RESEARCH INSTITUTE FOR HOUSING AMERICA **SPECIAL REPORT**

MEASURING THE BENEFITS OF HOMEOWNING: EFFECTS ON CHILDREN REDUX

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INTRODUCTION

Fifteen years ago, Green and White (1997) published a paper in the *Journal of Urban Economics* that found that children of homeowners were more likely to stay in school and less likely to have children of their own by age 17 than children of renters.[1] We also found that longer tenure mitigates the adverse effect of renting, so that children of renters are more likely to stay in school if their families have lived in the same rental unit longer. Thus owning may produce better outcomes for children than renting in part because owners generally move less frequently than renters. Haurin, Parcel and Haurin (2002) reach a similar conclusion. Other studies, such as those by Aaronson (2000) and Barker and Miller (2009), argue that it is wealth accumulation by families that affects whether their children succeed, rather than whether families own versus rent.

A problem in attempting to determine whether parents' choice of renting versus owning explains their children's outcomes is the possibility of selection bias. While Green and White (1997) used an instrumental variables approach to correct for selection bias, such models depend on assumptions about appropriate instruments (Green and White instrumented for ownership using the relative cost of owning versus renting) and distribution functions. Aaronson (2000) and Barker and Miller's (2009) models ignore the issue by assuming that household wealth is independent of homeownership, yet for most families, home equity is a significant portion of their overall wealth.

It is not a stretch to think that, in the past, households who could obtain mortgages were more disciplined, had lower personal discount rates, and were more likely to raise children who stayed in school and avoided becoming pregnant. Mortgage underwriting before the past decade attempted to select households that were likely to repay; thus those that obtained mortgages were fundamentally different from those that were turned down. Part of the selection process was pernicious, since it involved redlining and discrimination by race and gender (Ross and Yinger, 2002). But most of the

1 The impetus for revisiting this work began with Richard K. Green, Essay on Homeowning, for UC-Irvine, MacArthur Foundation, Ford Foundation conference, "After the Fall," February 19–20, 2009.

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selection was not pernicious at all; lenders used all available information to predict which households could reasonably be expected to repay and offered mortgages only to this group. An important part of the selection process was requiring that purchasers provide a down payment, since purchasers who had "skin in the game" were less likely to default.

More recent research has begun to provide evidence that "skin in the game" at the outset of homeownership has an influence on behavior. Foote, Gerardi, and Willen (2008) found that when home purchasers invest even a small amount in their homes at the time of purchase, their chance of staying current on the mortgages increases even if their home equity later goes negative. Green, Rosenblatt, and Yao (2010) found similar results. Kelly (2008) shows that households who received external assistance for their down payments — either via gifts or assistance from a non-profit — are less likely to repay their mortgages even after controlling for LTV ratio. As Kelly notes, from a purely economic perspective, the source of the down payment should have no influence on behavior: only the presence (or absence) of equity should matter. Yet the results suggest that whether homeowners save for their own down payments affects whether they default on their mortgages. This may be because the act of saving is part of the set of behavioral changes that makes homeowners into better parents.

In this paper, we extend this line of research to examine whether and to what extent the amount of homeowners' down payments affects their children's outcomes. This will allow us to develop evidence for (1) whether higher down payments are a mechanism through which homeownership benefits children, and (2) whether sunk costs influence behavior. We also revisit — with much improved data — the questions of whether children benefit when their parents own versus rent and whether children of renters benefit when their parents have longer tenure in the same housing unit.

We find that children of homeowners have better outcomes than children of renters whether their parents make a large or small initial investment in their home, as long as they make a minimal down payment when they buy their homes. Children with parents who made no down payment have similar outcomes to children of renters. The effect of homeownership holds up under myriad specifications, measuring initial housing investment as either an LTV ratio or a down payment dollar amount, and controlling for parent and family characteristics and geographic and year fixed effects.

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MOTIVATION

We chose child outcomes for measuring the benefits of homeownership for two reasons. First, because children typically do not choose whether they grow up in owner or rental households, the choice of ownership is exogenous to them.[1] Second, we have reason to believe that child outcomes have external effects on the economy, and we therefore think that policy that produces "good" outcomes is desirable.

In Green and White (1997), we posited why children of homeowners might have better outcomes than children of renters:

> **How might parents' decisions to own versus rent affect their children's behavior? One possibility is that when people own their own homes, they invest in do-it-yourself skills by learning to do some maintenance jobs themselves and they also learn financial skills since they must meet the cost of unexpected home repairs. Homeowners also may learn interpersonal skills by hiring professionals such as plumbers and roofers or by pestering City Hall to provide better services. The learning-by-doing model suggests that the cumulative experience of maintaining a house may cause homeowners to become better managers. Further, these skills may be transferable, so that as homeowners learn to better manage their home environments, they may also take better care of their children. In contrast, renters are rarely forced to manage their home environments, so they are less likely to acquire these transferable skills.**
>
> **Another difference between homeowners and renters is that homeowners have a larger financial stake in their neighborhoods, because most of their wealth is tied up in their residences. Bad behavior by children (their own or their neighbors') may reduce the attractiveness of the neighborhood and threaten the value of their homes. Thus homeowners have a stronger incentive than renters to monitor their own children and their neighbors' children and prevent them from engaging in behavior which would threaten**

1 This does not solve the problem of omitted variable bias, which we discuss later in the paper.

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housing values. This provides an alternate mechanism through which homeowning may cause better outcomes for children. In addition, homeowners have higher moving costs and tend to remain in the same neighborhoods longer than renters.

The difficulty, of course, is that parents who own homes might be different from the beginning than parents that rent. Because both learning and innate characteristics are unobservable, it is difficult to develop an empirical strategy that differentiates one from the other. If one uses regression techniques with long lists of explanatory variables, a significant coefficient on home-owning could reflect the learning or the innateness.

Haurin, Parcel and Haurin (2002) posit other potential mechanisms through which homeownership could produce good outcomes. First, they note that homeowners do not face principal-agent issues with respect to maintenance, while landlords and renters do. This means that children of homeowners will more likely be in properly maintained homes — homes that, for example, do not have lead paint. Haurin, Parcel and Haurin also note that homeowners tend to have higher self-esteem, and this self-esteem could be reflected in better outcomes for children.

We should note that a number of papers have examined the impact of all manner of things on stay-in-school rates and teen birth rates. With respect to dropout rates, work by Eckstein and Wolpin (1999) shows that youths have "traits" that lead to dropping out, and once these traits are controlled for, parental characteristics have a non-significant impact on dropping out. The traits include "lower school ability and/or motivation, lower expectations about the rewards from graduation, and a comparative advantage at jobs that are done by non-graduates." We note here that Haurin, Parcel and Haurin found that homeownership was associated with children having higher levels of cognition and fewer behavioral problems. We also note that it is only recently that papers have been looking at associations between tenure choice and educational outcomes.

As to teen motherhood, we similarly find that there has been relatively little literature on the relationship between ownership and outcomes. A recent survey piece by Kearney and Levine (2012) doesn't mention tenure; the papers discussed in the analysis generally contain fewer explanatory variables for teen motherhood than the analysis we will present below.

Our unique contribution in this paper is differentiating the impact of financial commitment to a home from the impact of tenure in a home. So far as we know, we are the first to examine the impact of down payment size on child outcomes. Our hypothesis is that a larger down payment represents a stronger commitment to a house, a neighborhood and a school district. While down payments are a sunk cost, Kahneman and Tversky (1996) have shown that households are not indifferent to such costs, because of framing. A household's frame of reference is the amount of money it has invested in the home. When households have little to no money invested, the consequences of default seem smaller than they do for households that have invested substantial capital. Because one of the channels through which

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homeownership might benefit children is stability, financing arrangements that are more likely to lead to default and foreclosure undermine the channel. We will indeed show that children of parents who shift from renting to owning and then back to renting do not have as favorable outcomes as children of parents who become and remain owners. But we also show that children of homeowners with any down payment have better outcomes than children of renters, while children of owners with no down payment have the same outcomes as children of renters. Finally, we show that controlling for length of parents' tenure, the beneficial effect of homeownership on children tends to be short-term.

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DATA

The principal data we use is the geo-coded version of the Panel Survey of Income Dynamics (PSID). The data from the PSID are well-suited to this analysis because we have detailed information on individual children's outcomes, their parents' socioeconomic characteristics, characteristics of their households including housing and non-housing wealth and information on local housing-market conditions. Because the PSID started in 1968, we have this information over many years. Previous analyses have not been able to combine all of these features. The PSID started in 1968 with a sample of approximately 18,000 individuals in 5,000 households, but additional households were added over time as children moved out and established independent households. Our sample covers the period 1980–2007 and, by the end of the period, the survey had expanded to include about 23,500 individuals in more than 8,000 households.[1] The survey was conducted every year from 1968 to 1997 and every second year thereafter.

The unit of observation for our analysis is children at age 17. Since the PSID is a longitudinal panel, we are able to link children with past and present family and parental characteristics. Though we measure outcomes for 17-year-olds starting in 1980, we are able to use information from PSID surveys going back to 1968 to compute variables such as the down payment at the time the family purchased the home, the last time the family moved and the number of years that the child lived in an owner-occupied home.

Parental characteristics are especially important for child outcomes, and the PSID contains excellent demographic, socioeconomic and housing-related variables. Our parental demographic and socioeconomic variables include age, education, race, marital status, income, family size and whether parents were employed. Our housing-related variables include whether parents owned or rented, the year in which parents moved to their current dwelling, and, if the parents own, the current value of the house and the remaining mortgage principal. All of these variables are available for every survey year.[2]

1 Our data ends in 2007 (the very beginning of the housing crisis), but we have just obtained data up to 2009 that we will incorporate in later research. Given that we have 28 years of data already, however, we would be surprised if adding two years would substantially change our coefficients.

2 We use the PSID's Family Identification Mapping System (FIMS) to merge data on children with data on their parents. The FIMS provides identification codes for each family member by the type of relationship (e.g. biological parent, non-biological parent, biological grandparent, full sibling, half sibling). This system ensures that we can accurately link parents and children, regardless of whether children still live with their parents or have formed independent households.

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We calculate down payments and LTV ratios using the house value and the remaining mortgage principal in the year households moved to their current homes.[3]

The PSID also provides detailed household income[4] and wealth information, which are important for understanding both parents' tenure choice and children's outcomes. The PSID questions concerning income are asked in every survey year. The PSID questions concerning financial wealth include the amount of cash held in checking and savings accounts, the value of stock in publicly-held corporations, and the value of retirement accounts. These questions were asked in the years 1984, 1989, 1994, 1999, 2001, 2003 and 2005. Because financial wealth data are not available every year, we exclude them from the analysis before 1984. After 1984, we impute financial wealth using a linear trend in the years when data is not available.[5]

The 27-year sample period of our data (1980–2007) enables us to observe the impact of homeownership under various macroeconomic and policy conditions. During the early part of the survey period, the primary way that households could have purchased homes without making sizeable down payments would have been through FHA programs. In the later period, the growth in automated underwriting and the subprime market allowed many more households to purchase homes without making down payments.

Descriptive Statistics

We are satisfied that the PSID has adequate numbers of observations of homeowners at different LTV levels and down payment amounts to allow us to draw inferences, with the possible exception of homeowners with LTV ratios greater than 97 percent, which constitute only six percent of our weighted sample (two percent of our sample have mortgages with LTV ratios over 100 percent).

Cross-tabulations reveal some surprises: for example, the difference between average tenure length for homeowners with high versus low LTV ratios is less than half a year. The average tenure length is actually longer for homeowners whose LTV ratios at purchase exceed 95 percent than for homeowners whose LTV ratios at purchase are less than 95 percent. But if we compare homeowners whose LTV ratios at purchase are above versus below 80 percent, we find that those with LTV ratios below 80 percent stay in their homes longer.

Descriptive statistics are presented in Table 1. Keep in mind that the descriptive statistics are only for households with a 17-year-old child in the home (the left-hand columns) or a 17-year-old daughter

3 Several data issues should be noted. First, the remaining mortgage principle is not available for 1973–1975 and 1982, but is available for all other survey years. Though we can impute principal remaining for those gaps using a linear trend, families that purchased their homes during gap years will have missing LTV ratios since we calculate the LTV ratio in the year of purchase. Second, the remaining mortgage principle is self-reported and, as such, it is often inaccurate. Finally, it is sometimes difficult to match the year the family moved in with the house value and the mortgage principal — sometimes the move is recorded in one year and the house value or the remaining principle amount is recorded in the next, or vice versa.

4 We are using one-year income as our explanatory variable. We have also run models using average income over five years — the impact on our featured results was minimal.

5 These data have been found to be of high quality and correspond well with the wealth data from the Survey of Consumer Finance and from the Health Retirement Study (Juster, Smith, and Stafford, 1999).

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in the home (the right-hand columns). This explains why some means — such as the homeownership rate — vary from the population of households.

Table 1

Descriptive Statistics: Weighted Means for 17-Year-Olds in the 1980–2007 PSID

Tenure Categories *Variable*	Dropout by 17 Sample *Mean*	Mother by 17 Sample *Mean*	Controls *Variable*	Dropout by 17 Sample *Mean*	Mother by 17 Sample *Mean*
Dropout at 17	0.051	—			
Mother at 17 (for females)	—	0.087			
Homeownership	0.740	0.732	Length of tenure	7.741	7.543
Loan-to-value ratio for homeowners			Family income	$86,062	$89,046
Below 80%	0.416	0.412			
80-89%	0.081	0.088	Family financial wealth‡	$218,481	$222,436
90-94%	0.035	0.028			
95-96%	0.010	0.011	**Parental educational attainment**		
97% and greater	0.046	0.043	Less than high school	0.151	0.160
LTV missing†	0.154	0.153	High school graduate	0.363	0.357
			Some college	0.236	0.230
Down payment for homeowners			Bachelor's degree and above	0.249	0.253
$0 or less	0.012	0.010			
$1 to $10,000	0.092	0.091	Parental employment	0.931	0.930
Over $10,000	0.487	0.482			
Down payment missing†	0.152	0.152	Family size	4.181	4.169
Tenure and length of tenure combined			**Parental marital status**		
Rent, below average length of tenure	0.170	0.175	Married	0.706	0.705
Rent, above average length of tenure	0.090	0.093	Single	0.040	0.039
Own, below average length of tenure	0.409	0.414	Divorced or separated	0.174	0.176
Own, above average length of tenure	0.330	0.318	Widowed	0.032	0.033
			Remarried	0.047	0.047
When home purchased*					
Rent, never owned home	0.114	0.117	**Race**		
Rent, previously owned home	0.147	0.151	White	0.792	0.807
Own, back and forth rent and own	0.159	0.145	Black	0.152	0.143
Own, bought when child aged 12 to 17	0.054	0.052	Other	0.055	0.050
Own, bought when child aged 6 to 11	0.068	0.065			
Own, bought before child aged 5	0.459	0.470	Parent had first child before 17	0.160	0.163
Observations	5,439	2,626	Observations	5,439	2,626

† Children with families who have not moved since they entered the PSID sample are missing LTV and down payment information, but are also children of homeowners.

* The sample is slightly smaller for the when purchased categories because in a few cases this could not be determined.

‡ Family financial wealth does not include housing equity, and it is only available from 1984 onward, so this mean is based on a slightly smaller number of observations: 4216 for the dropout by 17 sample and 2009 for the mother by 17 sample.

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We next present a series of graphs showing differences in household characteristics between owners versus renters. The bars are sample means; the lines are confidence intervals around those means. Figure 1 shows that the dropout rate for children of renters is, at 11.7 percent, more than four times higher than the dropout rate for children of owners. Children of multifamily renters are even more likely to dropout than children of single-family renters, but by only by a small amount. The comparisons across children of owners with varying LTV ratios are surprising — dropout rates are fairly constant across LTV levels and, in many cases, children of owners with higher LTV ratios are slightly less likely to drop out than children of owners with lower LTV ratios. Only when we divide households by whether their LTV ratios are below or above 97 percent do we find that dropout rates are higher for children of owners with higher LTV ratios, and even then the differences are quite small.

With respect to teen motherhood, illustrated in Figure 2, we find that the difference between children of owners versus renters is quite similar to the results for dropping out — 17-year-old girls from rental households are about four times more likely to have had a child by age 17 than girls from owner households. Now, however, LTV ratios work in the direction we expect — children whose parents purchased their homes with higher LTV ratios are more likely to have had a child than children whose parents had lower LTV ratios.

Figure 1

Average Dropout Rates for 17-Year-Olds by Tenure and Loan-to-Value Ratio, 1980–2007 PSID

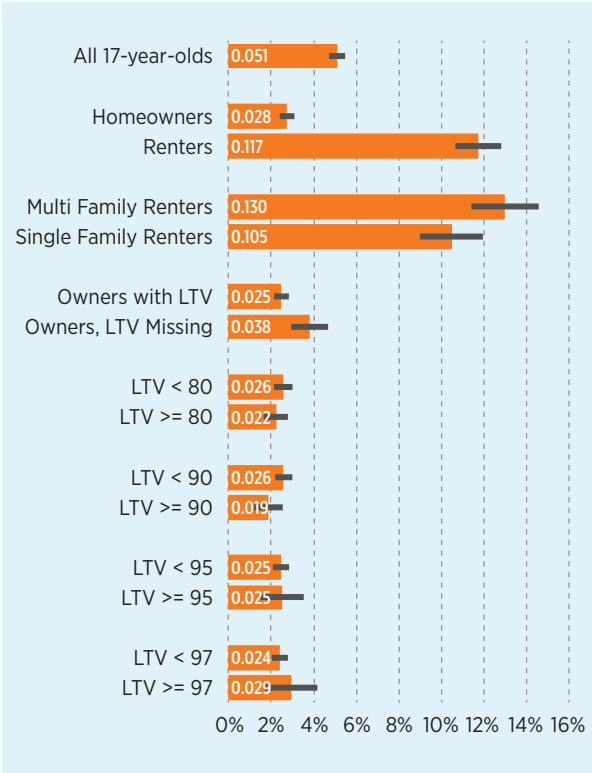
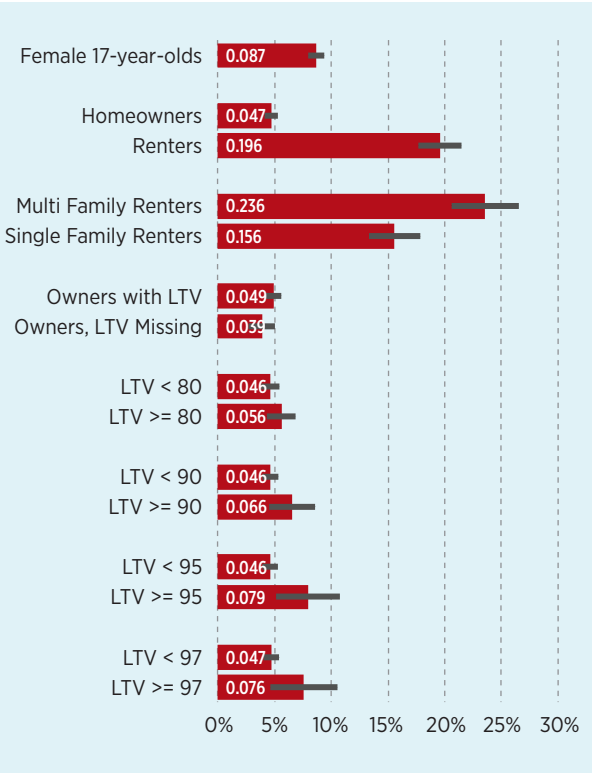


Figure 2

Average Teen Motherhood Rates for Female 17-Year-Olds by Tenure and Loan-to-Value Ratio, 1980–2007 PSID



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Figures 3 and 4 examine relationships between Type of tenure, size of down payment and length of tenure and high school dropout rates and motherhood rates for 17-year-olds. Not surprisingly, and consistent with a host of other literature, length of tenure is also associated with better child outcomes: children of households with higher average tenure length are less likely to drop out of high school and less likely to have children of their own as teenagers. This relationship applies to children of both owners and renters and to children of owners with both higher and lower LTV ratios.

Figure 3

Average Dropout Rates for 17-Year-Olds by Length of Tenure, Tenure and Loan-to-Value Ratio, 1980–2007 PSID

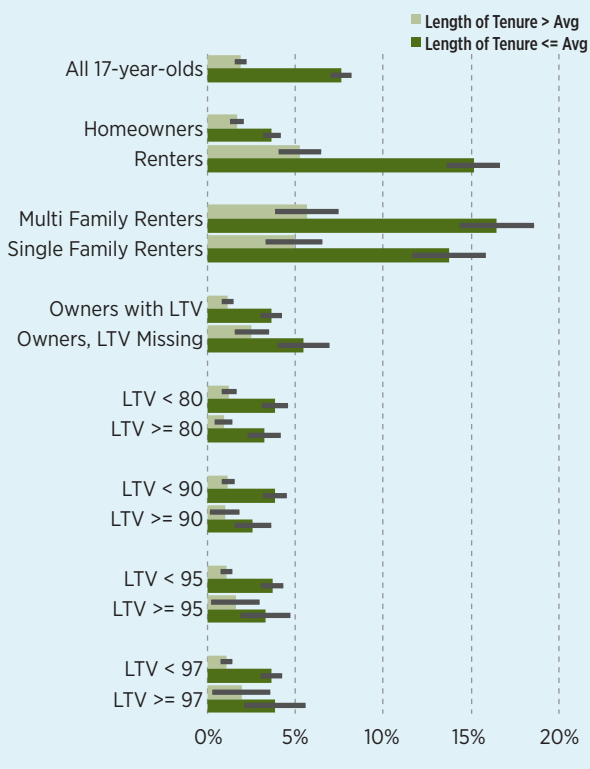
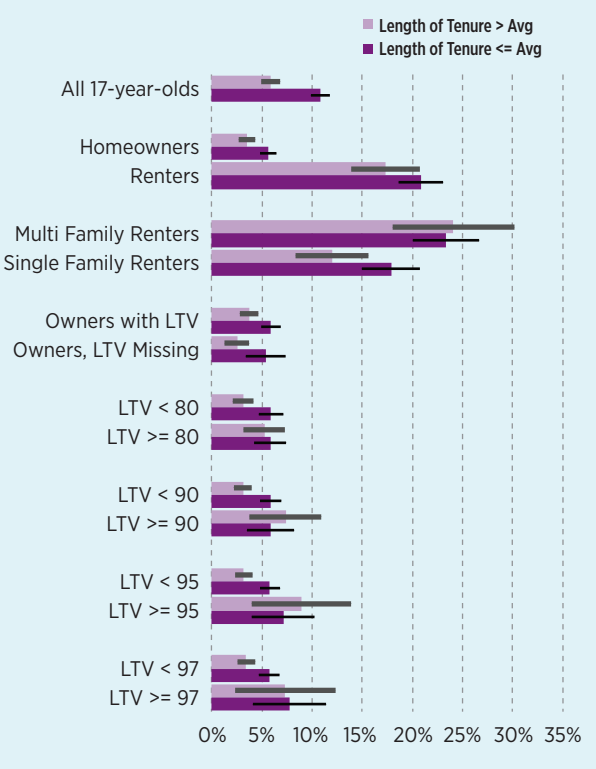


Figure 4

Average Teen Motherhood Rates for 17-Year-Olds by Length of Tenure, Tenure and Loan-to-Value Ratio, 1980–2007 PSID



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METHODS

We begin by estimating models showing how owning a home or putting down a smaller versus larger down payment when purchasing a home can help predict child outcomes. Our child outcomes variables are whether children have dropped out of school by age 17 and whether daughters have had a child of their own by age 17. For the latter outcome, we restrict our sample to girls, because data on whether boys have fathered a child are likely to be incomplete. Because our child outcome variables are dummy variables that take values of either zero or one, we use *probit,* which is a common nonlinear regression technique used to explain variables that take this form. (*OLS* should not be used to explain zero-one variables, since the predicted values may take values outside the zero-to-one range.) Our main explanatory variables are two dummy variables that divide parents into three categories based on the level of initial investment in their homes: homeowners who purchased their homes with high down payments, homeowners who purchased their homes with low down payments, and renters. We investigate several cutpoints defining the break between high versus low down payment levels.

We begin by re-estimating the same model used in Green and White (1997), a probit model that explains children's outcomes as a function of whether their parents own versus rent. We use the same data as the original Green and White paper, but we benefit from the fact that we now have a much longer dataset — covering 1980 to 2007 instead of 1980 to 1987. We then extend the model beyond considering the effects of owning versus renting to considering whether the size of homeowners' down payments when they purchase their homes plays a role in child outcomes. Initial investment in a home can be measured by the dollar amount of the down payment or the LTV ratio. We test whether children's outcomes differ depending on whether their parents have LTV ratios above or below 80 percent, 90 percent, 95 percent and 97 percent. We also test whether children's outcomes differ depending on whether their parents paid down payments of different dollar amounts.

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We also consider several econometric issues that could affect the reliability of the results. One is the spurious correlation problem, which could arise if parents' tenure choice and children's outcomes are both influenced by some third variable such as parents' income or education. In this case, we would find an association between tenure choice and children's outcomes simply because both are influenced by the third variable, rather than because tenure choice itself influences children's outcomes. Therefore, any reasonable attempt to link tenure choice to child outcomes must involve using a long list of control variables to take account of variables that could be responsible for spurious correlation. Adding these control variables is likely to reduce the impact of tenure choice on child outcomes, but not necessarily eliminate it.

Another possible econometric problem is selection bias. To illustrate, suppose some parents are Type A and some are Type B, but parental Type is not measured in the data. If Type A parents are better organized and/or more patient, then they will be in a better position to buy a home — all else equal — and they will also be better at making sure their children stay in school. Similarly, if Type B parents are less organized and less patient, then they will be less likely to buy a home and less effective in keeping their children in school. Thus, even if tenure had no impact on child outcomes, it might appear to do so because it is associated with whether parents are Type A or Type B. The same considerations could also apply to the effect of having a high versus low down payment on child outcomes, since parents who made large down payments are more likely to be Type A and parents who made low down payments or never became homeowners are more likely to be Type B.

One method commonly used to correct for this problem is an instrumental variables approach. If a variable is correlated with tenure or down payment size, but not correlated with child outcomes, then we can use the variable to determine how tenure choice purged of the influence of parent characteristics affects child outcomes.[1]

Green and White (1997) used the relative user cost of owning versus renting as an instrument for tenure choice. We take a slightly difference tack here: we use the NBER TAXSIM model to determine marginal tax rates for each household, and then use the state average marginal tax rate as an instrumental variable. The reason for this is that the marginal tax rates create variation across states in the after-tax cost of owning. The relative after-tax cost of owning predicts the likelihood of owning,[2] but is presumably exogenous to individual households. Consequently, it qualifies as a potentially good instrument. See Appendix I for model specification.

1 For classic treatments of modeling self-selection, see Maddala (1983) and Heckman (1979).

2 See user cost and tenure choice literature (e.g., Rosen, 1979; Hendershott, 1980; Hendershott and Slemrod, 1983; Poterba, 1984).

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RESULTS

Probit Regressions

We begin by re-estimating the same models as Green and White (1997), but using our much longer dataset. Table 2 gives the results of probit models explaining the effect of homeownership on whether children drop out of school by age 17 and whether girls give birth by age 17. We begin with the dropout results and follow with teen motherhood results.

The results from a basic probit explaining dropout behavior are quite similar to those from the original Green and White (1997) paper. Homeownership by parents is negatively related to whether children drop out and the relationship has a statistically significant and economically important impact — children of homeowners are 2.6 percentage points less likely to drop out than children of renters. Homeownership by parents is also negatively and significantly related to whether daughters have a child by age 17, and the relationship is again economically important, reducing the probability of child bearing by 5 percentage points (see Table 3 for marginal effects). The other coefficients behave largely as expected: longer household tenure in the housing unit is associated with lower dropout rates. Higher parent education and having an employed parent in the household are also associated with lower dropout rates. But perhaps surprisingly, children who live in larger households are less likely to drop out. We do not find a significant impact of parents' marital status, family income, race or age of the mother at the time the child was born on dropout rates. The results are qualitatively similar whether we use PSID weights (the results presented here) or not (although family income is a significant predictor of dropping out in the unweighted regressions, and the PSID oversamples low-income families).

To make sure our results in Table 2 do not reflect some unobserved relationship between tenure choice and geography, or between tenure choice and year, we reran the same regressions including census division fixed effects, state fixed effects and year fixed effects. The coefficients for both the stay-in-school and the childbearing equations remained substantially the same.

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Table 2

Effects of Homeownership on Whether Children Drop Out of School and Whether Girls Give Birth by Age 17

DV:	Dropout by 17	Mother by 17
Homeowners (referent: renters)	−0.296**	−0.383**
Length of tenure	−0.042***	−0.010
Family income	−0.015	−0.046
Parental educational attainment (referent: < HS graduate)		
High school graduate	−0.302**	−0.121
Some college	−0.481***	−0.044
Bachelor's degree and above	−0.794***	−0.735**
Parental employment	−0.292*	−0.382*
Family size	−0.119***	0.084**
Parental marital status (referent: parents married)		
Single	0.115	−0.256
Divorced or separated	−0.019	0.172
Widowed	0.191	0.225
Remarried	0.316	0.205
Race: Black (referent: White or Other)	−0.083	0.299**
Parent had first child before 17	0.065	0.218
Constant	−0.075	−0.804**
Observations	5439	2626

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

Loan-to-Value Ratio

Table 3 reports the results of running the same regression as shown in Table 2, except that the own-versus-rent variable is replaced by a series of variables measuring the size of parents' investments in their homes at the time of purchase. These regressions examine the effect of parents' home equity levels when they purchased their homes on children's outcomes (rather than simply the effect of owning versus renting). These are the featured results in our paper.

We define four sets of dummy variables that measure parents' home equity levels. In the first, a dummy variable equals one if parents' LTV ratio at the time of purchase was below 80 percent (a higher initial investment in the home) and another dummy variable equals one if parents' LTV ratio was above 80 percent (a lower initial investment). The omitted category is parents who were renters. In the second model, the dummy variables are the same except that the LTV ratio cutpoint is below versus above 90 percent. In the third, the LTV ratio cutpoint is below versus above 95 percent and in the fourth, the LTV ratio cutpoint is below versus above 97 percent. For each set of dummy variables, we run separate probit regression models explaining whether children drop out of school and whether girls give birth by age 17. In all regressions, we also include a separate dummy variable for parents

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Table 3

Summary of the Effects of Homeownership, Loan-to-Value Ratio, and Down Payment on Whether Children Drop Out of School and Whether Girls Give Birth by Age 17

	DV: Dropout by 17			DV: Mother by 17		
Coefficients for control variables not shown.†	Coef.	Marg. Eff.	Obs.	Coef.	Marg. Eff.	Obs.
Homeowners (referent: renters)	−0.296 **	−0.026 **	5439	−0.383 **	−0.050 **	2626
Loan-to-value ratio categories for homeowners (referent: renters)						
LTV <80	−0.305 **	−0.026 **	5439	−0.331 *	−0.043 *	2626
LTV >80	−0.419 **	−0.037 **		−0.346 *	−0.044 *	
LTV missing‡	−0.143	−0.015		−0.519 **	−0.066 **	
LTV <90	−0.301 **	−0.026 **	5439	−0.336 *	−0.043 *	2626
LTV >90	−0.540 **	−0.048 **		−0.334	−0.043	
LTV missing	−0.143	−0.015		−0.519 **	−0.066 **	
LTV <95	−0.330 **	−0.029 **	5439	−0.343 *	−0.044 *	2626
LTV >95	−0.427 *	−0.038 *		−0.293	−0.038	
LTV missing	−0.145	−0.015		−0.521 **	−0.067 **	
LTV <97	−0.341 **	−0.030 **	5439	−0.338 *	−0.044 *	2626
LTV >97	−0.349 *	−0.031		−0.317	−0.041	
LTV missing	−0.146	−0.015		−0.520 **	−0.066 **	
Down payment amounts for homeowners (referent: renters)						
Down payment $0 or less	0.002	0.000	5439	0.150	0.019	2626
Down payment $1 to $10,000	−0.494 **	−0.044 **		−0.221	−0.029	
Down payment > $10,000	−0.304 **	−0.027 **		−0.399 **	−0.052 **	
Down payment missing‡	−0.163	−0.015		−0.522 **	−0.067 **	

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

† Control variables include length of tenure, family income, parental educational attainment, parental employment, family size, parental marital status, race, and whether parents had their first child before the age of 17.

‡ Children with families who have not moved since they entered the PSID sample are missing LTV and down payment information, but are also children of homeowners.

with missing LTV ratio information.[1] The omitted category in all regressions is households in which parents were renters.[2]

The results in Table 3 show only the coefficients and marginal effects for the LTV variables (so that each group of LTV coefficients / marginal effects is from a separate regression). We begin with the results for models explaining dropout behavior where the cutpoint is an LTV ratio above versus below 80 percent. We find that regardless of whether parents' LTV ratios are above or below 80 percent, children of homeowners are significantly less likely than children of renters to drop out of school before age 17. But, surprisingly, the point estimate for having an LTV ratio above 80 percent is larger in

1 About 15 percent of our sample of 17-year-olds is missing information on initial LTV level, mainly because their families have not moved since they entered the PSID sample. We include a separate category for homeowners with missing LTV data, since they are presumably different from the referent category of renters due to their long tenure as homeowners.

2 All regressions reported in the tables use the PSID weights.

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absolute value than the point estimate for having an LTV ratio below 80 percent: –0.42 versus –0.30, suggesting that children are less likely to drop out of school if their parents' down payment at the time they purchased their homes was smaller. However, these point estimates are not statistically different from each other. When we change the cutpoint to a 90 percent LTV ratio, the results are qualitatively the same, but the difference is even larger: the coefficients are –0.54 when the LTV ratio is above 90 percent versus –0.30 when the LTV ratio is below 90 percent and they are marginally significantly different from each other. Thus while children of owners are less likely to drop out than children of renters regardless of parents' down payment levels, the results do not suggest that children of owners are less likely to drop out if their parents invested more when they bought their homes. These results are surprising, since if the result reflected selection, it would work in the other direction — those with a greater propensity to save would have unobserved parental characteristics that would lead to better stay-in-school outcomes for their children.

The results are similar for the models using 95 percent and 97 percent cutpoints. Once again, these results are counter to our hypothesis that selection would bias the results toward finding a larger effect of down payment levels on children's propensity to drop out.

Now examine the results for whether girls give birth by age 17, given in the right-hand side of Table 3. These results are remarkably similar to our dropout results. The results from a basic probit are again quite similar to those from the 15-year-old paper — homeownership has a statistically significant and economically important impact, decreasing the likelihood that girls give birth as teens. Note that because these models use smaller samples, the results are generally noisier.

Once again, most of the other coefficients (not shown) behave largely as expected: as parents' education increases, the probability that girls have a child by age 17 falls. Having an employed parent in the household and living in a larger household are both negatively and significantly associated with having a child by age 17 and African-Americans are more likely to have a child by age 17. But parents' marital status, family income and mothers' age at the time of daughters' birth are not significantly related to the propensity for 17-year-old girls to give birth. Finally, parents' tenure is not significantly related to whether girls give birth by age 17, unlike its effect on dropping out of school. The results are again qualitatively similar whether we use PSID weights (the results presented here) or not (although the unweighted regressions have income as a statistically significant predictor of remaining in school).

The LTV ratios perform similarly in the models explaining teenage births as in the models explaining dropping out of school: whether parents provide a larger or smaller down payment does not significantly affect children's behavior. Because the LTV ratio variables are insignificant, we do not have to worry that an LTV ratio effect reflects a selection effect.

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Table 4

Summary of the Effects of Homeownership and Length of Tenure on Whether Children Drop Out of School and Whether Girls Give Birth by Age 17

Coefficients for control variables not shown.†	DV: Dropout by 17 Coef.	Marg. Eff.	Obs.	DV: Mother by 17 Coef.	Marg. Eff.	Obs.
Homeowners (referent: renters)	−0.296 **	−0.026 **	5439	−0.383 **	−0.050 **	2626
Tenure and length of tenure combined			5439			2626
Parents rent, below average length of tenure (referent)						
Parents rent, above average length of tenure	−0.575 ***	−0.051 ***		−0.221	−0.029	
Parents own home, below average length of tenure	−0.527 ***	−0.047 ***		−0.453 **	−0.059 **	
Parents own home, above average length of tenure	−0.790 ***	−0.071 ***		−0.573 ***	−0.074 ***	
When home purchased, controlling for length of tenure			5412‡			2617‡
Parents rent, never owned home (referent)						
Parents rent, previously owned home	0.136	0.012		0.325 *	0.041 *	
Parents own home, switched between owning and renting	−0.132	−0.012		0.124	0.016	
Parents own home, bought when child aged 12 to 17	−0.599 **	−0.053 **		−0.543 *	−0.068 *	
Parents own home, bought when child aged 6 to 11	−0.198	−0.018		−0.126	−0.016	
Parents own home, bought before child aged 5	−0.099	−0.009		−0.281	−0.035	
Length of tenure	−0.045 ***	−0.004 ***		−0.002	0.000	
When home purchased, not controlling for length of tenure			5412‡			2617‡
Parents rent, never owned home (referent)						
Parents rent, previously owned home	0.202	0.018		0.330 *	0.042 *	
Parents own home, switched between owning and renting	−0.160	−0.014		0.125	0.016	
Parents own home, bought when child aged 12 to 17	−0.550 **	−0.050 **		−0.536 *	−0.068 *	
Parents own home, bought when child aged 6 to 11	−0.313	−0.028		−0.129	−0.016	
Parents own home, bought before child aged 5	−0.353 **	−0.032 **		−0.294	−0.037	

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

† Control variables include length of tenure, family income, parental educational attainment, parental employment, family size, parental marital status, race, and whether parents had their first child before the age of 17.

‡ The sample is slightly smaller for the when purchased categories because in a few cases this could not be determined.

Down Payment

To check whether the LTV ratio is the correct measure of commitment to a house, we also ran regressions substituting the dollar amount of the down payment for the LTV ratios. These results are shown in Table 4. The coefficients on the down payment amounts compare the influence of owning given the down payment level relative to renting. Once again, we in general found that down payment does not matter. There were a few exceptions, one of which may be meaningful: children of homeowners who *put no money down* at all had outcomes that were not significantly different from those of children of renters. Yet as soon as homeowners put any money down, their children have better outcomes.[3]

3 In another specification, we found that households with down payments in the $10–15,000 range perform worse than those with down payments of less than $10,000 or more than $15,000. But this was one of many specifications (we do not report every combination we examined), and could simply be a random anomaly.

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Length of Tenure

One of the mechanisms through which homeownership might affect child outcomes is stability of tenure. In our base regressions, we include length of tenure, and find that it predicts dropping out of school, although not teenage childbearing. In order to test whether there is an interaction between length of tenure and homeownership, we created variables that differentiated between owners and renters of above- versus below-average length of tenure. We found that owners with longer-than-average tenures had children who were least likely to drop out. Renters with long tenures had children that were about as likely to stay in school as owners with short tenures. Children of renters with short tenures had a considerably larger propensity to drop out of school than any other group. With respect to teenage childbearing however, the interactions did not add information to the base regressions: daughters of owners were less likely to bear children by age 17 than daughters of renters.

Another way to investigate how homeownership and length of tenure interact is to see whether it matters when parents buy a home. We divided 17-year-olds into those with parents who had never owned a home (the referent group), current renters who had owned in the past, current owners who had switched back and forth between owning and renting and owners who bought before their child was five, when their child was aged six to 11 and when their child was aged 12 to 17. We ran these regressions twice, once controlling for length of tenure, and once without that control since it overlaps with our categories. Results are shown in Table 4. Controlling for length of tenure, it appears that children whose parents bought when they were aged 12 to 17 are significantly less likely to drop out of school than children of renters. Other groups show no statistically significant difference in terms of dropping out of school, though it is notable that the sign of the coefficient for renters whose parents have owned a home in the past is positive. When length of tenure is removed from the regression, the effects of when the home was purchased increase, and both children whose parents bought a home before they were five and children whose parents bought a home when they were 12 to 17 are less likely than children of renters to drop out of school. Daughters of current renters whose parents owned a home in the past (possibly foreclosures) are more likely to become mothers by the age of 17 than daughters of current renters who have never owned a home. Daughters whose parents bought their home when they were aged 12 to 17 are less likely to become teen mothers than daughters of renters.

Financial Wealth

One possible explanation for why children of homeowners are more likely to have good outcomes relative to children of renters is that their parents are wealthier. The PSID contains data on household wealth beginning in 1984. Our challenge, then, is to determine whether adding wealth might lead to different results from our full sample because of the nature of the sample of households for which we have wealth data, or because wealth matters in and of itself.

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Table 5

Effects of Homeownership and Wealth on Whether Children Drop Out of School and Whether Girls Give Birth by Age 17

	DV: Dropout by 17			DV: Mother by 17		
	Full Sample	Wealth Sample	Wealth Added	Full Sample	Wealth Sample	Wealth Added
Homeowners (referent: renters)	−0.296 **	−0.287 **	−0.284 **	−0.383 **	−0.350 *	−0.333 *
Financial wealth (in $10,000s)	—	—	−0.003			−0.012 *
Length of tenure	−0.042 ***	−0.037 **	−0.036 **	−0.010	−0.003	−0.001
Family income (in $10,000s)	−0.015	−0.007	−0.001	−0.046	−0.035	−0.029
Parental educational attainment (referent: less than high school degree)						
High school graduate	−0.302 **	−0.135	−0.135	−0.121	−0.039	−0.040
Some college	−0.481 ***	−0.326 *	−0.324 *	−0.044	0.058	0.089
Bachelor's degree and above	−0.794 ***	−0.667 **	−0.660 **	−0.735 **	−0.591 *	−0.540 *
Parental employment	−0.292 *	−0.420 **	−0.427 **	−0.382 *	−0.468 **	−0.464 **
Family size	−0.119 ***	−0.103 *	−0.106 **	0.084 **	0.130 **	0.125 **
Parental marital status (referent: parents married)						
Single	0.115	0.232	0.240	−0.256	−0.129	−0.117
Divorced or separated	−0.019	0.012	0.011	0.172	0.174	0.166
Widowed	0.191	−0.004	0.011	0.225	0.273	0.288
Remarried	0.316	0.348	0.336	0.205	0.084	0.091
Race: Black (referent: White or Other)	−0.083	−0.165	−0.170	0.299 **	0.292 *	0.268 *
Parent had first child before 17	0.065	0.031	0.035	0.218	0.258	0.272 *
Constant	−0.075	−0.250	−0.256	−0.804 **	−1.152 ***	−1.156 ***
Observations	5439	4216 *	4216 *	2626	2009 *	2009 *

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

Note: Financial wealth measures were not included in the PSID before 1984, and were included only every four years until 1999, when they became available every survey year. After 1984, family wealth measures were smoothed across gaps.

We therefore compared three sets of regressions: the regressions we presented above, regressions that repeat the specification presented above but use only the observations for which we have wealth data and regressions using the smaller sample that add wealth as a regressor. The results are shown in Table 5.

Remarkably, our results do not substantively change when estimating the likelihood of dropping out. In the regressions explaining dropout behavior, the homeowner coefficient in our base regression is −0.296; in the sample for which we have wealth data the coefficient is −0.287; and including wealth as an explanatory variable results in a coefficient of −0.284. These differences are neither statistically significant nor economically important. Thus ownership remains an important predictor of whether children drop out even when wealth is included. Wealth itself is not a statistically significant determinant of dropout behavior.

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When we move to teen motherhood, parental wealth does have an impact, although its effect is small. The coefficient in our base regression for the effect of ownership on teen births changes from –0.383 to -.350 when we limit the sample to observations having wealth data and changes to –0.333 when we add wealth as an additional variable. In addition, wealth itself has a small negative impact on the probability of teenage births and it is marginally significant. But length of tenure is still insignificant. Thus while length of tenure has a significant effect on dropout behavior but wealth does not, we find the opposite results when explaining teen pregnancy.

We are struck, however, by how consistently homeownership continues to be associated with child outcomes even when wealth is included as a separate regressor. This contrasts with the results in Barker and Miller (2009),[4] who find that adding net worth eliminates the impact of ownership on dropping out. But their measure of wealth includes home equity; whereas we instead control for financial wealth and continue to find a strong homeownership effect. Yet we have also found that initial investment in a home is not the channel through which children of owners seem to do better. When we control for initial equity, we continue to find that it is homeownership in and of itself that is associated with better outcomes.

Instrumental Variable Regressions

To this point, we have confirmed the Green and White (1997) findings that children of homeowners have better outcomes, after controls, than children of renters. This alone is not compelling evidence that ownership "causes" better outcomes. As Green and White wrote:

> **"One possible explanation for the importance of homeownership in the simple probit models is that the association between parents' homeownership and children's success is due to selection bias. Parents who own housing may be systematically different from parents who rent housing and the same characteristics that make the group more likely to own also make them more likely to bring up successful children."**

The fact that LTV ratio does not seem to matter to child outcomes (unless it is 100 percent) does suggest that it is unlikely that some hidden measure of financial capacity might be influencing our findings. But other unobservables might matter, and so it is important to investigate instruments.

We use as an instrument the average marginal income tax rate paid in the state in which the household lives. We use this as our instrument because there is a lot of variation in state income tax rates. Marginal tax rates should explain the propensity to own, because as marginal tax rates rise, the relative benefit of owning versus renting rises (there is a long literature on this issue, including Rosen and Rosen (1975), Green and Vandell (1998) and others). Yet we have no reason to think that state tax rates should influence whether children remain in school or have children.

4 Barker and Miller also find that vehicle ownership leads to lower dropout rates; this is not surprising, as they ability to transport children to school may make it easier for those children to complete school.

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We compute average state marginal tax rates by running household financial characteristics from the PSID through the NBER TAXSIM program. We then take the marginal tax rates for all households within each state and find their weighted average for each state.

Table 6 reports the first- and second-stage regression results — the first stage (in the bottom panel) explains tenure choice, and the second stage explains child outcomes.

The disappointing finding is that the average state tax rate is a weak instrument for ownership — it does not survive any conventional test of significance as an explanatory variable for tenure choice. As a check on our data, we looked at households' actual individual marginal tax rate as an explanatory variable for tenure — we find that it is statistically significant and has the correct sign. The problem is that tax rates at the family level are endogenous, since households generally lower their marginal tax rates by becoming homeowners.[5]

The good news, however, is that the tenure-choice equation does appear to be exogenous to the behavioral equations. Wald tests of exogeneity fail to reject the null hypothesis that the tenure-choice and stay-in-school behavioral equations are uncorrelated, which leads us to think that omitted variables are not driving our simple probit results. But this issue warrants further investigation.

5 If a household at the cusp of a marginal tax bracket converts from renting to owning, it can, because of the mortgage interest deduction, move itself from a higher tax bracket to a lower one.

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Table 6

Results for Instrumented Effects of Homeownership on Whether Children Drop Out of School and Whether Girls Give Birth by Age 17

	DV: Dropout by 17			DV: Mother by 17		
	State Marginal Tax Rate, 5-yr average	State Marginal Tax Rate, 1-yr average	Family Marginal Tax Rate (endogenous)	State Marginal Tax Rate, 5-yr average	MSA Marginal Tax Rate, 5-yr average	Family Marginal Tax Rate (endogenous)
Homeowners (referent: renters)	−2.698***	−2.537***	0.117	−2.699***	−2.702***	−1.620**
Years since last move	0.034	0.019	−0.055**	0.042***	0.041***	0.011
Family income (in $10,000s)	0.004	0.000	−0.017	0.000	0.000	0.000
Parental educational attainment (referent: less than high school degree)						
High school graduate	0.183	0.096	−0.300*	0.297**	0.272*	0.026
Some college	0.198	0.087	−0.389**	0.416***	0.398***	0.139
Bachelor's degree and above	0.199	−0.058	−0.959***	0.468*	0.369	−0.423
Parental employment	0.433*	0.302	−0.418	0.630***	0.578**	−0.047
Family size	−0.033	−0.065	−0.134***	0.024	0.032	0.080**
Parental marital status (referent: parents married)						
Single	−0.828***	−0.744**	0.158	−0.619**	−0.637***	−0.506*
Divorced or separated	−0.552***	−0.515***	0.036	−0.559***	−0.531***	−0.121
Widowed	0.107	0.123	0.082	0.096	0.136	0.239
Remarried	0.273	0.367	0.411	0.303**	0.322**	0.298
Race: Black (referent: White or Other)	−0.380***	−0.396***	−0.127	−0.394**	−0.356*	0.070
Parent had first child before 17	−0.026	−0.008	0.065	0.064	0.086	0.217*
Constant	0.982***	0.878**	−0.217	0.655*	0.561	−0.359

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

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Table 6 (Continued)

Results for Instrumented Effects of Homeownership on Whether Children Drop Out of School and Whether Girls Give Birth by Age 17

	DV: Dropout by 17			DV: Mother by 17		
	State Marginal Tax Rate, 5-yr average	State Marginal Tax Rate, 1-yr average	Family Marginal Tax Rate (endogenous)	State Marginal Tax Rate, 5-yr average	MSA Marginal Tax Rate, 5-yr average	Family Marginal Tax Rate (endogenous)
First Stage, DV: Homeownership						
Years since last move	0.017 ***	0.017 ***	0.017 ***	0.016 ***	0.016 ***	0.016 ***
Family income	0.003 *	0.003 *	0.000 *	0.000	0.000	0.000
Parental educational attainment (referent: less than high school degree)						
High school graduate	0.091 ***	0.091 ***	0.084 ***	0.115 ***	0.113 **	0.103 **
Some college	0.104 ***	0.104 ***	0.090 ***	0.158 ***	0.155 ***	0.134 ***
Bachelor's degree and above	0.150 ***	0.150 ***	0.129 ***	0.198 ***	0.194 ***	0.162 ***
Parental employment	0.195 ***	0.196 ***	0.109 **	0.247 ***	0.246 ***	0.132 **
Family size	−0.001	−0.001	0.001	0.006	0.006	0.010
Parental marital status (referent: parents married)						
Single	−0.318 ***	−0.319 ***	−0.282 ***	−0.224 **	−0.223 **	−0.153 *
Divorced or separated	−0.205 ***	−0.205 ***	−0.186 ***	−0.214 ***	−0.215 ***	−0.177 ***
Widowed	0.034 *	0.035	0.056	0.028	0.033	0.065
Remarried	0.068 *	0.068 *	0.066 *	0.107 **	0.107 **	0.110 **
Race: Black (referent: White or Other)	−0.130 ***	−0.132 ***	−0.117 ***	−0.156 ***	−0.157 ***	−0.139 ***
Parent had first child before 17	−0.016	−0.016	−0.017	0.018	0.017	0.018
Instrument	−0.001	−0.002	0.003 ***	0.001	0.001	0.004 ***
Constant	0.394 ***	0.409 ***	0.405 ***	0.259 ***	0.258 ***	0.288 ***
/athrho	2.205	1.409	−0.163	3.230	2.326	0.524
/lnsigma	−0.991 ***	−0.991 ***	−0.996 ***	−0.985 ***	−0.985 ***	−0.997 ***
rho	0.976	0.887	-0.161	0.997	0.981	0.481
sigma	0.371	0.371	0.369	0.374	0.373	0.369
Wald test of exogeneity (/athrho = 0)						
chi2	2.11	1.79	0.16	1.05	1.87	2.81
Prob > chi2	0.147	0.181	0.685	0.306	0.171	0.094
Observations	5435	5435	5435	2626	2621	2626

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

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CONCLUSION

This paper has reopened the issue of whether homeownership produces positive outcomes for children. While a number of past papers have examined this issue, including one by two of the authors of the current paper, they all used data that is rather old now, and none of them examined whether it was equity commitment in a home, rather than homeownership per se, that drove outcomes.

Our findings reaffirm the idea that homeownership, in and of itself, predicts positive outcomes for children. This result applies to the likelihood both of children remaining in school, and girls not bearing children as teenagers. This result survives adding controls for LTV ratio, for financial wealth, for state, region and time fixed effects, and, with possibly one exception, for dollar amount of down payment. Our results suggest that homeowners' children have better outcomes than renters' children, except for children of homeowners who made no down payment at all. We also find that ownership per se predicts positive outcomes, after controlling for length of tenure in the house. This is true whether we look at length of tenure as a stand-alone variable, or interact it with owning or renting.

A striking characteristic of our results is the similarity of featured coefficients across specifications. Of course, if homeownership is highly correlated with an unobserved yet important variable, the consistency of the coefficient might simply reflect the power of the invisible characteristic. It is hard to imagine that such a characteristic would not be correlated with some other variable, such as wealth, that we have examined over the course of our investigation. Nevertheless, it is worth attempting to neutralize the impact of an omitted variable — or of selection bias — by using instrumental variables techniques. Our instrument is the average marginal tax rate of the state in which the household lives. This is exogenous to the household, and yet should influence the relative attractiveness of homeownership, because states with higher marginal tax rates will have lower relative user costs for owner-occupied housing, all else being equal. The problem with using household-level marginal tax rates is that they are endogenous with respect to housing tenure — because owners can deduct mortgage interest, their marginal tax rates may be lower than renters.

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Our most surprising finding is that, apart from the case when households put no equity into their homes at all, home equity has no impact on child outcomes. Children of owners are less likely to have bad outcomes even after putting in place a large number of controls, but children of owners with large down payments are no more likely to have good outcomes than children of owners with small down payments. Our findings at this point imply that homeownership is indeed beneficial to children, so long as parents invest at least a tiny bit of equity in their homes at the time of purchase.

We also found that children of owners that made no down payment have the same outcome as children of renters and that the impact of the form of tenure becomes attenuated as tenure length increases. Thus children of parents that don't move do better, but among children whose parents become owners, those whose parents become owners when they are between the ages of 12 and 17 do better than those whose parents become owners when they are younger.

As always, further research (particularly research that controls for neighborhood characteristics) is warranted.

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APPENDIX 1

Assume that there is a first stage in which parents make the tenure choice and a second stage in which children of owners and children of renters each decide separately whether to stay in school or drop out.

Suppose Z is a vector of variables affecting parents' tenure choice, I* is a measure of parents' propensity to own, γ is a vector of parameters, and μ is an error term. Parents choose to become homeowners if $I^* = \gamma' Z + \mu \geq k$ and choose to rent if $I^* = \gamma' Z + \mu < k$.

Suppose J*r is a measure of the propensity of children of renters to drop out of school, X is a vector of variables affecting children's decisions to stay in school conditional on parents' renting, β_1 is a vector of parameters, and ε_1 is an error term for renters. Children of renters drop out of school by age 17 if $J_r = \beta'_1 X + \varepsilon_1 < 0$ and they stay in school otherwise. We may write analogous expressions for owners.

The error terms μ and e1 may be correlated (and analogously μ and ε_2). Estimating a model of the dropout decision without taking account of this problem could produce biased parameter estimates.

We do not observe the variables I*, and the J*i, , but we do observe the indicator variables for Type of tenure and whether a child drops out within each Type of tenure; J_r equals one if children of renters drop out by age 17 and zero if they stay in school; and so on.

We use full information maximum likelihood to estimate two likelihood functions. The first explains parents' tenure decision and the dropout decision of renters' children; the second explains parent's tenure decision and the dropout decision of owners' children. The same method is then used to examine the outcome of daughters of renters and owners having a child before age 17.

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