NCDS 2000	WAS 2011	BCS 2012	WAS 2015	Change (4)-(1)
	(1)	(2)	(3)	(4)	(5)
A. Basic Intergenerational					
Parent home owner	0.141	0.220	0.217	0.265	0.124
	(0.009)	(0.026)	(0.014)	(0.031)	(0.032)
B. Compositional Controls					
Parent home owner	0.135	0.186	0.188	0.231	0.096
	(0.008)	(0.025)	(0.014)	(0.031)	(0.034)
Home ownership year	2000	2011	2012	2015	
Parent home ownership year	1974	1983	1986	1987	
Sample size	8352	1771	6181	1271	

Notes: Panel (B) adds controls for age, age squared, average age of parents, the square of this, gender, the presence of a father during childhood, and the presence of a partner. All parental variables in the WAS are retrospectively asked and individuals are prompted to report values as they were at age 14. For this reason, parental age at observation is unobserved. For obvious reasons, we do not control for age in the two cohort regressions (Columns (1) and (3)). Robust standard errors are reported in parentheses.

Table 4: Wealth and Parental Home Ownership, Wealth and Asset Survey

	WAS 2011 (1)	WAS 2015 (2)	Change (2)-(1) (3)
A. Home Owner			
Parent home owner	0.220 (0.026)	0.265 (0.031)	0.045 (0.040)
Sample size	1771	1271	
B. Wealth Percentile			
Parent home owner	0.151 (0.013)	0.194 (0.012)	0.043 (0.010)
Sample size	1771	1271	
C. Log(Total Wealth)			
Parent home owner	0.813 (0.083)	1.143 (0.105)	0.330** (0.134)
Sample size	1748	1251	

Notes: Total wealth is the percentile in the total weighted wealth distribution and includes financial wealth, property wealth, and pension assets.

Table 5: Wealth and Parental Ownership, Age 33/34

	NCDS 1991	WAS 2007	WAS 2011	WAS 2015	Change (4)-(1)
	(1)	(2)	(3)	(4)	(5)
A. Home Owner					
Parent home owner	0.181	0.317	0.341	0.345	0.164
	(0.009)	(0.031)	(0.033)	(0.037)	(0.038)
Sample size	6774	1269	1159	898	
B. Saving and Investment Percentile					
Parent home owner	0.125	0.152	0.168	0.166	0.041
	(0.079)	(0.016)	(0.015)	(0.016)	(0.026)
Sample size	6774	1269	1159	898	

Notes: Robust standard errors are reported in parentheses.

**Table 6: Intergenerational House Value Transmission,
British Household Panel Survey**

	BHPS 2016, Age 42	BHPS 2011, Age 33/34	BHPS 2016, Age 33/34
A. Home Owner			
Parental home owner	0.267 (0.118)	0.319 (0.070)	0.369 (0.076)
Sample size	168	334	211
B. House Value Rank			
Parental home owner	0.246 (0.074)	0.284 (0.042)	0.265 (0.045)
Sample size	168	334	211
C. House Value Rank			
Parental house value rank	0.415 (0.081)	0.363 (0.052)	0.390 (0.060)
Sample size	168	334	211

Notes: House value ranks come from self-reported values for the main residence. These are ranked in the BHPS sample. While we do not use weights when calculating the rank, the results are, as shown in the Appendix, largely unaffected by their use.

References

Aaronson, D. (2000) A Note on the Benefits of Homeownership, *Journal of Urban Economics*, 47, 356-369.

Banks, J., Z. Smith and M. Wakefield (2002) The Distribution of Financial Wealth in the UK: Evidence from 2000 BHPS Data, IFS Working Paper no. 02/21, Institute for Fiscal Studies.

Bell, B., J. Blundell and S. Machin (2019) The Changing Geography of Intergenerational Mobility, Centre for Economic Performance Discussion Papers 1591.

Black, S. and P. Devereux (2011) Recent Developments in Intergenerational Mobility, in in O. Ashenfelter and D. Card (eds.) Handbook of Labor Economics, Volume 4B, North Holland.

Black, S., P. Devereux, P. Lundborg and K. Majlesi (2015) Poor Little Rich Kids? The Determinants of the Intergenerational Transmission of Wealth, NBER Working Paper 21409.

Blanden, J. (2019) Intergenerational Income Persistence, IZA World of Labor, Institute of Labor Economics (IZA), 176.

Blanden, J., A. Goodman, P. Gregg and S. Machin (2004) Changes in Intergenerational Mobility in Britain, in M. Corak (ed.) *Generational Income Mobility*, Cambridge University Press.

Blanden, J., P. Gregg and L. Macmillan (2013) Intergenerational Persistence in Income and Social Class: The Impact of Within-Group Inequality, *Journal of Royal Statistical Society: Series A*, 176, 541-63.

Blanden, J. and S. Machin (2017) Home Ownership and Social Mobility, Centre for Economic Performance Discussion Paper No. 1466.

Boehm, T. and A. Schlottmann (2004) The Dynamics of Race, Income, and Homeownership, *Journal of Urban Economics*, 55, 113-130.

Charles, K. and E. Hurst (2002) The Transmission to Homeownership and the Black-White Wealth Gap, *The Review of Economics and Statistics*, 84, 281-297.

Charles, K. and E. Hurst (2003) The Correlation of Wealth across Generations, *Journal of Political Economy*, 111, 1155-1182.

Chetty, R., N. Hendren, P. Kline and E. Saez (2014) Where is the Land of Opportunity? The Geography of Intergenerational Mobility in the United States, *Quarterly Journal of Economics*, 129, 1553-1623.

Clark, G. (2014) *The Son Also Rises: Surnames and the History of Social Mobility*, Princeton University Press.

Clarke, S., A. Corlett and L. Judge (2016) The Housing Headwind: The Impact of Rising Housing Costs on UK Living Standards, Resolution Foundation Report, Resolution Foundation.

Costa, R. and S. Machin (2017) Real Wages and Living Standards in the UK, Centre for Economic Performance Election Analysis No. 36.

Cowell, F., B. Nolan, J. Olivera, and P. Van Kerm (2017) Wealth, Top Incomes and Inequality, Luxemburg Wealth Study Working Paper No. 24

Cribb, J., A. Hood and R. Joyce (2016) The Economic Circumstances of Different Generations: The Latest Picture, IFS Briefing Note BN187, Institute for Fiscal Studies.

Crawford, R., D. Innes and C. O'Dea (2016) Household Wealth in Great Britain: Distribution, Composition and Changes 2006–12, *Fiscal Studies*, 37, 35-54.

Crossley, T. and C. O'Dea (2010) The Wealth and Saving of UK Families on the Eve of the Crisis, Institute for Fiscal Studies.

Dearden, L., S. Machin and H. Reed (1997) Intergenerational Mobility in Britain, *Economic Journal*, 107, 47-66.

Department for Communities and Local Government (2017) English Housing Survey: First Time Buyers, 2015-2016, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/626887/First_Time_Buyers_report.pdf

Dietz, R. and D. Haurin (2003) The Social and Private Micro-Level Consequences of Homeownership, *Journal of Urban Economics*, 54, 401-450.

Erikson, R. and J. Goldthorpe (2010) Has Social Mobility in Britain Decreased? Reconciling Divergent Findings on Income and Class Mobility, *British Journal of Sociology*, 61, 211-230.

Fagereng, A., L. Guiso, D. Malacrino and L. Pistaferri (2020) Heterogeneity and Persistence in Returns to Wealth, *Econometrica*, 88, 115–170.

Fagereng, A., M. Mogstad and M. Rønning (2018) Why do Wealthy Parents have Wealthy Children?,CESifo Working paper, 6955.

Gregg, P., L. Macmillan and C. Vittori (2017) Moving Towards Estimating Sons' Lifetime Intergenerational Economic Mobility in the UK, *Oxford Bulletin of Economics and Statistics*, 79, 79-100

Griffith, M. (2011) *Hoarding of Housing: the Intergenerational Crisis in the Housing Market*, London: The Intergenerational Foundation.

Haider, S. and G. Solon (2006) Life-Cycle Variation in the Association between Current and Lifetime Earnings, *American Economic Review*, 96, 130-1320.

Jenkins, S. and A. Maynard (1983) Intergenerational Continuities in Housing, *Urban Studies*, 20, 431-438.

Keister, L. and S. Moller (2000) Wealth Inequality in the United States, *Annual Review of Sociology*, 26, 63-81.

Laiter, J. (2002) Wealth Inequality and Altruistic Bequests, *American Economic Association Papers and Proceedings*, 92, 270-273.

Lindley, J. and S. McIntosh (2019) The Social Mobility of Homeownership: To What Extent have the Millennials Fared Worse?, Sheffield Economic Research Paper Series Number 2019012.

Mulligan, C. (1997) *Parental Priorities and Economic Inequality*, University of Chicago Press.

Pfeffer, F. (2018) Growing Wealth Gaps in Education, *Demography*, 55, 1033–1068.

Piketty, T. (2000) Theories of Persistent Inequality and Intergenerational Mobility in A. Atkinson and F. Bourguignon (eds.) *Handbook of Income Distribution*, Volume 1, North Holland.

Piketty, T. (2014) *Capital in the Twenty-First Century*, Belknap Press of Harvard University Press.

Piketty, T., and G. Zucman (2014) Capital is Back: Wealth-Income Ratios in Rich Countries, 1700-2010, *Quarterly Journal of Economics*, 129, 1155-1210.

Roine, J. and D. Waldenström (2005) Theories of Persistent Inequality and Intergenerational Mobility, in A. Atkinson and F. Bourguignon (eds.) *Handbook of Income Distribution*, Volume 2, North Holland.

Rohenkohl, B. (2020) *Essays in Social Mobility* PhD Thesis, University of Sheffield.

Solon, G. (1999) Intergenerational Mobility in the Labor Market in O. Ashenfelter and D. Card (eds.) *Handbook of Labor Economics*, Volume 3, North Holland.

Wagner, S,. D. Boertien and M. Gortz (2020) The Wealth of Parents: Trends Over Tie in Associative Mating Based on Parental Wealth, IZA Discussion Paper No 12999.

Whitehead, C. and P. Williams (2011) Causes and consequences? Exploring the shape and direction of the housing system in the UK post the financial crisis, *Housing Studies*, 26, 1157-1169.

Wolff, E. (2016) Household Wealth Trends in the United States, 1962 to 2013: What Happened over the Great Recession?, *RSF: The Russell Sage Foundation Journal of the Social Sciences*, 2, 24–43.

Wood, J. and S. Clarke (2018) House of the rising son (or daughter): The Impact of Parental Wealth on their Children's Homeownership, Resolution Foundation Report, Resolution Foundation.

Appendix A: Data

NCDS and BCS Cohorts

The earliest data we have available comes from the National Child Development Study, a cohort born in 1958 and the British Cohort Study, a cohort born in 1970. The target sample for each cohort consisted of babies born in a single week, with around 18,000 included at the start. They have been followed up regularly from birth, throughout childhood and into adulthood with the most recent surveys occurring at age 60 (in 2018) for the NCDS and age 46 (in 2016) for the BCS. These data have been extensively used to examine intergenerational mobility in income (Dearden et al, 1997; Blanden et al, 2004; Gregg et al, 2016) and in social class (Erikson and Goldthorpe, 2010).

Our analysis will focus on household tenancy which is collected at various points during childhood although we focus on the measure obtained at age 16, as that is more comparable with the other data we use. The main outcome measure for the cohort members is the measure of owner occupancy at age 42, in 2000 for the NCDS and 2012 for the BCS, and we also consider earlier measures at ages 33 and 34 respectively. We combine outright ownership and buying with a mortgage into the category 'owner occupation'. It is notable that using this outcome measure increases the sample sizes and therefore representativeness of our data compared with previous studies that have relied on earnings as the main dependent variable. This is a further advantage of our approach for studying intergenerational connections.

In addition to information on housing tenure, make use of information on the wealth held in several types of savings and investments for NCDS cohort members in 1991 (at age 33). These include bank accounts, stocks and shares and property aside from the main residence. The British Cohort Study at age 42 also asks about home value, mortgage outstanding and the value of savings and debt. This allows us to generate a simple measure of wealth. However, the distribution of this variable compares poorly with the wealth data from

the WAS in 2011 so we do not use it in our main analysis. However, results obtained based on the individual's percentile in this wealth distribution are broadly comparable with those from the WAS in 2011.

In forming our samples we select all cohort members with information on the variables of interest, this is most commonly home ownership for the cohort members and their parents. We might be concerned about attrition given that the cohorts have been followed from birth and require information on their housing tenure at age 42. Table A1 gives information about initial and final sample sizes in both cohorts, detailing where observations are lost. The patterns in the two cohorts are somewhat different, with the NCDS experiencing a large sample loss up to age 11, and the BCS samples continuing to fall to age 16. It is notable that the final samples in the two cohorts are much larger than those used to measure intergenerational income mobility in, for example, Blanden, Gregg and Macmillan (2013), which has N=2109 in the NCDS and N=1932 for the BCS. The appendix to Blanden, Gregg and Macmillan (2013) examines the attrition in the income samples and concludes that it is unlikely to be responsible for the increase in income persistence that is found, we are therefore fairly confident that attrition is not driving the direction of travel found using these larger samples.

Table A1: Sample Selection in the NCDS and BCS

	Number of Observations	
	National Child Development Study	British Cohort Study
In the first sweep	18,558	17,196
In at age 11/10	10,934	14,875
In at age 16	11,661	11,615
With housing information at age 16	11,624	9,378
In at age 33/34	8,472	9,665
With housing information at 33/34	7,714	9,602
With housing information at 16 and 33/34	7,687	6,392
In at age 42	8,433	9,841
With housing information at 42	8,375	9,754
With housing information at 16 and 42	8,352	6,267

Wealth and Asset Survey (WAS)

The WAS is a household survey that aims to provide a comprehensive overview of the total assets and liabilities of households in Great Britain. Each wave covers two years with wave 1 covering 2006-2008 and wave 5 covering 2014-2016. 30,959 were sampled at the initial wave and these households were followed up in subsequent waves. Our analysis focuses on the data from Waves 1, 3 and 5.

Compared to other UK surveys the WAS has particularly detailed information on wealth holdings of its sample members. Wealth is defined as the sum of pension wealth, housing wealth, financial wealth, and physical assets. These components capture equity held in property, accumulated pension funds, the value of future pension payments, holdings of stocks and bonds, and the insurance value of various durables (such as cars)[13]. For each household interview, we also measure whether the household reference person owns the primary residence.

As is common in data sets focused on wealth, there is substantial attrition in the WAS, but this is addressed by the use of top-up surveys in later waves. WAS oversamples the very wealthy. This is motivated by the fact that total wealth is highly concentrated amongst the wealthiest in society and oversampling this group is necessary to get a comprehensive overview of the nation's total asset holdings. We adjust for this by using cross sectional weights to calculate wealth percentiles. We do not use weights when computing our intergenerational estimates, as nationally representative weights are unsuitable when considering particular age groups as we do here. Our results are largely unchanged when weights are applied. Using longitudinal weights in our 2011 sample (which adjust for attrition between waves 1 and 3 of WAS) inflates our estimate of homeownership persistence to 0.236 (0.037). Cross sectional

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[13] The physical assets questions ask for replacement values but mentions that replacement values are similar to insured values.

weights applied to the same sample shift the coefficient to 0.230 (0.030). Looking at wave 5, applying weights leads to two estimates that sandwich our unweighted coefficient - longitudinal weights increase our estimate to 0.300 (0.061), while cross sectional weights shrink the coefficient to 0.243 (0.035). Even in the latter case, there remain a large discrepancy between the intergenerational relationship measured in 2000 using the NCDS and the relationship measured 15 years later in WAS.

Although the WAS data is self-reported, the data collected is by and large consistent with administrative sources. As a check we benchmark information against other datasets. Looking at the 2014/16 wave of data, earnings data in the WAS provide a reasonable match to earnings reported to the HMRC; for instance, total gross household earnings in the WAS amount to £11.32 billion as compared to the £9.77 billion reported to the HMRC. HMRC also collect information on income from property, interest, dividend, and other income. WAS does a reasonable job of capturing this as well – over the relevant period, HMRC reported such income to amount to £86.9 billion as compared with the £75.4 billion reported in WAS. When looking at housing variables, the WAS can be compared to the English Housing Survey. While home ownership rates differ little across the two – WAS has higher home ownership of 67% compared the EHS's 63% - the difference is slight. Despite this, WAS values of self-reported housing wealth appear inflated relative to the national average – ONS house price indices put average house prices between £195,000 and £208,000 between July 2014 and June 2016 whereas the WAS suggests an average property price of around £280,000. As can be seen from Table 1, house prices in our sample are higher than the national average (who have an average of closer to £275,000 than £200,000). The source of this difference is not entirely clear. It could be that house price indices understate property values, because of selection into the market, or self-reported valuations overstate them. Similarly, we focus on those aged 40-44 –

a group whose house valuations may not be representative of the overall population of homeowners.

The WAS can used for intergenerational analysis because it collects retrospective information, for those aged over 25, about economic conditions as a teenager. We use the information about the tenancy status of one's parents at age 14 to estimate the intergenerational home ownership transmission for the individuals in the WAS.

The samples used in the WAS focus on individuals in their early 30s and 40s and are motivated by the need to be comparable with the ages when the cohort members were surveyed. We select individuals who are 40-44 to be comparable with the age 42 data and age 32-36 to be comparable with the age 33/34 data. Our analysis focuses on the household reference person. The focus on the household reference person leads to a slight oversampling of men. In our age 42 samples in 2011(wave 3) and 2015 (wave 5), 60% of our sample are male. This compares with 51% of the NCDS sample and 54% of the BCS. Nevertheless, controlling for gender in our basic specifications does little to alter our results. In the 2011 sample, the main intergenerational ownership correlation falls from 0.220 (0.025) to 0.215 (0.025). In the 2015 sample, the fall is 0.252(0.030) from 0.265 (0.031).

British Household Panel Study (BHPS)

Beginning in 1991 the BHPS covered a representative sample of 5,500 UK households and 10,300 adults aged 16 and above. Since then, data covering original sample respondents, and the individuals who reside with them, have been collected on an annual basis. The sample is augmented when original members (including children) leave to form a different household or individuals move in with the original sample members. In 2008, Understanding Society – a larger and more comprehensive study - replaced the BHPS.

The design of the BHPS allows us to match parents and children, however the sample sizes are rather small, leading to imprecise estimates. We therefore rely on the cohort studies

and the WAS for the majority of our empirical evidence. However, as the BHPS contains information on housing values for both parents and children we use it to supplement our main analysis.

While we report ownership correlations using the BHPS, our primary interest motivation for using this data is that collects, self-reported, data of the value of one's main property for both children and parents. This allows us to calculate the rank-rank relationship between child and parental house values. It is particularly advantageous to measure house values for both the parents and the offspring due to the strong link between wealth and the value of the main residence discussed earlier in the main text. In principle, one can also measure wealth in the BHPS. Previous work has used the wealth modules in the BHPS to paint a picture of how wealth is distributed in the UK (Crossley and O'Dea; 2010). Using the same data for intergenerational analysis is somewhat problematic. Once individuals are matched to their parents and non-missing or non-conflicting wealth data are removed, the resulting sample sizes are very small.

Our sample consists of those aged 32-36 (age 33/34 sample) and those aged 41-43 (age 42 sample) in 2015/2016/2017. We also estimate models for 32-36 year olds in 2010/2011/2012. Rather than average outcomes over the multiple years, we retain the 2011 and 2016 records when possible and the earliest record when not (so an individual observed in 2015 and 2017, but not 2016 would have the 2015 record retained).

In each case we match with parental records in 1991/1992/1993. We retain parental variables from the earliest of the three years. As individuals must reside with their parents in at least one wave in order to be linked with their parents, our final sample consists of individuals who, at some point during the BHPS data collection, lived with their parents.

As we want to focus on those who match with their parents during childhood and their teenage years, we focus on the offspring of those in the original BHPS 1991 sample. These

individuals are between the ages of 12 and 18 in 1991. We then look at the subsample of these aged 32-36 in 2011 (2010/2012 for those that do not match in 2011) and 2016 (2015/2017 for those that do not match in 2016) alongside those aged 41-43 in 2016 (2015/2017 for those that do not match in 2016. Our final samples are selected based on comparability with the BCS and NCDS samples (in terms of the age at which we measure outcomes), sample size[14], and the desire to focus on those who match with parents by virtue of living with them during child/teenage hood.

Amongst those of the relevant age group who match with a parental record, we retain individuals who are household reference persons (or the partners of household reference persons). We also consider only those for whom one of their parents is a household reference person in the years when the parental variables are measured.

As we look at rank-rank slopes when assessing the relationship between parental housing wealth and child housing wealth, we need to assign individuals to a percentile of the distribution of house prices. In doing so, we set house values to zero for those who do not own before calculating percentiles on a wave-by-wave basis using the full BHPS sample. We do not use household weights when doing this due to BHPS household weights throwing out large portions of the sample. Remarkably applying weights when calculating percentiles leads to an identical point estimate for the rank slope 42 year olds despite the sample size falling from 168 to 116. None of the other point estimates differ much either – the age 36 estimate in 2016 falls to 0.351 (0.069) from 0.390 (0.059), while the 2011 estimate for 36 year olds rises to 0.400 (0.057) from 0.363 (0.052). Following Chetty et al. (2014), we set the rank of those with zero reported housing wealth to one half of the fraction of the sample reporting zero i.e. if 20% have no housing wealth, this 20% of the sample all have a rank of ten.

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[14] Focusing on a single age at measurement i.e. looking at only 42 years olds results in very small samples in the BHPS.

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