How do house prices affect social mobility?

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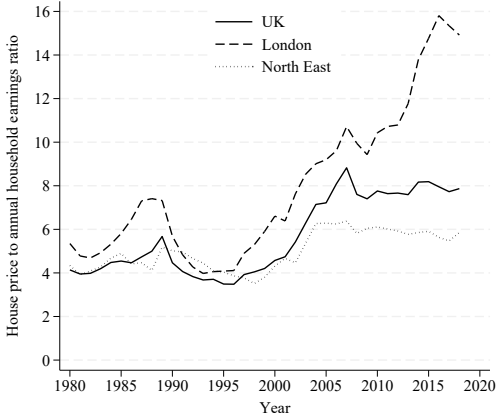
Motivation

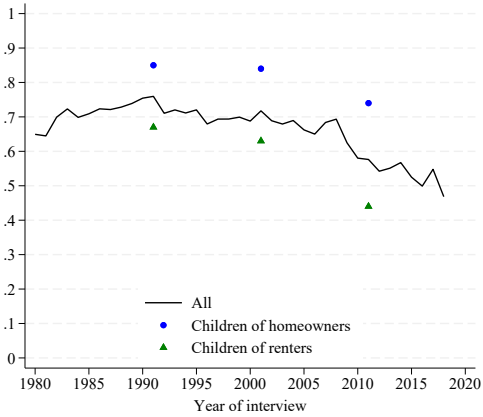
Past half-century has seen a large boom in household wealth-to-income ratios

- Doubling in house price to earnings ratio in UK

The house price boom has coincided with rising intergenerational persistence of homeownership



(a) House price to earnings ratio



(b) Homeownership rate for 30-36-year-olds

Source: Nationwide house price index, Family Expenditure Survey (1980-2020) and Bell et al. (2018), using the Longitudinal Study.

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Past half-century has seen a large boom in household wealth-to-income ratios

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Simultaneously, homeownership rates have fallen for younger people

- Fall in homeownership was strongest for children of renters

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Research questions:

1. What was the effect of the UK house price boom on the intergenerational persistence of homeownership and wealth? Why housing?

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2. Has the boom affected younger people's location and career choices?

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1. What was the effect of the UK house price boom on the intergenerational persistence of homeownership and wealth? Why housing?
2. Has the boom affected younger people's location and career choices?
3. What policies would increase intergenerational mobility in homeownership and wealth?

This Paper

Estimate the **effect of house prices and parents' housing wealth** on children's housing, location and career outcomes at age 28-37

- Exploit geographic variation in the house price boom

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1. £100,000 higher local house prices causes:
   - 12ppts lower probability of homeownership at age 28-37
2. £100,000 higher parental housing wealth causes:
   - No substantial increase in homeownership
   - £10k-£15k higher housing wealth, explained by owning in more expensive areas
   - More likely to live and own home in London and South-East
   - Increased likelihood of being a top earner for men
   - Larger financial gifts from parents to adult children

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Interpret using an OLG model in which:

- Earnings gains from moving to high productivity locations are 'backloaded'
- Parents' gifts provide liquidity to fund moves to high house prices areas

Literature and contributions

Drivers of intergenerational mobility: Chetty (2014); Abbott et al. (2019); Black et al. (2020); Fagereng et al. (2021); Bolt et al. (2023); Wold et al. (2023); van der Erve et al. (2023); Blundell et al. (2023); Blanden et al. (2023)

- Consider the interaction of house prices, location and earnings

Transmission of house price shocks: Mian & Sufi (2011); Lovenheim (2011); Lovenheim & Reynolds (2013); Aladangady (2017); Daysal et al. (2022); Benetton et al. (2023)

- Consider intergenerational transmission to wealth, location and earnings

Supply constraints, house prices and regional mobility: Hsieh & Moretti (2019); Bilal & Rossi-Hansberg (2021); Diamond and Gaubert (2022)

- Link this to sorting based on parental location/wealth

Housing demand over the lifecycle Attanasio et al. (2012); Banks et al. (2017); Nakajima & Telyukova (2020); Paz-Pardo (2021); Brandsaas (2021); McGee (2021)

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Key facts: prior literature

Intergenerational mobility more

1. Low internationally; homeownership mobility falling (Blanden et al. 2023)
2. 50% of wealth persistence is ‘explained’ by earnings (Levell & Sturrock, 2023)

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Geographic mobility in early adulthood

3. 40% of graduates move by age 30, 25% move to London (Britton et al. 2021)
4. Moves to London cause higher earnings and earnings *progression* (Xu, 2025)

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Parental wealth transfers and home purchase more

5. Housing downpayments increased substantially compared to young people's incomes over 1990s-2010s (Cribb & Simpson, 2018)
6. Half of inter-vivos transfers used for property purchase; transfers also linked to moving regions and entering self-employment (Boileau & Sturrock, 2025)

Data

1. Longitudinal Study of Linked Censuses (5 linked censuses: 1971-2011)
   - Census and life events data making up about 1% of England & Wales population
   - Parents' and kids' **homeownership, house type, location, occupation...**
   - **Intergenerationally linked panel**

2. Universe of **housing transactions** (1995-2019)
   - Location, transaction price, property characteristics

3. Newly-assembled Local Authority-level **housing supply elasticities**
   - Based on variation in pre-existing constraints to housing supply

4. Wealth and Assets Survey (2006-2020)
   - Parents' and kids' wealth, **transfers made/received**, MSOA
   - Non-intergenerationally linked panel

Longitudinal Study sample

3 ‘cohorts’:

- ‘Post-boom’: born 1974 to 1982 and observed in 1991 and 2011 census
  - Aged 8-17 in 1991 and 28-37 in 2011
- ‘Mid-boom’: born 1964 to 1972 and observed in 1981 and 2001 census
  - Aged 8-17 in 1978 and 28-37 in 2001
- ‘Pre-boom’: born 1954 to 1962 and observed in 1971 and 1991 census
  - Aged 8-17 in 1971 and 28-37 in 1991

Imputation of primary gross housing wealth:

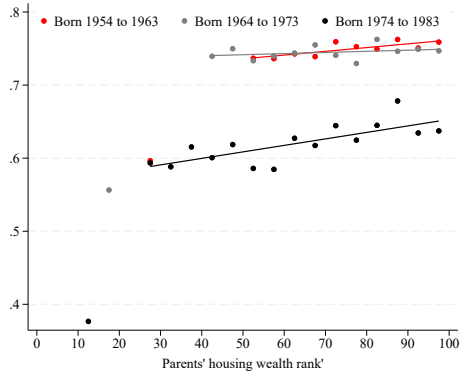
- Average house price by house type, year, LAD, estimated from Land Registry
- Gross housing wealth is imputed to homeowners accordingly

Imputation of earnings:

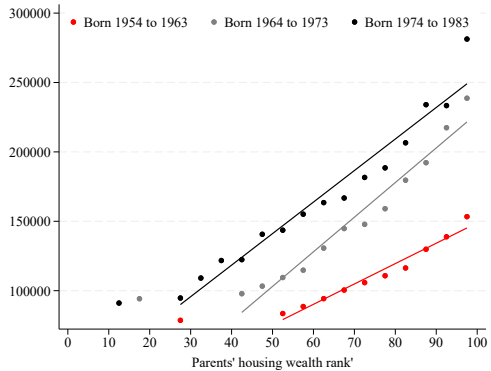
- Average earnings by combination of age-group, sex, education, region, 2-digit SOC code and full-time/part-time is estimated in LFS and imputed to LS.
- R-squared of regression is around 0.6.

Descriptives: intergenerational persistence of housing wealth

Figure: Changes in intergenerational persistence across generations of young people



(a) Child homeownership rate, age 28-37



(b) Child gross house value, age 28-37

Source: ONS Longitudinal Study. Note: Renting parents given mean rank of renting parents. Lines fitted within children of homeowners.

Descriptives: moving rates and persistence of earnings

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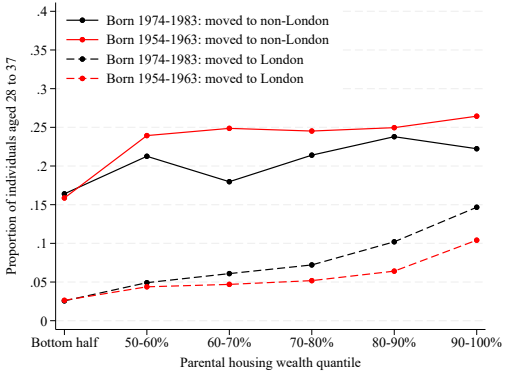
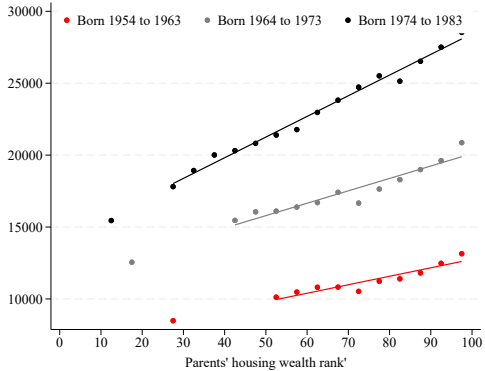


(a) 20-year moving rates of children growing up outside of London



(b) Child annual earnings, age 28-37

Source: ONS Longitudinal Study. Note: Renting parents given mean rank of renting parents. Lines fitted within children of homeowners.

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Suppose housing wealth for child i, in time t who grew up in area j is determined:

$$y_{it}^{c} = f\Big(\underbrace{X_{i,t}^{c}}_{\substack{\text{child's} \\ \text{characteristics}}} , \underbrace{X_{i,t-s}^{p}}_{\substack{\text{parents'} \\ \text{characteristics}}} , \underbrace{W_{i,t}^{p}}_{\substack{\text{parents'} \\ \text{housing wealth}}} , \underbrace{p_{j(i,t),t}}_{\substack{\text{local house} \\ \text{prices}}} , \underbrace{j(i,t-s)}_{\text{childhood location}} , \underbrace{\epsilon_{it}}_{\text{taste/ability}} \Big).$$

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Empirical challenges from unobserved components:

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Empirical challenges from unobserved components:

1. ϵ_{it}: correlated with $p_{j(i,t)}$ and $W_{i,t}^{p}$ e.g. taste for housing or location choice
   - Instrument $p_{j(i,t)}$ with $p_{j(i,t-s)t}$: prices in childhood area
   - Instrument $W_{i,t}^{p}$ with $p_{j(i,t-s)t} \cdot h_{i,t-s}^{p}$: prices in childhood area $\times$ parental homeownership

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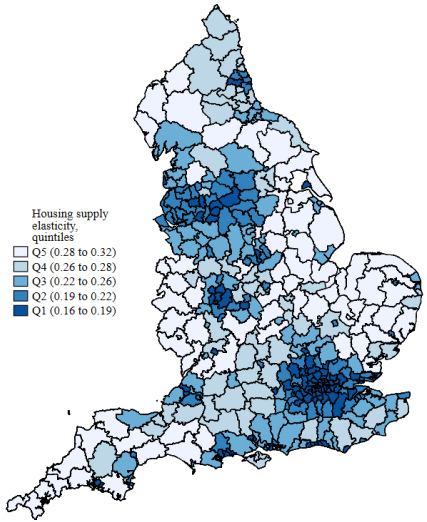
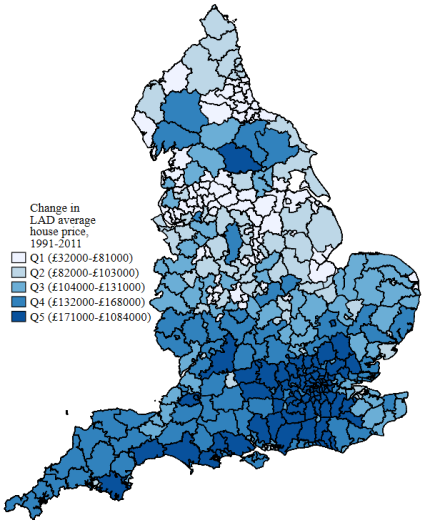
   - Instrument $W_{i,t}^p$ with $p_{j(i,t-s)t} \cdot h_{i,t-s}^p$: prices in childhood area $\times$ parental homeownership
2. Childhood location effects correlated with $p_{j(i,t-s)t}$ e.g. school quality
   - Include area $\times$ parent homeowner FE i.e. use the *change* in prices and wealth gaps across areas over time for identification
   - Use housing supply elasticity $\times$ time (and parental homeownership) as IV

Housing supply elasticities and house price growth



(a) Predicted supply elasticities



(b) Change in prices 1991-2011

Source: Drayton, Levell and Sturrock. (2024)

Estimation with 2SLS

First stage equations for parental wealth and local house prices:

$$W^p_{i,t} = \alpha_1 X^c_{i,t} + \alpha_2 X^p_{i,t-s} + \alpha_3 h^p_{t-s} \cdot p_{j(i,t-s),t} + \alpha_4 p_{j(i,t-s),t} + \gamma^W_{j(i,t-s),h^p_{t-s}} + \upsilon^W_{i,t}$$

$$p_{j(i,t),t} = \delta_1 X^c_{i,t} + \delta_2 X^p_{i,t-s} + \delta_3 h^p_{t-s} \cdot p_{j(i,t-s),t} + \delta_4 p_{j(i,t-s),t} + \gamma^p_{j(i,t-s),h^p_{t-s}} + \upsilon^p_{i,t}$$

Second stage equation:

$$y^c_{i,t} = \beta_1 X^c_{i,t} + \beta_2 X^p_{i,t-s} + \beta_3 \widehat{W^p_{i,t}} + \beta_4 \widehat{p_{j(i,t),t}} + \gamma_{j(i,t-s),h^p_{t-s}} + \nu_{i,t}$$

- $X^c_{i,t}$ are predetermined child characteristics: age, gender, ethnicity
- $X^p_{i,t-s}$: parent characteristics in $t-20$: social class, employment status, occupation, housing tenure, education etc (all interacted with cohort, region)
- h^p_t is parents' homeownership status at time t
- $\gamma_{j(i,t-s),h^p_{t-s}}$: local authority by parental homeownership FE.

Conditions for, and threats to, identification

Conditional on Xs, any neighbourhood level shocks affect children of owners and renters in the same way:

1. $\Delta E[f'_\lambda(X^c, X^p, W^p, j, h_i^p = 1)] = \Delta E[f'_\lambda(X^c, X^p, W^p, j, h_i^p = 0)] = \Delta\beta_4 p_{jt}$
   - To identify price effects also require that changes in neighbourhood effects are due to prices
   - Threat from local-area labour market changes that differentially impact the children of owners/renters and affect house prices

Conditional on Xs and area, no correlation between idiosyncratic shocks and ownership in growing housing market:

2. $E[\epsilon_{it}\Delta p_j h^p_{i,t-s} | X^c_{it}, X^p_{i,t-s}, W^p_{i,t-s}, j = J] = 0$
   - Allows differential sorting of parents across areas and into homeownership by unobservables
   - Just cannot have change in this sorting over time in anticipation of the boom

Both conditions may be more plausible when instrumenting for Δp

First stage estimates

Endogenous var	W^p	p_j	W^p	W^p	p_j	W^p
Parents owners $\times$ prices	1.508*** [25.610]	-0.034* [-1.740]	1.583*** [26.080]			
Prices in parents LA	0.039*** [3.630]	0.632*** [22.340]				
Elasticity $\times$ 2011				2.573*** [3.400]	-3.156*** [-3.410]	
Parents owners $\times$ elasticity $\times$ 2011				-7.673*** [-6.290]	2.049** [2.760]	-8.608*** [-5.720]
Kleibergen-Paap	330.72	330.72	680.25	6.53	6.53	32.75
Observations	93,062	93,061	93,061	93,062	93,062	93,061

Source: ONS Longitudinal Study. *t*-statistics in brackets. Statistical significance at the 10%, 5%, and 1% levels denoted by *, **, and ***, respectively.

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- Effects on homeownership and housing wealth
- Effects on occupation and earnings

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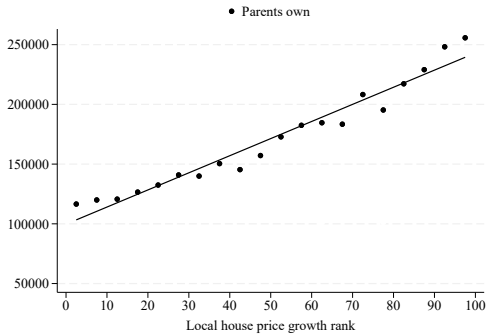

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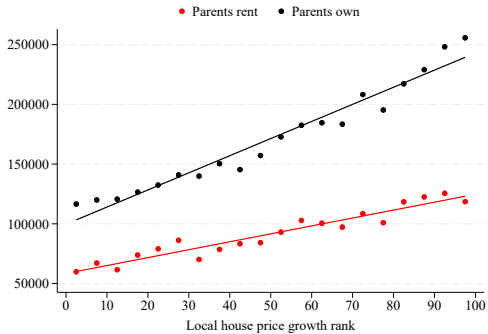

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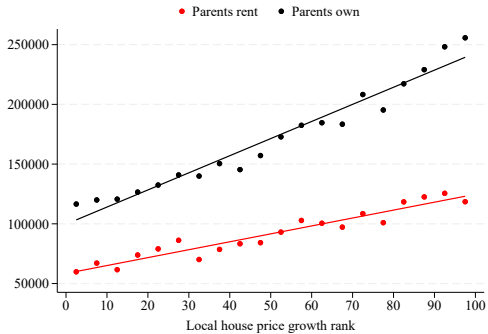

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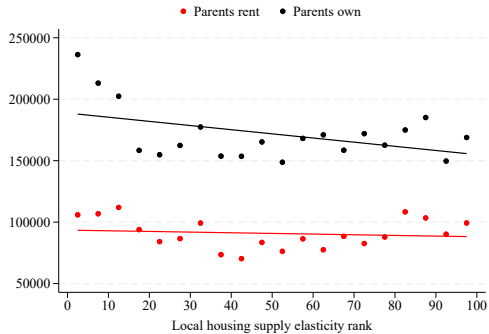

(b) Local elasticity rank

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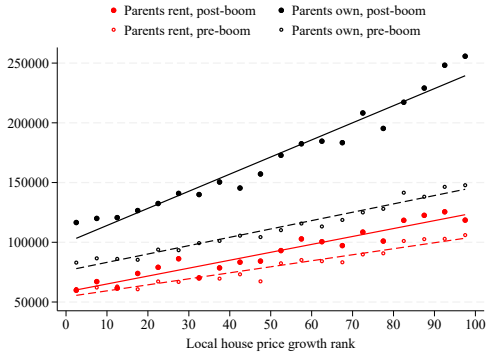

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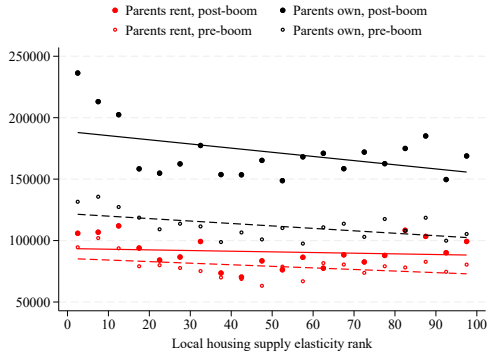

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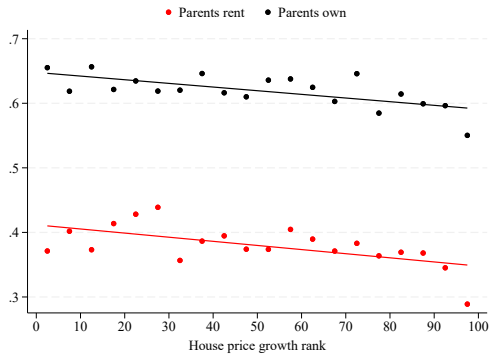
Results: homeownership and housing wealth

Figure: Child homeownership rate



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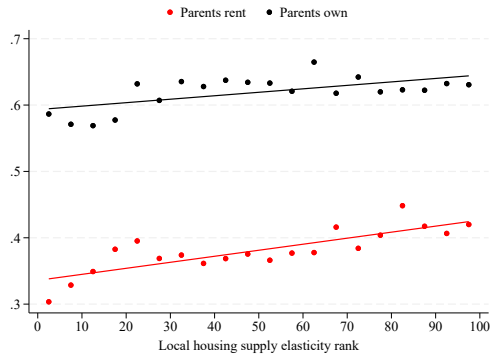

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Results: homeownership and housing wealth

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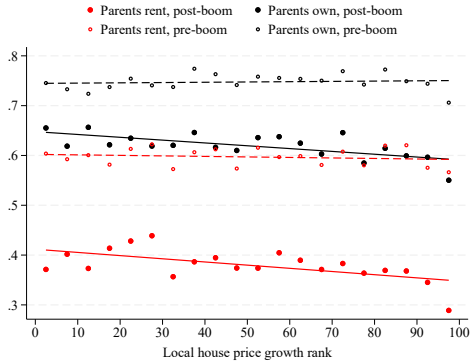

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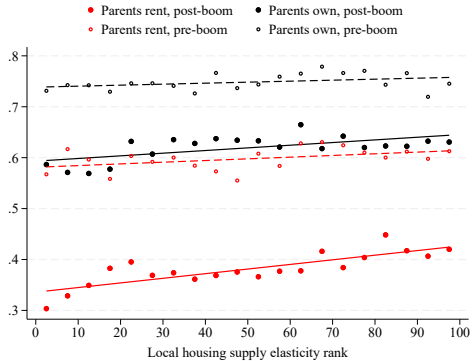

(b) Local elasticity rank

Source: ONS Longitudinal Study

Results: estimated effects on homeownership

	Child is a homeowner
	(1)
Parents house wealth (£00k)	0.048***
	(0.004)
Local house prices (£00k)	-0.047***
	(0.002)
Controls	No
LA×owner FE	No
LA×cohort FE	No
Instrument	No
Observations	93,636

Source: ONS LS. Note: Statistical significance at the 10%, 5% level and 1% levels are denoted by *, ** and ***, respectively. Standard errors are clustered at the level of the local authority.

Results: estimated effects on homeownership

	Child is a homeowner	
	(1)	(2)
Parents house wealth (£00k)	0.048***	0.014***
	(0.004)	(0.003)
Local house prices (£00k)	-0.047***	-0.034***
	(0.002)	(0.002)
Controls	No	Yes
LA×owner FE	No	No
LA×cohort FE	No	No
Instrument	No	No
Observations	93,636	93,062

Source: ONS LS. Note: Statistical significance at the 10%, 5% level and 1% levels are denoted by *, ** and ***, respectively. Standard errors are clustered at the level of the local authority.

Results: estimated effects on homeownership

	Child is a homeowner		
	(1)	(2)	(3)
Parents house wealth (£00k)	0.048***	0.014***	-0.003
	(0.004)	(0.003)	(0.004)
Local house prices (£00k)	-0.047***	-0.034***	-0.011
	(0.002)	(0.002)	(0.008)
Controls	No	Yes	Yes
LA×owner FE	No	No	Yes
LA×cohort FE	No	No	No
Instrument	No	No	Local *p*
Observations	93,636	93,062	93,062

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Results: estimated effects on homeownership

	Child is a homeowner			
	(1)	(2)	(3)	(4)
Parents house wealth (£00k)	0.048***	0.014***	-0.003	0.002
	(0.004)	(0.003)	(0.004)	(0.004)
Local house prices (£00k)	-0.047***	-0.034***	-0.011	
	(0.002)	(0.002)	(0.008)	
Controls	No	Yes	Yes	Yes
LA×owner FE	No	No	Yes	Yes
LA×cohort FE	No	No	No	Yes
Instrument	No	No	Local *p*	Local *p*
Observations	93,636	93,062	93,062	93,061

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Results: estimated effects on homeownership

	Child is a homeowner					
	(1)	(2)	(3)	(4)	(5)	(6)
Parents house wealth (£00k)	0.048***	0.014***	-0.003	0.002	-0.015	0.018
	(0.004)	(0.003)	(0.004)	(0.004)	(0.017)	(0.017)
Local house prices (£00k)	-0.047***	-0.034***	-0.011		-0.122**	
	(0.002)	(0.002)	(0.008)		(0.059)	
Controls	No	Yes	Yes	Yes	Yes	Yes
LA×owner FE	No	No	Yes	Yes	Yes	Yes
LA×cohort FE	No	No	No	Yes	No	Yes
Instrument	No	No	Local *p*	Local *p*	Elasticity	Elasticity
Observations	93,636	93,062	93,062	93,061	93,062	93,061

Source: ONS LS. Note: Statistical significance at the 10%, 5% level and 1% levels are denoted by *, ** and ***, respectively. Standard errors are clustered at the level of the local authority.

Results: estimated effects on gross housing wealth

	Child gross housing wealth (£)					
	(1)	(2)	(3)	(4)	(5)	(6)
Parents house wealth (£00k)	16,606***	8,554***	9,659***	10,518***	13,240***	14,617***
	(1,130)	(1,668)	(2,562)	(2,887)	(5,037)	(5,402)
Local house prices (£00k)	30,859***	32,497***	2,204		106	
	(2,318)	(2,680)	(5,761)		(14,069)	
Controls	No	Yes	Yes	Yes	Yes	Yes
LA×owner FE	No	No	Yes	Yes	Yes	Yes
LA×cohort FE	No	No	No	Yes	No	Yes
Instrument	No	No	Local *p*	Local *p*	Elasticity	Elasticity
Observations	93,636	93,076	93,076	93,075	93,076	93,075

Source: ONS LS. Note: Statistical significance at the 10%, 5% level and 1% levels are denoted by *, ** and ***, respectively. Standard errors are clustered at the level of the local authority.

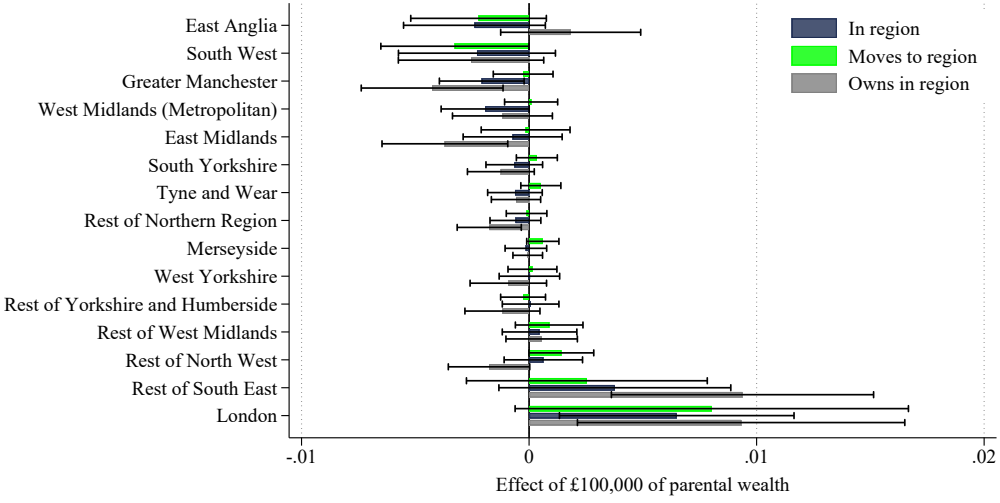
Results: effects on owning houses of particular type and location

Table: Effects of parental wealth on owning houses of particular type and location

	Detached house	Semi-detached	Terraced house	Flat	Owns in London
Local *p* as instrument	-0.000	0.005	-0.009**	0.006**	0.007***
	(0.002)	(0.003)	(0.004)	(0.003)	(0.003)
Elasticity as instrument	-0.020*	-0.033**	0.051***	0.019**	0.022***
	(0.012)	(0.015)	(0.017)	(0.008)	(0.009)
Observations	93,075	93,075	93,075	93,075	93,075

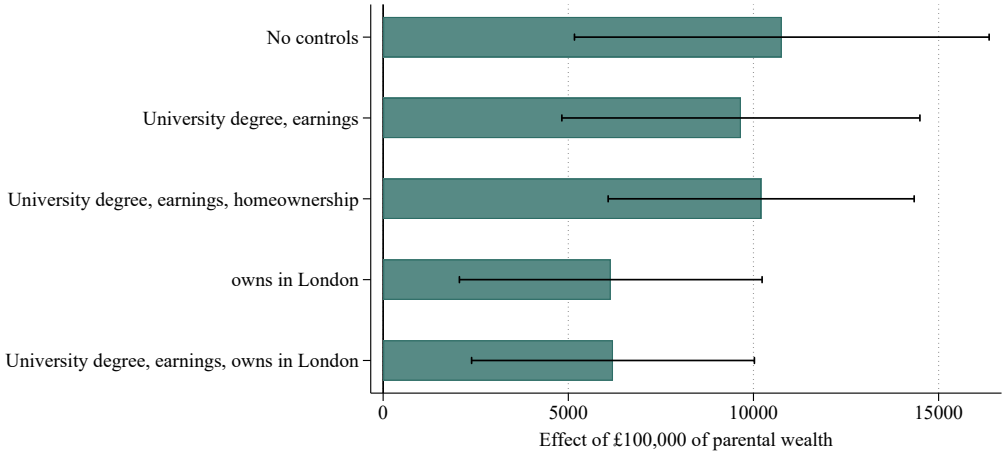
Source: ONS LS. Note: Statistical significance at the 10%, 5% level and 1% levels are denoted by *, ** and ***, respectively. Standard errors are clustered at the level of the local authority.

Effect on being in, owning in, and moving to/from regions



Source: ONS Longitudinal Study

Mediation of effect on housing wealth



Source: ONS Longitudinal Study

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- Effects on homeownership and housing wealth
- Effects on occupation and earnings

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Results: estimated effects on individual earnings

	Child gross annual earnings (£)					
	(1)	(2)	(3)	(4)	(5)	(6)
Parents house wealth (£00k)	1,323***	308***	267**	188*	-14	339
	(100)	(76)	(102)	(115)	(418)	(430)
Local house prices (£00k)	1,608***	1,595***	-17		-2,126	
	(143)	(154)	(200)		(1,412)	
Controls	No	Yes	Yes	Yes	Yes	Yes
LA×owner FE	No	No	Yes	Yes	Yes	Yes
LA×cohort FE	No	No	No	Yes	No	Yes
Instrument	No	No	Local *p*	Local *p*	Elasticity	Elasticity
Observations	93,636	93,076	93,076	93,075	93,076	93,075

Source: ONS LS using earnings imputed from the Labour Force Survey. Note: Statistical significance at the 10%, 5% level and 1% levels are denoted by *, ** and ***, respectively. Standard errors are clustered at the level of the local authority.

Results: estimated effects on employment

	Child employed					
	(1)	(2)	(3)	(4)	(5)	(6)
Parents house wealth (£00k)	0.024***	0.003**	-0.006*	-0.006*	-0.038**	-0.032**
	(0.002)	(0.002)	(0.003)	(0.003)	(0.015)	(0.016)
Local house prices (£00k)	0.001	0.009***	-0.001		-0.007	
	(0.002)	(0.002)	(0.008)		(0.047)	
Controls	No	Yes	Yes	Yes	Yes	Yes
LA×owner FE	No	No	Yes	Yes	Yes	Yes
LA×cohort FE	No	No	No	Yes	No	Yes
Instrument	No	No	Local *p*	Local *p*	Elasticity	Elasticity
Observations	93,636	93,076	93,076	93,075	93,076	93,075

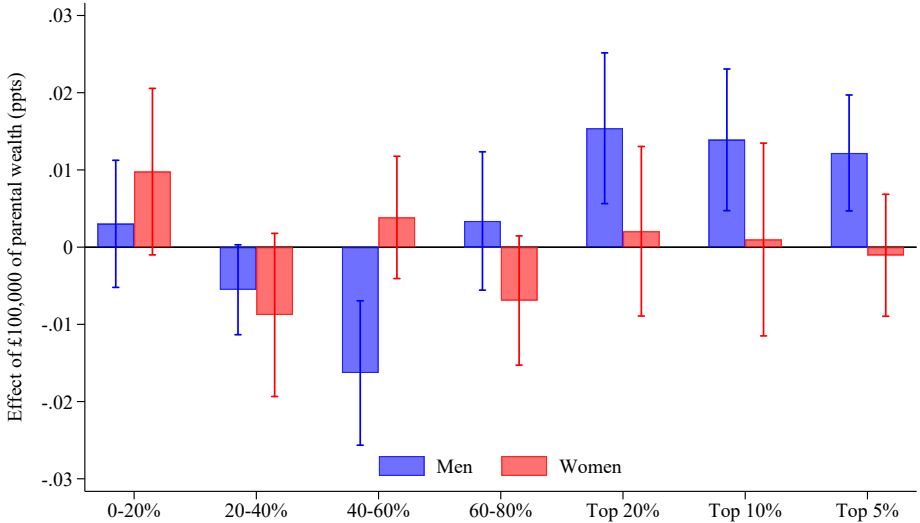
Source: ONS LS. Note: Statistical significance at the 10%, 5% and 1% levels are denoted by *, ** and ***, respectively. Standard errors are clustered at the level of the local authority.

Results: estimated effects on log earnings

	Child log earnings					
	(1)	(2)	(3)	(4)	(5)	(6)
Parents house wealth (£00k)	0.047***	0.003*	0.012**	0.013**	0.016	0.036*
	(0.004)	(0.002)	(0.005)	(0.005)	(0.023)	(0.022)
Local house prices (£00k)	0.078***	0.070***	-0.032**		-0.154*	
	(0.005)	(0.005)	(0.012)		(0.087)	
Controls	No	Yes	Yes	Yes	Yes	Yes
LA×owner FE	No	No	Yes	Yes	Yes	Yes
LA×cohort FE	No	No	No	Yes	No	Yes
Instrument	No	No	Local *p*	Local *p*	Elasticity	Elasticity
Observations	73,544	72,890	72,890	72,888	72,890	72,888

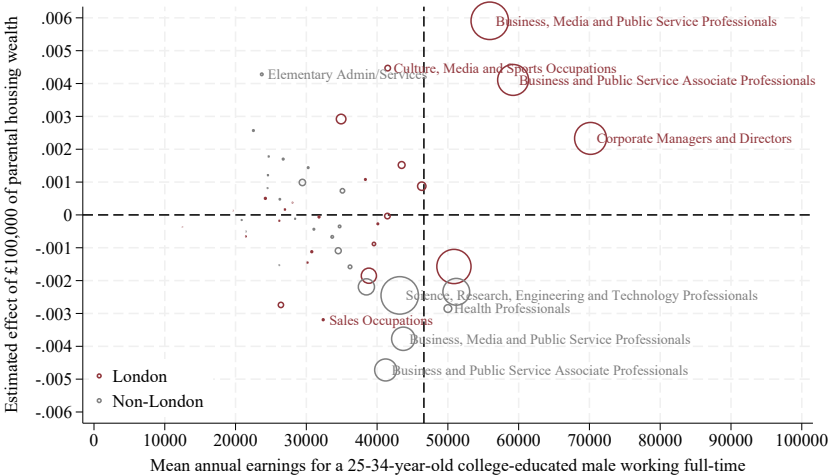
Source: ONS LS. Note: Statistical significance at the 10%, 5% and 1% levels are denoted by *, ** and ***, respectively. Standard errors are clustered at the level of the local authority.

Results: effects on earning in certain quantiles



Source: ONS Longitudinal Study

Comparison of effect of parental wealth and mean annual earnings of occupations in London and non-London regions



Source: ONS Longitudinal Study

Results: estimated effects on self-employment

	Child self-employed					
	(1)	(2)	(3)	(4)	(5)	(6)
Parents house wealth (£00k)	0.008***	0.004***	0.005**	0.006**	0.015	0.021*
	(0.001)	(0.001)	(0.003)	(0.003)	(0.011)	(0.011)
Local house prices (£00k)	0.006***	0.005***	-0.003		-0.025	
	(0.001)	(0.001)	(0.005)		(0.035)	
Controls	No	Yes	Yes	Yes	Yes	Yes
LA×owner FE	No	No	Yes	Yes	Yes	Yes
LA×cohort FE	No	No	No	Yes	No	Yes
Instrument	No	No	Local *p*	Local *p*	Elasticity	Elasticity
Observations	93,636	93,076	93,076	93,075	93,076	93,075

Source: ONS LS. Note: Statistical significance at the 10%, 5% and 1% levels are denoted by *, ** and ***, respectively. Standard errors are clustered at the level of the local authority.

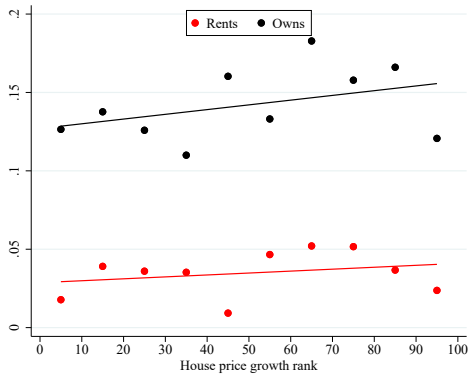
Results: estimated effects on whether owner-manager

	Child self-employed with employees					
	(1)	(2)	(3)	(4)	(5)	(6)
Parents house wealth (£00k)	0.003***	0.001**	0.003**	0.004**	0.019**	0.016**
	(0.000)	(0.001)	(0.001)	(0.001)	(0.007)	(0.006)
Local house prices (£00k)	0.001**	0.002***	-0.007***		-0.005	
	(0.000)	(0.001)	(0.002)		(0.018)	
Controls	No	Yes	Yes	Yes	Yes	Yes
LA×owner FE	No	No	Yes	Yes	Yes	Yes
LA×cohort FE	No	No	No	Yes	No	Yes
Instrument	No	No	Local *p*	Local *p*	Elasticity	Elasticity
Observations	93,636	93,076	93,076	93,075	93,076	93,075

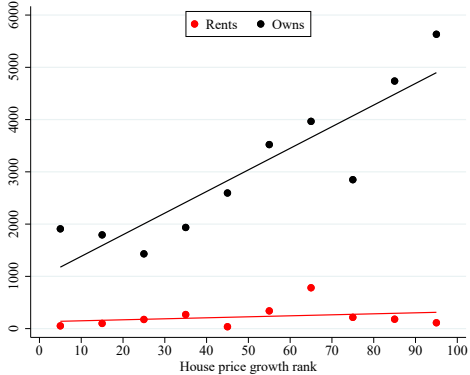
Source: ONS LS. Note: Statistical significance at the 10%, 5% and 1% levels are denoted by *, ** and ***, respectively. Standard errors are clustered at the level of the local authority. Outcome is indicator for individual reporting that their status is self-employed with employees.

Results: estimated effects on parental transfers to children

Figure: Wealth transfers from parents to children



(a) Whether gives a gift to a child



(b) Value of gifts given over 2 years (£)

Source: Wealth and Assets Survey

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Model overview

Theoretical framework which shows that the combination of:

1. benefits of moving to a location that are backloaded (e.g. future earnings),
2. costs of locations that must partly be paid upfront (e.g. housing costs)
3. borrowing constraints,
4. parents who can make wealth transfers

Model overview

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can generate:

1. a link between parental resources and location choices;
2. an increase in the intergenerational persistence of income;
3. misallocation of skills.

Model overview

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1. benefits of moving to a location that are backloaded (e.g. future earnings),
2. costs of locations that must partly be paid upfront (e.g. housing costs)
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4. parents who can make wealth transfers

can generate:

1. a link between parental resources and location choices;
2. an increase in the intergenerational persistence of income;
3. misallocation of skills.

Also show that

1. When real interest rates decline, this mechanism can strengthen;
2. Wealth transfer taxation weakens this mechanism.

Agents in the economy

Time is discrete and with an infinite horizon, $t = 0, 1, 2, ...$

Individuals and dynasties:

- An individual lives for three periods: ‘young’,‘mid-life’ and ‘retirement’.
- Each individual is the member of a generation, young at t
- Dynasty has one member of each generation
- 3 generations of a dynasty alive at one point in time
- Members of consecutive generations in a dynasty are ‘parent’ and ‘child’

Endowments

Individuals are endowed with:

- exogenous part of income when young $y^y \in [\underline{y}^y, \bar{y}^y]$
- exogenous part of income when in mid life, $y^m \in [\underline{y}^m, \bar{y}^m]$
- exogenous part of income when in retirement, $y^r \in [\underline{y}^r, \bar{y}^r]$
- a level of skill, $s \in [\underline{s}, \bar{s}]$ with $\underline{s} > 0$

A dynasty is therefore characterised by a sequence of triplets, $\{(y_t^y, y_{t+1}^m, y_{t+2}^r, s_{t+1})\}_{t=0}^{\infty}$.

Assume a time-invariant first-order Markov transition function $g(y_{t+1}^y, y_{t+2}^m, y_{t+3}^r, s_{t+2} | y_t^y, y_{t+1}^m, y_{t+2}^r, s_{t+1})$

- captures the intergenerational transmission of skills

Locations and housing

Continuum of locations indexed $z \in [\underline{z}, \bar{z}]$ with $z \geq 0$. CDF of cities $H(z)$.

- z is the level of productivity of the area
- Returns for an *mid-life* individual of skill s to living in city z are given by zs.

Moving choices:

- Children are in the same location as their parent when young, $z_t^y = z_t^m$
- Individuals can move location for mid-life, z_{t+1}^m
- When retire, do not move: $z_{t+1}^r = z_t^m$

Housing

House purchase:

- When young, purchase house that live in when in mid-life and retirement
- Housing in location z costs $q(z)$

Mortgage available:

- Make a downpayment $\xi \cdot q(z)$ when young
- Repay mortgage of $R \cdot (1 - \xi) \cdot q(z)$ in mid-life

Housing supply:

- Housebuilding sector supplies: $q(z) = Q(L(z))$.
- $L(z)$ is density of dynasties in z.

Wealth transfers and budget constraints

Wealth transfers to children come in the form of:

1. **Gifts**:
   - Made during mid-life; received by child when young
   - Taxed at rate τ^g
   - $g_t^m(1-\tau^g) = g_{t+1}^y$
2. **Bequests**
   - Made when die; received by child when retire
   - Taxed at rate τ^b
   - Composed of house plus any financial wealth/debt
   - Cannot be negative
   - $b_t(1-\tau^b) = b_{t+1}^r$

Budget constraints

Risk free bond that yields rate R. Limit for (non-mortgage) borrowing of $\underline{a}$.

We assume that y^m is sufficiently high compared to y^r so that

$$y^m + R\underline{a} + sz - R(1-\xi)q(z) > y^r$$

for all s and z i.e. wherever you live and whatever your skill, there is always an incentive to save for retirement.

- Not necessary, just simplifies exposition

Household problem

Households solve the following problem:

$$\max_{c^y, c^m, c^r, z^m, g^m, b} u(c^y) + \beta u(c^m) + \beta^2 u(c^r) + \beta v((1-\tau^g)g^m) + \beta^2 w((1-\tau^b)b)$$

$$\begin{aligned}
\text{s.t. } \quad c^y + a^y + \xi q(z^m) &= y^y + g^y, \\
c^m + g^m + a^m + R(1-\xi)q(z^m) &= y^m + z^m s + Ra^y + b^r, \\
c^r + a^r &= y^r + Ra^m, \\
b &= q(z^m) + Ra^r, \\
a^y, a^m &\geq \underline{a}, \\
b &\geq 0.
\end{aligned}$$

- u, v and w are strictly concave and satisfy the inada conditions.

Properties of equilibrium

For individuals not borrowing constrained, optimal choice of location, z^{m*}, satisfies:

$$\underbrace{q'(z^{m*})}_{\substack{\text{marginal}\\ \text{purchase cost}}} = \underbrace{\frac{s}{R}}_{\substack{\text{marginal}\\ \text{earnings gain}}} + \underbrace{\frac{q'(z^{m})}{R^3}}_{\substack{\text{marginal}\\ \text{re-sale gain}}} .$$

- Implies a strictly increasing function matching skills to locations: $\mathbb{Z}^u(s)$
- z^{m*} unrelated to parental background; maximises after-housing income

Properties of equilibrium

For individuals not borrowing constrained, optimal choice of location, z^{m*}, satisfies:

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- Implies a strictly increasing function matching skills to locations: $\mathbb{Z}^u(s)$
- z^{m*} unrelated to parental background; maximises after-housing income

For individuals who are constrained, optimal choice of location, z^{m*}, satisfies:

$$\underbrace{q'(z^{m*})}_{\substack{\text{marginal}\\ \text{purchase cost}}} < \underbrace{\frac{s}{R}}_{\substack{\text{marginal}\\ \text{earnings gain}}} + \underbrace{\frac{q'(z^m)}{R^3}}_{\substack{\text{marginal}\\ \text{re-sale gain}}}.$$

- There is a matching function: $\mathbb{Z}^c(g^y, b^r, y^y, y^m, y^r, s) < \mathbb{Z}^u(s)$
- z^{m*} and lifetime income, increasing (decreasing) in gifts (bequests) received

The effect of a decline in interest rates

The house price schedule steepens

$$\frac{dq'(z)}{dR} < 0$$

The effect of a decline in interest rates

The house price schedule steepens

$$\frac{dq'(z)}{dR} < 0$$

This has two effects on location choices of young people:

1. For given level of parental transfers, move to lower productivity location if borrowing constrained
2. Differences in parental wealth increase, strengthening the role of transfers in determining location choices

The effect of a decline in interest rates

The house price schedule steepens

$$\frac{dq'(z)}{dR} < 0$$

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- If pass-through of parental wealth shocks to gifts is sufficiently strong, then geographic and intergenerational mobility decline

The effect of a decline in interest rates

The house price schedule steepens

$$\frac{dq'(z)}{dR} < 0$$

This has two effects on location choices of young people:

1. For given level of parental transfers, move to lower productivity location if borrowing constrained
2. Differences in parental wealth increase, strengthening the role of transfers in determining location choices

- If pass-through of parental wealth shocks to gifts is sufficiently strong, then geographic and intergenerational mobility decline
- These effects are stronger when the elasticity of housing supply is lower

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Summary

1. Causal effects of local house prices:
   - Less likely to be a homeowner if face higher house prices

2. Causal effects of parental wealth:
   - Around 10%-15% pass through of housing wealth gains to children
   - Explained by owning in more expensive locations
   - Effect on living in London and South East
   - More likely to work in business, management, media, law and cultural professions in London
   - Effect on being a top earner for men
   - More gifting to adult children

3. Can be rationalised by a model in which earnings gains from moving to a high productivity are ‘backloaded’ and parents can ease borrowing constraints
   - How much can wealth transfer taxation improve the allocation of labour?

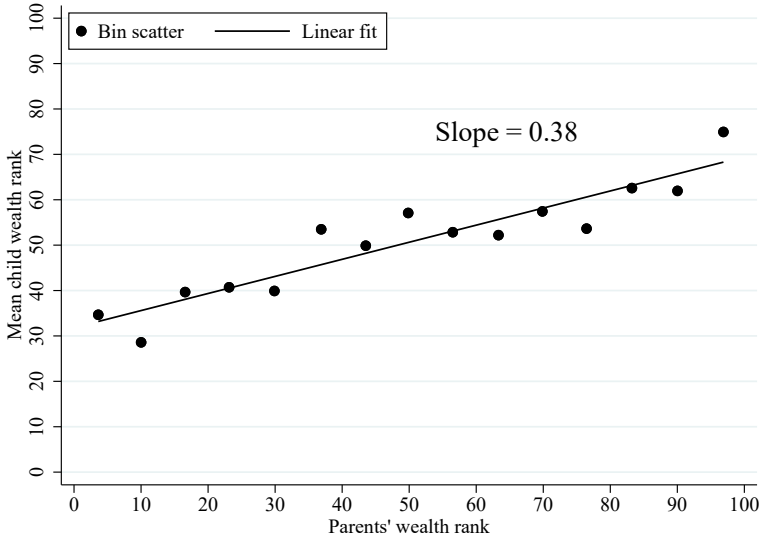
Appendix

Why housing?

1. Makes up 62% of non-pension wealth
2. Can be leveraged
3. Minimum sizes and deposit requirements
4. Excess returns
5. Returns vary by region
6. Gives access to local labour markets and amenities

back

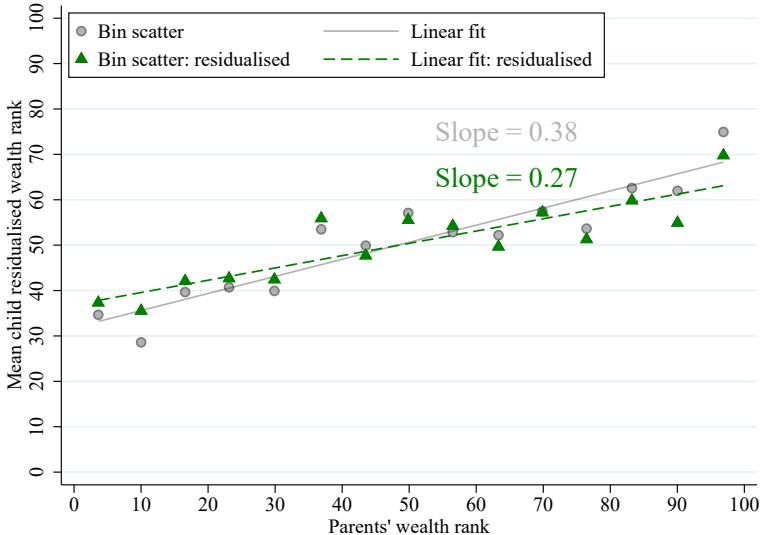
Rank-rank association of parents' and children's wealth



Source: UK Household Longitudinal Study.

back

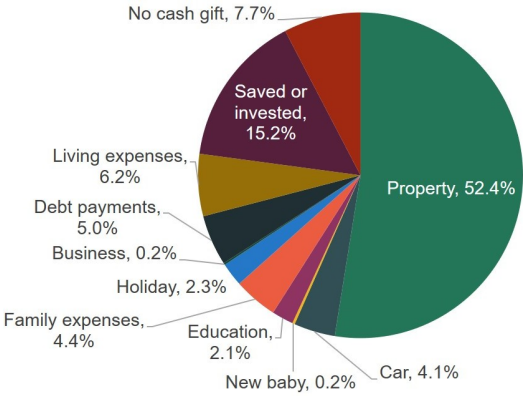
Rank-rank association of parents' and children's wealth



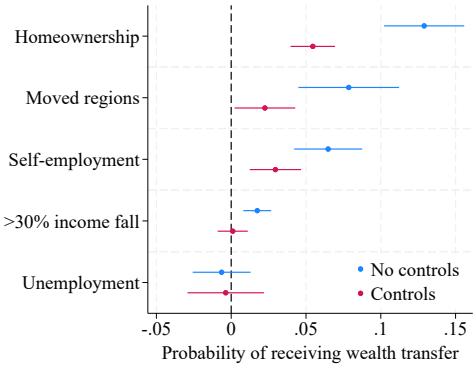
Source: Wealth and Assets Survey.

back

Parental transfers and house purchase



(a) Stated use of gifts received



(b) Probability of receiving a wealth transfer when experiencing life events

Source: ONS Longitudinal Study

back

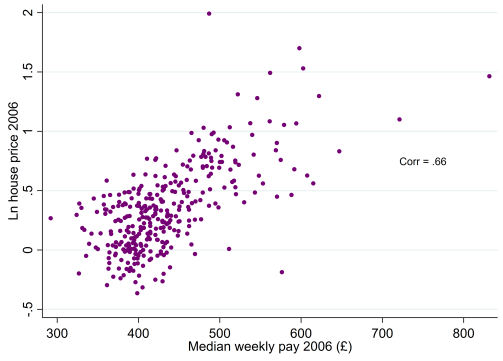
Those with wealthier parents buy higher-priced homes

Source: BHPS/USoc. Note: Parents' wealth quintile is defined in 1995 for the 1970s generation and in 2005 for the 1980s generation.

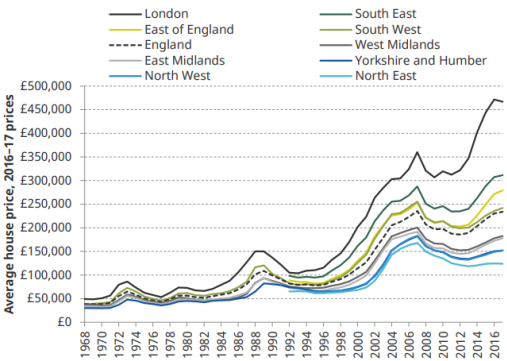
back

Geographic variation in house prices and earnings

Figure: Correlation of local house prices and earnings and house prices by region



(a) Local earnings and house prices



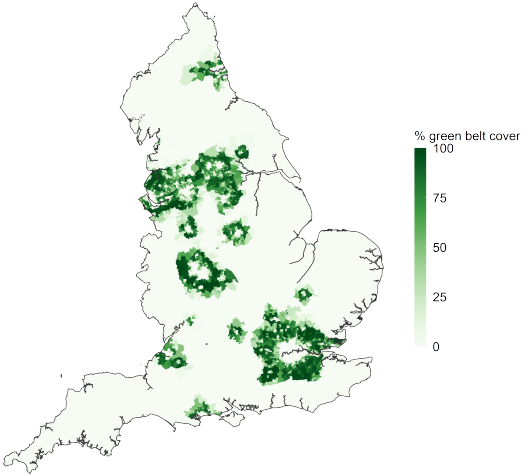
(b) Regional divergence in house prices

Source: (a) Drayton, Levell and Sturrock. (2024). (b) Cribb and Simpson (2016).

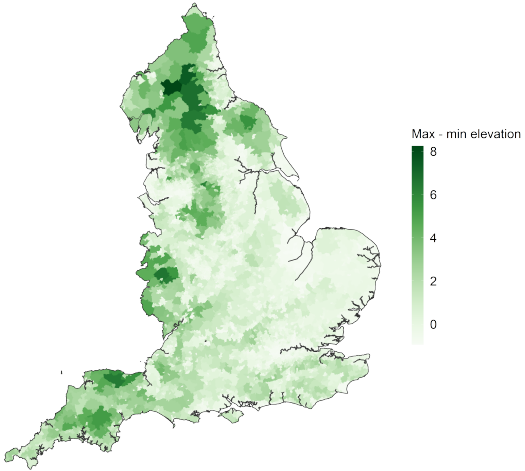
back

Housing supply constraints

back



(a) Share covered by Green Belt



(b) Max minus min elevation

Source: Drayton, Levell and Sturrock (2024).

Descriptives: Parents' housing wealth gains and child outcomes

Table: OLS associations between parents housing wealth increase since 1995 and child's outcomes at age 28, controlling for parents' earnings rank, childhood region

	Homeowner	House wealth	Mortgage debt	Net house wealth
Δ parents' house wealth (£00k)	0.020*	21,252***	1,742	19,510***
	(0.008)	(4,720)	(1,323)	(5,248)
Observations	918	918	918	918

	London/SE	University	Earning rank	Saving rate	Partnered
Δ parents' house wealth (£00k)	0.016**	0.043***	0.012*	0.008*	-0.007
	(0.005)	(0.007)	(0.005)	(0.004)	(0.008)
Observations	918	918	918	918	918

Source: UKHLS. Standard errors in parentheses. All specifications control for parents' rank by mean earnings and year and commuting zone fixed effects.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

OLS: relationship between parents' and child's housing wealth

back

	(1) Homeowner	(2) Gross housing wealth	(3) Net housing wealth
Parents' log house value	0.0081	52745.4**	48354.2**
	(0.032)	(16003.3)	(16571.6)
Earnings rank	0.43***	120431.6***	48656.4**
	(0.070)	(21546.1)	(16532.7)
Saving rate	0.21	8389.2	5686.2
	(0.11)	(36344.2)	(27295.1)
Constant	0.19	-589131.3**	-539647.9**
	(0.39)	(193437.2)	(200041.2)
Observations	674	674	674

Source: BHPS/USoc. Standard errors in parentheses. All specifications include year and commuting zone fixed effects.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

OLS: relationship between parents' wealth and child outcomes

	Homeowner	Housing wealth	Mortgage debt	Net housing wealth
Parents' log house value	0.036	59494.4***	8364.8*	51129.6**
	(0.033)	(15486.1)	(3945.8)	(16021.9)
Observations	674	674	674	674

	London/SE	University ed	Earning rank	Saving rate	Has partner
Parents' log house value	0.055**	0.26***	0.055**	0.021*	0.0077
	(0.021)	(0.027)	(0.018)	(0.010)	(0.030)
Observations	674	674	674	674	674

Source: BHPS/USoc. Standard errors in parentheses. All specifications include year and commuting zone fixed effects.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

controls

Results: effect on gross housing wealth

	Child gross housing wealth in 2011 (£)				
	(1)	(2)	(3)	(4)	(5)
Parents housing wealth (£000,000)	19,271***				
	(1,214)				
Local house prices (£000,000)	3,509**				
	(1,319)				
Controls	No				
Region FE	No				
Instrument	No				
Observations	65,416				

Source: ONS LS. Note: Statistical significance at the 5%, 1% level and 0.1% levels are denoted by *, ** and ***, respectively. Standard errors are clustered at the level of the local authority.

Results: effect on gross housing wealth

	Child gross housing wealth in 2011 (£)				
	(1)	(2)	(3)	(4)	(5)
Parents housing wealth (£000,000)	19,271***	7,024***			
	(1,214)	(2,145)			
Local house prices (£000,000)	3,509**	8,507***			
	(1,319)	(1,496)			
Controls	No	Yes			
Region FE	No	Gvt Region			
Instrument	No	No			
Observations	65,416	65,415			

Source: ONS LS. Note: Statistical significance at the 5%, 1% level and 0.1% levels are denoted by *, ** and ***, respectively. Standard errors are clustered at the level of the local authority.

Results: effect on gross housing wealth

	Child gross housing wealth in 2011 (£)				
	(1)	(2)	(3)	(4)	(5)
Parents housing wealth (£000,000)	19,271***	7,024***	8,047***		
	(1,214)	(2,145)	(1,842)		
Local house prices (£000,000)	3,509**	8,507***			
	(1,319)	(1,496)			
Controls	No	Yes	Yes		
Region FE	No	Gvt Region	LAD		
Instrument	No	No	No		
Observations	65,416	65,415	65,321		

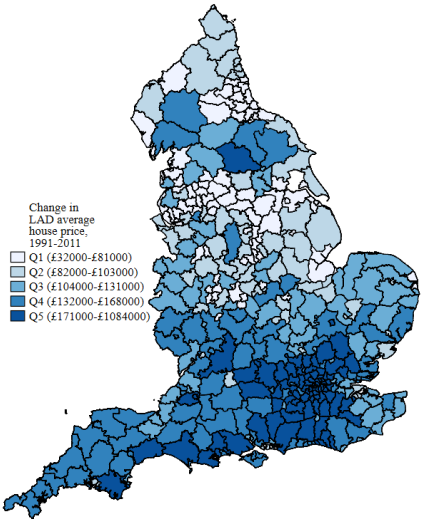
Source: ONS LS. Note: Statistical significance at the 5%, 1% level and 0.1% levels are denoted by *, ** and ***, respectively. Standard errors are clustered at the level of the local authority.

Results: effect on gross housing wealth

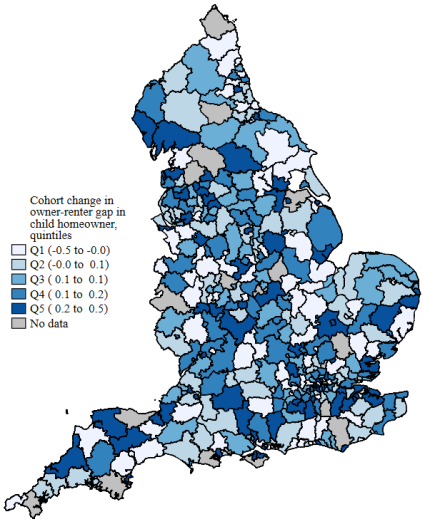
	Child gross housing wealth in 2011 (£)				
	(1)	(2)	(3)	(4)	(5)
Parents housing	19,271***	7,024***	8,047***	7,002	20,347*
wealth (£000,000)	(1,214)	(2,145)	(1,842)	(3,906)	(8,606)
Local house prices	3,509**	8,507***			
(£000,000)	(1,319)	(1,496)			
Controls	No	Yes	Yes	Yes	Yes
Region FE	No	Gvt Region	LAD	LAD	LAD
Instrument	No	No	No	Δ HP	Elasticity
Observations	65,416	65,415	65,321	65,321	65,321

Source: ONS LS. Note: Statistical significance at the 5%, 1% level and 0.1% levels are denoted by *, ** and ***, respectively. Standard errors are clustered at the level of the local authority.

Geography of changing gaps by parental background



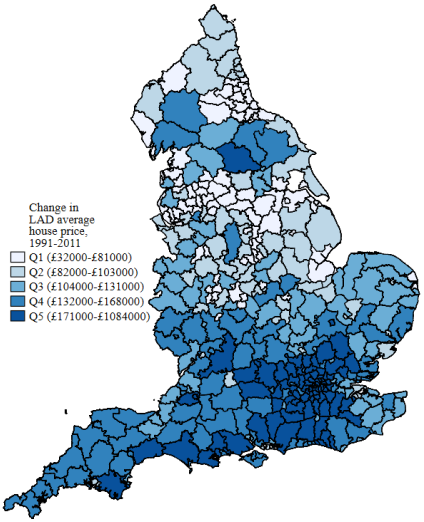
(a) House price growth



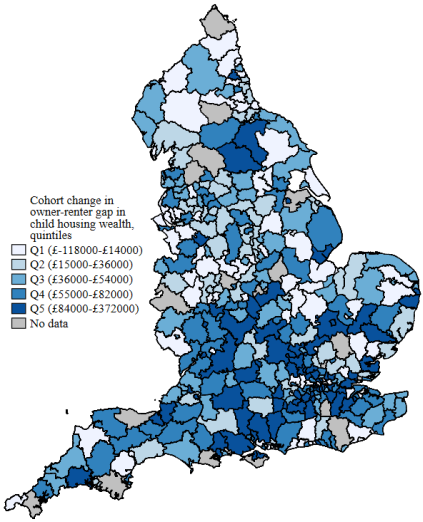
(b) Change in child homeownership gap

Source: ONS Longitudinal Study

Geography of changing gaps by parental background



(a) House price growth

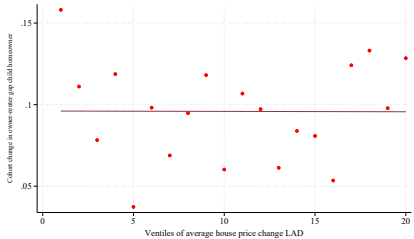


(b) Change in child housing wealth gap

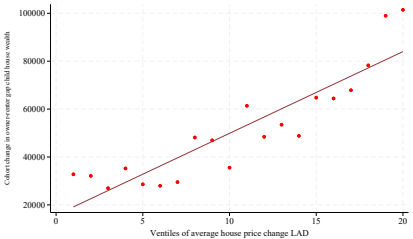
Source: ONS Longitudinal Study

Geography of changing gaps by parental background

Figure: LA change in child of homeowner vs child of renter gap (pre-vs-post-boom) compared to house price growth



(a) Homeownership



(b) Housing wealth

Source: ONS Longitudinal Study

Imputation of earnings back

We estimate specifications of the following form using OLS:

$$\ln(y_i) = \gamma_{educ,age} + \gamma_{SOC,sex,region,FT} + \epsilon_i \quad (1)$$

- y_i is estimated for current annual earnings (LFS and ASHE-census), earnings in 8 years' time (ASHE-census) and average annual earnings over 8-year period (ASHE-census)
- Interaction of education and age plus interaction of 2-digit occupation, sex, region and full-time/part-time
- R^2 is 0.67 for current earnings and 0.20 for earnings in $t + 8$.

(Adjusted) earnings imputed into the LS as:

$$\hat{y}_i = \exp\left(\frac{\gamma_{educ,age} + \gamma_{SOC,sex,region,FT} + \hat{\epsilon}_i}{R^2(y)}\right)$$

- where $\hat{\epsilon}_i$ is a random draw from distribution of residuals for occupation-sex-region-FT cell and $R^2(y)$ is R-squared from Eq. (1).

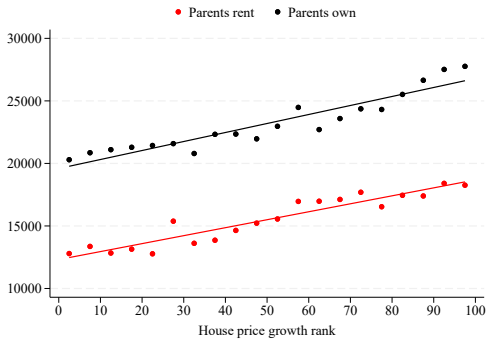
Results: effects on earnings

Effects of parental wealth on individual gross earnings

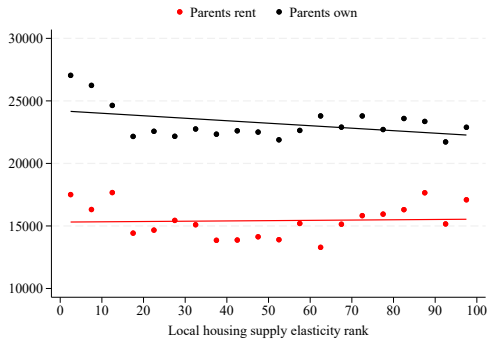
- We can rule out large effects ($> 5\%$) on earnings at the mean
- Elasticity specifications consistent with increased dispersion in earnings
  - Increased probability of not being in work
  - Increased probability of being a top earner
- This is driven by effects for men
- However, alternative specifications show more modest/insignificant results
  - Using local price changes a instrument, no effect on employment; effect on top 10%/5% smaller
  - Controlling for 1991 local industry shares interacted with homeowner parents reducing effect sizes further and none significant

Results: effects on earnings

Figure: Annual earnings (£)



(a) House price growth rank

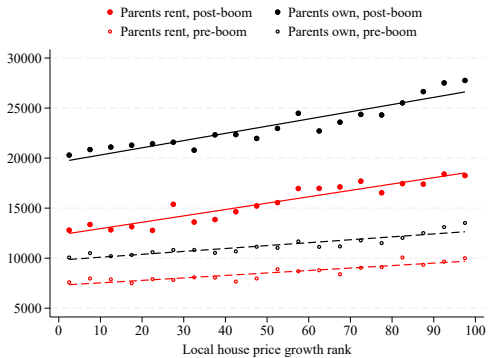


(b) Local elasticity rank

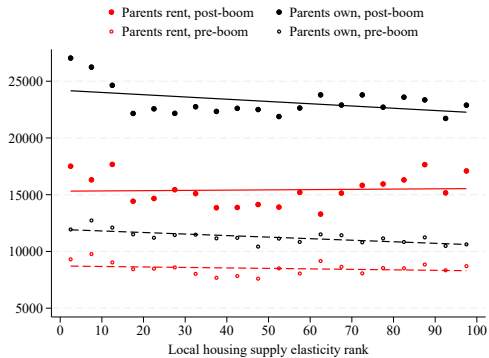
Source: ONS Longitudinal Study

Results: effects on earnings

Figure: Annual earnings (£)



(a) House price growth rank

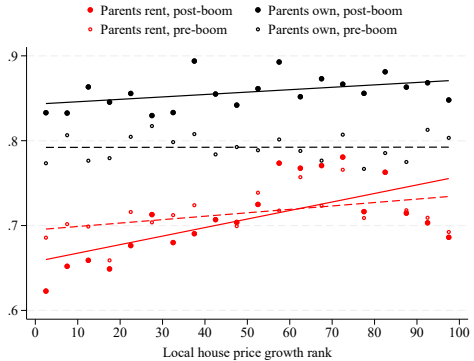


(b) Local elasticity rank

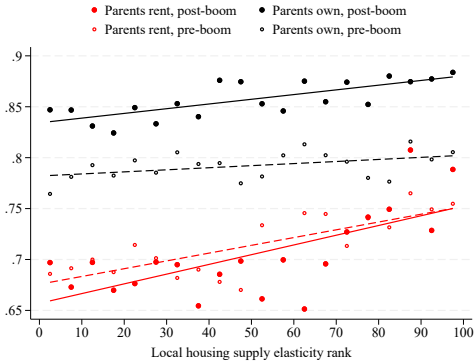
Source: ONS Longitudinal Study

Results: effects on employment

Figure: Whether in work



(a) House price growth rank

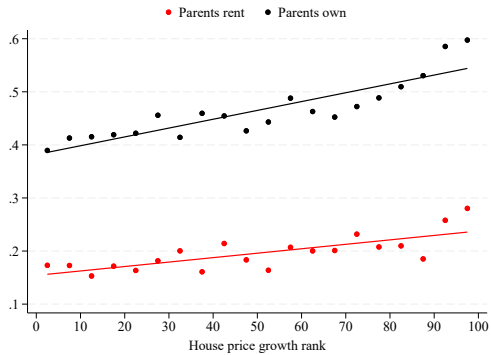


(b) Local elasticity rank

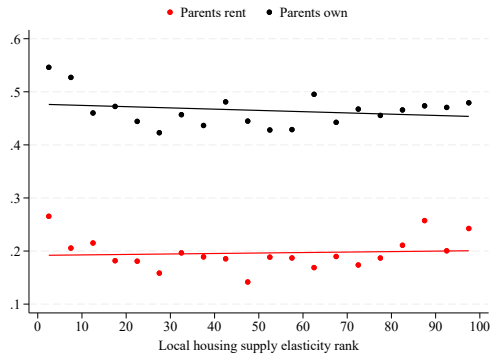
Source: ONS Longitudinal Study

House price growth and the gap by parental background

Figure: University educated



(a) House price growth rank

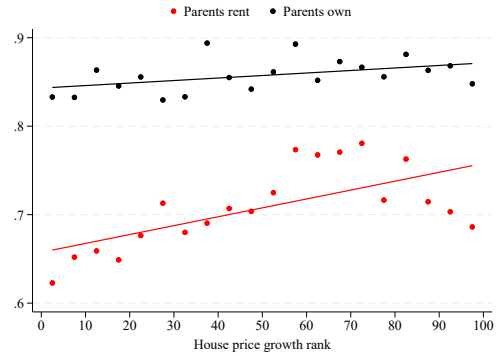


(b) Local elasticity rank

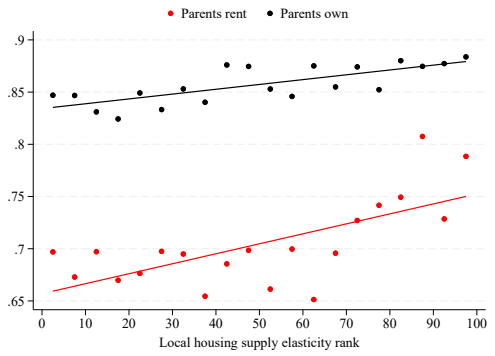
Source: ONS Longitudinal Study

House price growth and the gap by parental background

Figure: In employment



(a) House price growth rank

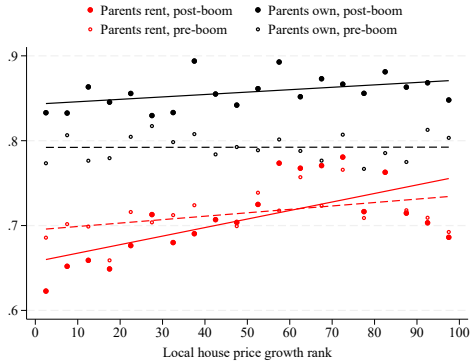


(b) Local elasticity rank

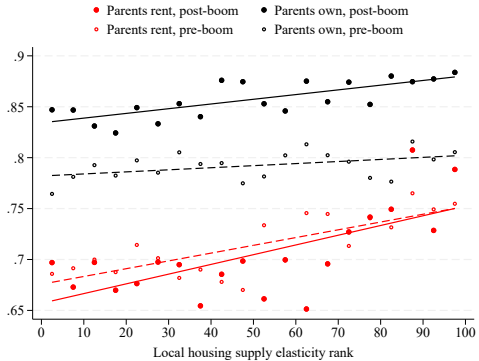
Source: ONS Longitudinal Study

House price growth and the gap by parental background

Figure: In employment



(a) House price growth rank



(b) Local elasticity rank

Source: ONS Longitudinal Study

Results: effect on earnings

	Child's family gross annual earnings (£)					
	(1)	(2)	(3)	(4)	(5)	(6)
Parents house wealth (£00k)	3,889***	857***	306	83	36	1,874
	(253)	(231)	(283)	(348)	(1,235)	(1,253)
Local house prices (£00k)	4,063***	4,545***	1,180**		-6,172**	
	(340)	(350)	(575)		(2,742)	
Controls	No	Yes	Yes	Yes	Yes	Yes
LA×owner FE	No	No	Yes	Yes	Yes	Yes
LA×cohort FE	No	No	No	Yes	No	Yes
Instrument	No	No	Local *p*	Local *p*	Elasticity	Elasticity
Observations	150,693	150,550	150,549	150,548	150,549	150,548

Source: ONS LS. Note: Statistical significance at the 10%, 5% level and 1% levels are denoted by *, ** and ***, respectively. Standard errors are clustered at the level of the local authority.

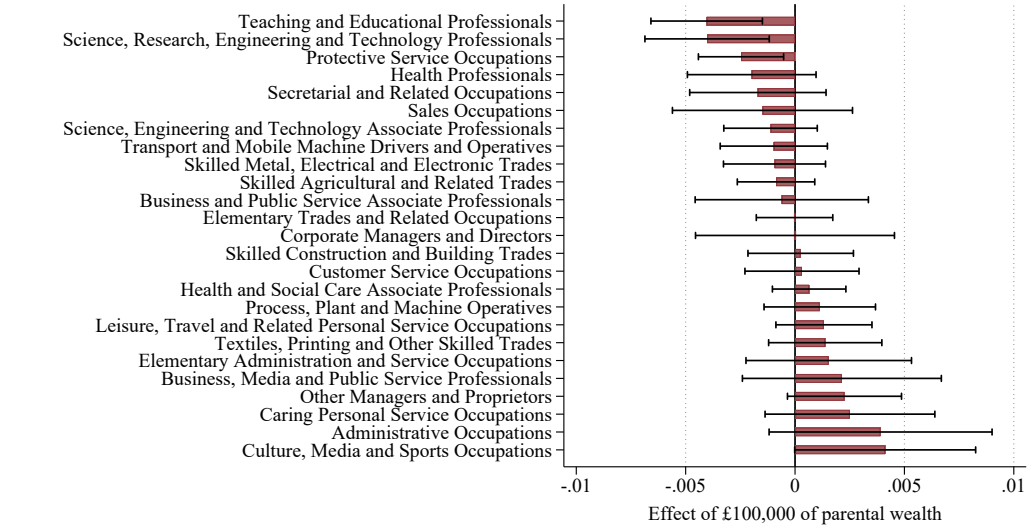
Results: effects on earnings

Table: Estimated effect of parental wealth on measures of annual earnings

	Current earnings (LFS)	Current earnings (ASHE)	Earnings in t+8	Average annual earnings over 8 years
$\Delta p_j h^p$ as instrument	161**	100	533***	181**
	(48)	(55)	(93)	(60)
Adjusted for imputation	276**	170	2,654***	313**
	(97)	(124)	(456)	(105)
Elasticity as instrument	1,754*	1,834*	694	989
	(756)	(767)	(1,231)	(834)
Adjusted for imputation	2,742*	2,020*	3,453	1,714
	(1347)	(932)	(6,130)	(1,452)
Observations	65,807	50,153	50,153	50,153

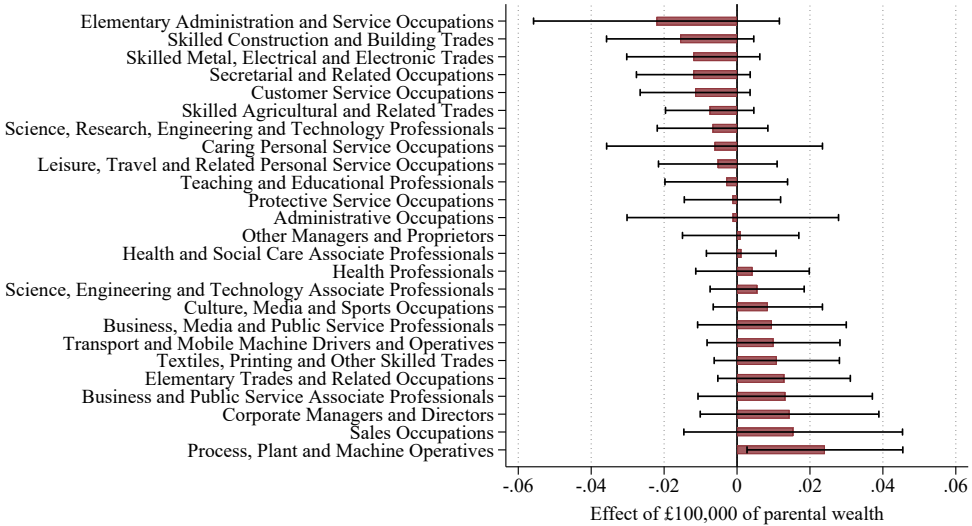
Source: ONS LS. Standard errors are clustered at the level of the local authority. Adjustment for imputation is as per Crossley et al. (2022) more

Effect on working in given occupations



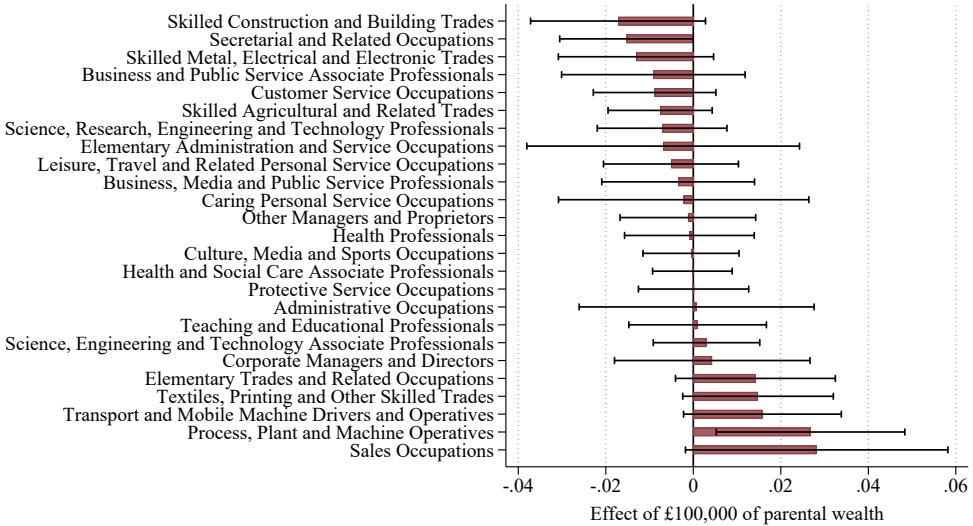
Source: ONS Longitudinal Study

Effect on working in given occupations (elasticity as IV)



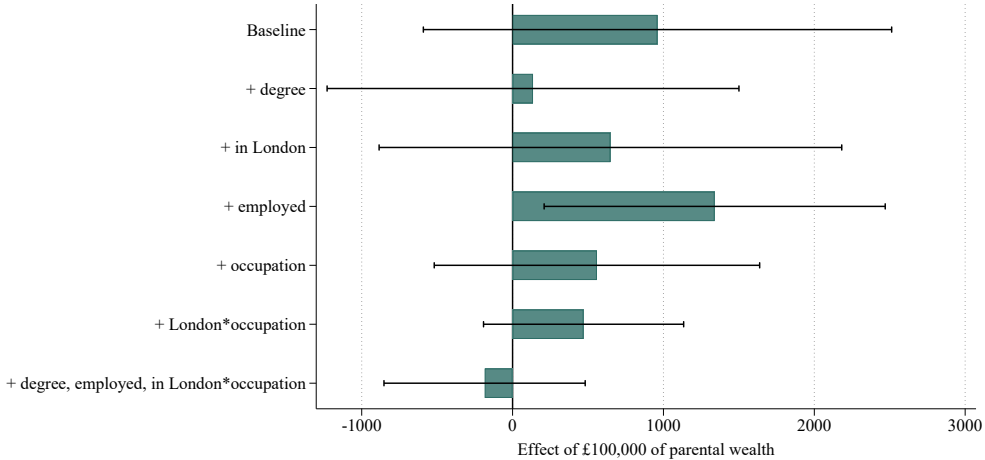
Source: ONS Longitudinal Study

Effect on working in occupations outside London (elasticity as IV)



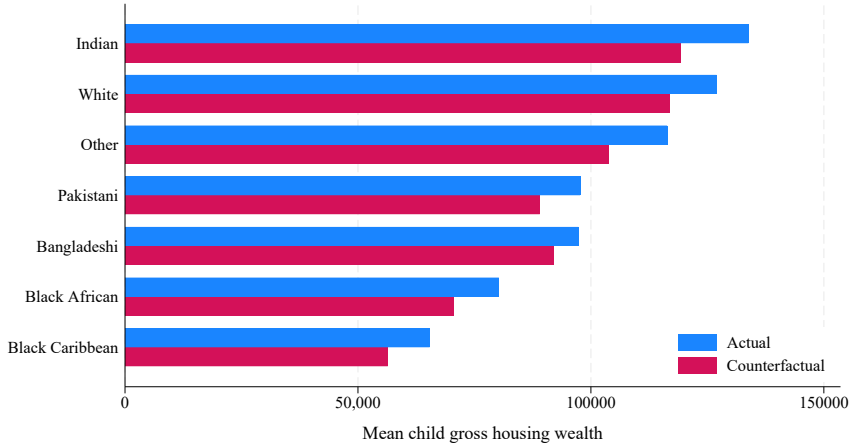
Source: ONS Longitudinal Study

Mediation of effect on current annual earnings



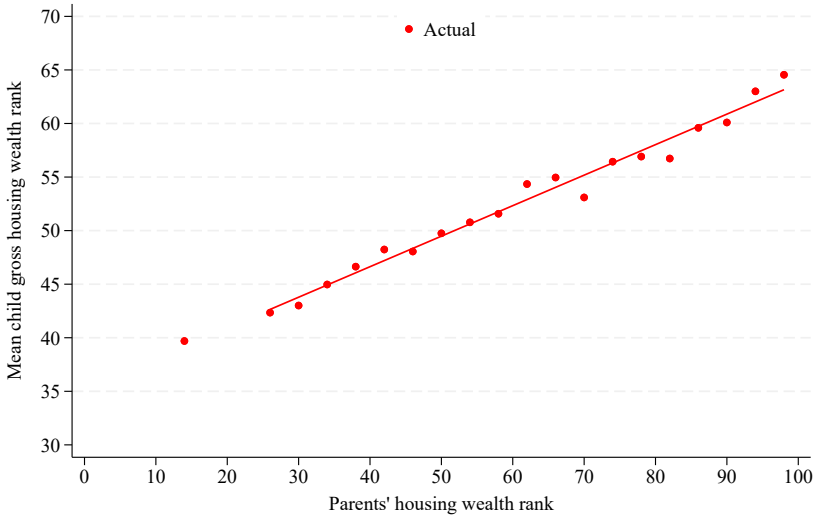
Source: ONS Longitudinal Study

No house price boom counterfactual: by ethnicity



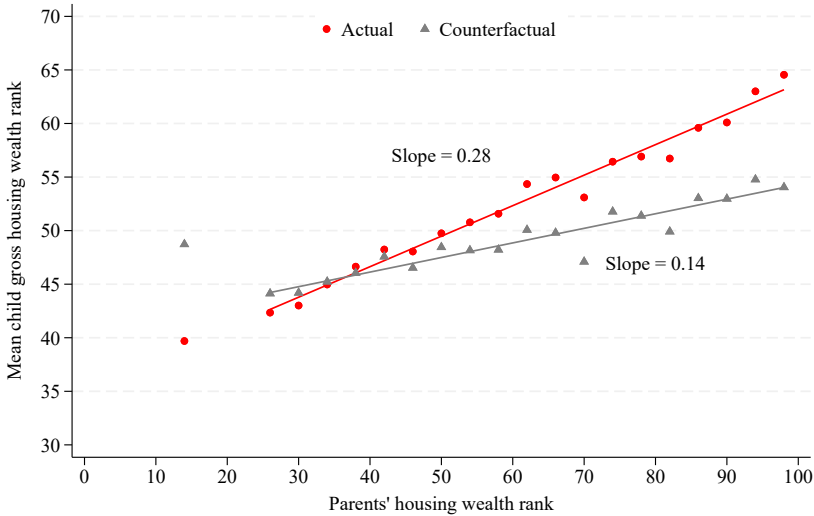
Source: ONS Longitudinal Study

No house price boom counterfactual



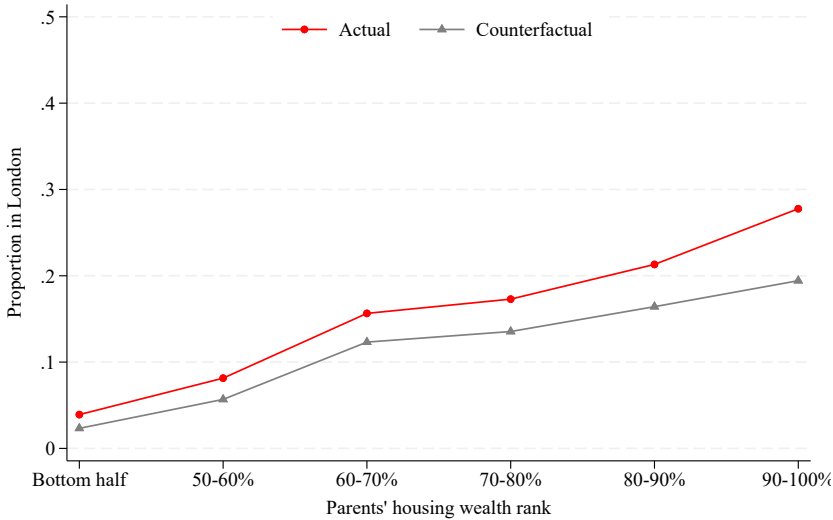
Source: ONS Longitudinal Study

No house price boom counterfactual



Source: ONS Longitudinal Study

No house price boom counterfactual: in London



Source: ONS Longitudinal Study