Working Paper No. 22-01

Intergenerational wealth transmission and mobility in Great Britain: what components of wealth matter?

Paul Gregg
University of Bath

Ricky Kanabar
University of Bath

The rapid widening of intergenerational wealth inequalities has led to sharp differences in living standards in Great Britain. Understanding which components of wealth are driving such inequalities is important for improving wealth and social mobility. Using the Wealth and Assets Survey we show the change in the intergenerational persistence in wealth in Great Britain is driven by inequality in offspring housing wealth. We estimate between 2010/12-2016/18 the intergenerational wealth elasticity in housing increased by 18 percentage points for individuals born to the same parental wealth background but born six years apart, and that offspring homeownership has become increasingly stratified by parental wealth even after controlling for individual's own characteristics. We show by age 35 homeownership levels are three times higher among offspring whose parents are high educated homeowners compared to those whose parents are from a low educated renter background. In terms of housing wealth, by age 35 the former group holds approximately ten-times the level of housing wealth compared to the latter. We show such differences in housing wealth hold across the lifecycle and if maintained imply the intergenerational wealth elasticity in housing wealth is set to double in approximately one century. Taken together, our findings highlight the increasingly important role parental wealth has for determining whether offspring hold and the rate at which they accumulate particular types of wealth, and the implications for intergenerational wealth persistence, wealth mobility and inequality now and in the future.

Suggested citation: Gregg, P., Kanabar, R.. (2022). *Intergenerational wealth transmission and mobility in Great Britain: what components of wealth matter?* (CEPEO Working Paper No. 22-01). Centre for Education Policy and Equalising Opportunities, UCL.
https://EconPapers.repec.org/RePEc:ucl:cepeow:22-01

CENTRE FOR EDUCATION POLICY & EQUALISING OPPORTUNITIES

Disclaimer

Any opinions expressed here are those of the author(s) and not those of the UCL Institute of Education. Research published in this series may include views on policy, but the institute itself takes no institutional policy positions.

CEPEO Working Papers often represent preliminary work and are circulated to encourage discussion. Citation of such a paper should account for its provisional character. A revised version may be available directly from the author.

Highlights

- We show the rapid change in intergenerational wealth persistence observed in Great Britain is driven by differences in offspring housing wealth.
- Using the Wealth and Asset Survey we show the increasingly important role parental wealth plays in explaining offspring wealth differences across different types of wealth and how this is rapidly changing over time.
- Our findings show offspring homeownership and housing wealth has become increasingly stratified by parental wealth even after controlling for individual's own characteristics. Among individuals aged 35 whose parents owned their own home and are high educated homeownership is 3 times more likely, and conditional on having housing wealth the level reported is 10 times higher than that reported by individuals whose parents are from a low educated renter background.
- If current trends are maintained our results imply the intergenerational wealth elasticity in housing wealth is set to double in approximately one century.Our findings highlight the increasingly important role parental wealth has for determining whether offspring hold, and the rate at which they accumulate particular types of wealth and the implications for intergenerational wealth persistence, wealth mobility and inequality now and in the future.

Why does this matter?

Understanding which components of wealth drive intergenerational wealth persistence is important if policymakers are to design effective policies which improve wealth and social mobility and individual living standards more generally, especially for individuals from less affluent backgrounds.

Intergenerational wealth transmission and mobility in Great Britain: what components of wealth matter?

Paul Gregg* and Ricky Kanabar**

January 2022

Abstract

The rapid widening of intergenerational wealth inequalities has led to sharp differences in living standards in Great Britain. Understanding which components of wealth are driving such inequalities is important for improving wealth and social mobility. Using the Wealth and Assets Survey we show the change in the intergenerational persistence in wealth in Great Britain is driven by inequality in offspring housing wealth. We estimate between 2010/12-2016/18 the intergenerational wealth elasticity in housing increased by 18 percentage points for individuals born to the same parental wealth background but born six years apart, and that offspring homeownership has become increasingly stratified by parental wealth even after controlling for individual's own characteristics. We show by age 35 homeownership levels are three times higher among offspring whose parents are high educated homeowners compared to those whose parents are from a low educated renter background. In terms of housing wealth, by age 35 the former group holds approximately ten-times the level of housing wealth compared to the latter. We show such differences in housing wealth hold across the lifecycle and if maintained imply the intergenerational wealth elasticity in housing wealth is set to double in approximately one century. Taken together, our findings highlight the increasingly important role parental wealth has for determining whether offspring hold and the rate at which they accumulate particular types of wealth, and the implications for intergenerational wealth persistence, wealth mobility and inequality now and in the future.

Keywords: Wealth, Housing, Inequality, intergenerational mobility, Great Britain.

JEL classification: D31, D63, I24

* Department of Social and Policy Sciences, University of Bath, Claverton Down, Bath, BA2 7AY.

**Corresponding author: Ricky Kanabar. Rk735@bath.ac.uk. Department of Social and Policy Sciences, University of Bath, Claverton Down, Bath, BA2 7AY. Telephone: 01225 385824.

The authors would like to thank Peter Eibich for helpful comments and suggestions on a preliminary draft of this paper.

1. Introduction

Wealth is an important determinant of individual living standards, for example it allows individuals to smooth consumption over the lifecycle and as such can help facilitate major lifecycle decisions including education investment decisions, house purchase, family formation and retirement. Whilst an individual's wealth stock is measured at a point in time such holdings reflect past (de)accumulation and, importantly, transfers received. Thus, beyond the security wealth brings it may be a considered a good measure of lifetime resources as it reflects multiple years of income and because it captures other sources of income not usually included in income measures for which intergenerational correlations are measured. Transfers and timing of receipt are therefore important, particularly if these influence or facilitate major lifecycle decisions such as house purchase. However, only until relatively recently has it been possible to show the extent to which wealth holdings differ across individuals at a point in time *and* how wealth accumulation varies over time for the same individual (Charles and Hurst, 2003, Boserup et al. 2017, Black et al. 2020). The fact research shows widening wealth inequalities is of concern for example in the context of social mobility and improving living standards more generally, especially given recent evidence shows wealth holdings are increasingly stratified by family background (Killewald et al. 2017; Gregg and Kanabar, 2021).

Whereas the relationship between income, earnings and parental background is relatively well understood, the same is not true for wealth. In this respect, it is important to highlight that total net wealth is made up of different components and from an intergenerational perspective, it is therefore crucial to understand whether parental wealth is becoming increasingly correlated with specific *types* of offspring wealth. This is important for a number of reasons, for example to better understand the mechanisms facilitating the change in total wealth persistence and to help inform the design of policies to improve wealth and social mobility. Surprisingly, despite a growing interest in understanding wealth inequalities, there is a lack of research investigating the components of wealth driving intergenerational wealth persistence *and* how rapidly this relationship is changing over time. We address this gap in the literature using high quality British panel data covering the period 2010-2018, a period post the Great Recession and prior to the Covid-19 pandemic.

We document a number of important and policy relevant findings. First, we show intergenerational wealth persistence in GB is driven by differences in offspring housing wealth. Put another way, housing wealth is becoming increasingly related to parental wealth across successively younger cohorts. The speed at which this relationship is strengthening is profound

and has important implications for understanding differences in wealth accumulation by family background. We estimate that over a six-year period (2010/12-2016/18) parental wealth increases the Intergenerational Wealth Elasticity (IWE) in housing by 0.18 log points. If this trend is maintained the IWE estimated between parent and offspring housing wealth will double in roughly one century. The results based on a rank estimator, which focuses on rank order and not inequality in housing wealth in either the parent or offspring generation implies an even faster rate of change, in this case the doubling of the intergenerational correlation will take place in just over six decades. Separately, we show that for individuals with the same level or rank of parental wealth but born six years apart, relative to the slightly older cohort, parental wealth is increasingly associated with whether an individual reports homeownership *and* the general pattern is such that parental wealth is increasingly important for homeownership across successively younger cohorts.

We highlight two important issues in this respect. First, not only is parental wealth becoming increasingly associated with having housing wealth *but* conditional on having, is also increasingly influencing the level of offspring housing wealth. By comparing rates of accumulation along both dimensions across successively younger age cohorts we show homeownership and housing wealth accumulation varies significantly by parental wealth background. Those from the wealthiest parental backgrounds are *three* times more likely to report housing wealth by age 35 and the average level of housing wealth, conditional on holding is roughly *ten* times higher on average (£105,296 versus £10,536) compared to individuals from the most disadvantaged background. Moreover, on a cohort basis those from the most advantaged backgrounds are no less likely to report housing wealth compared to older cohorts. The opposite finding holds true for those from the least advantaged background. Thus, we show the perceived notion regarding access to housing in GB is more nuanced than is generally understood. Finally, we show our findings for parental wealth hold even after controlling for a rich set of individual factors such as education and earnings which have been shown to be important in determining wealth accumulation (Black et al. 2020; Davenport et al. 2021).

Taken together these findings highlight rapidly diverging fortunes for young people, put differently, the penalty for being born to parents of low wealth is growing rapidly over time in GB and this is increasingly influencing major lifecycle characteristics such as the likelihood of owning one's home, the rate at which wealth is accumulated and hence offspring living standards more generally.

The rest of this paper is set out as follows, section two provides a short review of the literature relating to intergenerational wealth transmission. Section three considers data and our methodological approach. In order to understand inequalities in wealth holding by type and over time, and its relationship with parental wealth in section four we present our main findings in two parts. The first section considers intergenerational associations in parent and offspring wealth for different types of wealth, we define age groups by six-year age windows to match the panel analysis presented in the second part of the analysis. In this section we consider how intergenerational associations between parent and offspring wealth, again by type and as measured by the IWE and rank estimator changes over the sample period for the same individuals. The second part of the analysis also considers how rapidly this association is changing for individuals from the same parent background but born 6 years apart. We also show how offspring housing wealth is largely responsible for the overall rapid change in intergenerational wealth persistence which has been documented in Great Britain. Section five concludes.

2. Literature

Wealth inequality exists across individuals at a point in time, over the lifecycle and on a cohort basis. A growing body of research shows there exists vast *and* growing inequalities in wealth holdings over time (Charles & Hurst, 2003; Piketty, 2014, Black et al. 2020, Gregg and Kanabar, 2021). Therefore, the rate at which individuals born in different periods accumulate particular *types* of wealth is important. In GB total net wealth is typically dominated by housing and pension wealth (ONS, 2019). For example, average total individual net wealth among individuals aged 64 (peak wealth age) is £595,208 in round 6 (2016/18) of the Wealth and Assets Survey (WAS), of which 31% is roughly attributable to housing and 50% to pension wealth respectively. The equivalent statistic for an individual aged 30 is 19% and 28% respectively, however, due to lifecycle effects among other factors only 22% (51%) report having housing (pension) wealth.[1] Even among individuals at peak wealth age 15% on average do not own their home and moreover there is significant variation in both housing and pension wealth holdings. Therefore, two issues need to be considered to properly understand wealth accumulation, particularly with respect to housing wealth: having versus not having a particular type of wealth and conditional on having, the level.

[1] Figures have been adjusted for inflation and refer to 2015 prices. Estimates are unweighted and include zero values for housing and pension holding.

It is important to recognise that wealth at any age reflects lifetime saving/dissaving and bequests. Such issues have received growing attention and research using British data highlights the strong link between holding particular types of wealth, wealth level and family origin (Davenport et al. 2021). Moreover, the evidence suggests this relationship is becoming stronger across successively younger cohorts (Blanden et al. 2021; Gregg and Kanabar, 2021). Gregg and Kanabar (2021) using WAS estimate the IWE is changing by 1.2 percentage points every 2 years and if this trend is maintained implies the IWE (estimated to be 0.35) will double in roughly six decades. The rapid increase in wealth inequality at young ages is sufficient to overturn the lifecycle bias associated with estimating intergenerational wealth associations prior to offspring reaching peak wealth age. Separately, Blanden et al. (2021) show housing wealth becoming increasingly important in explaining wealth inequalities in GB and Davenport et al. (2021) also using the WAS show there exists a strong correlation between the likelihood of offspring homeownership and parental wealth. Taken together the tentative evidence suggests family background explains (and based on current trends will continue to) an increasingly larger fraction of offspring total wealth across successively younger cohorts. We contribute to the literature by confirming this conjecture.

A key issue is to understand which *types* of wealth *and* conditional on holding how wealth levels are becoming increasingly influenced by family origin. Gritti and Cutulli (2021) using Italian microdata show declining levels of homeownership across successively younger cohorts and, moreover, also show housing wealth becoming increasingly important for explaining within-cohort total wealth inequality. Their findings highlight the differing mechanisms by which housing wealth is transmitted from parent to offspring depending on family background. Specifically, offspring born to parents whose occupation is service based (professional) are more likely to receive direct financial transfers before, at the time of and after leaving the parental home in order to setup a new household. Whereas for those whose parents had low social class occupations this only occurs at the time of leaving the family home. Second, leaving the parental home is associated with a transfer of *housing* wealth from parents to children among the lowest social classes. Thus, parents transfer their own accumulated housing wealth at the time offspring leave the parental home. No such pattern is observed among those from the most advantaged backgrounds, who instead provide more sustained levels of financial transfers without having to transfer their own housing wealth. Offspring from such backgrounds may still receive housing wealth later in life in the form of inheritance. Such findings highlight not only the strong cultural and familial norms in Italy but, importantly, that

homeownership for younger people is socially stratified by family background. Such patterns are not exclusive to Italy; indeed, the so-called 'Bank of Mum and Dad' refers to parents providing financial support to enable offspring homeownership and has been documented in many advanced economies including the UK (Resolution Foundation, 2018).

A separate but related set of studies highlight the importance of distinguishing between individual's own characteristics versus that of their parents in explaining wealth inequalities across cohorts (Killewald et al. 2017, Black et al. 2020, Davenport et al. 2021). Black et al. (2020) using high quality Norwegian data show in general individuals *own* labour income and net capital gains on real assets (predominantly housing) play an important role when compared to parental transfers and inheritances in explaining wealth inequalities from a lifecycle perspective. This finding holds for all age cohorts though the relative importance of certain components of wealth does alter depending on which stage of the lifecycle is considered, put differently, certain components of wealth affect the variance in wealth levels across individuals over the lifecycle, but only the rank order is significantly affected by labour income. However, their findings also emphasise that offspring from the most advantaged (wealthiest) backgrounds are more likely to have higher levels of wealth *and* from a lifecycle perspective, receive greater levels of inheritance and accumulate a disproportionate amount of wealth from investments and capital income. Parents may also play an important role in affecting offspring wealth outcomes via early life investments in education, which subsequently influence lifetime earnings and pension wealth in addition to direct transfers. Studies based on Scandinavian data which typically have long panels bear this out and find the intergenerational association in wealth between parents and their offspring generally exhibits a U shape (Boserup et al. (2016, 2018) and Aderman et al. (2018)).

Whilst an individual's own characteristics are important for explaining wealth accumulation, the fact net capital gains on real assets (housing) plays an important role in explaining wealth inequalities even in countries considered to have strong redistribution policies, is important in the context of rising intergenerational wealth inequality. Pfeffer and Waitkus (2021) using the Luxembourg Wealth Study decompose country differences in wealth inequality and pay attention to the composition of wealth portfolios including components of wealth. Their results show that cross national variation in wealth inequality and concentration is driven by housing equity. Given the returns from such assets over the lifecycle, the fact access is increasingly stratified by family background has implications for future wealth inequalities both from a cross section and lifecycle perspective (Killewald, Pfeffer and Schachner, 2017; Gritti and

Cutulli, 2021). The channels by which parents' transfer resources go beyond direct transfers, for example early-life investments in education or being able to afford housing in certain neighbourhoods with high quality schooling, which influence future earnings and hence offspring wealth accumulation. Such relationships are also important for explaining aggregate level cross country differences in wealth-income inequality ratios (Piketty, 2014; Pfeffer and Killewald, 2015; Black et al. 2020; Palomino et al. 2021). Measured on this basis countries such as the UK, Italy and France exhibit significantly higher wealth-income ratios than Norway and even the US (Black et al. 2020).

One way to consider intergenerational transfers and cultural norms jointly affecting intergenerational wealth inequalities is to consider cross country differences in lifetime transfers by family background. Palomino et al. (2021) using a point in time counterfactual approach show such factors can jointly explain between one-third and almost one-half of wealth inequalities in Great Britain and France respectively, and intergenerational transfers alone explain between 26% and 36%. Whereas family background explains between 9% and 17% in France and the US respectively. Davenport et al. (2021) find roughly half of the intergenerational persistence in wealth in the UK can be explained by individual's own education and earnings, and thus transfers and saving play an important role in explaining wealth inequalities. Moreover, those with the wealthiest parents are more likely to report homeownership by age 30 which is not fully explained by their own earnings, again suggesting a role for intergenerational transfers in explaining trends in homeownership in Great Britain.

Taken together, the international evidence suggests that whilst lifecycle wealth accumulation is likely to be affected by the same individual, household and parental characteristics across countries, the extent and mechanisms by which these characteristics influence the accumulation of particular *types* of assets is likely to differ. Separately, whilst research has shown an association between income and wealth particularly at the top of both respective distributions, at an aggregate level there exists a non-correlation between income and wealth inequality and as previously noted, the latter is largely explained by variation in housing equity (Killewald, Pfeffer and Schachner, 2017; Pfeffer and Waitkus, 2021). Given this, it is surprising so few studies to date have sought to understand which components of total wealth are driving the rapid change in the IWE (at least in GB), which is especially important given lifecycle wealth accumulation is a dynamic process and as has been shown to be heavily influenced by family background including lifetime transfers. We address this gap in the literature and show that in the case of GB the change is largely attributable to growing inequalities in housing wealth. We

estimate that over a six-year period (2010/12-2016/18) parental wealth increases the IWE in housing by 0.18 log points and if maintained implies the IWE for housing wealth will double in roughly one century.

A second important finding is the fact homeownership and the rate at which individuals accumulate housing wealth is becoming increasingly related to parental wealth. Cohort analysis shows that among younger individuals in their early 30s, for those from the wealthiest backgrounds housing wealth is being accumulated at a similar or even *faster* rate than older cohorts. On the other hand, among individuals from the most disadvantaged backgrounds, not only are those in their early 30s *less* likely to report homeownership compared to slightly older cohorts but the rate at which housing wealth is being accumulated is also falling compared to individuals from the same parental background but who are slightly older. Such differences in housing wealth between the most and least advantaged persist between ages 30 and 64 and are set to widen further. Importantly, we show that our findings hold even after controlling for a range of individual characteristics likely to influence homeownership such as earnings and education (Blanden et al. 2021, Davenport et al. 2021). Taken together our findings highlight the penalty for being born to parents of low wealth is growing rapidly over time in GB and this is influencing major lifecycle decisions such as the ability to own a home, accumulate housing wealth and hence living standards more generally.

3. Data

Our analysis uses the biennial Wealth and Assets Survey (WAS) representative of Great Britain and managed by the Office for National Statistics (ONS, 2012). In wave 1 WAS contained 30,000 households, importantly the survey oversamples wealthier households by a rate of between 2.5 and 3 times compared to other postal addresses to address the issue that household surveys tend to inadequately capture the top part of the wealth distribution (ONS, 2012 and Advani, Bangham and Leslie, 2020). Changes to measures collected mean that derived consistent measures of individual total and household wealth are only usable from wave 3 (2010-12) onwards.

WAS measures of derived individual total net wealth include contributions of housing, pension and savings plus durable assets.[2] Information of mortgage and non-mortgage debt is also

[2] Our measure of total net wealth includes pension wealth, studies such as Black et al. (2020) exclude this type of wealth (it is not available in their data) from their calculations and argue such wealth types should not be included when modelling wealth accumulation. However, our interest is understanding intergenerational wealth persistence and the components of offspring wealth driving the rapid change in the persistence in wealth. Even if pension wealth is not transferable, consider the parent generation who can expect income from such wealth

captured. The inclusion of durable assets means that net debt is never zero or negative for those aged 25 plus. Black et al. (2020) show total net wealth measures such as those provided in the WAS dataset which by construction include individual consumption and spending/saving decisions act as good proxies for 'potential wealth' based on actual future wealth accumulation which are not affected by such issues. In addition to asset and debt information WAS collects detailed individual and household level economic and sociodemographic data, including retrospective information relating to individual's parent's circumstances when they were teenagers (aged around 14) which we utilise to construct a measure of parental wealth.

Retrospective Questions

We seek to understand individual's trajectory of holding certain housing, pension and financial wealth as they age and their value by differing family origins. Whilst WAS does not collect information on parental wealth except in the case where adult children live in the same household as their parents, the survey does collect retrospective socioeconomic information relating to survey respondent's parents. We utilise these data to construct markers of parental wealth. The questions of interest are age triggered and asked when an individual is age 25 or above at wave 2 or turns 25 in subsequent waves of the data. Specifically, individuals are asked to recall circumstances in their early teenage years relating to:

(1) their parents housing tenure,
(2) their parent(s) education level,
(3) whether they lived with one or both parents or some other arrangement,
(4) employment status of parents.

Unfortunately, region of parents' residence, an important determinant of housing wealth and parental age were not asked. [3]

(and/or a lump sum as is the case in the UK). This could act as security, or alternatively, parents knowing this wealth is available to them in the future, can utilise/transfer other sources of wealth for example via equity release of their main residence to help provide financial support to their offspring, for example to purchase their first home. Turning to offspring, given our aim is to understand which components of wealth are correlated with parental wealth and housing and pension wealth have been shown to be the two largest subcomponents of total wealth in GB (ONS, 2019), we also include offspring pension wealth in our measure of total wealth when analysing changes in intergenerational correlations over time. Pension wealth is strongly correlated with earnings/labour income and if the relationship between parental wealth and pension wealth is changing over time this is informative for understanding potential mechanisms (such as early life education investments and hence occupation/educational attainment) driving changes in wealth inequalities.

[3] The questionnaire wording is as follows: "We are interested in how living standards compare across generations, so the following questions are about your family and parents. I'd like you to think back to when you were a young teenager, say between the ages of 12 and 16." An additional question also asked about presence of siblings which is not utilized for the purpose of this study.

These markers of parent characteristics can be thought of in two ways. First, they are likely to be strongly correlated with available resources of the household in which the teenager grew up (see inter-alia Bladen et al. (2013), Jerrim and Macmillan, (2015) and Gregg et al. (2017)) and correspond to wealth accrual by family origin. Alternatively, as wealth accrual will continue after a young adult has left home (Pfeffer Killewald (2017); Boserup, Kopczuk and Kreiner (2017); Aderman, Lindhal and Waldenstrom (2018); Black et al. (2020); Gregg and Kanabar, 2021), the age at which these were collected is not the focus but rather they are markers for assessing relative wealth position of the parents. Put differently, in order to accurately estimate intergenerational wealth persistence, by wealth type, we need to assess if these characteristics are largely stable between when a child was aged 14 or so and parents are thus in their 40s, to when the parents reach peak wealth age (64). With this stability the measures reflect differences in wealth holding across groups at ages 40 through to 64. This presents two methodological challenges which must be addressed. First, we do not observe true wealth of parents but rather proxy markers. Second, these are not measured at around the time of peak wealth but when parents were aged around 40. It is important to note that for most of the offspring sample we observe their true wealth before they have reached peak wealth age however we do not correct for this, precisely because one of our central research questions is to understand how accumulation of particular wealth types varies by parental background at different points in the offspring lifecycle.

In Appendix B we document trends in wealth accumulation by wealth type based on our parental markers using cross section data collected at wave 3 of WAS. Hence Figures B1-B4 refer to wealth levels reported by different individuals at a single point in time. Similar to the pattern found for total wealth there is a clear difference across age groups in the levels reported by parent background and these differences tend to fan out at increasingly older ages. For example, the average level of housing wealth reported by individuals from the most advantaged (least advantaged) in the age group 59-64 is £366,684 (£112,608) and among those aged 29-34 £58,823 (£9,207) respectively. Importantly, the pattern or ordering across age groups by parent background holds across almost all age groups and wealth types. However, what Figures B1-B4 do not show is the proportions of individuals who do and do not report holding particular types of wealth by parent background. This distinction is important, particularly when trying to understand the factors driving the change in intergenerational associations in wealth. Appendix C reports coefficients from a logit regression describing the association between

offspring holding particular wealth types and parental wealth, the results show a strong positive correlation across all age groups and successively younger cohorts at wave 3 of WAS.

Methodology

Starting from wave 3 onwards (2010-12) WAS released consistent measures of individual total wealth and its subcomponents including housing wealth, pension wealth and financial wealth. These variables are defined in Appendix A**.** When using wealth data for analysis purposes two issues need be addressed (Pence, 2006). First, wealth data has a long thick right-hand tail where some very high values can lead to misleading conclusions when assessing at the mean such as with OLS, and so analysis across the distribution is important (Killewald, Pfeffer and Schachner, 2017). Second, individual total *net* wealth reported in WAS is not zero or negative except for a very small number of individuals at young ages because a wide range of assets including durable goods and physical wealth are included.

It is important to note that certain sub-components of total wealth such as housing wealth and pension wealth are zero for many individuals, especially at younger ages and this value is economically meaningful. Therefore, log transformation cannot be applied except for total net wealth. Pence (2006) and Ravallion (2017) show transforming the data by applying the Inverse Hyperbolic Sine (IHS) for wealth values greater than or equal to zero allows one to estimate wealth regressions including all available data.[4] Depending on the specification the coefficients from these types of regressions can be interpreted as a type of elasticity (Bellemare and Wichman, 2020). When estimating regressions of interest we estimate log-log specifications for total net wealth and for all other types of wealth we apply the IHS transformation to both offspring and parental wealth. In the case of financial wealth, a non-trivial proportion of individuals hold net negative values of such types of wealth and when modelling intergenerational associations for this type of wealth we use a rank estimator.[5]

We next set out our modelling approach. Starting with current wealth in the offspring generation and retrospective measures of parental wealth markers Equation (1) specifies the ideal regression form assessing the relationship between offspring's wealth and parent's characteristics:

---

[4] IHS is approximately equal to $\log(2y_i)$ or $\log(2) + \log(y_i)$ except for very small values and can be interpreted (in regression) in exactly same way as log. Very close to zero the IHS transformation is approximately linear.

[5] Whilst it has been shown the IHS transformation can be applied to negative values, the properties of the transformation imply values will spread out rather than be compressed given the transformation is concave over the entire real line (Ravallion, 2017).

$$IHSW_{current\ age} = \alpha + \beta\ IHSWh_{parent\ 64} + \varepsilon \quad (1)$$

Where:

$W_{current\ age}$ is true adult children's wealth at their current age, without reporting error.

$Wh_{parent64}$ is wealth of parents when they were aged 64, just before retirement of the main earner but unlike for offspring this is a household measure and without reporting error.

In order to estimate Equation 1 requires extremely long panel data at both individual and household level which data is not readily available in the UK. Our focus is to understand how family background affects accumulation of certain asset types and, in particular, how this is changing across cohorts and time. Therefore, our focus is to understand offspring wealth holdings at *current* rather than *peak* wealth age (Gregg and Kanabar, 2021).

Given this, the data available has two substantive issues which will deviate from this ideal. First, as discussed, parental wealth is not directly observed but estimated using a limited set of proxy indicators, consisting of a vector of five groupings of parent's characteristics based on their education level (high, medium and low) interacted with housing tenure status (homeowner or renter). Second, parents are also likely to deviate from the age of peak wealth which is just on retirement. These will create issues of measurement error and therefore attenuation bias and life-cycle bias follow from the age issues (see inter-alia Dearden, Machin and Reed (1997); Haider and Solon (2006) and Gregg et al (2017) for discussions of these respective biases in the context of intergenerational earnings).

We address each of these in turn. Equation (2) specifies the relationship of interest:

$$IHSW_{offspring,\ current\ age} = \pi + \beta IHSW_{parent\ 64} + \vartheta \quad (2)$$

Where:

$W_{offspring,\ current\ age}$ is adult children's wealth, by type, at their respective age. Beyond age 45 there is little data for parents of adult children. $W_{parent\ 64}$ then represents the wealth of parents at peak wealth age. This is not directly observed, instead we have

X_{wealth_parent}= parent's observed characteristics related to wealth at these ages

These are the markers of family origin and as shown in Appendix B there is a clear ordering in terms of wealth profiles on a cross section basis by these markers.

To attach wealth values to these parental groupings we adopt the Two Stage Two Sample Least Squares (TSTSLS) estimator, first used in the intergenerational context by Björklund and Jäntti (1997). We apply TSTSLS using a sample of adults in WAS aged 64. We predict unobserved wealth of parents, $IHS\ \widehat{W}_{parent\_wealth}$, from their characteristics X_{wealth_parent} derived from another sample within the WAS dataset where both are observed.

In Equation 3 the estimated β under TSTSLS deviates from the Equation 1 such that when parent's actual wealth is not observed then the following parameters are estimated:

$$IHS\ W_{offspring} = \xi + \beta_1 IHS\ \widehat{W}_{parent\_wealth} + \gamma \tag{3}$$

Where

$$Plim\beta = \frac{\sigma_{\widehat{w}p,ow}}{\sigma_{\widehat{w}p^2}}\ which\ under\ TSTSLS\ becomes\ Plim\beta_{TSTSLS} = \frac{\sigma_{\overline{\mathrm{xw}},ow}}{\sigma_{\overline{\mathrm{xw}}^2}} \tag{4}$$

Where σ_{xw} (σ_{ow}) refers to the standard deviation in parents (offspring) wealth. A hat denotes the predicted value based on alternative survey data given we do not directly observe parent's wealth but instead estimate it using the following equation:

$$IHS\ \widehat{W}_{parent\_wealth} = \lambda + \omega X + \varphi \tag{5}$$

In (5) the dependent variable is parent's total wealth from a sample of individuals aged 64 at wave 3, and X is the vector of their characteristics (own housing tenure and education interacted) given the retrospective questions.

Measurement error and Attenuation bias

Reporting error or transitory fluctuations in wealth creates inconsistent estimates of β from Equation 1. With classical measurement error in the RHS variable in our case parental wealth, the result is a downward attenuation bias in the estimates resulting from this measurement error. The preferred approach to addressing this bias is averaging over repeat observations for the same individuals. For long panel data this is often not available in the parental generation except for certain countries such as those in Scandinavia (Aderman, Lindhal and Waldenstrom (2018); Boserup, Kopczuk and Kreiner (2013, 2017); Black et al. (2020)).

The alternative approach is to predict earnings with markers of permanent differences in characteristics associated with earnings such as education, occupation, and industry (Dearden, Machin and Read (1997) do this using markers from within the same sample) -. The approach

we follow (TSTSLS) does the same but in our case using wealth predicted in a separate sample albeit from the same survey. Research shows there is an upward bias to estimates when there are a limited set of predicting variables because of the reduced variance $\sigma_{\overline{XW}}$ compared to σ_{XW} is not offset by the increase co-variance in the numerator $\sigma_{\overline{xw},ow}$ from purging of the measurement error (Jerrim, Choi and Rodriquez (2014)). Given our restricted set of predictors for parental wealth this is likely to be an issue. However, Jerrim et al. (2014) note the Rank-Rank regression approach is not subject to this variance reduction issue and provides an accurate estimate of the intergenerational rank correlation. Therefore, the intergenerational correlation estimated based on Rank-Rank regression is more efficient but does not capture wealth inequalities across generations, just the degree of re-ordering of individuals.[6] In the case of total net wealth whether the β estimate is likely to be larger or smaller than the Rank-Rank estimate will depend on the age at which wealth is measured and the relative levels of inequality across cohorts. Recent evidence suggests in the case of GB a rapid widening of total net wealth inequalities especially among individuals in their early 30s (Gregg and Kanabar, 2021). For other types of wealth such as housing and pensions, the focus in this paper, individuals may report zero holdings particularly at young ages, the transformations we apply to the data mean that in these cases the β estimate will be larger than estimate computed based on rank regression.

Life-Cycle Bias

Recent evidence suggests significant changes in cohort-on-cohort wealth accumulation (RF, 2017). Therefore, our interest is to understand types of wealth which are driving the change in intergenerational wealth persistence estimated at *current* offspring ages and for parents at their *peak* wealth age. From a modelling perspective, our estimates will be affected by the profile of lifecycle wealth accumulation, which typically exhibits a rapid divergence before and after peak wealth age (64) and this is attributable to both age and cohort effects (see Figure 1 in Kanabar and Gregg, 2021). The parental generation are assumed to be at peak wealth age for

[6] A much more recent line of work has explicitly incorporated classical and non-classical forms of measurement error when estimating rank regressions, acknowledging the potential attenuation bias which may arise from using 'errors in variables' and noting the potential of using biased corrected estimators (see inter-alia Nybom and Stuhler, (2017); Kitigawa, Nybom and Stuhler, (2018)). These authors also note that potential biases are smaller for rank based estimators compared to elasticity type measures typically used and the importance of age when measuring elasticities (lifecycle effects), something we formally account for in our analysis. The complexity of these new methods, data requirements and the fact we use a TSTSLS approach mean we do not incorporate such estimators in our analysis though do attempt to deal with measurement error as set out in the text and emphasise careful interpretation of our findings in light of these works.

the purposes of the TSTSLS estimation in Equation 5. In terms of the offspring generation, we consider individuals up to peak wealth age.

The intergenerational earnings literature shows that in the offspring generation the lower inequality in earnings at younger ages produces a downward life-cycle bias to estimates of the β (Haider and Solon (2006) and Bohlmark and Lindquist (2006)). This is reflected by the regression coefficient where life-time earnings are regressed on point in time earnings lies below 1. Earnings in a person's late 30s gives an unbiased estimate of the intergenerational β and in the mid-40s estimates are upward biased. The expansion of wealth inequalities as people move closer to retirement, see Appendix B, means this is also likely to hold true for wealth and to continue through to retirement age. However, Gregg and Kanabar (2021) show the inequality in wealth at younger ages among offspring in GB is such that it is sufficient to overturn the lifecycle bias. Indeed, one of the main aims of this paper is to identify which component of wealth is responsible for driving the rapid widening of wealth inequalities, especially at younger ages, in Great Britain. Separately, Boserup et al. (2016, 2018) and Aderman et al. (2018) using Scandinavian data find the intergenerational persistence in wealth follows a U-shape namely that the rank-rank measure is higher at younger ages, declines as individuals age up until their 40s and then increases following the death of their parents. Thus, the underlying ordering of people by own and parental wealth holdings is also heavily influenced by bequests and need not have the same age relationship as the amounts of wealth held. In Rank-Rank regression life-cycle biases are much smaller as inequalities have no influence, just the rank ordering. Gregg and Kanabar (2021) using WAS data estimate the intergenerational persistence in wealth correcting for the lifecycle bias in both offspring and parent generation and show the lifecycle profile of the rank-rank measure for total net wealth based on WAS data follows a shallow U-shaped profile.

In order to address the lifecycle bias stemming from the age at which we measure parental wealth we undertake a counterfactual exercise to illustrate how changes in inequalities of wealth across the life-course will influence estimates. To do this we predict wealth at age 64 based on current position in the wealth distribution but attach values derived from the sample of current 64-year-olds, when inequalities in wealth holdings are greater (see Appendix B). So, people at the top of the parental wealth distribution (highly educated homeowners) have current wealth replaced with the values for this group currently aged 64. Put another way, this is just changing the age for the TSTSLS estimation and is not a prediction of what their wealth will be (or was) at age 64, but rather what differences in wealth inequalities at different ages do to

estimates. As such the Rank-Rank estimates are unaffected by this, as the rank ordering across our vector of parental characteristics is stable at these ages. As parental characteristics are observed even if deceased, we can attach these values to all parents, including those who would be aged over 75. This offers a common approach to estimating intergenerational wealth patterns for offspring for all ages, not having to stop at a particular age because of selection issues (due to the fact wealth among other factors and mortality are correlated). For the offspring generation no such adjustment is required as our central interest is understanding how inequality in *current* wealth holdings by wealth type (not peak) relate to peak parental wealth.

The estimates for different age groups reported in the next section will both reflect life-cycle differences across age but also differences across cohorts. Such cohort differences in wealth accumulation have been shown to be significant from an intergenerational perspective (Resolution Foundation, 2017) and we return to this issue by considering wealth accumulation by wealth type across cohorts and over time in the final part of the findings section. We utilise the short panel to explore life-cycle changes within cohorts. Specifically, over 6-year periods we show the evolution of the estimated intergenerational β and the Rank correlation, by wealth type, as people age and by a chain extension over the life-course. We pool wave 3 and round 6 of WAS to compare how the IWE is changing for each wealth type across the 6-year period between survey waves (2010/12-2016/18) for individuals at the same age except born 6-years apart. We use an identical approach to assess whether parental wealth is becoming increasingly associated with homeownership across successively younger cohorts over our sample period.

4. Estimation results

We present our findings in two parts. Our aim is to understand the types of wealth driving the rapid change in the intergenerational wealth persistence in GB. Given the lack of evidence on this issue, we start by considering intergenerational associations in parent and offspring wealth for different wealth types based on single cross section (wave 3) of WAS (2010-12). We document the relationship across different individuals at one point in time before considering changes for the *same* individuals over time in the second part of the findings section. In order to match the panel length, we define age groups by six year age windows. By defining age groups in this way, we can compare cohort on cohort changes at the same age and by chain extension analyse the trend across the lifecycle. This allows us to highlight the changing role parental background has in explaining the overall change in the intergenerational association between parent and offspring wealth, by wealth type, across time rather than drawing inference based on a static point in time estimate. We do this for both β and rank type regressions to

highlight the rapid widening of wealth inequalities, by type, from a longitudinal perspective. As noted, an important aspect in this context is to consider holding a certain type of wealth versus level differences conditional on holding. Parental wealth plays an important role in this respect, and we analyse this from a cohort and intergenerational perspective utilising the panel aspect of WAS.

Cross section analysis

We first consider cross section estimates of the intergenerational persistence in total and key subcomponents of wealth. Table 1 reports TSTSLS estimates of intergenerational β for offspring across age groups. Taking each wealth type in turn Table 1 shows that in the case of total wealth at wave 3 between 34% and 46% of wealth differences in the parent generation are passed on to offspring aged between ages 29 and 64. The coefficient estimates suggest the strength of this association declines across successively older age groups and is consistent with recent evidence on intergenerational wealth transmission in GB (see Gregg and Kanabar, 2021; Blanden, Eyes and Machin. 2021 and Davenport et al. 2021). The findings show that the magnitude of the estimated coefficient reflecting intergenerational persistence in wealth is roughly stable irrespective of whether we analyse the relationship in 2010-12 (wave 3) or in 2016/18 (round 6), though in some cases it is higher in the latter period.

Turning to housing wealth, Table 1 shows parents' total wealth is strongly associated with offspring housing wealth and that this relationship is stronger at younger ages. The presence of individuals with zero values (no housing wealth) and some with very high levels of such wealth leads to the higher estimated elasticities. The elasticity computed for offspring aged between 29 and 34 is 1.82, over double that of the oldest group, whilst the β specification accounts for the variation in offspring housing wealth, from an intergenerational perspective, we measure wealth relatively early for younger age groups from a lifecycle perspective and thus housing wealth (both having versus not having and conditional on the former, the level) is likely to change. However, our focus is to report difference at *current* ages and in this respect our interest is in understanding differences in holdings (& levels) early on in life and how this varies by parent background. The associations estimated at round 6 are similar in trend and magnitude as that reported for wave 3. The rate at which individuals accumulate certain types of wealth by family background (if at all) is important if we are to understand how family background and wealth mobility are linked and we return to this issue later in the paper.

Table 1: Intergenerational elasticity in offspring and parent wealth, wave 3 and 6 [offspring current age, parents peak].

Age group	29-34	35-40	41-46	47-52	53-58	59-64
Central birth years	1979-1980	1973-1974	1967-1968	1960-1961	1954-1955	1948-1949
Wave 3 (2010-12)						
Total wealth	0.46*** [0.04]	0.43*** [0.03]	0.41*** [0.03]	0.37*** [0.03]	0.44*** [0.03]	0.34*** [0.02]
housing wealth	1.82*** [0.16]	1.57*** [0.15]	1.24*** [0.12]	1.20*** [0.11]	1.18*** [0.10]	0.86*** [0.08]
pension wealth	1.54*** [0.15]	1.39*** [0.14]	1.00*** [0.11]	0.83*** [0.1]	1.07*** [0.10]	0.57*** [0.10]
N_{total}	1299	1893	2362	2420	2364	2841
$N_{housing}$	1298	1902	2359	2425	2374	2846
$N_{pension}$	1340	1938	2386	2442	2377	2847
Wave 6 (2016-18)						
Total wealth		0.57*** [0.06]	0.43*** [0.06]	0.44*** [0.05]	0.43*** [0.04]	0.41*** [0.04]
housing wealth		2.20*** [0.25]	1.57*** [0.22]	1.32*** [0.17]	1.32*** [0.15]	1.23*** [0.12]
pension wealth		1.48*** [0.23]	1.15*** [0.20]	0.98*** [0.17]	0.78*** [0.13]	0.78*** [0.13]
N_{total}		573	894	1102	1266	1381
$N_{housing}$		575	898	1107	1269	1382
$N_{pension}$		579	899	1110	1270	1383

Notes: respective regressions model offspring wealth level on age and parent's wealth. Standard errors clustered at individual level. Log transformation applied to offspring and parent's wealth in specification modelling total net wealth. In all other regressions respective wealth levels inverse sine transformation applied and elasticity computed at mean values of offspring and parent wealth as suggested by Bellemare & Wichman (2020) and

standard errors adjusted accordingly. Samples restricted to observations with dependent variable greater than or equal to zero. Grey boxes refer to age groups where sample size is too small for estimation purposes. Wave 3 of WAS corresponds to (2010-12) and wave 6 (2016-18). Wealth values adjusted for inflation prior to transformation and reflect 2015 prices. Small discrepancy in number of observations due to negative values (affects total net wealth and net housing wealth) which are dropped for analysis purposes.

Table 1 also reports intergenerational wealth persistence for pension wealth in a period prior to Auto-Enrolment, a policy designed to improve pension coverage. Whilst parents may transfer wealth directly and thereby influence offspring total and housing wealth levels, pension wealth is driven by offspring's occupation and hence factors which determine occupational choice. Family background is likely to play an important role here for example via early life investments in children's education (Killewald, Pfeffer and Schachner, 2017). From an intergenerational perspective, evidence suggests there is a strong intergenerational link between parent's and children's job class (Oren, Caduri, Tziner, 2013). Table 1 shows the intergenerational elasticity between total parent net wealth and offspring pension wealth has a similar pattern to that reported for housing, the estimated elasticity is much larger at younger ages versus older groups due to the presence of zero pension wealth holdings and because we observe offspring pension wealth below peak wealth age. The fact pension and housing wealth account for the majority of individual's total wealth (ONS, 2019) underlines the importance of understanding how rapidly pension wealth is accumulated over time and by parent background and whether, like housing, this is changing across successively younger cohorts. We return to this issue later in the paper.

We do not report results for financial wealth because a non-trivial proportion of individuals in our sample report negative holdings, and as Ravallion (2017) highlights whilst the IHS transformation can be applied to negative values the properties of the transformation imply values will spread out rather than be compressed given the transformation is concave over the entire real line. However, we report rank estimates in Table 2 next.

Table 2 reports rank estimates of intergenerational associations for different wealth types. Importantly, the presence of zero holdings of certain wealth types which are economically meaningful can be accommodated for and the estimates do not suffer from a reduction in variance issue as is the case for the IWE estimates (Jerrim et al., 2014). The main limitation of a rank estimator is that the magnitude of wealth differences (in both generations) are not accounted for in estimation and therefore one cannot get a sense of how this affects intergenerational elasticities across different age groups. This is important to bear in mind when

interpreting Table 2 given the rapid widening of wealth inequalities and intergenerational wealth persistence in GB (Gregg and Kanabar, 2021). For example, comparing the rank-based estimates for housing shows these are largely stable across age groups versus the beta estimates, highlighting the significant variation in housing wealth among parent and offspring generations. In particular, for offspring groups and especially at younger ages the tails of the distribution (so zeros and very high values) are likely to lead to a divergence between rank and beta estimates. Table 2 shows that for total wealth family background becomes increasingly important in influencing offspring wealth based on rank-order across successively younger cohorts and is consistent with recent evidence on intergenerational wealth persistence in GB (Gregg and Kanabar, 2021; Blanden, Eyles and Machin, 2021).

Table 2 reports rank estimates for wealth types including financial wealth at wave 3 and round 6 of WAS. The results show a strong positive association between parental and multiple offspring wealth types. The magnitude of the estimated coefficients is remarkably stable across age groups in the case of housing and financial wealth. The estimates imply that increasing total parent wealth by one decile leads to offspring housing wealth (financial wealth) increasing by approximately 3-3.6 (2.1-3) rank points. In the case of pension wealth, we see a clear pattern: across successively younger cohorts the rank estimates increases, from 0.17 for those aged between 59 and 64 to 0.3 among 29-34 year olds which is identical to the rank estimate calculated for housing wealth for the latter group. However, the mechanisms which drive the rate at which offspring accumulate certain wealth types is unlikely to be the same and the results in Table 2 do not account for the magnitude of level differences in wealth holdings across individuals. Nonetheless, the results show at least at current ages, irrespective of wealth type and time period considered, family background matters.

The widespread availability and in some cases generous (defined benefit) pension schemes in the 1960s mean pension wealth levels observed among those in their late 50s and the rate at which these individuals accumulated this type of wealth is unlikely to be repeated by younger cohorts, in particular among individuals from less advantaged backgrounds who typically have much lower levels of lifetime pension wealth including just prior to retirement (see appendix B). Whilst policies have recently been implemented to address pension adequacy and the expansion of higher education in GB during 1960s has led to a greater proportion of individuals in the labour market working in professional occupations, pension wealth accumulates at very different rates by family background across age groups as we will show in a later section of the paper.

Table 2: Intergenerational rank in offspring and parent wealth, wave 3 and 6 [offspring current age, parents peak].

Age group	29-34	35-40	41-46	47-52	53-58	59-64
Central birth years	1979-1980	1973-1974	1967-1968	1960-1961	1954-1955	1948-1949
Wave 3						
Total wealth	0.40*** [0.03]	0.36*** [0.02]	0.33*** [0.02]	0.30*** [0.02]	0.37*** [0.02]	0.33*** [0.02]
housing wealth	0.30*** [0.03]	0.30*** [0.02]	0.31*** [0.02]	0.30*** [0.02]	0.36*** [0.02]	0.35*** [0.02]
pension wealth	0.30*** [0.03]	0.28*** [0.02]	0.20*** [0.02]	0.19*** [0.02]	0.23*** [0.02]	0.17*** [0.02]
financial wealth	0.21*** [0.03]	0.24*** [0.03]	0.22*** [0.02]	0.23*** [0.02]	0.30*** [0.02]	0.26*** [0.02]
N_{total}	1299	1893	2362	2420	2364	2841
$N_{housing}$	1298	1902	2359	2425	2374	2846
$N_{pension}$	1340	1938	2386	2442	2377	2847
$N_{financial}$	1340	1938	2386	2442	2377	2847
Wave 6						
Total wealth		0.44*** [0.04]	0.34*** [0.04]	0.33*** [0.03]	0.32*** [0.03]	0.33*** [0.03]
housing wealth		0.37*** [0.04]	0.33*** [0.04]	0.34*** [0.03]	0.36*** [0.03]	0.40*** [0.02]
pension wealth		0.32*** [0.04]	0.24*** [0.04]	0.23*** [0.03]	0.21*** [0.03]	0.20*** [0.03]
financial wealth		0.18*** [0.04]	0.23*** [0.04]	0.26*** [0.03]	0.26*** [0.03]	0.29*** [0.03]
N_{total}		573	893	1102	1266	1381
$N_{housing}$		575	898	1107	1269	1382
$N_{pension}$		579	899	1110	1270	1383

$N_{financial}$		579	899	1110	1270	1383

Notes: respective regressions model rank of offspring wealth level on age and rank of parent's wealth. Standard errors clustered at individual level. Log transformation applied to offspring and parents' wealth in specification modelling total net wealth. In all other regressions respective wealth levels inverse sine transformation applied and elasticity computed at mean values of offspring and parent wealth as suggested by Bellemare & Wichman (2020) and standard errors adjusted accordingly. Grey boxes refer to age groups where sample size is too small for estimation purposes. Wave 3 of WAS corresponds to (2010-12) and wave 6 (2016-18). Wealth values adjusted for inflation prior to transformation and reflect 2015 prices. Small discrepancy in number of observations due to negative values (affects total net wealth and net housing wealth) which are dropped for analysis purposes.

Panel analysis

Tables 1 and 2 showed a clear and rapid increase in the intergenerational persistence in certain types of wealth between parent and offspring across successively younger cohorts. However, this finding is based on based purely cross section data and so refers to individuals of different ages at a single point in time. A key question then is to understand how this relationship is changing across time for the *same* individuals. The second part of our analysis exploits the longitudinal dimension of WAS to answer precisely this.

We construct short 6-year balanced panels (corresponding to wave 3 and 6 of WAS which span 2010/12 and 2016/18) and define age groups in such a way that we can compare changes in IWE and rank estimates for individuals at the same age but born exactly 6 years apart. This allows us to document the changing role of parental wealth in explaining the variation in offspring wealth outcomes by wealth type and individuals age.

Table 3: IWE and rank estimates for total wealth based on cross section and 6-year panel by age (offspring current age, parents peak wealth).

Age group at wave 3	29-34	35-40	41-46	47-52	53-58	59-64
Central birth years	1979-1980	1973-1974	1967-1968	1960-1961	1954-1955	1948-1949
Log-Log						
β cross section full sample wave 3	0.46*** [0.04]	0.43*** [0.03]	0.41*** [0.03]	0.37*** [0.03]	0.44*** [0.03]	0.34*** [0.02]
β balanced panel wave 3	0.43*** [0.06]	0.41*** [0.05]	0.43*** [0.05]	0.36*** [0.04]	0.42*** [0.04]	0.33*** [0.03]
β balanced panel round 6	0.59*** [0.07]	0.43*** [0.06]	0.44*** [0.05]	0.40*** [0.05]	0.43*** [0.04]	0.36*** [0.03]
Rank-rank						
rank cross section full sample round 3	0.40*** [0.03]	0.36*** [0.02]	0.33*** [0.02]	0.30*** [0.02]	0.37*** [0.02]	0.33*** [0.02]
rank balanced panel wave 3	0.44*** [0.04]	0.33*** [0.04]	0.33*** [0.03]	0.30*** [0.03]	0.35*** [0.03]	0.34*** [0.02]
rank balanced panel round 6	0.47*** [0.05]	0.32*** [0.04]	0.34*** [0.03]	0.30*** [0.03]	0.35*** [0.03]	0.36*** [0.02]
$N_{offspring}$ cross section wave 3	1299	1893	2362	2420	2364	2841
$N_{offspring}$ balanced panel	460	784	974	1112	1269	1628

Notes: *** p<0.01, ** p<0.05, * p<0.1. First row refers to regression of offspring wealth on parent's wealth controlling for age within 6-year age group. Both total offspring and parent net wealth have been log transformed. Second and third row is identical to first row except sample is based on balanced panel of individuals observed at wave 3 (2010/12) and round 6 (2016/18). Wealth values adjusted for inflation prior to

transformation and reflect 2015 prices. Small discrepancy in number of observations due to negative values (affects total net wealth and net housing wealth) which are dropped for analysis purposes.

Table 3 shows the findings reported in the first part of the findings section based on our cross-section sample largely hold for the balanced panel. Put another way, parental wealth is playing an increasingly important role in explaining offspring total net wealth outcomes, especially for youngest cohort in our sample even when we consider the *same* individuals over time. The top panel of Table 3 shows that the IWE increases from 0.33 for the oldest group who are just prior to peak wealth age to 0.44 for those aged 29-34, and within our six-year panel the IWE increases to 0.59 by 2016/18 for this group which is high by international standards (Boserup, 2017). Whilst there is some variation across age groups, the general pattern is clear and suggests a divergence in fortunes for younger age groups, a key question then is to understand which types of wealth are driving this change, an issue we explore in a later part of the paper. By defining age groups to match the panel length we can compare cohort on cohort changes in IWE for individuals at the same age but born six years apart. As a general pattern this shows the IWE is rising and the divergence in wealth outcomes even over this short period is significant for most age groups.

The bottom part of Table 3 reports rank estimates and here we see a relatively flat profile across groups except for the youngest age group. We note the magnitude of the change within the panel is less pronounced relative to the beta estimates. However, irrespective of the estimator used the panel analysis highlights the change in intergenerational wealth transmission taking place for the same individuals over time which is not visible in the cross section estimates reported in Table 2. These results are consistent with recent evidence on intergenerational wealth inequality in GB (see Gregg and Kanabar, 2021; Blanden et al. 2021; Davenport et al. 2021), however, our focus is to document which components of total wealth are driving the overall change seen in Table 3. We consider three components of total wealth: housing, pension, and financial wealth.[7]

[7] We do not separately analyse physical wealth given the relatively small contribution this makes to total net wealth for the majority of individuals in our sample.

Table 4: IWE and rank estimates for housing wealth based on cross section and 6-year panel by age (offspring current age, parents peak wealth).

Age group at wave 3	29-34	35-40	41-46	47-52	53-58	59-64
Central birth years	1979-1980	1973-1974	1967-1968	1960-1961	1954-1955	1948-1949
Log-Log						
β cross section full sample wave 3	1.67*** [0.2]	1.49*** [0.14]	1.18*** [0.12]	1.14*** [0.11]	1.14*** [0.10]	0.83*** [0.08]
β balanced panel wave 3	1.89*** [0.26]	1.54*** [0.22]	1.19*** [0.18]	1.22*** [0.16]	1.11*** [0.13]	0.76*** [0.10]
β balanced panel round 6	1.93*** [0.30]	1.49*** [0.22]	1.21*** [0.18]	1.26*** [0.16]	1.23*** [0.12]	0.86*** [0.10]
Rank-rank						
rank cross section full sample round 3	0.3*** [0.03]	0.30*** [0.02]	0.31*** [0.02]	0.30*** [0.02]	0.36*** [0.02]	0.35*** [0.02]
rank balanced panel wave 3	0.35*** [0.04]	0.29*** [0.04]	0.31*** [0.03]	0.31*** [0.03]	0.37*** [0.03]	0.36*** [0.02]
rank balanced panel round 6	0.37*** [0.05]	0.33*** [0.04]	0.34*** [0.03]	0.35*** [0.03]	0.40*** [0.03]	0.36*** [0.02]
$N_{offspring}$ cross section wave 3	1299	1893	2362	2420	2364	2841
$N_{offspring}$ balanced panel	460	784	974	1112	1269	1628

Notes: first row refers to regression of offspring housing wealth on parent's wealth controlling for age within 6-year age group. Both offspring and parent net wealth have been transformed using inverse hyperbolic sine transformation, elasticity computed at mean values of offspring and parent wealth as suggested by Bellemare & Wichman (2020) and standard errors adjusted accordingly. Second and third row is identical to first row except sample is based on balanced panel of individuals observed at wave 3 (2010/12) and round 6 (2016/18). Wealth

values adjusted for inflation prior to transformation and reflect 2015 prices.

Table 4 reports IWE and rank estimates for housing wealth based on the balanced panel sample. Despite some differences across cohorts the general pattern is clear: the IWE estimate is larger for successively younger cohorts *at the same age*. Next, consider the IWE estimate for individuals aged between 29 and 34 compared to those aged 59-64: the magnitude of the coefficient is more than double for the former group. The relative size of the coefficient for both groups is far larger than that estimated for total wealth due to a non-trivial proportion of individuals in each age group (especially the younger) having zero housing wealth, an important and economically meaningful quantity. As expected, given the lifecycle profile of housing wealth accumulation the proportion of individuals with zero housing wealth declines as individuals age, for example in our sample data 40% (10%) of individuals in the 29-34 (59-64) age group report zero housing wealth. This partly explains why the estimated IWE coefficient falls across successively older age groups. The rank based estimates reported in the bottom half of Table 4 which we note in general have the same pattern as the β estimates are not affected by this issue.

The panel evidence shows that the IWE in housing wealth is increasing for individuals at the same age but born six years apart. The rank estimates also increase over the sample period across the majority of age groups. The difference in the beta versus rank estimates suggests widening inequality in housing wealth at younger ages. Therefore, in the case of housing wealth there are two issues to consider: having versus not having such wealth and conditional on the former the level. This then implies the rate and age at which offspring accumulate this type of wealth is a key issue in order to understand which components of wealth are responsible for driving the change in intergenerational persistence over time in Great Britain. Using the panel aspect of WAS we return to this issue in a later section of the paper.

Table 5: IWE and rank estimates for Pension wealth based on cross section and 6-year panel by age (inverse hyperbolic sine specifications).

Age group at wave 3	29-34	35-40	41-46	47-52	53-58	59-64
Central birth years	1979-1980	1973-1974	1967-1968	1960-1961	1954-1955	1948-1949
Log-Log						
β cross section full sample wave 3	1.42*** [0.14]	1.32*** [0.13]	0.96*** [0.11]	0.79*** [0.10]	1.03*** [0.10]	0.55*** [0.10]
β balanced panel wave 3	1.55*** [0.24]	1.22*** [0.21]	1.13*** [0.18]	0.73*** [0.15]	1.00*** [0.14]	0.60*** [0.12]
β balanced panel round 6	1.58*** [0.26]	1.03*** [0.21]	0.99*** [0.17]	0.68*** [0.14]	0.77*** [0.14]	0.59*** [0.13]
Rank-rank						
rank cross section full sample round 3	0.30*** [0.03]	0.28*** [0.02]	0.20*** [0.02]	0.19*** [0.02]	0.23*** [0.02]	0.17*** [0.02]
rank balanced panel wave 3	0.35*** [0.04]	0.23*** [0.04]	0.22*** [0.03]	0.18*** [0.03]	0.22*** [0.03]	0.18*** [0.03]
rank balanced panel round 6	0.36*** [0.05]	0.23*** [0.04]	0.25*** [0.03]	0.19*** [0.03]	0.21*** [0.03]	0.20*** [0.03]
$N_{offspring}$ cross section wave 3	1299	1893	2362	2420	2364	2841
$N_{offspring}$ balanced panel	460	784	974	1112	1269	1628

Notes: first row refers to regression of offspring pension wealth on parent's wealth controlling for age within 6-year age group. Both offspring and parent wealth have been transformed using inverse hyperbolic sine transformation and elasticity computed at mean values of offspring and parent wealth as suggested by Bellemare & Wichman (2020) and standard errors adjusted accordingly. Second and third row is identical to first row except sample is based on balanced panel of individuals observed at wave 3 (2010/12) and round 6 (2016/18).

Wealth values adjusted for inflation prior to transformation and reflect 2015 prices.

Table 5 shows there is a strong link between parental wealth and offspring pension wealth. The findings show the IWE coefficient falls for all groups, especially prime working age individuals, but not for the youngest cohort and is likely to reflect the roll out of AE during the sample period. AE has led to increased pension coverage among the lowest earners. On the one hand AE could reduce pension wealth inequalities but only if middle and/or higher earners do not accumulate pension wealth at a faster rate over the same period, which is unlikely to be true given the lifecycle profile of pension wealth accumulation (see Appendix B for cross section differences). Indeed, we note that the IWE and rank estimate remains broadly stable over the sample period for most age groups despite AE.

Comparing the IWE and rank estimates in Table 5, for both specifications we find there is a general decline in the magnitude of the estimated coefficient across successively older age groups, suggesting the role family background has on influencing offspring position in the respective pension wealth distribution is becoming increasingly important. This is despite policies aimed specifically at addressing undersaving for retirement. Therefore, understanding the mechanisms which drive pension wealth accumulation for the same individuals over time and for successively younger cohorts is an important area of future research if one is to understand the rapid divergence in total net wealth by family background. We note that in the case of pension wealth comparing individuals at the same age but born six years apart, Table 5 shows no clear pattern in terms of whether the IWE is changing over time, however the fact we do not observe the IWE estimates for the youngest cohort to be lower than the same cohort but born 6 years earlier is concerning given recent reforms such as AE and suggests pension wealth inequalities have risen among this group. A similar finding is not observed for rank estimates which are broadly stable on a cohort-on-cohort basis at the same age except for the youngest age group.

Table 6: Rank estimates for financial wealth based on cross section and 6-year panel by age (inverse hyperbolic sine specifications).

Age group at wave 3 Central birth year	29-34 1979-1980	35-40 1973-1974	41-46 1967-1968	47-52 1960-1961	53-58 1954-1955	59-64 1948-1949
Rank-rank						
rank cross section full sample round 3	0.21*** [0.03]	0.24*** [0.03]	0.22*** [0.02]	0.23*** [0.02]	0.30*** [0.02]	0.26*** [0.02]
rank balanced panel wave 3	0.25*** [0.05]	0.25*** [0.04]	0.26*** [0.03]	0.21*** [0.03]	0.30*** [0.03]	0.28*** [0.03]
rank balanced panel round 6	0.22*** [0.05]	0.23*** [0.04]	0.27*** [0.03]	0.27*** [0.03]	0.30*** [0.03]	0.32*** [0.02]
$N_{offspring}$ cross section wave 3	1340	1938	2386	2442	2377	2847
$N_{offspring}$ balanced panel	460	784	974	1112	1269	1628

Notes: first row refers to regression of rank of offspring pension wealth on rank of parent's wealth controlling for age within 6-year age group. Both offspring and parent wealth have been transformed using inverse hyperbolic sine transformation and elasticity computed at mean values of offspring and parent wealth as suggested by Bellemare & Wichman (2020) and standard errors adjusted accordingly. Second and third row is identical to first row except sample is based on balanced panel of individuals observed at wave 3 (2010/12) and round 6 (2016/18). Wealth values adjusted for inflation prior to transformation and reflect 2015 prices.

The final type of wealth we consider is financial net wealth. As discussed, we estimate only rank estimates due to non-trivial proportion of our sample reporting negative financial wealth. Whilst economically meaningful and correlated with family background, negative values imply the types of transformations used to compute the IWE are inappropriate (Ravallion, 2017; Bellemare and Wichman, 2020). Rank regression does not suffer from such issues but doesn't account for the inequality in parental and offspring financial wealth holdings. Table 6 shows a strong positive association between parental wealth and offspring total net financial wealth and the magnitude of this effect is increasing slightly however is otherwise broadly stable across time and for individuals of the same age but born six years apart.

The mechanisms by which parents influence offspring wealth outcomes is likely to differ by wealth type and we consider the relative importance of parent versus individual characteristics in explaining wealth trajectories in a later section of the paper. Taken together, the cross section and panel evidence suggests the rapid change in offspring wealth inequalities by wealth type between 2010/12 and 2016/18 in GB is increasingly influenced by family background. A key question then is to understand whether certain *types* of wealth are responsible for this change. Such findings have relevance for policy, for example to improve policymakers understanding of the factors which affect intergenerational wealth and social mobility across cohorts. In order to quantify this change in terms of the IWE and rank estimate we pool our sample data and interact our markers of parental wealth with time dummies and age. Table 7 reports the main results, in alternative specifications we control for various polynomials of age, parent's wealth and time (full results available on request).

Table 7: Rate of change in IWE and rank between offspring (aged 29-64) and parent wealth between wave 3 (2010/12) and round 6 (2016/18) by wealth type.

Wealth type	β [σ]	$Rank$ [σ]
Total wealth		
Wave 4*Parent's wealth	0.013 [0.0109]	0.002 [0.00691]
Round 5*Parent's wealth	0.031** [0.0143]	0.013 [0.00907]
Round 6*Parent's wealth	0.039** [0.0189]	0.003 [0.0119]
Age*Parent's wealth	-0.003** [0.00120]	0.003*** [0.000709]
Parent's wealth	0.465*** [0.0278]	0.229*** [0.0145]
Property wealth		
Wave 4*Parent's wealth	0.052 [0.0389]	0.005 [0.00671]
Round 5*Parent's wealth	0.088* [0.0517]	0.0150* [0.00873]
Round 6*Parent's wealth	0.186*** [0.0677]	0.0302*** [0.0113]
Age*Parent's wealth	-0.026*** [0.00468]	0.004*** [0.000711]
Parent's wealth	1.724*** [0.112]	0.194*** [0.0148]
Pension wealth		
Wave 4*Parent's wealth	0.054 [0.0452]	0.006 [0.00810]
Round 5*Parent's wealth	0.084 [0.0568]	0.028*** [0.0103]

Round 6*Parent's wealth	0.0007 [0.0694]	0.008 [0.0129]
Age*Parent's wealth	-0.021*** [0.00463]	0.0003 [0.000779]
Parent's wealth	1.358*** [0.106]	0.181*** [0.0156]
Financial wealth		
Wave 4*Parent's wealth		0.006 [0.00865]
Round 5*Parent's wealth		-0.014 [0.0106]
Round 6*Parent's wealth		0.004 [0.0130]
Age*Parent's wealth		0.002*** [0.000765]
Parent's wealth		0.192*** [0.0165]
N_{total_wealth}	33,278	33,278
$N_{housing\_wealth}$	33,098	33,098
$N_{pension\_wealth}$	33,278	33,278
$N_{financial\_wealth}$		33,278

Notes: second and third column correspond to regression of offspring wealth (by type) on parent's total net wealth interacted with time and parent's total net wealth interacted with age, second column refers to IWE and third column rank estimate. Both regressand and regressors have been appropriately transformed using log or HIS depending on wealth type. All specifications also control for first and second order polynomial terms in age, parent's total net wealth and wave dummies (not reported). IWE estimates not reported for financial wealth due to proportion of sample reporting negative net financial wealth. Samples based on pooled data using wave 3-round 6 of WAS. Wealth values adjusted for inflation prior to transformation and reflect 2015 prices.

Table 7 shows that the rapid pace at which intergenerational wealth transmission is changing and becoming stronger over time is predominantly being driven by housing wealth.[8] Row 12 (column 2) shows that the strength of this relationship has grown by 0.186 log points over a six-year period, or roughly 0.03 log points a year for an individual at the same age but born six-years later. The estimation results suggest among younger cohorts the IWE estimate increases from roughly 1.72 to 1.91 over a six-year period. Column 3 reports rank estimates and this mirrors the results reported in Column 2. Thus, even without taking into account the extent of housing wealth inequalities (in both generations) and relying only on rank order, the evidence suggests parental wealth is playing an increasingly important role in explaining differences in the position offspring lie in the respective housing wealth distribution. In the

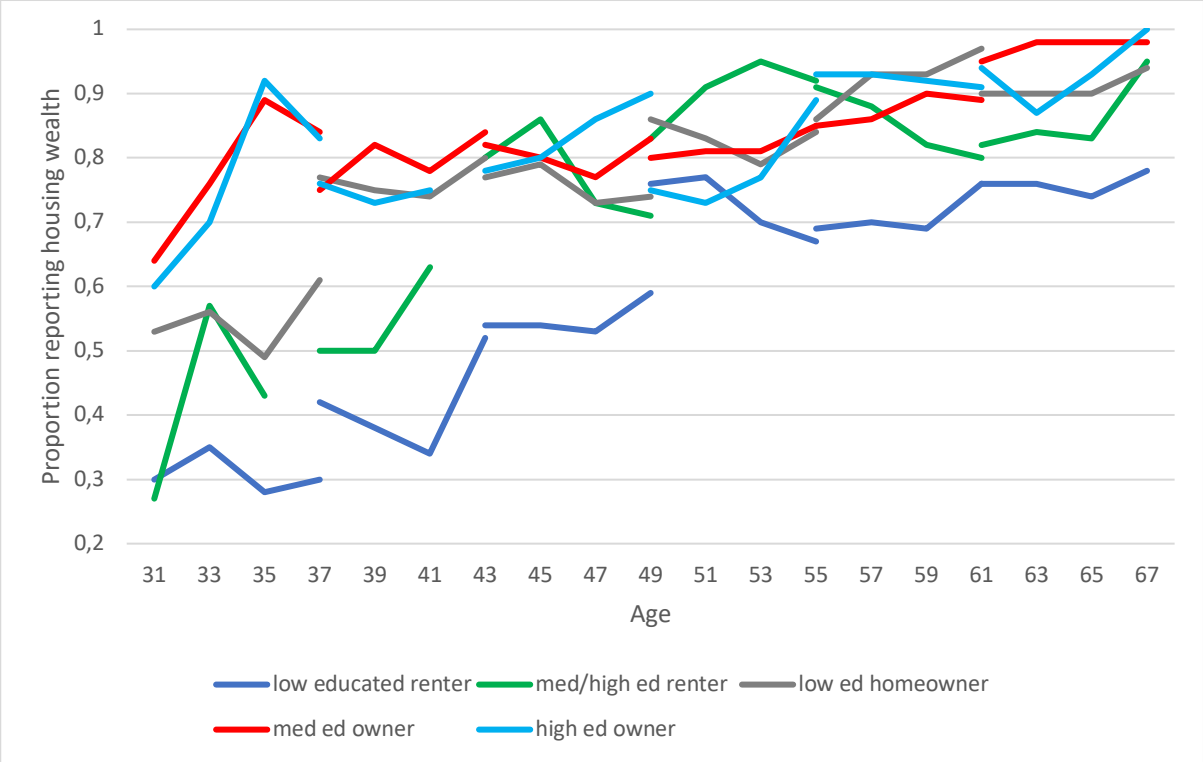
[8] We do not discuss the results for total net wealth here as they reported and analysed in Gregg and Kanabar (2021).

case of pension wealth, Table 7 shows there is only limited evidence of parent wealth influencing the change in offspring pension wealth and this relationship does not hold at the end of the sample period.

We note the interaction effect between parental wealth and age affects intergenerational persistence in wealth differently across the regression specifications. Table 7 shows that in the case of beta regressions which account for level differences in wealth holdings in both the offspring and parent generation, ceteris paribus, the IWE becomes smaller with increasing age. On the other hand, when only considering the rank order and thus not accounting for inequality in wealth levels in either generation, the effect is the opposite, the joint effect is increasing in age. It is important to note the differences in the proportion of individuals who report homeownership, and conditional on reporting, the level differences in housing wealth by age group when interpreting these findings. Empirical evidence clearly shows declining homeownership and housing wealth across successively younger cohorts in GB (Resolution Foundation, 2017). However, as we show in a later section of the paper this only holds for individuals from relatively less affluent backgrounds (see Figures 1 and 2). Collectively, the findings highlight both regression approaches are required to analyse and understand intergenerational persistence in wealth, specifically how the interaction between individual and parental characteristics explain the change in wealth persistence over time.

The findings in Table 7 are of policy relevance, if the change in offspring wealth inequalities is due to housing wealth and such wealth is being accumulated at different rates, and this is increasingly determined by parental wealth then policymakers need to understand the mechanisms responsible for this. There are two issues to consider. First, whether the findings reported in Table 7 are due to offspring having vs not having housing wealth (so the presence of zero versus positive housing wealth), the value of such wealth and how this is related to family background. Secondly, whether the composition of total net wealth is changing across time and cohorts, for example is housing becoming an increasingly dominant component of total wealth. We explore these issues next.

Figure 1: Proportion of individuals (aged 31-67) reporting housing wealth by family background over sample period (2010/12-2016-18).



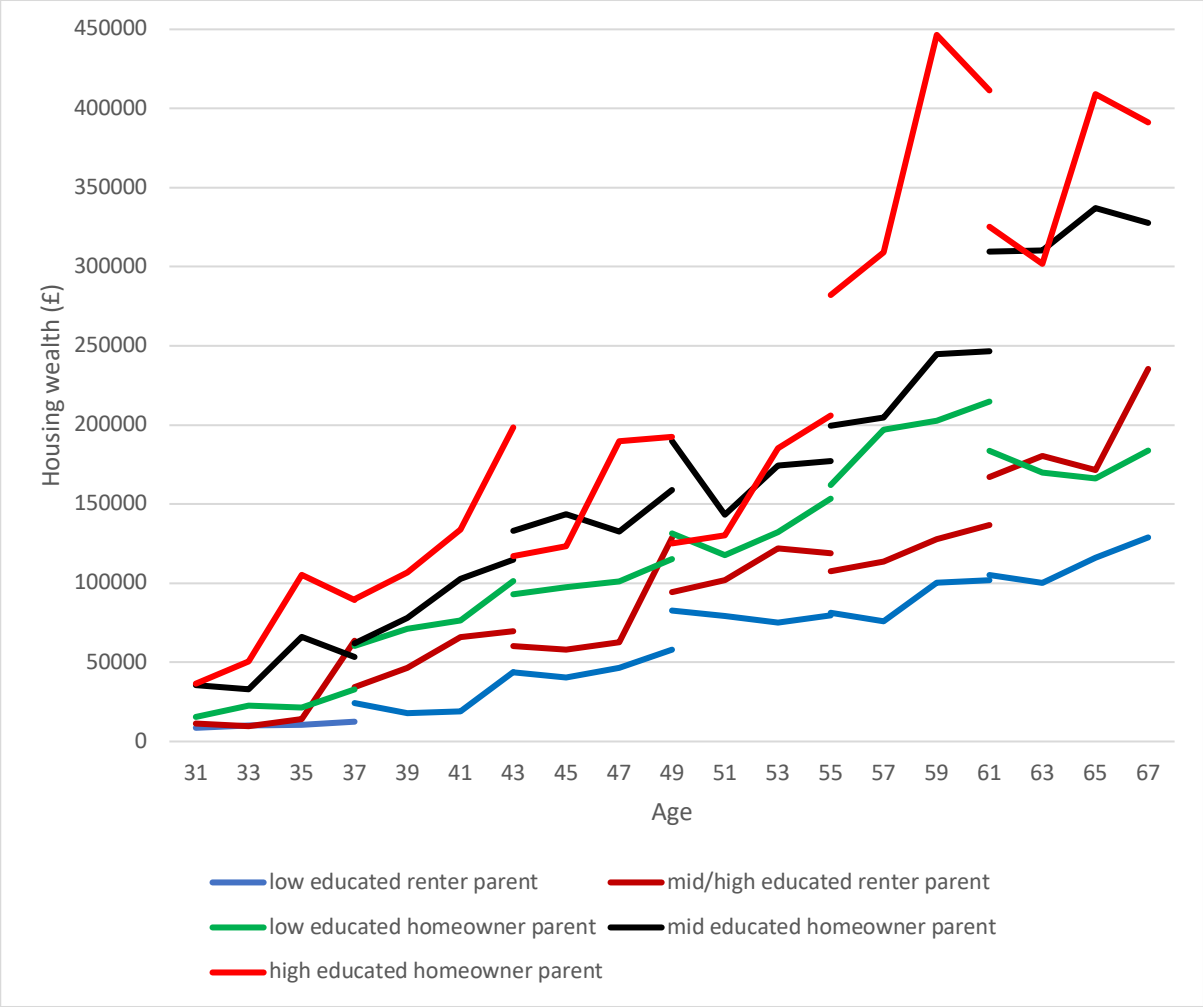
Notes: proportion corresponds to individuals reporting housing wealth by single age year, each group defined by age and parent background. Based on unbalanced panel. Minimum of one observation per individual to be included in sample. N=36, 384. Proportions reported over 6 years corresponding with wave 3 (2010/12)-round 6 (2016/18) of WAS.

Figure 1 shows at younger ages there is clear difference in the proportion of individuals reporting housing wealth by family background. Between ages 31 and 37 roughly 30% of individuals from a low educated renter background report such holding wealth, whereas the proportion increases from around 60% at age 31 to around 85% by age 37 among those from a high educated homeowner background. Thus, highlighting the rapid divergence in homeownership opportunities by our markers of parental wealth. Whilst Figure 1 shows a degree of convergence at older ages this refers to different cohorts who had greater absolute housing mobility and even so, a substantial gap of around 15-20% nevertheless remains. Moreover, recent evidence consistent with the general pattern seen in Figure 1 suggests that for the youngest age groups home ownership opportunities are becoming increasingly unequal and stratified by family background/parental wealth (Blanden et al. (2021), Davenport et al. 2021). Put another way, it is unlikely that individuals currently in their 30s will experience the same homeownership opportunities as that of their parents. In terms of Figure 1 this suggests

the gaps seen across cohorts is likely to be even wider in the future. Indeed, comparing the youngest (31-37) and second youngest (37-43) cohorts clearly show individuals from the most disadvantaged backgrounds are less likely to report homeownership at the same age, no such pattern is found for the most advantaged groups. In fact, homeownership rates are *higher* based on this type of comparison for these groups: among the very youngest cohort the proportion of individuals aged 37 in round 6 (2016/18) who report housing wealth is roughly 10% higher than the adjacent cohort from the same family background. On the other hand, for cohorts from a low educated renter background there is a clear difference for the youngest group but in the opposite direction, the proportion of individuals aged 37 in round 6 (2016/18) who report housing wealth is over 10% *lower* than the next cohort from the same family background. This same pattern is not evident at older ages, although we note the most disadvantaged (those who grew up in low educated renter households) consistently report lower levels of homeownership relative to all other groups.

Taken together these findings show that even based on the short panel evidence available there is a stark difference in access to holding housing wealth. A related and important issue then is to housing wealth accumulation in terms of level differences, to explore this issue we use the panel aspect of WAS to plot housing wealth trajectories by cohort and parent background.

Figure 2: Average housing wealth of individuals (aged 31-67) by six-year cohort and family background over sample period (2010/12-2016-18).



Notes: Average housing wealth reported by individuals by single age year, each group defined by age and parent background. Based on unbalanced panel. Minimum of one observation per individual to be included in sample. Values correspond to 2015 prices. N=36, 384. Levels reported over 6 years correspond with wave 3 (2010/12)-round 6 (2016/18) of WAS.

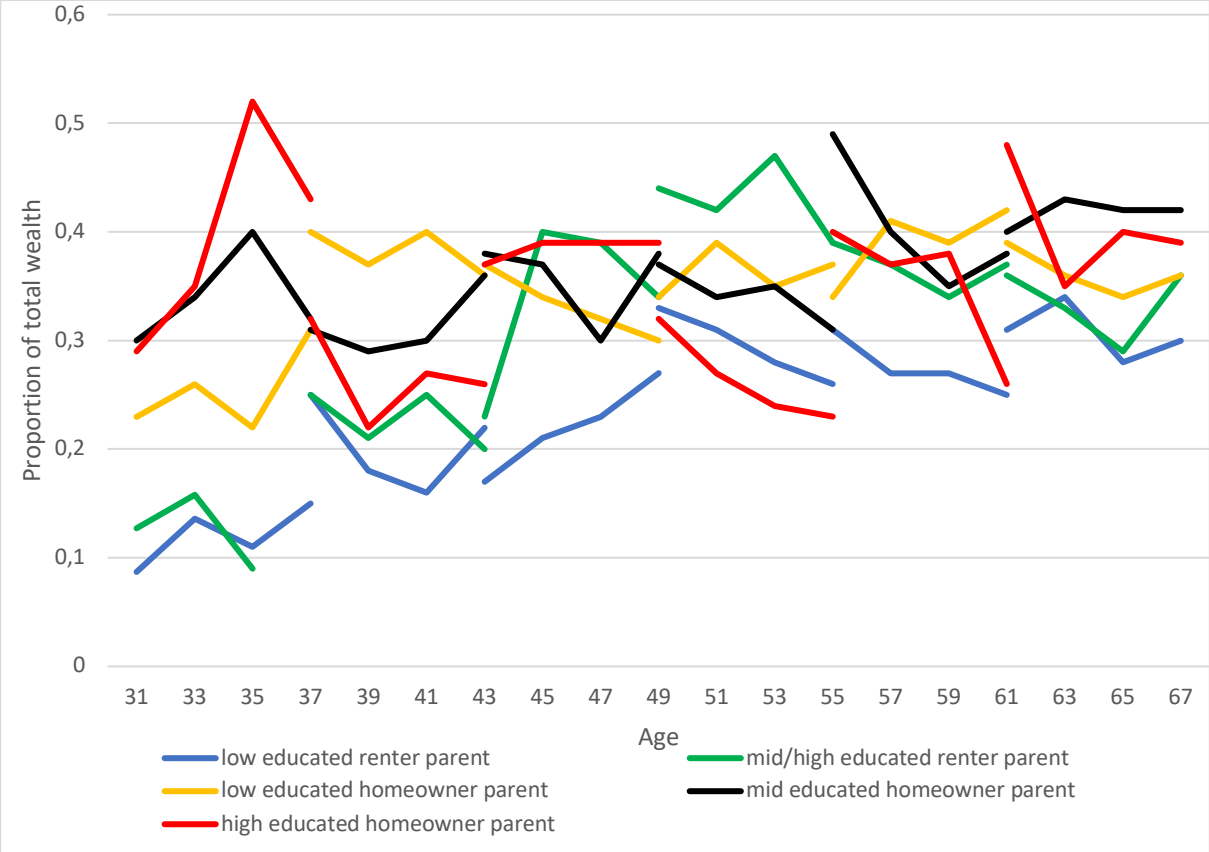
While Figure 1 showed significant differences in homeownership by parental wealth, Figure 2 shows differences also exist when one considers the value and rate at which housing wealth is accumulated by family background. Between age 31 and 37 average housing wealth for those from low educated renter (high educated homeowner) backgrounds increased from £10,064 (£36,546) to £12,517 (£89,359). Put another way, those from disadvantaged backgrounds saw an average increase of £2,500 which corresponds to 25% albeit from a low base. On the other hand, for those from the most advantaged background the average increase is almost three times the level reported at age 31 and corresponds to an increase in absolute terms of around

£53,000, over 25 times the absolute gain among those from a low educated renter background over the same ages. Therefore, even at relatively young ages there is vast inequality in housing wealth, consistent with the results in Table 4, and given the profile of housing wealth accumulation by cohorts and parental background shown in Figure 2 this difference holds across the lifecourse. It is also visible in the cross-section plots of housing wealth in Appendix B. Moreover, based on the results in Table 7 our results imply inequalities in housing wealth have been and are likely to continue driving the overall change in intergenerational wealth persistence in GB.

Figure 2 also shows that the average rate of housing wealth accumulation among younger cohorts (below age 50) from more disadvantaged backgrounds is lower than for older groups. This does not hold for the most advantaged group. In fact, among the two youngest cohorts in this group (age 31-43) housing wealth is accumulated at a more rapid rate compared to individuals from the same background aged between 43 and 55. We also note the sharp increase in the levels of housing wealth reported among individuals aged 55+ from the most advantaged background which may possibly reflect proceeds from inheritance. How such funds are used is an important and under researched area, for example whether such monies are used to purchase additional property or, alternatively, passed on to younger generations to purchase their first home.

Taken together Figures 1 and 2 highlight that individuals among the youngest cohort (aged 31-37) who grew up in the most disadvantaged backgrounds according to our grouping (low educated renter), on a cohort basis report lower levels of homeownership *and* conditional on owning their home report on average significantly lower average property wealth. No such pattern is found for those from the most advantaged backgrounds, indeed if anything the evidence suggests the opposite holds true for this group. Given the cohort-on-cohort differences by parent group and growing inequality in housing wealth among younger groups, this suggests going forward inequality in homeownership *and* housing wealth is set to increase among those currently in their 30s compared to older age groups.

Figure 3: Housing wealth as a proportion of total wealth of individuals (aged 31-67) by six-year cohort and family background over sample period (2010/12-2016-18).



Notes: proportion corresponds to proportion of total wealth attributable to housing by single age year, each group defined by age and parent background. Based on unbalanced panel. Minimum of one observation per individual to be included in sample. N=36, 384. Proportions reported over 6 years corresponding with wave 3 (2010/12)-round 6 (2016/18) of WAS.

Alongside understanding the rate at which individuals accumulate certain assets by family background, we also consider how much each asset type contributes to overall total net wealth. Put another way, do the changes documented in Tables 4 and 7 and Figures 1 and 2, which reflect the inequality in holdings and wealth levels, imply certain asset types and their value are becoming increasingly important in explaining total wealth differences between individuals from different parental wealth backgrounds in a given cohort. This is important from a policy perspective, in particular when designing policies to help improve wealth mobility and social mobility more generally. For example, if pension as opposed to housing wealth is largely responsible for the overall increase in total net wealth inequality among offspring, and hence constitutes an ever-increasing fraction of total net wealth across successively younger cohorts, then the types of policies required to reduce wealth inequality are likely to be related to

improving earnings inequality for example early life education interventions. On the other hand and as is the case based on our findings, if total wealth inequality is attributable to housing wealth then interventions are required which facilitate improved access to homeownership *and* housing wealth accumulation especially for those from the most disadvantaged backgrounds, and such interventions should be targeted at individuals during their 20s and/or 30s. Schemes such as 'Help to Buy' which provide a government-backed equity loan were established to facilitate homeownership among younger individuals. However, from an intergenerational perspective parental wealth is still likely to play a role in influencing homeownership. Indeed, our sample covers a period when schemes such as 'Help to Buy' have been in operation and the results suggest homeownership and housing wealth accumulation is becoming increasingly stratified by parental wealth.

Using WAS, we split out the contribution of housing wealth to total wealth and in Figure 3 plot this by age cohort and family background.[9] Three key findings emerge. First, at young ages housing wealth comprises a higher fraction of total wealth for those from advantaged backgrounds. This reflects both a higher proportion of this group holding such wealth and conditional on holding, the level. Appendix B details the profile of total wealth and its components based on a single cross section to highlight the overall level differences in asset holding by parental background across age. This shows the absolute levels of all wealth types are higher for those from the most advantaged backgrounds.

Second, the panel aspect of WAS allows us to document the fraction housing wealth explains of total wealth as the *same* individual ages, here we again see different patterns by parent background. This also reflects differences in holding and levels: house prices in GB increased by 37% on average between 2010 and 2018 (the period spanning our sample period) and therefore homeowners over this period saw large returns on such assets (ONS, 2021). Recent international evidence underlines the role of portfolio allocations and returns to housing as key factors explaining cross national differences in wealth inequalities (Black et al. 2020; Pfeffer and Waitkus, 2021). The recent Covid-19 pandemic has led to further sustained and significant increases in house values and thus the findings here are likely to continue to hold. It is also important to note that the likelihood of homeownership varies significantly by region in GB due to significant heterogeneity in house prices, London and the Southeast being typically the most expensive areas. It is in these areas where the most affluent individuals tend to reside, and

[9] Appendix A contains detailed information describing the components of total wealth.

this is also relevant when one considers the returns to housing assets and accumulation of housing wealth. A regression of region of residence and homeownership (full details available upon request) shows individuals from the most advantaged backgrounds in terms of parental wealth are indeed significantly more likely to reside in London and the Southeast at wave 3 of WAS.

Third, comparing cohorts across time Figure 3 shows a mixed picture, for those from the most disadvantaged background housing wealth comprises a lower fraction of total net wealth across successively younger cohorts. This is due to a higher proportion of this group simply not holding such wealth. The same is not true for those from relatively well-off backgrounds, here we see a relatively flat profile in terms of how much housing wealth constitutes total wealth. If anything, for those in the youngest cohort aged 31-37, between 2010-2018 this group saw housing wealth grow as a fraction of total wealth. The downward trajectory observed at ages 50+ is due to pension wealth becoming increasingly important in influencing overall wealth levels. In Appendix B we document pension wealth by age based on a single cross section and find much high levels of pension wealth holdings among the most advantaged groups. Just prior to retirement at age 64, the average level of pension wealth among males who grew up in a medium/high educated homeowner (low educated renter) household at wave 3 is £444,251 (£181,668). For women the corresponding figures is £83,908 (£19,796). In addition, receipt of inheritances (which affect financial wealth) also explains the pattern observed among the older groups aged 50+ in Figure 3. Again, the likelihood and level of receipt is also highly correlated with family background (Palomino et al. 2021; OECD, 2021; Davenport et al. 2021).

Figures 1 and 2 show clear differences in homeownership and housing wealth by family background across time and cohorts. Our findings strongly suggest housing wealth is largely responsible for driving the change in the intergenerational persistence in wealth, a related and important issue then is to understand how the importance of parental background is influencing homeownership opportunities for successively younger cohorts. To answer this, we interact parents total net wealth and survey wave dummies to directly compare how homeownership differs for individuals at the same age but born six-years apart. We report specifications for elasticity and rank regressions in Table 8.

Table 8: Likelihood of reporting housing wealth for offspring aged 29-64 and parent wealth between wave 3 and round 6 across wealth types.

	β $[\sigma]$	$Rank$ $[\sigma]$
Whether reports housing wealth		
Wave 4*Parent's wealth	0.0119 [0.0111]	0.0345 [0.0431]
Round 5*Parent's wealth	0.0119 [0.0145]	0.0312 [0.0549]
Round 6*Parent's wealth	0.0373** [0.0186]	0.126* [0.0700]
Age*Parent's wealth	-0.00387*** [0.00132]	-0.0103** [0.00481]
Parent's wealth	0.373*** [0.0287]	1.322*** [0.102]
N	33,098	

Notes: *** p<0.01, ** p<0.05, * p<0.1. Top panel refers to probit regression of whether offspring report housing wealth regressed on first and second order polynomial of age, parent's wealth (elasticity or rank), time, interaction between parents' wealth and time, interaction between parent's wealth and age. Standard errors clustered at individual level. Sample based on waves 3-round 6 of WAS (2010/12-2016/18).

Table 8 reports probit regression coefficients and shows the likelihood of reporting housing wealth is increasingly influenced by family background for individuals at the same age but born 6 years apart. The results underline the importance of assessing this relationship using both beta and rank regressions, the former allowing us to incorporate inequality in parental wealth levels (even if only group averages) in explaining the variation in offspring homeownership, whereas the rank regression allows us to understand how parents' location in the parental wealth distribution itself rather than the magnitude of parental wealth differences is important. The magnitude of the effect estimated (relative to the base group) suggests the likelihood of reporting housing wealth is 0.037 log points higher if born 6 years later to the same parental background, and 0.126 in rank terms by round 6 (2016/18) both significant at conventional levels. Put another way, parental wealth irrespective of regression approach is playing an increasingly important role in explaining the likelihood of whether offspring are likely to report homeownership. Moreover, as shown in Table 7 this finding holds when we consider offspring housing wealth inequality i.e., conditional on having housing wealth. The sixth row of Table 8 reflects the negative relationship between age and family background in affecting the likelihood of reporting housing wealth, consistent with recent evidence underlining the difficulty for younger cohorts in GB to get on the housing ladder irrespective

of their family background (Resolution Foundation, 2018). Taken together, the evidence presented in Tables 7 and 8 suggests rapidly diverging fortunes in homeownership and housing wealth by parent background between 2010 and 2018.

The ability to purchase a home is related to both individual and parental characteristics. In order to understand the relative importance of parental background, we estimate a regression specification and include controls for individuals *own* education, earnings, social class, economic status, marital status, sex and region. These have been shown to be important in explaining homeownership from an intergenerational perspective in GB (Blanden et al. 2021; Davenport et al. 2021). Our interest is to understand the additional importance of family background over time and across cohorts, once we control for such individual characteristics. Full results (which can be found in Appendix D) show after controlling for these additional factors our qualitative findings do not change from those reported in Table 8. In fact, the coefficient estimated on the interaction effect between time and parental wealth by the end of our sample period is even *larger* (0.055** [0.027] in the case of the beta regression) highlighting the joint positive correlation between individuals own and their parent's characteristics, and collectively their influence on the relative likelihood of reporting homeownership. Separately, we also regress the same set of covariates on the value of housing wealth and also find a strong positive association with parental wealth *and* the interaction between time dummies and parental wealth, which is becoming stronger over time (significant at conventional levels for beta and rank regressions). So, parental wealth is becoming more important for determining homeownership *and* the level of housing wealth among individuals born to the same parental background but born 6 years apart consistent with the results in Table 7 except here we additionally control for individual's own characteristics.

5. Conclusion

Recent evidence has shown a rapid widening in wealth inequalities in GB similar to other advanced economies including the US, Italy and Scandinavia (Boserup, 2017; Black et al. 2020, Gregg and Kanabar, 2021). The fact wealth significantly affects an individual's living standard and is easily transferable implies that from an intergenerational perspective understanding which components of wealth drive wealth persistence is of paramount importance if policymakers are to design effective policies to improve wealth and social mobility, and also living standards. However, to our knowledge no studies have attempted to understand the relative importance of different wealth *types* in driving intergenerational wealth persistence, something we specifically address in this paper. We show that in the case of GB

the change is largely attributable to growing inequalities in housing wealth and this is becoming increasingly stratified by parental wealth. We estimate that over a six-year period (2010/12-2016/18) parental wealth increases the IWE in housing by 0.18 log points. If this trend is maintained, it implies the IWE for housing wealth will double in roughly one century.

A second important finding is the fact homeownership and the rate at which individuals accumulate housing wealth is becoming increasingly related to parental wealth. Thus, not only is intergenerational persistence in wealth being driven by housing wealth, but we also show the importance of having versus not having, so whether offspring can access housing wealth and conditional on having, the level, both of which are rapidly becoming increasingly influenced by parental background. Further, cohort analysis shows that among younger individuals in their early 30s, for those from the wealthiest backgrounds housing wealth is being accumulated at a similar or even *faster* rate than older cohorts. On the other hand, among individuals from the most disadvantaged backgrounds, not only are those in their early 30s *less* likely to report homeownership compared to slightly older cohorts but the rate at which housing wealth is being accumulated is also falling compared to individuals from the same parental background but who are slightly older. For example, by age 35 homeownership levels are *three* times higher among offspring whose parents are high educated homeowners compared to those whose parents are from a low educated renter background and in terms of housing wealth, the former group holds approximately *ten*-times the level of housing wealth compared to the latter. Such differences in housing wealth between the most and least advantaged persist between ages 30 and 64 and given our findings are only set to widen further. Importantly, we show that our findings hold even after controlling for a range of individual characteristics which are likely to influence homeownership such as earnings and education (Blanden et al. 2021, Davenport et al. 2021). We also note the importance of region: homeownership levels are significantly lower in London compared to other parts of GB.

Taken together our findings highlight rapidly diverging fortunes for young people, put another way, the penalty for being born to parents of low wealth is growing rapidly over time in GB and this is influencing major lifecycle decisions such as the ability to own a home, accumulate housing wealth and hence living standards more generally. The returns to housing are non-trivial. Over our sample period (2010 and 2018) average house prices in GB grew by over 37% and more recently prices have risen by over 11% in the year to September 2021 alone due to the way the Covid-19 pandemic has affected demand for housing (ONS, 2021).

Despite specific policies targeted at young people to improve access to homeownership in the UK such as Help to Buy, our findings suggest parental wealth influences the likelihood of homeownership and the strength of this relationship is *growing* over time. A key question then is to understand whether the relative importance of individual versus parent characteristics, including transfers is changing over time in terms of driving wealth inequalities and how this differs by wealth type. Put another way, is it differences in returns to particular characteristics which matter or underlying differences in the distribution of characteristics which are becoming increasingly important for determining wealth accumulation and levels, a focus of ongoing research.

References

Adermon, A., Lindahl, M., & Waldenström, D. (2018). Intergenerational wealth mobility and the role of inheritance: Evidence from multiple generations. The Economic Journal, 128(612), F482-F513.

Advani, A., Bangham, G., & Leslie, J. (2020). The UK's wealth distribution and characteristics of high-wealth households. Resolution Foundation.

Bellemare, M. F., & Wichman, C. J. (2020). Elasticities and the inverse hyperbolic sine transformation. Oxford Bulletin of Economics and Statistics, 82(1), 50-61.

Black, S. E., Devereux, P. J., Lundborg, P., & Majlesi, K. (2020). Poor little rich kids? The role of nature versus nurture in wealth and other economic outcomes and behaviours. The Review of Economic Studies, 87(4), 1683-1725.

Blanden, J., Gregg, P., & Macmillan, L. (2013). Intergenerational persistence in income and social class: the effect of within-group inequality. *Journal of the Royal Statistical Society: Series A (Statistics in Society)*, *176*(2), 541-563.

Blanden, J., Eyles, A., & Machin, S. (2021). Trends in intergenerational home ownership and wealth transmission (No. 21-05). Centre for Education Policy and Equalising Opportunities, UCL Institute of Education.

Björklund, A., & Jäntti, M. (1997). Intergenerational income mobility in Sweden compared to the United States. The American Economic Review, 87(5), 1009-1018.

Böhlmark, A., & Lindquist, M. J. (2006). Life-cycle variations in the association between current and lifetime income: Replication and extension for Sweden. Journal of Labor Economics, 24(4), 879-896.

Boserup, S. H., Kopczuk, W., & Kreiner, C. T. (2013). Intergenerational wealth mobility: Evidence from Danish wealth records of three generations. Univ. of Copenhagen mimeo.

Boserup, S. H., Kopczuk, W., & Kreiner, C. T. (2016). The role of bequests in shaping wealth inequality: evidence from Danish wealth records. American Economic Review, 106(5), 656-61.

Boserup, S. H., Kopczuk, W., & Kreiner, C. T. (2017). Intergenerational wealth formation over the life cycle: Evidence from danish wealth records 1984-2013. Working Paper, University of Copenhagen.

Boserup, S. H., Kopczuk, W., & Kreiner, C. T. (2018). Born with a silver spoon? Danish evidence on wealth inequality in childhood. The Economic Journal, 128(612), F514-F544.

Charles, K. K., & Hurst, E. (2003). The correlation of wealth across generations. Journal of political Economy, 111(6), 1155-1182.

Davenport, A., Levell, P., & Sturrock, D. (2021). Why do wealthy parents have wealthy children? *The Institute for Fiscal Studies*.

Dearden, L., Machin, S., & Reed, H. (1997). Intergenerational mobility in Britain. The Economic Journal, 107(440), 47-66.

Gregg, P., Macmillan, L., & Vittori, C. (2017). Moving towards estimating sons' lifetime intergenerational economic mobility in the UK. Oxford bulletin of economics and statistics, 79(1), 79-100.

Gregg, P., & Kanabar, R. (2021). Intergenerational wealth transmission in Great Britain. *Centre for Education Policy and Equalising Opportunities, Working Paper*, 21-06.

Jerrim, J., Choi, Á., & Simancas Rodríguez, R. (2014). Two-Sample Two-Stage Least Squares (TSTSLS) estimates of earnings mobility: how consistent are they?

Jerrim, J., & Macmillan, L. (2015). Income inequality, intergenerational mobility, and the Great Gatsby Curve: Is education the key? Social Forces, 94(2), 505-533.

Gritti, D., & Cutuli, G. (2021). Brick-by-brick inequality. Homeownership in Italy, employment instability and wealth transmission. *Advances in Life Course Research*, 100417.

Haider, S., & Solon, G. (2006). Life-cycle variation in the association between current and lifetime earnings. American Economic Review, 96(4), 1308-1320.

Killewald, A., Pfeffer, F. T., & Schachner, J. N. (2017). Wealth inequality and accumulation. Annual review of sociology, 43, 379-404.

Kitagawa, T., Nybom, M., & Stuhler, J. (2018). *Measurement error and rank correlations* (No. CWP28/18). Cemmap working paper.

Nybom, M., & Stuhler, J. (2017). Biases in standard measures of intergenerational income dependence. *Journal of Human Resources*, *52*(3), 800-825.

Palomino, J. C., Marrero, G. A., Nolan, B., & Rodríguez, J. G. (2021). Wealth inequality, intergenerational transfers, and family background. *Oxford Economic Papers*.

Pence, K. M. (2006). The role of wealth transformations: An application to estimating the effect of tax incentives on saving. The BE Journal of Economic Analysis & Policy, 5(1).

Piketty, T., & Saez, E. (2014). Inequality in the long run. Science, 344(6186), 838-843.

ONS. (2012). Wealth and Assets Survey Review Report.

ONS. (2019). Wealth in Great Britain Round 8: 2016 to 2018. https://www.ons.gov.uk/releases/wealthingreatbritainwave62016to2018

ONS. (2021). UK House Price Index: September 2021. https://www.ons.gov.uk/economy/inflationandpriceindices/bulletins/housepriceindex/september2021

Oren, L., Caduri, A., & Tziner, A. (2013). Intergenerational occupational transmission: Do offspring walk in the footsteps of mom or dad, or both? *Journal of Vocational Behavior*, *83*(3), 551-560.

Pfeffer, F. T., & Killewald, A. (2015). How rigid is the wealth structure and why? Inter-and multigenerational associations in family wealth. *Population Studies Center Research Report*, (15-845).

Killewald, A., Pfeffer, F. T., & Schachner, J. N. (2017). Wealth inequality and accumulation. *Annual review of sociology*, *43*, 379-404.

Pfeffer, F. T., & Waitkus, N. (2021). The wealth inequality of nations. *American Sociological Review*, *86*(4), 567-602.

Ravallion, M. (2017). A concave log-like transformation allowing non-positive values. Economics Letters, 161, 130-132.

Resolution Foundation. (2018). House of the rising son (or daughter): the impact of parental wealth on their children's homeownership.

Appendix

Appendix A: Definition of derived variables used from Wealth and Assets Survey

Table A1: Definition of derived variables.

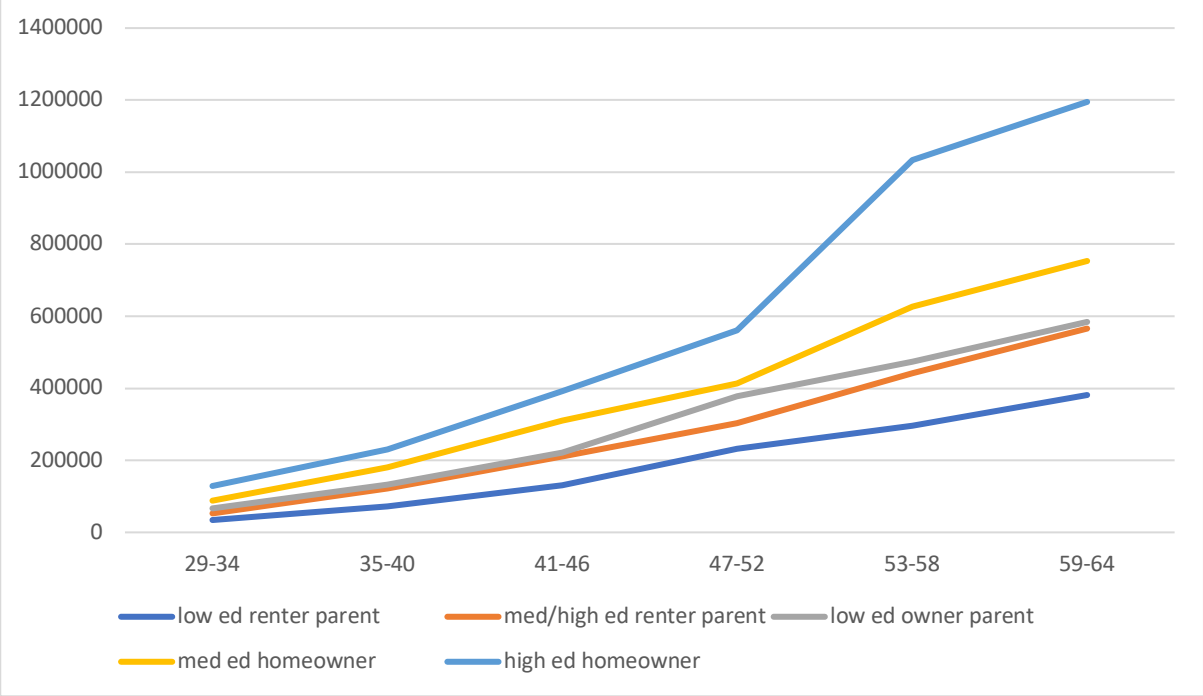
Variable	Definition
Total net wealth	Total sum of: Individual net value of all (main and other) property, individual net financial wealth (includes endowment), individual physical wealth (including durable goods) and individual pension wealth.
Pension wealth	Total sum of occupational Defined Benefit (DB), occupational Defined Contribution, retained rights in DB schemes, retained rights in DC schemes, value of additional voluntary contributions (AVCs), value of personal pensions, value of retained rights in defined benefit pensions, value of retained rights in defined contribution pensions, value of retained rights in drawdown, value of pensions in payment and value of pension from former spouse of partner.
Net property wealth	Individual net value of all (main and other) property
Net financial wealth	Total value of all formal assets (current account, savings, ISAs, national savings product, shares, insurance, bonds, employee

	shares, unit and investment trusts, overseas shares, bonds/gilts (home and abroad), any other investments) PLUS total value of informational assets PLUS child trust funds, other children's assets, endowments. MINUS Total financial liabilities (total credit card balance, total value of store cards, mail order, hire purchase, total amount of all loans, mail order arrears, hire purchase arrears, loan arrears, total bill arrears, current account overdraft, total value of student loans).
Proportion reporting housing wealth	Proportion of individuals in sample who report having a strictly positive amount of net housing wealth.
Proportion with pension wealth	Proportion of individuals in sample who report having a strictly positive amount of pension wealth.
Proportion with financial wealth	Proportion of individuals in sample who report having a strictly positive amount of financial wealth.

Appendix B: Wealth type and parent background

Figure B1 shows total net wealth by age in wave 3 (2010-2012) of WAS. There are clear level differences and a general pattern of fanning out across the lifecourse. Those from medium and high educated homeowner backgrounds (asked when an individual is around 14 so parents in their early 40s) steadily pull away from other groups. In particular, the latter group sees a rapid increase in wealth levels in their 50s and 60s. By the time individuals reach peak wealth age, around 64 in our data, those from high educated homeowner background report on average three times the amount of wealth (£1.2M vs £400,000) relative to individuals from a low educated renter background. What is striking is that based on this simple cross section perspective average wealth levels among those aged 41-46 from the most advantaged background equals peak wealth (at age 64) from the most disadvantaged background. For the former group this is before the arrival of pension wealth and inheritance which typically takes place when individuals are in their 50s. However, Figure B1 reports average wealth based on different individuals at one point in time, put another way we compare individuals across age groups with slightly older parents. Thus, the differences could reflect cohort specific factors as well as stage in the lifecycle. For a full discussion of total net wealth from a cross section perspective see Gregg and Kanabar (2021).

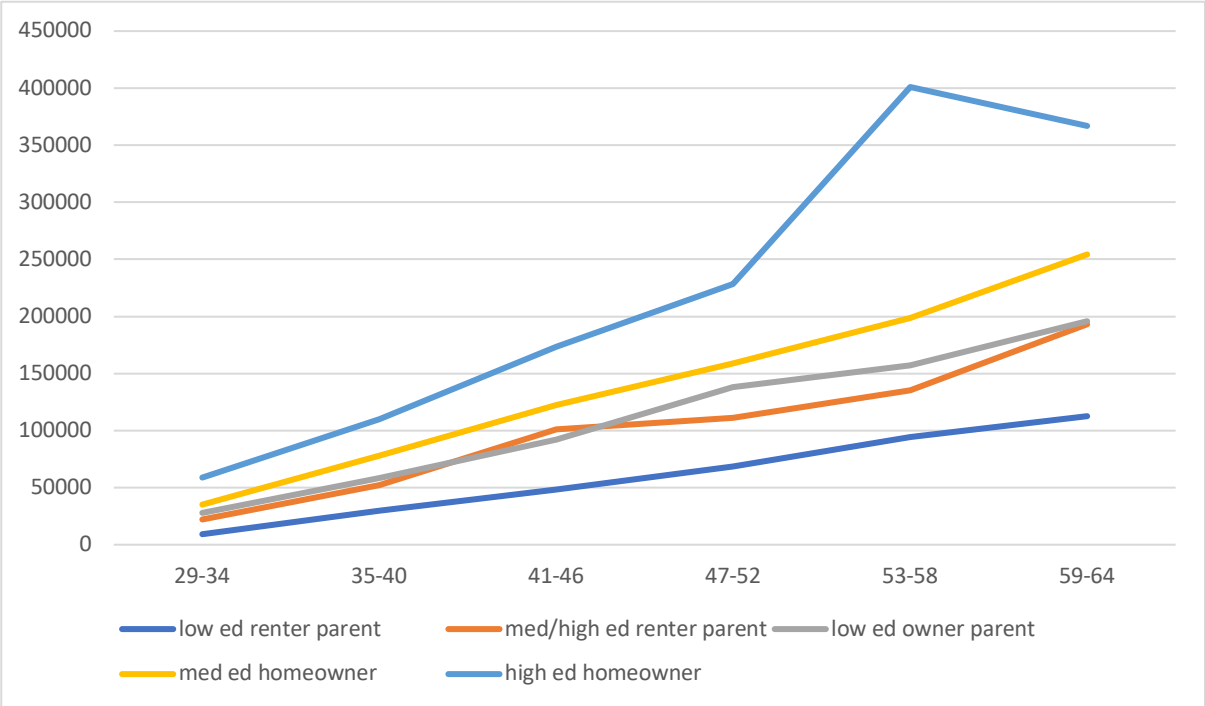
Figure B1: Total wealth by parent background



Notes: figures based on wave 3 (2010-12) of WAS. Figures correspond to 2015 prices.

We produce similar Figures for individual's total levels of (net) housing, pensions and financial. We see a similar trend in terms of advantage for those a relatively more affluent background (meaning educated homeowner parent) as we did for total net wealth. Take total net housing wealth, Figure B2 shows that individuals aged between 41 and 46 in wave 3 from a high educated homeowner background had on average similar levels of total net housing wealth as an individual at peak wealth in their early 60s from a low educated renter household. Moreover, the average levels of net housing wealth reported among the former group increases rapidly across individuals aged in their 50s, from 228K to 400K, so almost doubling. Whereas for individuals from a low educated renter background it increased from 68K to 94K. Again, it is important to stress we are not observing individuals own trajectories over time but average levels across different individuals with successively older parents. By the time individuals reach peak wealth age in our dataset, average total net housing wealth is three times greater among individuals from high educated homeowner backgrounds versus those who grew up in a low educated renter household. Whilst Figures B1-B3 include those without housing wealth (zeros), what these figures does not show is the proportion of individuals who report vs do not report housing wealth by age and parent background. This is an important distinction which we discuss in the paper.

Figure B2: Total net housing wealth by parental background



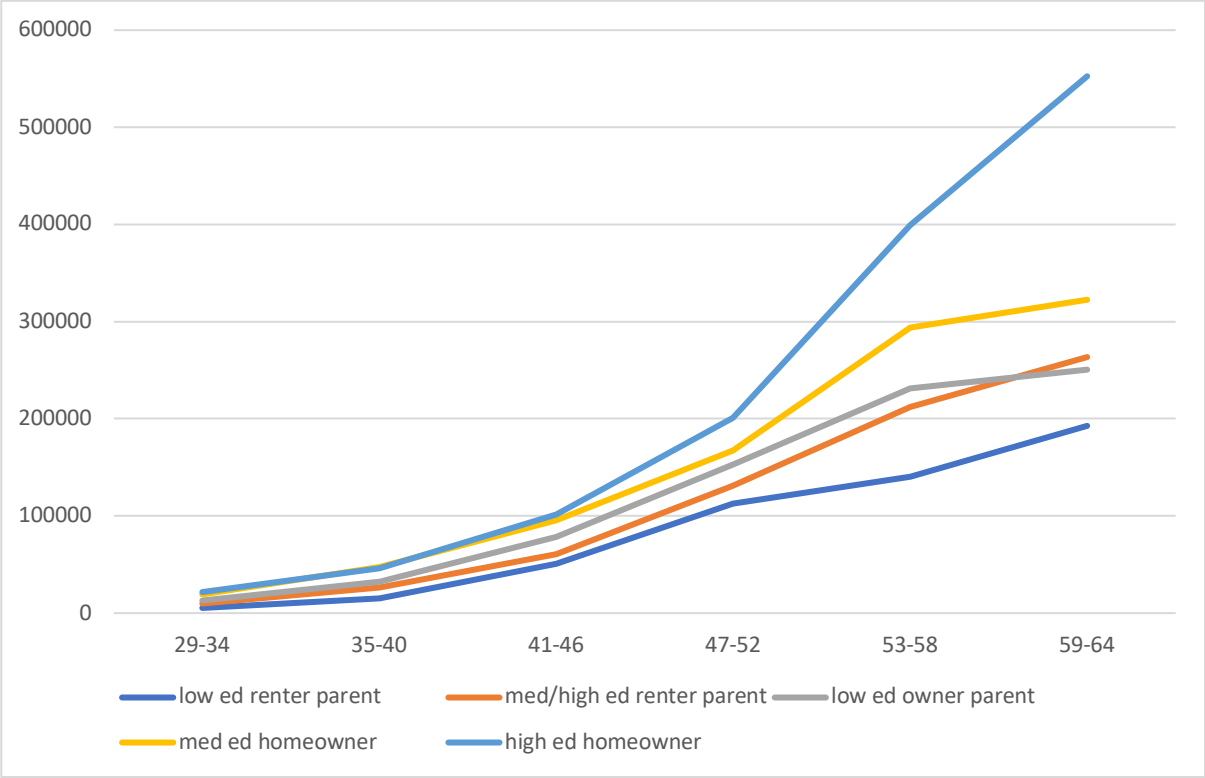
Notes: figures based on wave 3 (2010-12) of WAS. Figures correspond to 2015 prices. Includes zeros.

We next turn to pension wealth, here again we see a clear difference in pension wealth by parent background. Given the nature of pension wealth, its close link with earnings and hence how it is accumulated it is not surprising to see that differences emerge when individuals are in their 50s.[10] It is clear individuals whose parents are high educated, and homeowners report high levels of pension wealth relative to all other groups. Similar to the finding for housing wealth, individuals in this group report average pension wealth at age 50 which corresponds to the average pension wealth reached by those from low educated renter backgrounds at peak wealth age. Thus, given the evidence seen in Figure B3 this is *before* the rapid increase (based on a cross section perspective, so different individuals) the former group reports in their pension wealth. The absolute difference in levels is large: by early-mid 40s the difference between top and bottom group is roughly two-fold. By the time individuals reach their mid-50s this roughly three-fold and the absolute difference just prior to retirement between these groups is vast: £552,000 vs £192,000 (in 2015 prices).

There are certain issues which should be considered when interpreting the findings in Figure B3. First, like housing wealth it is important to distinguish between having and not having pension wealth by age and parent background. The second is that the introduction of Auto Enrolment (AE) into a workplace pension took place in the UK starting in October 2012. Whilst this policy is likely to address the issue of not having pension wealth and possibly affect pension level, the initial roll out of the policy focused on coverage with relatively low levels of individual contribution. Moreover, AE is unlikely to address pension wealth gaps for individuals in their 50s given their stage in the lifecycle and the fact pension wealth is closely linked to lifetime earnings. Moreover, it is not entirely clear whether AE will address the vast differences in pension wealth by family background even for those just entering the labour market. For example, if we produce the same chart as Figure B3 but instead use round 6 data covering the period 2016-2018, a time period when the policy had been rolled out more extensively, we still see the same trends as reported in Figure B3.

[10] In the UK pension wealth is accessible typically from mid 50s though there is significant heterogeneity in pension scheme eligibility rules including age of receipt.

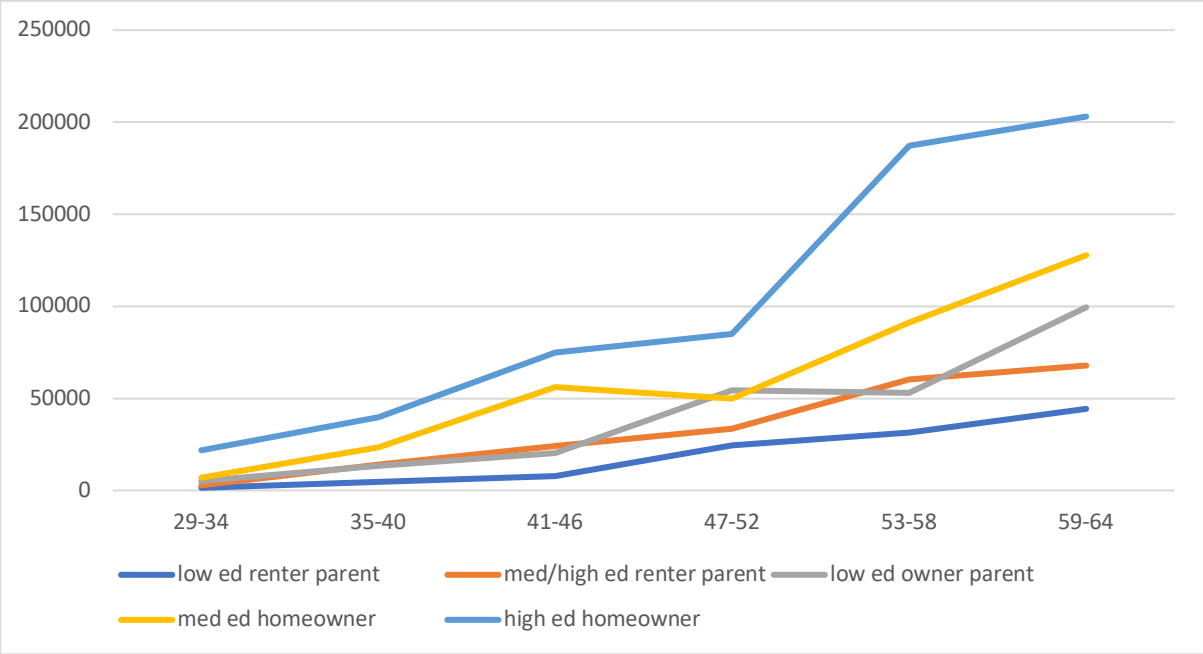
Figure B3: Total pension wealth by parental background



Notes: figures based on wave 3 (2010-12) of WAS. Figures correspond to 2015 prices. Includes zeros.

The final component of wealth we consider is financial wealth. Evidence suggests this type of wealth is concentrated in the top three deciles of the household wealth distribution in GB (ONS, 2019). Again, similar to property and pension wealth we see clear level differences which fan out across age groups and by parent background. Individuals from high educated homeowner households report significantly higher levels of financial wealth, roughly four-times the average level of financial wealth holding compared to those who grew up in low educated renter households at ages 29-34. The former group (as well as those from medium educated homeowner backgrounds) steadily pull away across age groups, and we see a sharp increase in financial wealth levels for those in their 50s. This could reflect inheritances and transfers or stage in lifecycle, note here we are comparing different individuals at a single point in time and not accumulation by the same individuals. Just prior to retirement the average level of financial wealth for individuals from high educated homeowner (low educated renter) households is £203,060 (£44,302) an almost five-fold difference.

Figure B4: Total financial wealth by parent background



Notes: figures based on wave 3 (2010-12) of WAS. Figures correspond to 2015 prices. Includes zeros and negative values.

Appendix C: Likelihood offspring reporting wealth type by parental wealth

Table C1: Likelihood of having positive level of net wealth type by parent's wealth

Age group	29-34 1979-1980	35-40 1973-1974	41-46 1967-1968	47-52 1960-1961	53-58 1954-1955	59-64 1948-1949
Wave 3						
Housing wealth	0.61*** [0.07]	0.54*** [0.05]	0.44*** [0.05]	0.47*** [0.05]	0.52*** [0.05]	0.42*** [0.05]
Pension wealth	0.54*** [0.06]	0.49*** [0.05]	0.38*** [0.05]	0.34*** [0.05]	0.43*** [0.05]	0.19*** [0.04]
Financial wealth	0.79*** [0.18]	0.69*** [0.21]	0.81*** [0.21]	0.55*** [0.21]	0.68*** [0.18]	0.24*** [0.22]
$N_{housing}$	1298	1902	2359	2425	2374	2846
$N_{pension}$	1340	1938	2386	2442	2377	2847
$N_{financial}$	828	1126	1730	1915	1980	2179
Wave 6						
Housing wealth	0.33*** [0.62]	0.78*** [0.10]	0.59*** [0.09]	0.49*** [0.07]	0.54*** [0.07]	0.63*** [0.08]
Pension wealth	0.32*** [0.16]	0.52*** [0.10]	0.48*** [0.09]	0.41*** [0.08]	0.33*** [0.08]	0.31*** [0.07]
Financial wealth	0.07 [0.15]	0.14 [0.09]	0.30*** [0.08]	0.20*** [0.07]	0.36*** [0.07]	0.27*** [0.08]
$N_{housing}$	240	575	898	1107	1269	1382
$N_{pension}$	242	579	899	1110	1270	1383
$N_{financial}$	242	579	899	1110	1270	1383

Notes: logit regression modelling likelihood of holding wealth type controlling for age and parent's wealth (measured in log). Wave 3 corresponds to (2010-12) and wave 6 (2016-18). Robust standard errors reported in parenthesis.

Table C1 shows that the likelihood of holding wealth is strongly associated with family background. This holds across almost all age groups and wealth types. Whilst the results based on wave 3 (2010-12) data suggest the strength of this association is growing across successively younger cohorts, this does not hold at round 6 (2016-18) where the strength of the relationship is stable.

Appendix D: Homeownership, parental wealth and individual characteristics

Table D1: Regression of whether individual holds property wealth and housing value for beta and rank specifications.

	Dependent variable: has property wealth		Dependent variable: housing value	
Covariates	$\beta(\sigma)$	$rank(\sigma)$	$\beta(\sigma)$	$rank(\sigma)$
Age	0.0780***	0.0559***	0.485***	0.0126***
	(0.0245)	(0.00819)	(0.0682)	(0.000988)
Age square	-0.000358**	-0.000378**	-0.00246***	-8.61e-05***
	(0.000173)	(0.000175)	(0.000467)	(2.19e-05)
Parent's wealth/rank	0.215***	0.717***	0.926***	0.0400**
	(0.0365)	(0.130)	(0.115)	(0.0159)
Wave 4	-0.277	-0.0837*	-0.932	-0.0469***
	(0.242)	(0.0427)	(0.631)	(0.00540)
Wave 5	-0.467	-0.176***	-2.991***	-0.0815***
	(0.293)	(0.0531)	(0.804)	(0.00696)
Wave 6	-0.858**	-0.250***	-3.901***	-0.113***
	(0.351)	(0.0639)	(0.987)	(0.00845)
Wave 4* Parent's wealth/rank	0.0161	0.0166	0.0492	0.0115
	(0.0193)	(0.0736)	(0.0493)	(0.00845)
Wave 5* Parent's wealth/rank	0.0268	0.0806	0.206***	0.0379***
	(0.0233)	(0.0875)	(0.0627)	(0.0107)
Wave 6* Parent's wealth/rank	0.0556**	0.161	0.271***	0.0447***
	(0.0279)	(0.105)	(0.0766)	(0.0129)
Age* Parent's wealth/rank	-0.00197	-0.00329	-0.0195***	0.00436***
	(0.00177)	(0.00656)	(0.00490)	(0.000768)
Unemployed	0.417**	0.410**	0.215	0.0503**
	(0.173)	(0.174)	(0.477)	(0.0235)
Inactive	0.525***	0.524***	0.776***	0.0621***
	(0.136)	(0.136)	(0.292)	(0.0161)
Cohabiting (inc same sex couples)	-0.465***	-0.462***	-1.201***	-0.0292***
	(0.0500)	(0.0499)	(0.152)	(0.00703)
Single	-0.970***	-0.971***	-2.948***	-0.0461***
	(0.0463)	(0.0462)	(0.174)	(0.00798)
Widowed	-0.577***	-0.576***	-1.192***	0.0527**
	(0.121)	(0.121)	(0.427)	(0.0219)
Separated/divorced	-0.868***	-0.869***	-2.428***	-0.0490***
	(0.0498)	(0.0498)	(0.182)	(0.00872)
Other qual (below degree level)	-0.323***	-0.305***	-0.851***	-0.0713***
	(0.0404)	(0.0405)	(0.0841)	(0.00499)
No qualification	-0.634***	-0.614***	-1.973***	-0.109***
	(0.0518)	(0.0520)	(0.149)	(0.00729)
North West	-0.190**	-0.195**	-0.305	0.0122
	(0.0866)	(0.0862)	(0.223)	(0.00988)

Yorkshire and The Humberside	0.0614	0.0634	0.299	0.0373***
	(0.0917)	(0.0913)	(0.224)	(0.00994)
East Midlands	-0.124	-0.126	-0.122	0.0286***
	(0.0904)	(0.0900)	(0.229)	(0.0104)
West Midlands	-0.0288	-0.0279	0.128	0.0501***
	(0.0915)	(0.0910)	(0.229)	(0.0105)
East of England	-0.158*	-0.166*	0.0876	0.0945***
	(0.0906)	(0.0902)	(0.229)	(0.0107)
London	-0.382***	-0.396***	-0.104	0.157***
	(0.0948)	(0.0944)	(0.256)	(0.0128)
South East	-0.175**	-0.186**	0.169	0.129***
	(0.0866)	(0.0863)	(0.215)	(0.0101)
South West	-0.133	-0.141	0.104	0.0826***
	(0.0949)	(0.0945)	(0.239)	(0.0114)
Wales	-0.0356	-0.0353	0.145	0.0403***
	(0.103)	(0.103)	(0.256)	(0.0120)
Scotland	-0.0646	-0.0804	0.0602	0.0267***
	(0.0892)	(0.0888)	(0.227)	(0.00997)
Intermediate occupation	-0.183***	-0.180***	-0.417***	-0.0218***
	(0.0419)	(0.0419)	(0.100)	(0.00545)
Routine manual occupation	-0.590***	-0.588***	-1.975***	-0.113***
	(0.0385)	(0.0385)	(0.110)	(0.00529)
Never worked & LT unemployed	-0.975***	-0.959***	-3.789***	-0.158***
	(0.123)	(0.123)	(0.407)	(0.0176)
Not classified	-0.567***	-0.570***	-1.712***	-0.0722***
	(0.120)	(0.121)	(0.412)	(0.0196)
Net earnings (all jobs, annual)	0.100***	0.100***	0.213***	0.00903***
	(0.0130)	(0.0131)	(0.0255)	(0.00148)
Female	-0.0310	-0.0338	-0.0664	-0.000107
	(0.0341)	(0.0341)	(0.0855)	(0.00441)
Constant	-2.574***	-0.286	-5.228***	0.194***
	(0.501)	(0.189)	(1.546)	(0.0219)
Observations	23,140	23,140	23,140	23,140

Notes: regression specification identical to Table 7 except additional offspring characteristics controlled for. Base groups: wave 3, employed, married/civil partnership, degree, North East, professional occupation and male. Net earnings transformed using inverse hyperbolic sine, adjusted for inflation and correspond to 2015 prices.

 @cepeo_ucl

ucl.ac.uk/ioe/cepeo