The Long-Run Effects of Parental Homeownership and Housing Quality on Later Life Outcomes

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Abstract

We measure the effects of housing quality and living in renter- versus owner-occupied housing as a child on later life outcomes. Homeownership and housing quality potentially have large impacts on children, yet we know relatively little about any long-term effects. Ownership and housing quality are correlated with income, neighborhood characteristics, and many other socioeconomic characteristics, making causal estimation difficult. Using Census and IRS administrative data, we create a new data linkage between the American Housing Survey and tax data, and comprehensively control for a wide variety of variables, including housing quality, to investigate adult outcomes such as earnings and having a mortgage or owning a home. We find strong positive correlations, but no evidence of causal effects corresponding to duration in an owned home.

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1 Introduction

Homeownership is heavily subsidized in the United States. The Treasury Department reported the exclusion of imputed rental income and the mortgage interest deduction as their second and seventh largest tax expenditures, roughly $130 billion and $30 billion, respectively.[1] The majority of mortgage interest deductions are taken by households earning $100,000 or more[2]. However, homeownership and housing quality potentially have large impacts on children, which could justify these expenditures, yet we know relatively little about any long-term effects. Further, ownership and housing quality are correlated with income, neighborhood characteristics, and many other socioeconomic characteristics, making causal estimation difficult. Using Census and IRS administrative data, we comprehensively control for a wide variety of variables, including household and county characteristics, to investigate adult outcomes such as earnings and having a mortgage or owning a home.

Homeownership could lead to more stable residency and fewer schooling changes or disruptions, thus leading to improved educational outcomes [Green and White, 1997, Haurin et al., 2002, Bramley and Kofi Karley, 2007, Mohanty and Raut, 2009], though research with clearer identification strategies calls this hypothesis into question [Barker and Miller, 2009]. Poor quality housing could lead to negative health outcomes for children or adults [Harville and Rabito, 2018, Boch et al., 2020]. Homeownership can also be a savings mechanism, leading to intergenerational transmission of wealth. We are the first US-focused paper on homeownership that we are aware of to use tax records to accurately measure income, but unfortunately our causal estimates are not well-designed to capture the savings or wealth mechanisms.

We have linked data on children from 1995 through 2002 American Housing Surveys (AHS) to their recent tax returns in the Census FSRDC environment. That is, their parents responded to the AHS, and described basics of family structure. Children in those families are the main focus of our study. We use terms like 'parental homeownership' to describe whether the parents owned a home in 1995 through 2002 when the subject was a child. 'Adult homeownership' and 'owning a home as an adult' refer to more recent data when the subject is older and owns a house later in life. We control for parental income, education, demographics,

[1] See https://home.treasury.gov/policy-issues/tax-policy/tax-expenditures.

[2] See https://taxfoundation.org/research/all/federal/who-benefits-home-mortgage-interest-deduction/ and https://www.cbpp.org/research/mortgage-interest-deduction-is-ripe-for-reform.

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neighborhood characteristics, and important housing attributes such as crowding (the occupants per room), and housing quality, using a multidimensional index of housing issues such as plumbing, heating, electrical, and paint. All these characteristics are measured when the subject was a child.

Administrative data combined with survey data yields a sample size over 100,000 in some specifications. We find large and strongly statistically significant positive associations between growing up in parent-owned housing and owning a home or having a mortgage as a young adult. The same strong positive association holds for income as well. Interactions show the positive effects are smaller for minorities than for whites, consistent with a story that minorities are less able to accrue and bequeath housing wealth (or high incomes) Kermani and Wong [2024].

We find little evidence that the positive associations are causal. Unobservable variables such as a family's innate desire to own a home, tradition of owning, or accumulated wealth could be the real driver of homeownership and thus bias our estimates. To attempt to address this concern, we use three methods. First, we use the Oster [2019] method of partial selection correction to put lower bounds on the estimates from our simple linear regressions. Second, we estimate within-family models that compare siblings within a given family and flexibly control for any unobservable family characteristics that are constant across siblings. Lastly, we estimate within-family-over-time models that add controls for changes to major family characteristics such as income and education, affecting siblings within a family at different ages.

These three methods produce a consistent picture of no evidence of causal effects of parental homeownership, particularly when comparing between siblings in the same family. That is, unlike Chetty and Hendren [2018] that shows a clear linear dose-response type effect for each year of living in a better neighborhood, we find no such effect for parental homeownership.

The rest of the paper proceeds as follows: we discuss the background of homeownership and the related literature in section 2. We describe our data sources in section 3. We provide our results in section 4, and conclude in section 5.

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2 Background and Literature

The majority of American households own their home, and homeownership is one of the largest sources of wealth for American households[3]. Yet there are significant differences in the homeownership rate across racial groups which have been stubbornly persistent over the past several decades.

Figure 1 shows the fraction of households in AHS data that report to own their home (with or without a mortgage) by race and ethnicity. One can see that homeownership decreased during the great financial crisis, and more so for minorities than for whites. The situation has improved over the decades for other non-Hispanic (largely Asian) households, but the gap for Blacks and Hispanics of any race has not changed much in thirty years. Figure 2 shows the trend for crowding, the measure of whether a household has more than 1.5 people per bedroom. The rate of crowding has decreased for all groups, and the relative ranking by race and ethnicity has remained unchanged.

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[3]See https://www.census.gov/content/dam/Census/library/publications/2023/demo/p70br-183.pdf. According to the Census' Survey of Income and Program Participation, retirement accounts have now become a slightly larger source of wealth than housing equity.

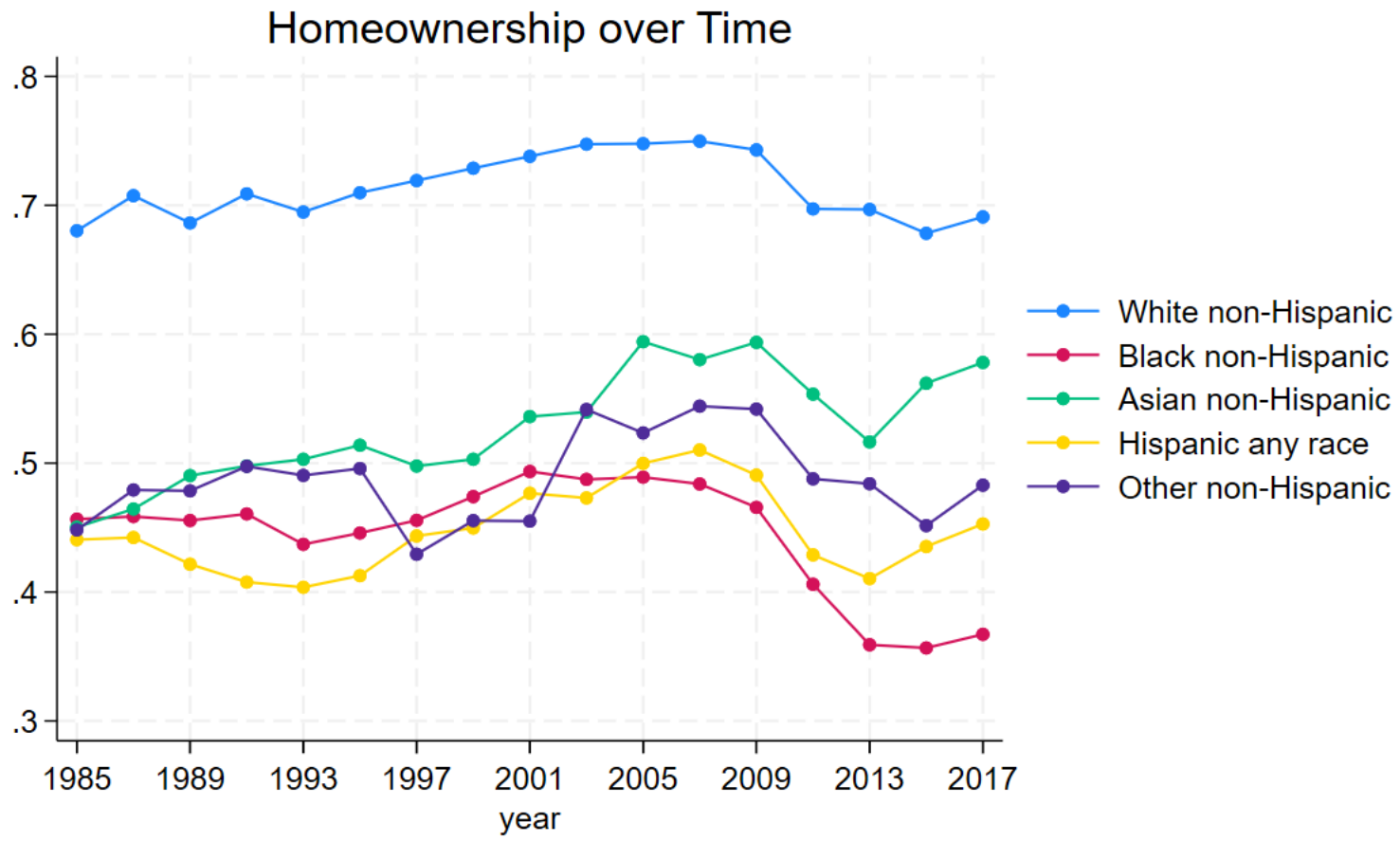


Figure 1: **Homeownership Rates over Time** This chart shows the fraction of homeownership by race and ethnicity using AHS data.

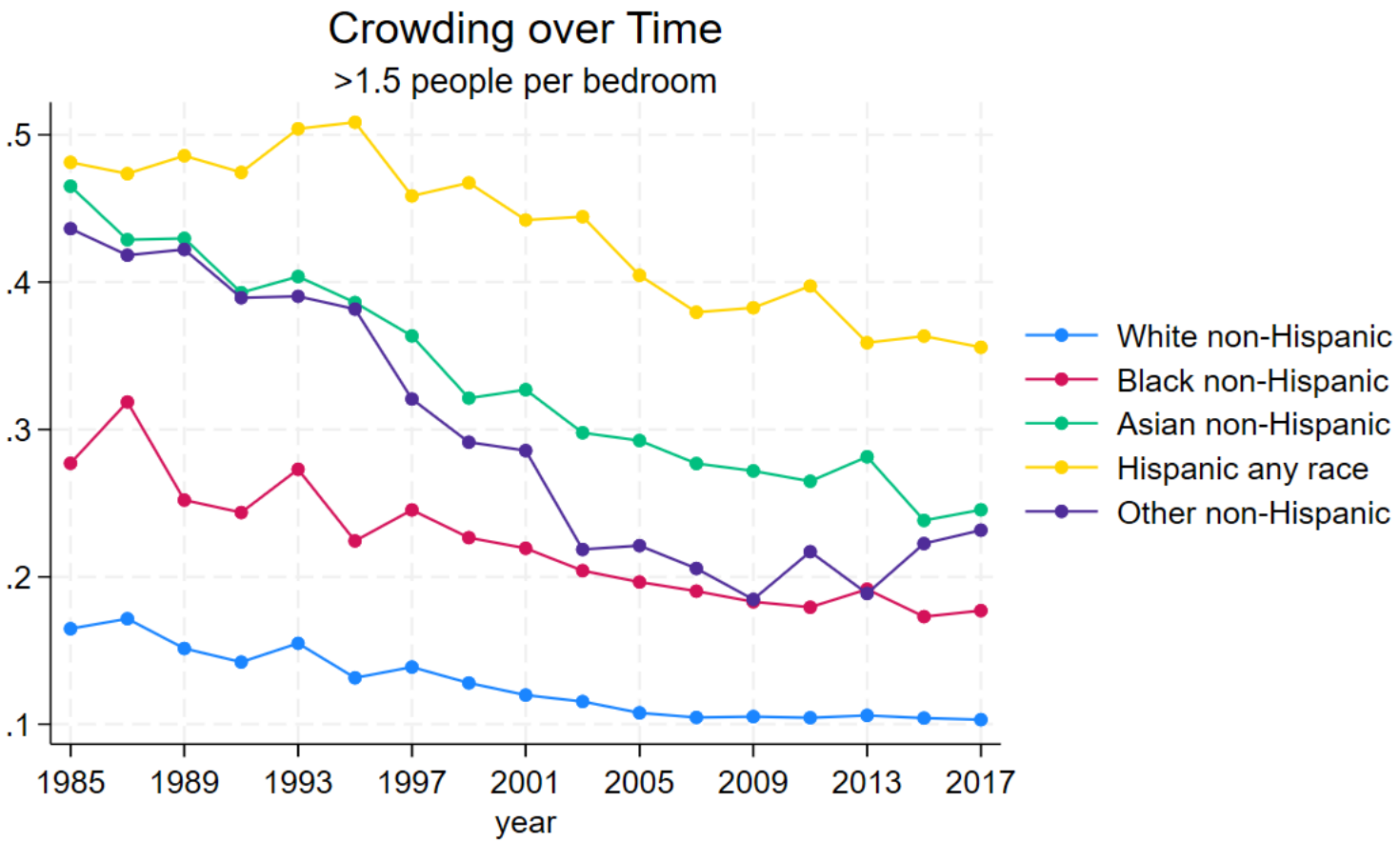


Figure 2: **Crowding Rates over Time** This chart shows the fraction of crowding by race and ethnicity using AHS data.

There is a limited amount of previous work attempting to identify causal estimates of parental homeownership. Benetton et al. [2022] uses credit bureau panel data and an IV strategy to show that parental wealth extraction from homes increases the likelihood of child homeownership as a young adult. Children of parents who own are 1.4 percentage points (28%) more likely to own at age 25. The age limitation is due to the limited duration of the credit bureau data (roughly 7 years), and is relevant, since the homeownership rate at age 25 is low. Blickle and Brown [2019] uses Swiss panel data on 5,000 households to show that receiving a wealth transfers (not necessarily due to parental homeownership) are associated with a 6 to 8 percentage point higher likelihood of transition to ownership. They find this is likely due to relaxation of borrowing constraints rather than wealth effects, and they find no similar inducement of owners to trade up to larger homes.

Other papers on housing wealth include Charles and Hurst [2002], which shows that the primary source of the black-white gap in transition to homeownership is that blacks are less likely to apply for mortgages, and finds an association between parental wealth and child homeownership using 1,500 child-parent pairs from the Panel Survey of Income Dynamics (PSID). Guiso and Jappelli [2002] show similar results in Italy based on gifts and bequests. Blanden and Machin [2017] and Blanden et al. [2023] document persistence in the rate of homeownership in the UK, and Englund et al. [2014] document the same in Sweden and show that the intergenerational persistence comes mostly through the housing channel.

In addition to wealth, homeownership may increase residential stability and thus improve schooling outcomes. Mobility rates are significantly higher for renters than owners (roughly 40% compared to 10%, according to the US Census Bureau[4].) Higher mobility is often linked to declines in childhood schooling outcomes [Government Accountability Office, 2010]. However, much of the research on school changes fails to account for different reasons for moves. Schwartz et al. [2017] differentiates between structural (boundary changes, sale by the owner of a building renters live in) and nonstructural (other, such as changes to family structure) and find that while structural moves hurt school performance, nonstructural moves actually lead to improved school performance. Thus it is not entirely clear what effects we should assume homeownership (and fewer school changes) would have.

Other papers looking at housing quality use a binary measure of "inadequacy," that applies to only

[4]See https://www.census.gov/data/tables/time-series/dec/coh-movers.html and https://www.census.gov/library/stories/2017/12/lower-moving-rate.html.

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5% of the housing stock. Instead we use a 60-variable index from Eggers and Moumen [2013] to create a continuous quality measure (hereafter Poor Quality Index, PQI). An additional aspect of housing quality that is potentially important is that of lead paint, which is in an estimated 35% of homes (CITE); we proxy for this using date of construction and household reported paint issues. These quality aspects are important because they can have well-documented long-term effects on health, and likely income and thus homeownership as an adult. For example, there is no safe level of lead (present in paint until 1978) in the human body, and research has shown effects to be very large, especially in children. (See for example Aizer et al. [2018], Aizer and Currie [2019].)

3 Data

We use three primary datasets: the American Housing Survey (AHS), IRS tax records, and Black Knight property tax records. We also add home price data from the Federal Housing Finance Agency (FHFA).

The AHS began in 1973 and has been conducted annually or biennially since. The survey asks numerous questions about the physical and financial characteristics of the home as well as its inhabitants. At the national level it is a structure-based longitudinal survey (meaning the survey returns to the same building year after year regardless of who occupies it). We use the data from 1995-2002, which consists of the 1995, 1997, 1999, and 2001 national surveys, and the 1996, 1998, and 2002 metropolitan sample—the metro sample is not longitudinal, but rather a snapshot from different metro areas in each year. The Census Bureau has built crosswalks for the AHS for data from 1995 to the present using the person identification validation system (PVS), which matches Protected Identification Key (PIK) numbers for each person (and Master Address File ID (MAFID) for each address) in any of the many datasets available in the FSRDC environment. 190,000 of the 220,000 observations of children in the AHS are successfully assigned PIKs.

The IRS tax data includes headline income numbers from W-2 and 1040 forms as well as 1099 and 1098s filed by third parties. We use the data from the years 2016-2019. Census' version of these data has indicators for each individual schedule filed, but not contents of those forms. That is, we can observe whether a filer itemized their deductions, but have no information on details such as property or state tax payments. Mortgage interest 1098s are of particular interest to us, but 1098-T's for tuition payments are not

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available. In practice, we use the databank compiled by Census and Opportunity Insights researchers, as this conveniently links filers to spouses and dependents. This linkage enables us to spread information from a mortgage 1098 that has only one spouse's tax ID number on it to both spouses in the household.[5]

The tax data only has information on home mortgages, rather than homeownership itself. To address this gap we also use Black Knight property records, a collection of deeds data from US counties, from the year 2019. This has up to two owners listed for each residential property in most counties in the US. A small number of counties without digitized records may not be in this data, but this type of third party commercial compilation of public records is likely the most complete source of ownership data available. We use Census PVS linkages of the Black Knight data to link to the AHS sample and identify owners who own without a mortgage. We find that XX % of the AHS sample who does not have a mortgage in the tax data are listed as owners in the Black Knight data. Generally speaking we are not too concerned about this because the vast majority of homeowners, especially those at a somewhat young age as in our sample, have a mortgage. This is shown in Figure 3. We use public 2019 5-year ACS estimates from IPUMS [Steven Manson and Ruggles, 2023] to show the fraction of homeowners with a mortgage by age. Given that our sample is younger (average age in 2017: 33 years old), more than 80% of owners are likely to have a mortgage.

We also use data from the FHFA, specifically their Annual Housing Price Index (HPI) at the tract and county level.[6] We calculate the total percentage of home price growth by dividing the index for the county or tract for the year tax records indicate parents moved from the home by the index for 1995. All observations can be linked to a county, while only XX% of our observations can be easily linked to a single census tract. In those cases, we use the tract level growth, and fill in observations with missing tract information with the county growth.

[5] Interested readers should seek out the "Census CARRA Databank Manual" by Benny Goldman, November 20, 2017, available from the Census Bureau, for more information on which exact variables are available in Census' collection of tax data, how spouses and dependents are linked across years, and which other administrative data is used to improve said linkages, etc.

[6] FHFA Annual HPI are available from https://www.fhfa.gov/data/hpi/datasets?tab=additional-data. Bogin et al. [2019] summarizes the dataset.

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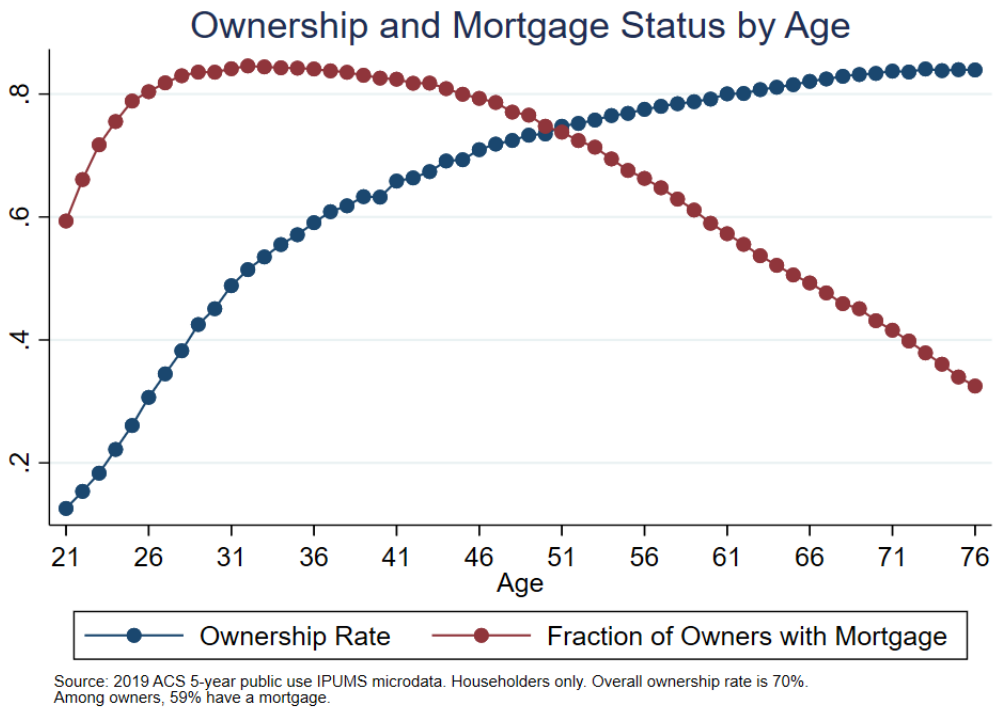


Figure 3: **Ownership and Mortgage Status by Age** Author calculations using 2019 ACS 5-year public use IPUMS microdata. Householders only. Overall ownership rate across all ages for householders is 70%. Among owners, 59% have a mortgage.

4 Results

4.1 Summary Statistics

The AHS is a nationally representative sample, but we are of course not able to track every respondent over the twenty-plus years of the data in our study. Census is able to provide a PIK for more than 85% of the children in the AHS data. (190,000 of 220,000 observations, counting repeated observations of a child counting as multiple observations, since without PIKs we are not perfectly able to track individuals across rounds of the survey.) Table 1 compares the households with PIKs to those without. As one might expect, given that in most contexts higher income individuals generally have more documentation and interact with formal administrative systems more frequently, etc., children with PIKs appear to live in homes that are better off on nearly all measures. The houses are larger and newer, with less crowding, fewer abandoned buildings nearby, and parents are more likely to own the home and be college educated, etc. Given the large sample size, nearly all of these differences are statistically significant.

In addition to being assigned a PIK through Census' PVS process, we also need respondents to file a tax return at least once between 2016 to 2019 to observe outcomes. Non-filing has become much less common in recent years, in no small part due to the Earned Income Tax Credit, which results in payouts to low-income earners that can make filing well worth their time. We find 110,700 unique children with PIKs, and find tax return data in at least one year for 102,000 of them. On average the filers are slightly better off than the non-filers, as shown in columns 3 and 4 of Table 1. It is of course an unfortunate limitation to our research that we are unable to track a selected sample of survey respondents, but we believe that the low rates of attrition are the best data available for long range tracking of respondents in the US, and that our estimates are still noteworthy.

The first two columns in Table 2 compare the children of parents who owned versus the children of those who rented. Large differences in both adult outcomes (the top section, measured with tax data) and baseline (the bottom section, measured during childhood in the AHS) are evident. For example, self-reported family income for parents who owned was $125,500, and only $47,950 for renter families. Owner families also have higher education, live in larger, newer houses, rank their neighborhood highly, and are more likely to be married. We can control for these large differences between treated (owner) and control (renter) groups,

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but unobservable differences are likely large as well–clearly, this is not a randomized trial.

We also show a simple comparison of the national sample compared to the metro samples in Table 2. The metro sample is not a panel, but is chosen from around a dozen metro areas in a particular year, with any specific metro area not repeated within our timeframe[7]. On average, metro households have lower quality housing and lower incomes, but have less crowding and are more likely to have a college degree. Of course, they are more like to live in an urban area.

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[7] See the list of metro areas chosen in a particular year at `https://www.census.gov/programs-surveys/ahs/data.html`

Table 1: Summary Statistics: PIK, no-PIK & Tax Filers, Non-Filers

Variable	Has PIK	No PIK	IRS Filed	Never Filed
PQI	4.08	3.98	4.42	5.17
Family Income	$66,370	$51,900	$66,980	$50,630
Parents Owned Home	0.71	0.51	0.7	0.56
White non-Hispanic	0.68	0.5	0.68	0.54
Bedrooms	3.2	2.95	3.25	3.07
Bathrooms	2.04	1.86	2.09	1.84
People per Bedroom	1.46	1.69	1.46	1.54
College Degree	0.18	0.14	0.18	0.11
Urban	0.8	0.84	0.81	0.84
House Age	56.28	58.22	55.61	59.29
Built pre-1978	0.67	0.7	0.66	0.73
Single Family Detached	0.75	0.6	0.75	0.65
Abandonded Nearby	0.05	0.08	0.06	0.1
Neighborhood Rank High	0.41	0.36	0.39	0.35
Parents Married	0.73	0.65	0.7	0.55
Age in 2017	30.82	30.48	32.6	33.64
Female	0.49	0.48	0.5	0.34
N	190,000*	30,000*	102,000	8,700

Table shows average characteristics of those in the AHS with and without PIKs (with potentially more than one observation per person), and among those with PIKs (only one observation per person) those who filed taxes and those who did not.

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Table 2: Summary Statistics: Parent Owners/Renters & Metro/National Sample

Variable	Own	Rent	Metro	National
W2 Wages	$47,940	$33,430	$44,820	$40,720
1040 AGI	$78,050	$47,790	$71,130	$64,040
1098-Owner (Self)	0.26	0.14	0.23	0.21
1098-Owner (Couple)	0.4	0.32		
PQI	3.97	5.44	5.1	3.44
Family Income	$125,500	$47,950	$76,380	$88,950
Parents Owned Home	1	0	0.7	0.63
White non-Hispanic	0.76	0.47	0.67	0.65
Bedrooms	3.52	2.55	3.23	3.16
Bathrooms	2.33	1.50	2.12	1.96
People per Bedroom	1.36	1.76	1.42	1.61
College Degree	0.22	0.09	0.2	0.15
Urban	0.78	0.90	0.86	0.76
House Age	52.9	61.16	53.59	58.84
Built pre-1978	0.6	0.76	0.62	0.71
Single Family Detached	0.91	0.35	0.75	0.68
Abandoned Nearby	0.04	0.11	0.05	0.09
Neighborhood Rank High	0.43	0.29	0.4	0.36
Parents Married	0.82	0.45	0.72	0.66
Age in 2017	31.01	29.99	30.5	30.97
Female	0.49	0.50	0.5	0.49
N	92,500	45,500	84,500	53,000

Table shows average characteristics of those in the AHS whose parents owned houses vs. rented, and the National vs. Metro AHS samples. Top rows are recent tax data outcomes, all others are measured in AHS.

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4.1.1 Poor Quality Index

We use the AHS to calculate the Poor Quality Index for all households in the AHS over the last thirty years. We show summary statistics by race and ethnicity in Figure 4. The score has been decreasing for most groups (that is, housing quality has been improving). The relative ranking by race and ethnicity has changed in that Asian non-Hispanic households have surpassed white households and now have the lowest PQI. Other non-Hispanic households have had increasing PQI, though estimates seem to vary more from year to year, perhaps due to a relatively smaller sample size. Figure 5 shows the distributions of each of the seven sub-categories of PQI. The vast majority of observations have a score of zero in any given category, and XX% have an overall score of zero. Correlations across categories are generally high (XX to XX), and different constructions of the index such as including each sub-category of the index separately yield very similar results.

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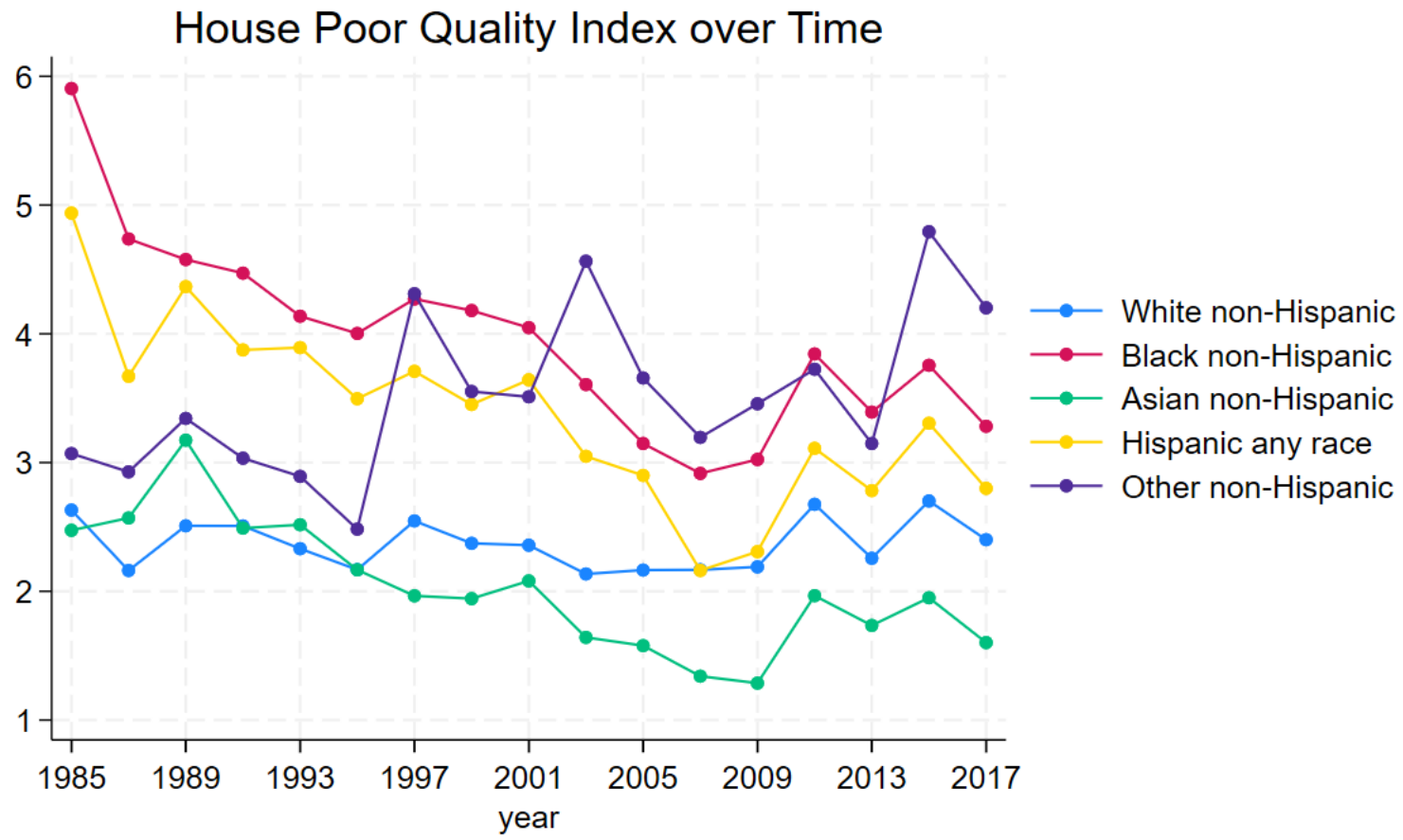


Figure 4: **Poor Quality Index Rates over Time** This chart shows the Poor Quality Index by race and ethnicity using AHS data.

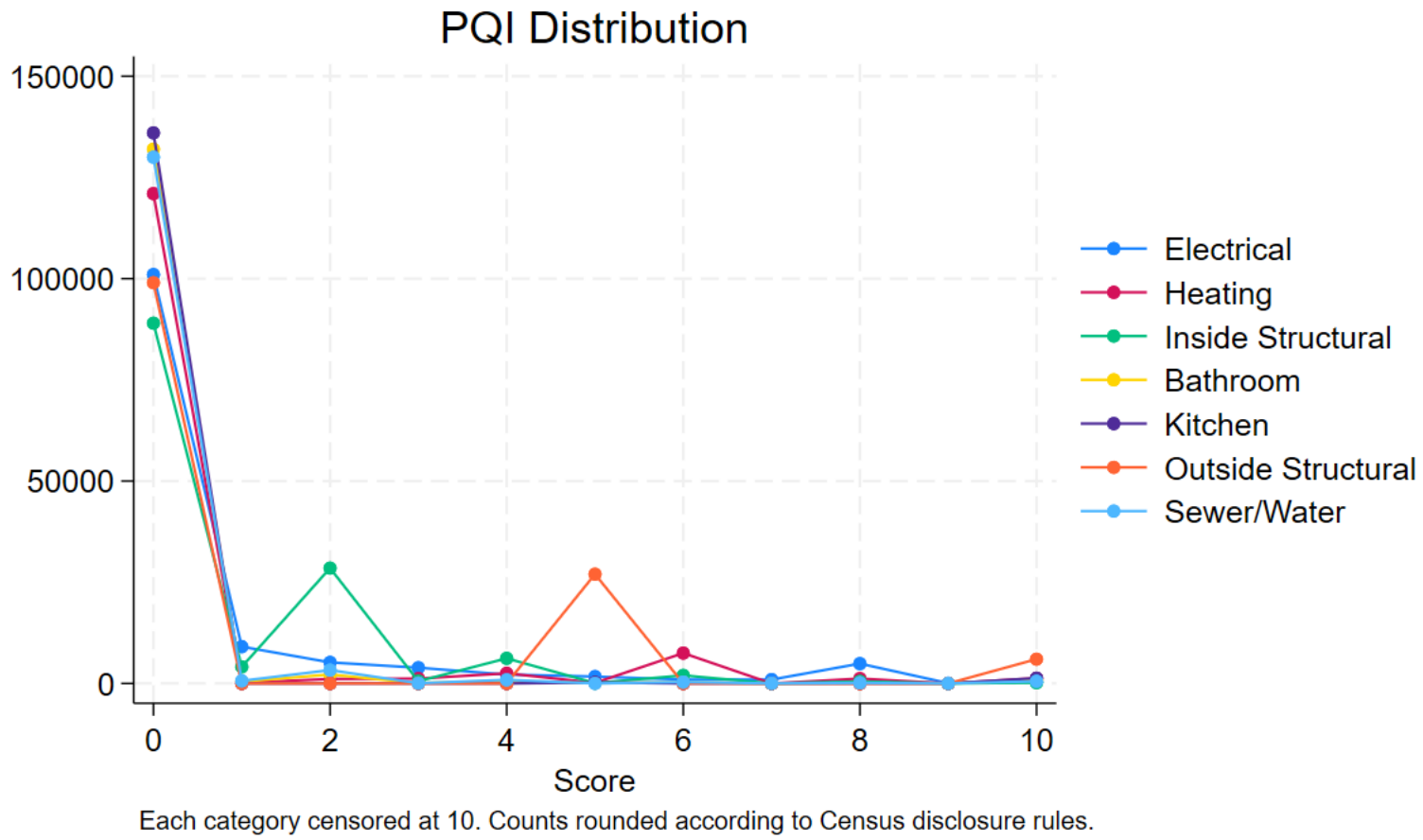


Figure 5: **Poor Quality Index Rates by Category** This chart shows the Poor Quality Index by category using 1985-2017 AHS data.

4.2 Ordinary Least Squares

Our most basic analysis is to regress recent (2016-2019) homeownership and income from W-2 and 1040 tax returns on 1995-2002 characteristics from AHS data. Controls include PQI, family income, rent control, race/ethnicity, number of bedrooms, number of bathrooms, crowding, household education, whether crime is considered bothersome, age of the house, whether it was built prior to 1978, the type of home (detached single family, attached, multi-family, mobile), urban/rural status, whether there are abandoned houses nearby, whether self-reported neighborhood feel is high or low, parents marital status, gender, and metro vs. national sample indicators.

The coefficient of most interest is that of parental homeownership when the subject was a child ('Parents Own' in tables). Since endogeneity is a large concern, we use the Oster [2019] method of coefficient stability and observable selection. The method uses how much the coefficient on treatment (and the R^2) change as controls are added to put bounds around the coefficient based on how much more the coefficient would change if somehow more controls were included (i.e. unobservables somehow became observable).

4.2.1 Adult Income

We find strong positive associations between growing up in a house your parents owned and later life income—parent ownership of one's childhood home is associated with \$4,300 to \$5,300 higher W2 wages as an adult. (See columns one to three of Table 3.) A one standard deviation worse quality house, as measured by PQI, is associated with \$700 lower annual wage earnings. Slightly larger differences are found using total adjusted gross income (AGI): \$7800 to \$9200. (See columns four to six of Table 3. Columns one through three use W2 wages, four through six use AGI).

Additionally, Appendix tables show results for wages with variation in the PQI measure, and variation in parent ownership mortgage status. In Table A1 we repeat the specifications for W2 wages using only the PQI measure of paint quality. The indicator of paint problems in the childhood home (perhaps the most likely indicator of exposure to lead paint, especially in homes built before 1978) is associated with more than \$11,000 lower W2 wages as an adult. This is an indicator variable that is not normalized, so direct comparison of the paint coefficient to the Z(PQI) coefficient is difficult. Appendix Table A2 shows

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Table 3: Parental Homeownership and Adult Income

	(1)	(2)	(3)	(4)	(5)	(6)
Outcome		W2 Wages			AGI	
Z(PQI)	–1479***	–606.3***	–735.2***	–2933***	–954.4***	–1255***
	[228.1]	[181.7]	[177.3]	[449.2]	[353.6]	[356.3]
Family Income		.0095**	.00738**		.0286**	.0266**
		[0.00417]	[0.00348]		[0.0120]	[0.0117]
Parents Own	13490***	5301***	4330***	28070***	9212***	7834***
	[878]	[498.1]	[492.5]	[1,844]	[1,162]	[1,137]
Controls		YES	YES		YES	YES
County FE			YES			YES
Observations	112000	112000	112000	116000	116000	116000
R-squared	.012	.051	.061	.007	.029	.034
Beta		–2543	–4696		–7904	–11330
Delta		.746	.567		.612	.488

Robust standard errors clustered at county level in brackets. Columns one to three use W2 wages as the outcome, and columns four to six use AGI. Beta and Delta are Oster (2019) statistics calculated using the treatment coefficient Parents Own.

similar W2 wage results but breaks down parental homeownership by mortgage status. After adding controls, parents having owned a home without a mortgage (i.e. owning it outright) is associated with slightly higher W2 wages than parents who owned with a mortgage—$6,000 higher wages compared to only $3,000 to $4,000 higher wages. Appendix regressions also show ln(AGI) as the outcome in Appendix Tables A3 and A4. They show parental ownership is associated with approximately a 26% increase in income.

Though these associations with wages and AGI are highly statistically significant, causality is unclear. Oster's method of partial selection correction tells us that if unobservables were equally correlated with treatment and outcome as the observables we include as controls, then the coefficients of interest would flip signs (coefficients in the 'Delta' row are negative), and that the unobservables would have to be 0.5 to 0.7 times as correlated with income and parent homeownership to drive the estimate to zero[8].

Of course, it is impossible to say how correlated unobservables might be, but having controlled for income and education as well as county fixed effects, we feel we control for some of the most important

[8]Oster's method requires an assumption regarding how much the R^2 would change with the addition of unobservable control variables. Based on data from randomized trials, Oster recommends a factor of 1.3, which is what we use throughout. Similarly, if one treats PQI as the main treatment variable rather than parental ownership, unobservables would have to be 0.9 to 1.7 times as correlated to drive the estimate to zero–see the last rows of Appendix Tables A1 and A2.

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measures of socioeconomic status. Therefore, it is likely that remaining unobservables are less correlated than those we already include. Still, since unobservables that are 0.5 to 0.7 times as correlated could drive some of the estimates to zero, and estimates with unobservables with equal correlation would make estimates in many specifications come out with the opposite sign, we conclude that there is not strong evidence of causality in the relationship between one's parents having owned a home and later income as an adult.

4.2.2 Adult Homeownership

The results are somewhat similar but perhaps slightly stronger for having a mortgage as an adult. Growing up in a home owned by your parents is associated with significantly higher rates of homeownership as an adult. Children whose parents owned their home are approximately 9 percentage points more likely (off a base of 32-40%) to own their home as an adult. The figure is slightly lower (7 percentage points) when we look only at the tax data to look at those who have mortgages and receive a 1098 in their own name (ignoring spouses) but over 9 percentage points when including spouses or those who either have a mortgage and receive a 1098 or those whose names appear in Black Knight property tax data. Partial selection correction shows that the effect would be near zero or slightly negative if unobservables are nearly as correlated with treatment and adult homeownership. In order to drive the estimate to zero, unobservables would generally have to be 0.8 to 1.0 times as correlated as the included controls. Unobservables with equal levels of correlation would produce coefficients in the opposite direction—slightly negative coefficients, on the order of 2 percentage points.

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Table 4: Parental Homeownership and Adult Homeownership

	(10)	(12)	(13)	(15)	(16)	(18)	(19)	(21)
Outcome	Mortgage (self)		Mortgage (couple)		Own No Mortage		Own - Any	
Z(PQI)	-.00858***	-.00572***	-.0135***	-.00776***	-.000623	-.000333	-.0141***	-.00809***
	[0.00115]	[0.00111]	[0.00174]	[0.00135]	[0.000601]	[0.000577]	[0.00176]	[0.00144]
Family Income		1.49e-08		2.2e-08		4.55e-09		2.65e-08
		[1.36e-08]		[1.59e-08]		[4.26e-09]		[1.78e-08]
Parents Own	.12***	.0661***	.18***	.0855***	.00664***	.00787***	.187***	.0933***
	[0.00680]	[0.00474]	[0.00962]	[0.00584]	[0.00101]	[0.00145]	[0.00982]	[0.00630]
Controls		YES		YES		YES		YES
County FE		YES		YES		YES		YES
Observations	123000	123000	123000	123000	123000	123000	123000	123000
R-squared	.019	.071	.033	.091	0	.011	.035	.088
Beta		.000621		-.0275		.00892		-.0238
Delta		1.006		.827		3.874		.86

Robust standard errors clustered at county level in brackets. Mortgage (self), columns 10 and 12 refer to the individual in question receiving a mortage interest 1098. Mortgage (couple), 13 and 15, is either spouse in the marriage receiving a 1098. Own No Mortgage is either individual appearing in deeds data. Own-Any is either spouse receiving a 1098 or appearing in the deeds data.

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Appendix results break out parental ownership by mortgage status and find similar results. (See Appendix Table A5 for details.) Parents having owned outright has similar coefficients as those for parents having had a mortgage, and children of those whose parents owned outright do not seem hugely influenced to own outright as adults themselves. The coefficient for parents owning with no mortgage on children later owning with no mortgage is 1.3 percentage points, while the coefficient for parents having a mortgage on children later owning outright is slightly larger 2.9 percentage points.

We have also conducted robustness exercises for both the income and ownership regressions using multiple observations per person, one per year (of up to four years) of tax data outcomes. This latter method is mechanically similar to our main results, where our outcomes are typically averages of the four years of tax data outcomes. Results are shown in Appendix Table A6.

4.3 Interactions

We interact the measure of parental ownership with a few variables of interest to investigate potential mechanisms. These include PQI, home price index, parental income, and race and ethnicity. The first three are shown in Table 5 and race and ethnicity interactions are shown in Table 6.

We find a significant positive coefficient on the interaction with PQI, implying that lower physical quality of homes is considerably less bad for homeowners than for renters. The coefficients in AGI regressions show $2000 lower incomes per standard deviation PQI for renters, but only $400 lower incomes for owners. The pattern is similar for ownership–the negative relationship is significantly smaller for children of owners.

Next we include a home price index, specifically the tract level home price index when the family moved out of the area divided by the index at the beginning of the study period, constructed from publicly available tract and county level historical home price data from the FHFA HPI. When included without an interaction this show a marginally significant extra $2000 AGI. When interacted both the base control term and the interaction are positive, indicating that parental home price growth increases later income, more for owners than renters, however both these terms are not statistically significant. Results with ownership as the outcome are more significant. The HPI coefficient by itself is very small and not significant. When the base term and the interaction are included, home price growth is associated with a small increased likelihood (.0094) for renters but negative (.0094-.0183) for owners.

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Interactions with parental income show that the average outcomes are slightly lower for children of owners than renters. With AGI as the outcome, each $10,000 of parental income is associated with $469 dollars of AGI as an adult, but interacting this with ownership reduces the coefficient by $206 for owners. However, the coefficient is not significant. With ownership as the outcome, the base coefficient is positive (.002) but the interaction term is negative and significant (-.0019)

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Table 5: Interactions and Adult Outcomes

Interaction	PQI	HPI	HPI	Income	PQI	HPI	HPI	Income
Outcome	AGI	AGI	AGI	AGI	Mortgage (Couple)	Mortgage (Couple)	Mortgage (Couple)	Mortgage (Couple)
Parents Own	7666***	7824***	4117	9137***	.0848***	.0851***	.129***	.0971***
	[1,145]	[1,145]	[3,606]	[1,816]	[0.00586]	[0.00592]	[0.0112]	[0.00765]
Family Income	266.5**	264**	262.1**	468.5**	.000221	.000223	.000245	.00204***
	[117.2]	[116.8]	[116.7]	[195.1]	[0.000159]	[0.000160]	[0.000165]	[0.000554]
Z(PQI)	–2003***	–1177***	–1175***	–1240***	-.0107***	-.00745***	-.00747***	-.00763***
	[380.9]	[354]	[353.8]	[353.4]	[0.00162]	[0.00136]	[0.00136]	[0.00135]
Z(PQI) x Own	1594**				.00641**			
	[781.4]				[0.00262]			
HPI Growth		1992*	1090			-.000979	.0094***	
		[1,171]	[734.2]			[0.00123]	[0.00304]	
HPI Growth x Own			1560				-.0183***	
			[1,565]				[0.00457]	
Family Income x Own				–206.3				-.00185***
				[227.6]				[0.000580]
Observations	116000	114000	114000	116000	123000	122000	122000	123000
R-squared	.034	.034	.034	.034	.091	.09	.09	.091
Controls	YES	YES	YES	YES	YES	YES	YES	YES
CountyFE	YES	YES	YES	YES	YES	YES	YES	YES

Robust standard errors clustered at county level in brackets. Outcomes are AGI, and Mortgage (Couple) which is either spouse receiving a mortgage interest 1098. Interactions are with Z(PQI), the FHFA Home Price Index, and family income from the AHS.

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Next we test race and ethnicity interactions, comparing non-Hispanic Blacks, Hispanics of any race, non-Hispanic Asians, and other non-Hispanics to non-Hispanic whites (the omitted group in the regressions) in Table 6. With AGI as the outcome, base coefficients are negative and significant for Blacks, and Hispanics, and positive and significant for Asians. The interaction terms is negative and significant for Blacks, implying that children of Black owners have a smaller increase in income because of parental ownership than whites.

Similarly in regressions with ownership as the outcome, the base coefficients are negative and significant for Black, Hispanics, and other non-whites. The interaction terms for Blacks and Hispanics are negative and significant, implying that the racial gap in homeownership is even larger for children of homeowners than it is for children of renters.

All together these interactions show a somewhat surprising mix of results. Racial gaps in income and ownership can be worse for children of minority owners than for children of minority renters. Owners of lower quality housing have smaller reductions in outcomes than children of renters in similar poor housing.

4.4 Within-Family Analysis

Next we attempt to use the panel nature of the data to resolve some of the obvious endogeneity concerns. We focus on comparing across siblings within a given family. Unobservable traits such as innate desire to own, motivation, ability, tradition, etc. are removed from the measurement to the extent they are equal across the siblings within a given family. Since different children in the same family live in parent-owned housing for different durations and at different ages, we attempt to use these differences and the panel structure of the data to tease out the effect of parental ownership on children later in life for a subsample of the data. Chetty and Hendren [2018] used this method to great effect in highly cited and influential papers on the effects of neighborhood quality. The AHS is a structure-level panel, meaning the survey interviews whomever lives in the house, and does not track respondents who move away from the chosen structure. This means we are limited in our ability to measure when and whether a child who moved out of the sampled home moved into a rental or parent-owned home. However, we use parents' tax data to construct a simple residential history for children in the sample—we measure how long the child stayed in the AHS home (we observe when their parents moved from tax data and if a new family moves into the surveyed home) but we cannot determine whether this move was to a rental or an owned home.

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Table 6: Race/Ethnicity Interactions and Adult Outcomes

Outcome	AGI	ln(AGI)	Mortage (Couple)	Own (Any)
Parents Own	8495***	.291***	.103***	.108***
	[1,543]	[0.0293]	[0.00786]	[0.00828]
Family Income	263.8**	.00187**	.000213	.000261
	[117.4]	[0.000756]	[0.000160]	[0.000179]
Z(PQI)	–1276***	-.0533***	-.00772***	-.00803***
	[350.6]	[0.00738]	[0.00135]	[0.00143]
Black NH	–25300***	-.635***	-.185***	-.192***
	[2,173]	[0.0477]	[0.0104]	[0.0106]
Black x Own	–4960**	.0339	-.0381***	-.0296**
	[2,268]	[0.0551]	[0.0114]	[0.0118]
Hispanic Any Race	–7278***	.0763*	-.0354***	-.0238**
	[1,954]	[0.0426]	[0.00863]	[0.00959]
Hispanic x Own	–3211	-.164***	-.037***	-.0322**
	[3,132]	[0.0492]	[0.0127]	[0.0130]
Asian NH	11040***	.338***	.04**	.0581***
	[2,681]	[0.0524]	[0.0157]	[0.0157]
Asian x Own	4802	-.267***	-.096***	-.097***
	[4,198]	[0.0575]	[0.0141]	[0.0150]
Other NH	–1990	-.153	-.061***	-.0584***
	[3,951]	[0.126]	[0.0194]	[0.0208]
Other x Own	24820	-.105	-.000968	-.000805
	[15,360]	[0.148]	[0.0236]	[0.0235]
Observations	116000	115000	123000	123000
R-squared	.034	.075	.092	.089
Controls	YES	YES	YES	YES
CountyFE	YES	YES	YES	YES

Robust standard errors clustered at county level in brackets. Outcomes are AGI, ln(AGI), Mortage (Couple) (whether either adult filer has a mortgage in their name) and Own (Any), either having a mortgage or either appearing in ownership deed data. NH means non-Hispanic.

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Our primary method of within-family analysis limits the sample to first-time homeowners, includes fixed effects for the family (not the structure) and controls for things that vary between siblings: number of siblings, birth order, and age (using fixed effects for year of birth to flexibly control for the age-earnings profile). We construct versions of the family ID and fixed effects, using both the self-reported year the home was purchased and the AHS' recent mover group variables, to test regressions with both.

The primary coefficients of interest in these regressions are for 'Born in Owned,' and 'Years in Owned,' which measure weather a child was born while their parents already owned their home, and the number of years that a child lived in that home before their parents moved from that home. There is some evidence of a golden window at very young ages for certain biological and nutritional interventions (see for example Cusick and Georgieff [2016]), so we investigate in a similar sense whether owning the home at the time of birth has positive effects on children later in life. If parental homeownership has a causal impact on children based on the amount of time children spend in the owned home relative to their siblings, or if homeownership improves child nutrition or health at birth in a way that carries over to adulthood, we expect these regressions to pick up evidence of the effects.

Neither of these methods show significant effects of being born in or living in homes one's parents owned relative to one's siblings, regardless of the outcome measured. Tables 7 and 8 each show three adult earnings outcomes and four homeownership outcomes. None of the main coefficients appear very large or practically meaningful. If anything, a few of the coefficients for being born into an owned home appear to be associated with a statistically significant 2 to 3 percentage point *decrease* in adult homeownership. (Women are generally associated with lower wages and lower likelihood of receiving a 1098 in their own name, but higher total family AGI or them or their spouse receiving a 1098, which is consistent with women marring at younger ages, which we observe in our sample.)

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Table 7: Fixed Effect Regressions of Birth into Home Parents Owned

	(1)	(6)	(11)	(16)	(21)	(26)	(31)
OUTCOME	Wages	AGI	ln(AGI)	1098	1098 Couple	Own No Mortgage	Own Any
Born in Owned	–481.5	1,125	–0.0685	–0.0269**	–0.0282**	0.00665	–0.0216*
	[2,028]	[4,839]	[0.0464]	[0.0121]	[0.0127]	[0.00493]	[0.0127]
Female	–15,270***	10,430***	0.129***	–0.173***	0.0469***	–0.00267	0.0443***
	[1,057]	[3,333]	[0.0236]	[0.00617]	[0.00639]	[0.00250]	[0.00638]
Older Siblings	YES	YES	YES	YES	YES	YES	YES
Family ID FE	YES	YES	YES	YES	YES	YES	YES
Birth Year FE	YES	YES	YES	YES	YES	YES	YES
Birth Order FE	YES	YES	YES	YES	YES	YES	YES
Observations	27,500	30,000	29,500	31,500	31,500	31,500	31,500

Notes: Robust standard errors in brackets. Sample includes first time home-buyers only.

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Table 8: Fixed Effect Regressions of Years in Owned Home

	(5)	(10)	(15)	(20)	(25)	(30)	(35)
OUTCOME	Wages	AGI	ln(AGI)	1098	1098 Couple	Own No Mortgage	Own Any
Years in Owned	–70.08	–278.4	0.00122	–0.000597	0.00145	0.000207	0.00166
	[275]	[790.5]	[0.00883]	[0.00190]	[0.00195]	[0.000836]	[0.00192]
Female	–15260***	10430***	0.13***	–0.173***	0.0471***	–0.0027	0.0444***
	[1,060]	[3,332]	[0.0236]	[0.00618]	[0.00639]	[0.00250]	[0.00638]
Older Siblings	YES	YES	YES	YES	YES	YES	YES
Family ID FE	YES	YES	YES	YES	YES	YES	YES
Birth Year FE	YES	YES	YES	YES	YES	YES	YES
Birth Order FE	YES	YES	YES	YES	YES	YES	YES
Observations	27,500	30,000	29,500	31,500	31,500	31,500	31,500

Robust standard errors in brackets. Years in owned defined using child birthdate and parent ZIP code in tax data.

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We have also run the analogous regressions using repeated values of the adult outcomes from each year of tax data. Results are shown in Appendix Table A7. Again, there seems to be no significant effects on an individual relative to their siblings. In some sense we do not find this that surprising—to the extent that homeownership is a path to wealth accumulation that can be passed on to the next generation, it seems very unlikely that parents would share that wealth proportionally based on how long each child lived in their owned home. However, if living in an owned home leads to more stability and better outcomes at school, we would have expected benefits to show up here.

In addition to this within-family analysis, we have conducted within-family-over-time analysis, which includes controls for changes in household characteristics. Focusing on the 1997, 1999, and 2001 years of the AHS where survey questions are the most consistent over time, we control for changes in householder education, marital status, and income, as well as changes to the household—changes in PQI, in bedrooms (or crowding), and bathrooms. While these changes themselves are constant across siblings within a family, we interact them with the age of each child at the time of the change to see whether our main coefficients of interest change. Results are shown in Table 9. We find that results are still small and not statistically different from zero.

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Table 9: Time Varying Characteristics of Parents Interacted with Child Age

	(4)	(12)	(20)	(28)	(36)	(44)	(52)
OUTCOME	Wages	AGI	ln(AGI)	1098	1098 Couple	Own No Mortgage	Own Any
Years in Owned	–227.8	45.39	0.00783	0.00209	0.0056	0.000711	0.00631
	[556.6]	[1,095]	[0.0136]	[0.00389]	[0.00399]	[0.00153]	[0.00405]
Female	YES	YES	YES	YES	YES	YES	YES
Differences* Age at Move-In	YES	YES	YES	YES	YES	YES	YES
Family ID FE	YES	YES	YES	YES	YES	YES	YES
Birth Year FE	YES	YES	YES	YES	YES	YES	YES
Birth Order FE	YES	YES	YES	YES	YES	YES	YES
Observations	5,900	6,300	6,300	6,800	6,800	6,800	6,800

Robust standard errors in brackets. Regressions include fixed effects, as well as controls for changes in home ownership, income, PQI, bedrooms, bathrooms, education, crowding, and marital status, each interacted with the age of the child at the time parents purchased home. Sample limited to those with repeated observations 1997, 1999, and 2001.

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5 Conclusion

Results show strong and statistically significant correlations between growing up in a parent-owned (versus rented) home and later life outcomes such as higher incomes and a higher likelihood of having a mortgage. Partial selection correction investigates the likelihood that these results are causal and finds that unobservables with similar levels of correlation between treatment and outcome as the many high-quality controls in the data could mean a true causal estimate would be zero.

We find similar evidence of a null result when investigating the causality question more thoroughly using within-family and within-family-over-time results and should be ready before the conference. Siblings who are born into a home their parents own, or who spend more years living in the home before their parents move, are no more likely than their siblings to own their own home as an adult, and they exhibit no higher earnings.

The US spends a large amount of money to subsidize homeownership, and the the causal effects of homeownership are hard to disentangle. Our method of sibling comparison method finds limited causal benefit, but has limitations. Further research should seek out additional methods to disentangle family and individual characteristics to determine to what degree public subsidies of homeownership are warranted.

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A Additional Results

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Table A1: Childhood Home Ownership, Quality, and Adult Wages

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
OUTCOME	Basic PQI Wages	Controls PQI Wages	FE PQI Wages	Interact PQI Wages	Basic Paint Wages	Controls Paint Wages	FE Paint Wages	Interact Paint Wages
Z(PQI)	–1479***	–636.2***	–732.1***	–1070***				
	[142.1]	[151.6]	[149.2]	[188]				
Paint Problem					–34270***	–11760***	–11750***	–8058
					[3,494]	[3,569]	[3,639]	[10,220]
Pre-1978*Paint Problem								–4182
								[10,850]
Family Income		0.0094***	0.00731***	0.00733***	0.0232***	0.00942***	0.00733***	0.00733***
		[0.00233]	[0.00201]	[0.00201]	[0.00407]	[0.00233]	[0.00201]	[0.00201]
Parents Own	13,490 ***	5,352 ***	4,400 ***	4,324 ***	11,810 ***	5,447 ***	4,512 ***	4,512 ***
	[378.1]	[411.2]	[423.4]	[423.9]	[467.6]	[410.4]	[421.9]	[421.9]
Z(PQI)*Parents Own				730.4***				
				[280.7]				
Controls		YES	YES	YES		YES	YES	YES
County FE			YES	YES			YES	YES
Observations	112,000	112,000	112,000	112,000	112,000	112,000	112,000	112,000
Beta-Own		–2465	–4606	–4798		–2297	–4400	–4400
Delta-Own		0.754	0.576	0.562		0.77	0.594	0.594
Beta-PQI		–72.42	–163.5	13.88		2005	2571	5843000
Delta-PQI		1.122	1.263	0.992		0.856	0.824	0.0563

Notes: Robust standard errors in brackets.

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Table A2: Childhood Home Ownership by Mortgage Status, Quality, and Adult Wages

	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
OUTCOME	Basic PQI Wages	Controls PQI Wages	FE PQI Wages	Interact PQI Wages	Basic Paint Wages	Controls Paint Wages	FE Paint Wages	Interact Paint Wages
Z(PQI)	–1454***	–615.3***	–711.1***	–1065***				
	[142.3]	[151.6]	[149.1]	[187.4]				
Family Income		0.00942***	0.00726***	0.00728***	0.0241***	0.00944***	0.00728***	0.00728***
		[0.00234]	[0.00201]	[0.00201]	[0.00418]	[0.00234]	[0.00201]	[0.00201]
Z(PQI)*Family Income				765.9***				
				[280.4]				
Paint Problem					–	–	–	–8,110
					37,130***	11,870***	11,810***	
					[3,503]	[3,570]	[3,635]	[10,210]
Pre-1978*Paint Problem								–4196
								[10,840]
Own with Mortgage	11,790***	4,082***	3,274***	3,231***	10,250***	4,151***	3,357***	3,357***
	[367.7]	[433.4]	[450.3]	[449.6]	[462.1]	[432.8]	[448.7]	[448.7]
Own no Mortgage	7,663***	6,094***	6,174***	6,131***	6,988***	6,179***	6,274***	6,274***
	[603.8]	[586.8]	[599.8]	[600.5]	[602]	[585.4]	[599.1]	[599.1]
Controls		YES	YES	YES		YES	YES	YES
County FE			YES	YES			YES	YES
Observations	112,000	112,000	112,000	112,000	112,000	112,000	112,000	112,000
Beta		–1250	–3024	–3110		–1123	–2867	–2868
Delta		0.814	0.596	0.586		0.832	0.615	0.615
BetaPQI		–43.97	–134.5	18.13		1854	2484	5896000
DeltaPQI		1.073	1.214	0.989		0.867	0.83	0.0567

Notes: Robust standard errors in brackets

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Table A3: Childhood Home Ownership, Quality, and ln(Adult Income)

	(33)	(34)	(35)	(36)	(37)	(38)	(39)	(40)
OUTCOME	Basic PQI ln(AGI)	Controls PQI ln(AGI)	FE PQI ln(AGI)	Interact PQI ln(AGI)	Basic Paint ln(AGI)	Controls Paint ln(AGI)	FE Paint ln(AGI)	Interact Paint ln(AGI)
Z(PQI)	–	–	–	–				
	0.0965***	0.0524***	0.0555***	0.0659***				
	[0.00688]	[0.00723]	[0.00741]	[0.0104]				
Family Income		0.0000002***	0.000000183***	0.000000183***	0.000000638***	0.000000202***	0.000000184***	0.000000184***
		[5.77e-08]	[5.23e-08]	[5.23e-08]	[1.12e-07]	[5.77e-08]	[5.23e-08]	[5.23e-08]
Parents Own	0.647***	0.286***	0.258***	0.255***	0.607***	0.294***	0.266***	0.266***
	[0.0139]	[0.0191]	[0.0194]	[0.0194]	[0.0163]	[0.0191]	[0.0194]	[0.0194]
Z(PQI)*Parents Own				0.0222				
				[0.0138]				
Paint Problem					–1.751***	–0.636***	–0.625***	–0.737
					[0.192]	[0.191]	[0.195]	[0.582]
Pre-1978*Paint Problem								0.128
								[0.616]
Controls		YES	YES	YES		YES	YES	YES
County FE			YES	YES			YES	YES
Observations	115,000	115,000	115,000	115,000	115,000	115,000	115,000	115,000
Beta-Own		–0.105	–0.168	–0.175		–0.0932	–0.155	–0.155
Delta-Own		0.796	0.688	0.678		0.82	0.714	0.714
Beta-PQI		–0.0235	–0.0258	–0.000777		0.0215	0.0605	180.1
Delta-PQI		1.733	1.755	1.008		0.968	0.914	0.109

Notes: Robust standard errors in brackets.

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Table A4: Childhood Home Ownership by Mortgage Status, Quality, and ln(Adult Income)

	(41)	(42)	(43)	(44)	(45)	(46)	(47)	(48)
OUTCOME	Basic PQI ln(AGI)	Controls PQI ln(AGI)	FE PQI ln(AGI)	Interact PQI ln(AGI)	Basic Paint ln(AGI)	Controls Paint ln(AGI)	FE Paint ln(AGI)	Interact Paint ln(AGI)
Z(PQI)	–	–	–0.055***	–0.067***				
	0.0942***	0.0518***						
	[0.00688]	[0.00723]	[0.00741]	[0.0104]				
Family Income		0.0000002***	0.000000183***	0.000000183***	0.000000669***	0.000000203***	0.000000184***	0.000000184***
		[5.81e-08]	[5.24e-08]	[5.24e-08]	[1.16e-07]	[5.81e-08]	[5.24e-08]	[5.24e-08]
Parents Own with Mortgage	0.587***	0.246***	0.223***	0.222***	0.552***	0.253***	0.231***	0.231***
	[0.0130]	[0.0165]	[0.0168]	[0.0168]	[0.0151]	[0.0165]	[0.0168]	[0.0168]
Parent Own no Mortgage	0.336***	0.239***	0.233***	0.232***	0.321***	0.245***	0.239***	0.239***
	[0.0169]	[0.0182]	[0.0187]	[0.0187]	[0.0173]	[0.0182]	[0.0187]	[0.0187]
Z(PQI)*Parents Own				0.0255*				
				[0.0138]				
Paint Problem					–1.871***	–0.642***	–0.631***	–0.758
					[0.191]	[0.191]	[0.195]	[0.582]
Pre-1978*Paint Problem								0.144
								[0.616]
Controls		YES	YES	YES		YES	YES	YES
County FE			YES	YES			YES	YES
Observations	115,000	115,000	115,000	115,000	115,000	115,000	115,000	115,000
Beta-Own		–0.0227	–0.0764	–0.0793		–0.0118	–0.0638	–0.0638
Delta-Own		0.938	0.804	0.797		0.968	0.836	0.836
Beta-PQI		–0.0226	–0.0251	–0.00317		0.0133	0.0523	182.8
Delta-PQI		1.703	1.732	1.031		0.98	0.925	0.112

Notes: Robust standard errors in brackets.

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Table A5: Childhood Home Ownership, Quality, and Adult Homeownership

	(51)	(67)	(83)	(99)	(59)	(75)	(91)	(107)
OUTCOME	County FE PQI Own with Mortgage (Self)	County FE PQI Own with Mortgage (Couple)	County FE PQI Own No Mortgage	County FE PQI Own Either	County FE PQI Own with Mortgage (Self)	County FE PQI Own with Mortgage (Couple)	County FE PQI Own No Mortgage	County FE PQI Own Either
Z(PQI)	–	–	–0.000345	–	–	–	–0.000351	–
	0.00571***	0.00782***		0.00817***	0.00565***	0.00768***		0.00803***
	[0.00111]	[0.00129]	[0.000531]	[0.00134]	[0.00111]	[0.00129]	[0.000531]	[0.00134]
Family Income	1.48E-08*	2.17E-08**	4.28E-09	2.59E-08**	1.48E-08*	2.13E-08**	4.17E-09	2.54E-08**
	[8.39e-09]	[1.01e-08]	[3.06e-09]	[1.10e-08]	[8.40e-09]	[1.02e-08]	[3.07e-09]	[1.10e-08]
Parents Own	0.067***	0.0864***	0.00796***	0.0943***				
	[0.00329]	[0.00382]	[0.00151]	[0.00395]				
Parents Own with Mortgage					0.0542***	0.0689***	0.00293**	0.0718***
					[0.00312]	[0.00358]	[0.00140]	[0.00367]
Parents Own no Mortgage					0.0624***	0.0882***	0.0131***	0.101***
					[0.00373]	[0.00421]	[0.00169]	[0.00429]
Observations	123,000	123,000	123,000	123,000	123000	123000	123000	123000
Beta	0.00214	–0.0262	0.00909	–0.0224	0.0165	0.000609	0.00471	0.00485
Delta	1.02	0.835	3.962	0.869	1.255	1.006	–6.178	1.048
BetaPQI	–0.00213	–0.00191	–0.000102	–0.002	–0.00204	–0.00171	–0.00011	–0.00182
DeltaPQI	1.533	1.294	1.379	1.296	1.508	1.262	1.411	1.267

Notes: Robust standard errors in brackets. Own with mortgage (self) means person recieves a mortgage interest 1098 in their own name. Own with mortgage (couple) means person or their spouse receives mortgage interest 1098. Own No Mortgage means that person appears as the owner of residential real estate in Black Knight real estate database. Own either implies either mortgage or Black Knight indicate ownership.

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Table A6: Linear Regressions with Repeated Observations

	(3)	(19)	(35)	(51)	(67)	(83)	(99)
	County FE PQI	County FE PQI	County FE PQI	County FE PQI	County FE PQI	County FE PQI	County FE PQI
OUTCOME	Wages	AGI	ln(AGI)	1098	1098 Couple	Own No Mortgage	Own Any
Z(PQI)	–708.2***	–1302***	–0.0341***	–0.00447***	–0.00668***	–0.00146***	–0.00813***
	[93.72]	[193.6]	[0.00301]	[0.000503]	[0.000598]	[0.000354]	[0.000650]
Family Income	0.00771***	0.0251***	0.000000168***	1.18E-08***	1.86E-08***	2.23E-09	2.09E-08***
	[0.00113]	[0.00375]	[2.49e-08]	[3.69e-09]	[4.63e-09]	[1.89e-09]	[5.21e-09]
Parents Own	4411***	7946***	0.2***	0.0586***	0.0787***	0.0133***	0.092***
	[264.2]	[587.6]	[0.00819]	[0.00149]	[0.00178]	[0.00103]	[0.00192]
Observations	410,000	410,000	408,000	495,000	495,000	495,000	495,000
Beta	–4736	–10700	–0.114	0.00619	–0.0188	0.00343	–0.0202
Delta	0.57	0.508	0.719	1.069	0.868	1.192	0.879
BetaPQI	–152.2	–149	–0.0148	–0.00157	–0.00172	–0.000654	–0.00236
DeltaPQI	1.251	1.119	1.675	1.487	1.315	1.717	1.37

Notes: Robust standard errors in brackets. Data includes up to four observations for each individual, one for each year of tax data outcomes 2016-2019.

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Table A7: Repeated Observation Fixed Effect Regressions of Years in Owned Home

	(4)	(8)	(12)	(16)	(20)	(24)	(28)
OUTCOME	Wages	AGI	ln(AGI)	1098	1098 Couple	Own No Mortgage	Own Any
Years in Owned	–48.35	–144.5	0.00268	–0.000305	0.00111	–0.000161	0.000944
	[156.1]	[428.3]	[0.00326]	[0.000764]	[0.000833]	[0.000497]	[0.000820]
Female	YES	YES	YES	YES	YES	YES	YES
Older Siblings	YES	YES	YES	YES	YES	YES	YES
Family ID FE	YES	YES	YES	YES	YES	YES	YES
Birth Year FE	YES	YES	YES	YES	YES	YES	YES
Birth Order FE	YES	YES	YES	YES	YES	YES	YES
Observations	147,000	152,000	151,000	175,000	175,000	175,000	175,000

Robust standard errors in brackets. Years in owned defined using child birthdate and parent ZIP code in tax data.

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