

The Importance of Wealth and Income in the Transition to Homeownership

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Abstract

Although most studies examining the importance of wealth and income constraints in attaining homeownership employ a simulation methodology, this article uses Panel Study of Income Dynamics data to investigate the actual probability of becoming a homeowner during a 15-year period. The findings confirm that both household wealth and income have significant importance to the transition to homeownership, with wealth as a more important predictor of whether minorities become homeowners. The use of longitudinal data and survival analysis also allow for examining changes over time in the relative importance of wealth and income in predicting homeownership. Although some evidence is found to suggest that the importance of wealth in predicting homeownership has declined over time, we do not find any support for a reduction in the importance of income, despite the fact that mortgage product innovation has increased the allowable ratios of debt to income. It is possible, however, that such mortgage market innovation has had greater impact on the value of homes purchased.

Introduction

Policymakers have supported homeownership because it is believed to have significant financial and social benefits for both individuals and communities (Rohe, Van Zandt, and McCarthy, 2002). Interest in enhancing opportunities to achieve homeownership has fostered a rich body of research on the impact of borrowing and lending constraints on homeownership, with the former well documented by Rosenthal (2002) and the latter comprehensively summarized by Feldman (2001). Although most studies have focused on household wealth and income (for example, Linneman and Wachter, 1989), recent work has devoted more attention to household credit risk (Barakova

et al., 2003; Rosenthal, 2002). A study by Linneman and Wachter (1989) and subsequent studies employing a similar methodology have consistently found that downpayment constraints restrict access to homeownership more frequently than income does. More recent studies employing credit measures, most notably Barakova et al. (2003), have also found that wealth and, to a lesser extent, credit constraints are more important than income constraints in limiting access to homeownership.

The dominant methodology used in this field is simulation, in which a regression model of tenure choice is estimated on a cross-sectional sample of renters and homeowners, using measures of income, wealth, or credit constraints and demographic variables that are positively correlated with tenure choice. The impact of these constraints is then simulated by reestimating these models with the constraints relaxed. So far, few existing studies take advantage of longitudinal data to observe how cohorts of households actually facilitate the transition from renting to owning over time, how the probability of this transition relates to household wealth and income, and how the relationship between wealth and income and the transition to homeownership may change over time for an individual household. Haurin, Hendershott, and Wachter (1997) and Listokin et al. (2001) used longitudinal survey data (the National Longitudinal Survey of Youth and the Survey of Income and Program Participation [SIPP], respectively) to analyze wealth and income constraints on homeownership. Neither study, however, used the longitudinal nature of these data to analyze how these constraints vary over time. In a recent study sponsored by the U.S. Department of Housing and Urban Development (HUD), Herbert and Tsen (2005) applied survival analysis techniques to longitudinal data from the SIPP to examine the probability of renters making the transition to homeownership as a function of income, wealth, and other demographic characteristics and market conditions; however, Herbert and Tsen examined tenure transition over only a 3-year period, compared with the 15-year period that this study examines. In another recent study sponsored by HUD, Boehm and Schlottmann (2005) used Panel Study of Income Dynamics (PSID) data to follow up households for 8 years (1984 to 1992) and model the probability of making the transition from renting to owning and vice versa. The principal focus of this article, however, is on the impact of tenure choice on wealth accumulation over time and not on the factors associated with tenure choice. As a result, it does not address changes in the role of wealth and income in predicting first-time homeownership over time.

As time passes, many factors can influence the probability of moving to homeownership. At a macro level, these factors include mortgage interest rates, underwriting criteria, home price appreciation, appreciation of other household assets, and real rates of income growth relative to house price appreciation. At a micro level, households with different wealth and income can face different obstacles over time due to either changes in the market or changes in the households' personal circumstances. This article is the first to examine the probability of becoming a homeowner over a long period of time—15 years. It therefore helps to answer a set of different questions that have not yet been addressed in the literature. Specifically, this article addresses two questions:

1. What change, if any, in the importance of wealth and income has occurred in predicting the transition to homeownership over time?
2. Do wealth and income have similar effects on Whites and minorities over longer periods of time?

Regarding the first question, there is reason to believe that wealth and income influences would have changed since the 1980s as a result of broader changes in housing and mortgage markets and government policies. Specifically, underwriting requirements regarding the maximum allowable ratios of housing expenses and total debt to income have been relaxed and more low downpayment products are available. Regarding the second question, previous research on racial disparities in homeownership suggests that wealth and income constraints may affect minorities more than Whites.

Basing our analysis on the existing literature and our own understanding of market dynamics, we expected our analysis would show the following:

- Low levels of both household wealth and income constrain the transition to homeownership.
- Wealth is expected to be a more important factor than income in predicting homeownership for minorities because of the lower levels of wealth held by minorities and because minorities tend to have lower credit scores, which may lead lenders to require larger downpayments to compensate for this additional credit risk.¹
- Wealth should become less important over time as mortgage underwriting requirements regarding loan-to-value ratios have been relaxed.
- Because wealth is more limited among minorities, any reductions over time in the importance of wealth in predicting homeownership should be more pronounced among minorities than among Whites.

Data and Methodology

Our analysis uses PSID data, which are collected by the Survey Research Center at the University of Michigan, and focuses on survey findings from 1984, 1989, 1994, and 1999, because supplemental surveys in these years gathered information on household net wealth, which includes the value of all assets, including homes, minus all liabilities, including mortgages. This information enables researchers to analyze how wealth affects a household's ability to achieve homeownership. Survival analysis is used to analyze the role of wealth and income in household transitions from renting to owning over this 15-year period.

More specifically, the analytic method employed is the method of survival analysis described in Singer and Willett (2003). The event of interest is the transition from renting to owning. Following Singer and Willett (2003), we created a multiperiod longitudinal data set, which follows household heads who were renters in 1984 and remained as heads of households through 1999 and which indicates whether and when their tenure status changed from renter to owner as observed at the end of each 5-year period between 1984 and 1999. Hence, households that dissolved (the head did not remain a head of household) are not included. Given the survival analysis approach used, cases are dropped from the sample after a household makes the transition from renting to owning.

Exhibit 1 summarizes information on the study sample. As shown in the exhibit, 1,014 renter households in 1984 are in our sample, and the same people remained as household heads until 1999, but some of these households became homeowners. This sample comprises the initial “risk

Exhibit 1**Tenure Status of Sample Over Time**

Year	Number Renting	Number Becoming Homeowner	Number Censored	Number Used in Analysis
1984	1,014	NA	NA	NA
1989	715	299	0	1,014
1994	530	184	1	714
1999	374	114	42	488
Total	NA	597	43	2,216

set” of households with the possibility of experiencing the event of interest—that is, becoming a homeowner. By 1989, 715 households were still renters and 229 had become homeowners. Of the “surviving” 715 households that were still renters in 1989, 184 achieved homeownership by 1994, while 530 remained renters and 1 was lost to the survey and thus was dropped from the analysis (“censored”). By 1999, of the remaining 530 renter households, 374 continued to be renters, 114 changed their tenure status from renting to owning, and 42 cases were censored. For each case in which the study observes a renter 5 years later, that case then enters the data set as a separate observation. The data set used for analysis consists of a total of 2,216 observations, including 597 cases in which renters succeeded in becoming homeowners.

Based on our survival analysis data set, exhibit 2 displays the share of renter households that became owner households in each 5-year interval. As shown in the exhibit, the conditional probability of achieving homeownership decreased in each succeeding period. In the initial 5-year period, nearly 30 percent of renters purchased a home. Among those still renting in 1989, however, less than 26 percent purchased homes by 1994. For those still renting in 1994, the probability of achieving homeownership by 1999 fell farther to just above 23 percent. Hence, the likelihood of becoming a homeowner contingent on not having become one over the previous 5-year period declined for each period observed. This pattern of declining transition to homeownership is common when tracking a fixed pool of renters over time. Both Haurin and Rosenthal (2005) and Boehm and Schlottmann (2004) found a similar pattern of declining homeownership transition as renters age beyond age 30 as occurs in the timeframe observed with this sample.

Exhibit 3 presents the sample survivor probabilities for the 1,041 households. The survival probability is the share of renters who continue as renters through succeeding 5-year observations. Of those who were not homeowners in 1984, nearly 40 percent remained renters in 1999. Furthermore, exhibit 3 shows that a typical 1984 renter household would achieve homeownership about 10 years later (around 1994); that is, about half the renter households would own their home around 1994, given that the household was a renter in 1984.

The subsequent survival analysis uses logistic regression to model the probability of achieving homeownership. The dependent variable is housing tenure at the end of each 5-year period we observe with a 1, indicating that the household is an owner household, and a 0, indicating that the household is a renter household. Wealth and income are the main independent variables of

Exhibit 2

Percentage of Surviving Rental Households Achieving Homeownership Since 1984

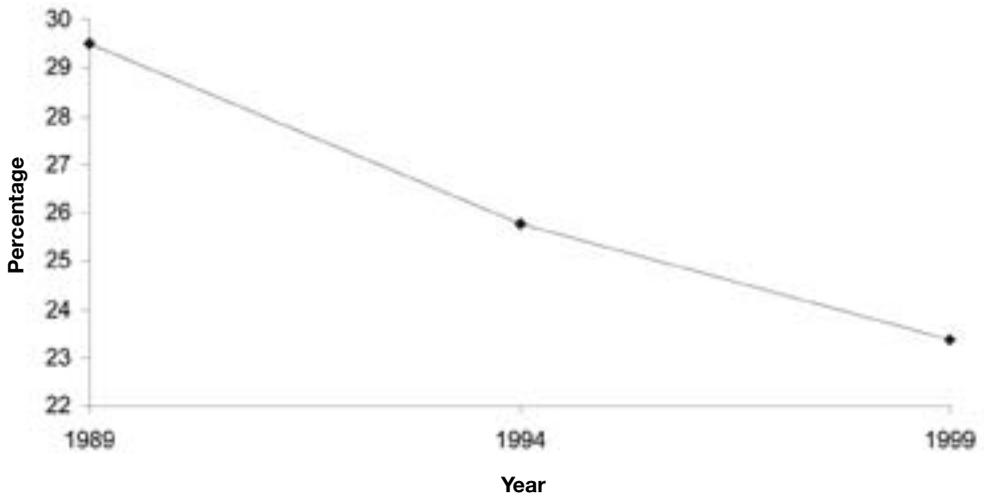
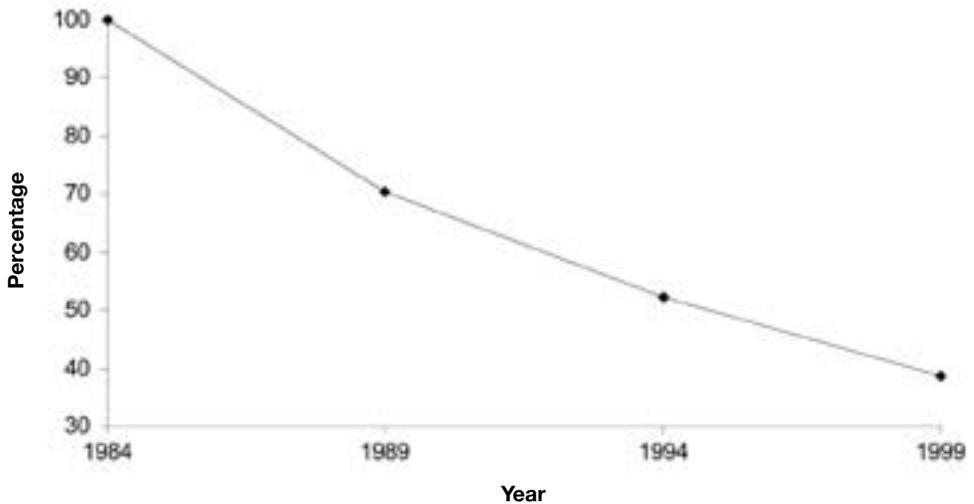


Exhibit 3

Survival Probability of Households Remaining Renters Since 1984



the study because we want to investigate their importance on homeownership over time. In survival models, time-varying covariates generally are measured as of the beginning of the period; that is, wealth and income at the start of a 5-year period would be used to predict the transition to homeownership over the next 5-year period; however, 5 years is an unusually long period between observations. Investigation of alternative measures of wealth and income found that much better

results were obtained by measuring wealth and income as the average over the 5-year period (in constant 2001 dollars) compared with measuring wealth and income at the starting point of the period. This finding is consistent with permanent income theory of consumer behavior; that is, when making decisions about consumer durables, households act on the basis of their expectations of future income streams and not just on current income. To account for the fact that the impact of wealth and income on the probability of homeownership is likely to diminish as the values of these variables increase, the log of these variables is used in the model.²

Another important focus of this article is distinguishing between the impact of wealth and income on Whites and the impact on minorities. Unfortunately, with too few observations for specific racial and ethnic groups to model these groups separately, all racial minorities and Hispanics are grouped together in a single minority category. As shown in exhibit 4, among the 1,014 observations in this data set, about 53 percent are non-Hispanic White and 47 percent are minorities.

Exhibit 4

Descriptive Statistics

Variable Name	Description	Share or Means, With Standard Deviation in Parentheses
Age1	Age <30 in 1984	48.82%
Age2	Age in 1984: 30-44	33.14%
Age3	Age >=45 in 1984	18.05%
Minority1	Minority	47.24%
Minority2	White	52.76%
Period1	Period 1984-89	45.8%
Period2	Period 1989-94	32.2%
Period3	Period 1994-99	22.0%
Income	Log of average household income during the period (Average income during the period)	14.75 (1.25) \$37,501 (\$29,941)
Wealth	Log of average household wealth during the period (Average wealth during the period)	11.01 (6.19) \$50,899 (\$259,308)
Family size	Number of persons in household	2.99 (1.73)
Marry0	Unmarried	51.73%
Marry1	Married	48.27%
Edu1	Less than high school	25.49%
Edu2	High school	31.06%
Edu3	Some college	22.53%
Edu4	College or above	20.92%
Region1	South	42.15%
Region2	Northeast	15.50%
Region3	North Central	27.02%
Region4	West	15.33%

Other demographic factors controlled for in this study include the share of household heads who are married or living with a partner (48 percent of the sample), the size of the household, and the share of household heads who were distributed among three age categories (under 30, 30 to 44, and 45 or older) as of 1984. Nearly one-half of the household heads were less than 30 years old, about one-third were between 30 and 44 years old, and the others were 45 years old or older in 1984.³ The study also includes a series of dummy variables indicating the household head's level of education as both a proxy for permanent income and a measure of potential differences in preferences for homeownership related to income level. Finally, the study includes dummy variables for the region of the country where the households lived in 1984. Although, ideally, the researchers would have liked to include more information on the market context in which the tenure choice is made, the public-use PSID does not provide any greater geographic detail.

One point of concern with the estimated model is the long period of time between observations; some households may have achieved homeownership during intervals between observations but failed to maintain this status by the end of the observation period. In this regard, the results are best interpreted as predicting transitions to homeownership that are more lasting because failures to maintain homeownership for less than 5 years may not be observed as transitions to homeownership in this study's data. Another issue is that some renter households observed in 1984 may actually have been homeowners before 1984 and were only temporarily renters in 1984. These situations, however, should not bias the results regarding the importance of wealth and income in predicting the transition to homeownership, because previous homeowners would likely have higher wealth and income than renters who have never been homeowners before. Probably the biggest data limitation is a lack of information on borrowers' credit histories. Although recent work by Barakova et al. (2003) suggests that credit constraints are less important than wealth constraints in predicting homeownership, it is possible that credit constraints are correlated more with wealth than with income since wealth provides a cushion against unexpected events that might damage a household's credit. If so, the wealth effect in this study is biased and is partially reflecting issues related to borrower credit as well. Also, because both credit and wealth requirements have been relaxed by lenders, it is possible that any sign of a reduction in the wealth requirement over time may be reflecting, in whole or in part, a reduction in the credit constraint.

As noted in the introduction, the primary goals of this article are to identify whether the importance of wealth and income has changed over time and whether these changes vary between Whites and minorities. To test these hypotheses, the estimated model includes a series of interaction terms involving wealth and income. Specifically, the study interacts wealth and income, respectively, with variables for minority status and the period of observation. Interactions between household wealth and income and minority status enable us to see if the importance of wealth and income are relatively different to Whites and minorities. The interaction of both wealth and income with the period of observation enables the researchers to determine if the influence of wealth and income has changed over time. Interactions of wealth and income, respectively, with both minority status and the period of observation enable researchers to test whether changes in the market have been more helpful for minorities than Whites in achieving homeownership. Finally, the interactions between wealth and income with age examine whether differences occur in the importance of these variables for different age cohorts.

The general equation for our model can be written as

$$P = 1 / (1 + \exp(-(\beta_0 + \beta_1 * V_1 + \beta_2 * V_2 + \beta_3 * V_3 + \dots)))$$

in which P is the probability of achieving homeownership; V_1, V_2, V_3, \dots are the independent predictors of homeownership, such as age, income, wealth, education level, or ethnicity; and $\beta_1, \beta_2, \beta_3$ are the estimated coefficients for each corresponding variable. If the model shows that β_1 is significantly different from 0, we can conclude that variable V_1 has an effect on predicting the likelihood of becoming a homeowner (while controlling for the other variables in the model).

The antilog of β_1 (that is, \exp^{β_1}) is the odds ratio for variable V_1 , which tells the ratio of the odds of becoming a homeowner versus remaining a renter for each unit difference in V_1 , with all other variables being held constant.

Findings

Exhibit 5 shows the model results. As expected, household wealth and income both are significant predictors of the transition toward homeownership. This observation demonstrates the importance of wealth and income to the transition to homeownership. Minority status and the observation timeframe are, by themselves, not statistically significant, although, as discussed in more detail in the following paragraphs, certain key interactions of these variables are significant.

Regarding the importance of household income, all else being equal, the higher the average annual household income over a 5-year period, the more likely the household will become a homeowner at the end of the period. Using the 1984–89 period as an example, exhibit 6 illustrates the impact of income on the probability of achieving homeownership.⁴ Here, the study estimates the probability of becoming a homeowner in 1989, assuming a household with average wealth and of average family size headed by a married person who was between the ages of 30 and 44 in 1984 and had a high school education. The level of household income is then varied and the probability of owning is estimated separately for Whites and minorities, assuming other household characteristics are held constant. Consistent with the log form of the variable, the importance of income on achieving homeownership is nonlinear with larger increases in the probability of homeownership at lower income levels.

In exhibit 6, modeling results also indicate that little difference exists in the impact of income on achieving homeownership by race. Although the lines tracking income and probability of homeownership for Whites and minorities are not exactly the same, the difference is trivial and not statistically significant, as indicated by the insignificance of the interaction term between minority status and income. Thus, these results suggest that minorities do not experience a more binding income constraint than Whites do. All else being equal, minorities with a household income level similar to that of Whites are as likely to become homeowners as Whites are; however, as discussed in the following paragraphs, this observation does not mean that no racial difference exists in the propensity to own. Instead, these differences are related to differences in the importance of wealth between Whites and minorities.

The results shown in exhibit 5 also suggest that the importance of income does not differ by the age of the household head or the observed time period, because none of the interactions between income and these variables are statistically significant. The insignificant interactions between

Exhibit 5

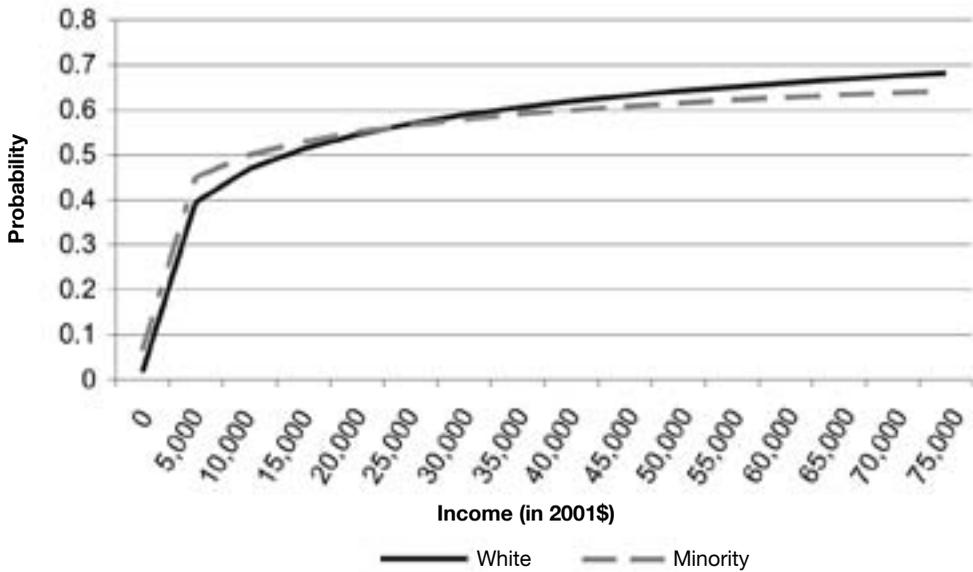
Model Results

Variable Name	Description	Coefficient
Intercept		- 8.531(1.18 ^{***})
Age1	<30 in 1984; Reference group	
Age2	30–44 in 1984	1.544(1.36 ^{ns})
Age3	45 or over in 1984	1.552(1.55 ^{ns})
Minority1	Whites; reference group	
Minority2	Minorities	- 0.507(0.99 ^{ns})
Period1	Period 1984–89; reference group	
Period2	Period 1989–94	0.510(1.36 ^{ns})
Period3	Period 1994–99	- 0.242(1.51 ^{ns})
Income	Log of average household income during the period	0.280(0.08 ^{***})
Wealth	Log of average household wealth during the period	0.204(0.02 ^{***})
Income*Age2	Interaction	- 0.078(0.09 ^{ns})
Income*Age3	Interaction	- 0.157(0.11 ^{ns})
Income*Minority2	Interaction	0.102(0.06 ^{ns})
Income*Period2	Interaction	- 0.031(0.09 ^{ns})
Income*Period3	Interaction	0.064(0.10 ^{ns})
Income*Period2*Minority2	Interaction	- 0.028(0.02 ^{ns})
Income*Period3*Minority2	Interaction	- 0.034(0.02 ^{ns})
Wealth*Age2	Interaction	- 0.025(0.02 ^{ns})
Wealth*Age3	Interaction	0.034(0.03 ^{ns})
Wealth*Minority2	Interaction	- 0.063(0.01 ^{***})
Wealth*Period2	Interaction	- 0.005(0.02 ^{ns})
Wealth*Period3	Interaction	- 0.053(0.02 [*])
Wealth*Period2*Minority2	Interaction	0.033(0.02 ^{ns})
Wealth*Period3*Minority2	Interaction	0.030(0.02 ^{ns})
Family size	The number of people in the households	0.217(0.04 ^{***})
Marry0	Types of households other than married couples or partners living together; reference group	
Marry1	Married couples or partners living together	0.151(0.07 [*])
Edu1	High school dropouts; Reference group	
Edu2	High school graduates	- 0.153(0.09 ^{ns})
Edu3	With some college education	0.114(0.10 ^{ns})
Edu4	College graduates or with higher education	0.275(0.11 [*])
Region1	South; reference group	
Region2	Northeast	- 0.319(0.11 ^{**})
Region3	North Central	0.081(0.10 ^{ns})
Region4	West	- 0.102(0.11 ^{ns})
-2LL	1872.74	
AIC	1932.74	
SC	2103.37	
Max-r R-Square	0.3824	
R-Square	0.2630	
DF	29	

Note: *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$; ns: nonsignificant; and standard errors are in parentheses.

Exhibit 6

The Probability of 1984 Renters To Achieve Homeownership by 1989, as a Function of Income and Minority Status*



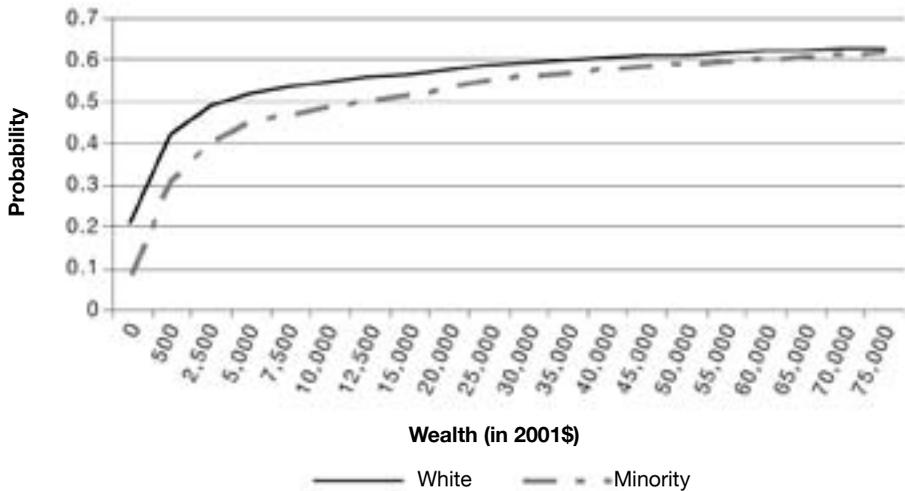
*Assuming average wealth and family size, married, with high school education, under 30 years old in 1984, and living in South.

income and time period suggest that changes in the mortgage market during the 1990s did not reduce the influence of income on achieving homeownership.

Exhibit 7 illustrates the impact of household wealth on the probability of achieving homeownership assuming the same household characteristics as those described for exhibit 6. Again, consistent with the log form, the importance of wealth on achieving homeownership is also nonlinear—larger increases exist in the probability of homeownership corresponding to increases in wealth at the lower end than that at the higher end. For White households, the average probability of achieving homeownership by 1989, given that the household was renting in 1984, is 42 percent, assuming an average wealth of \$500 during this period; average probability increases to 51.6 percent if the average wealth is \$5,000. If the average wealth increases by \$5,000 to \$10,000, the probability increases to 54.5 percent; this increase amounts to merely a 2.9-percentage-point increase for every \$5,000 increase in wealth. Although higher wealth levels continue to increase the probability of achieving homeownership, the effect is smaller than at lower levels of wealth. For example, a \$5,000 increase in wealth from \$20,000 to \$25,000 only increases the probability of homeownership by 0.9 percentage points, from 57.3 to 58.2 percent. This result is consistent with the finding by Herbert and Tsen (2005) that small amounts of wealth are associated with large increases in the probability of homeownership and that increases in wealth above these low levels increase the probability of homeownership by relatively small amounts.

Exhibit 7

The Probability of 1984 Renters To Achieve Homeownership by 1989, as a Function of Wealth and Minority Status



The significant negative coefficient on the interaction term between minority status and wealth indicates that minorities require higher levels of wealth than Whites do to achieve the same probability of homeownership. As shown in exhibit 7, all else being equal, at all levels of wealth, minorities are less likely to achieve homeownership than Whites are. For example, assuming the household characteristics described previously, with \$5,000 in wealth, the probability of achieving homeownership is 44.6 percent for minorities and 51.6 for Whites, a 7-percentage-point difference. To put it in another way, a minority renter in 1984 would have had to have more than \$12,500 in average wealth during the 1984–89 period to have a similar probability of homeownership as a White renter with \$5,000 in wealth. As also illustrated by exhibit 7, however, racial differences in the impact of wealth on the probability of homeownership decline as wealth increases.

We can only speculate about why minorities, which, as defined in our analysis, include African Americans, Hispanics, Asians, and other racial groups, require more wealth than Whites do to become homeowners. One hypothesis is that lenders require greater equity contributions from minorities than from Whites to accommodate higher levels of credit risk—either perceived or actual—for minority borrowers. To the extent that wealth is needed to compensate for credit, borrowers are credit constrained, not wealth constrained. Because our data set does not include measures of borrower credit history, however, we cannot control for this factor. The disparity in wealth requirements for homeownership could also be attributed to the fact that minorities prefer to purchase homes with larger equity investments to lower their reliance on debt. Another possible reason is that minorities are disproportionately concentrated in higher cost areas, where required dollar downpayments are larger by virtue of higher cost homes. Unfortunately, the lack of

geographic identifiers in the PSID data used for this analysis precluded the use of any controls for variations in market conditions across borrowers.

The modeling results also suggest that the influence of wealth decreased in the late 1990s as indicated by the significant negative interaction term between wealth and the 1999-period variable.⁵ This observation is in keeping with expectations because, in the late 1990s, lending practices became more relaxed regarding downpayment requirements and mortgage products appeared that allowed downpayments as low as 3 percent of the purchase price. Not only are these products widely available, homebuyers used them increasingly over the time period studied. According to data provided by the Federal Housing Finance Board, the share of home purchase loans with downpayments of 10 percent or less increased from 10 percent in the 1989–91 period to 25 percent in the 1994–97 period.⁶ This finding of a reduction in how binding the wealth influence has been, however, is not robust. Other variations of the model tested, but not reported here, which contained different interaction terms, resulted in insignificant coefficients on this variable.

The three-way interactions of wealth with minority status and time period were not statistically significant. Thus, even though the study found significant differences between Whites and minorities in the importance of wealth in predicting homeownership, it did not find any evidence that a differential change has occurred in the importance of wealth over time between Whites and minorities. This observation suggests that changes in wealth over time benefited minorities and Whites equally.

Although household age is usually strongly associated with homeownership, this model does not produce statistically significant coefficients for the age variables or their interactions with household wealth and income. To some extent, this finding is plausible, given the longitudinal nature of the data structure. Over such a long period of time, the impact of age would be diminished.

Other statistically significant variables include family size, marital status, and the possession of a college education, which were positively associated with the probability of homeownership, and residence in the Northeast region, which was negatively associated with the probability of homeownership. These results are all in keeping with reasonable expectations. Married couples, households with children, or those with higher levels of education generally have higher homeownership rates than do other types of families, households without children, or those with lower levels of education. The Northeast has relatively high home prices and has less single-family housing than other regions do, which may make homeownership more difficult to achieve in the Northeast compared with other regions (Herbert, 1997).

Conclusion

The results of the survival analysis of the transition from renting to owning based on the linked longitudinal data of PSID data from 1984, 1989, 1994, and 1999 found that both household income and net wealth are positively related to the likelihood of achieving homeownership, while controlling for other demographic factors. Although modeling results generally did not find any difference between minorities' and Whites' propensity to own, they did suggest that the required wealth level for transition to homeownership is higher for minorities than it is for Whites.

Several explanations for this finding are possible. Lenders may require higher downpayments by minorities to mitigate other credit risks not captured by these data. Another explanation might be that minority borrowers may have greater aversion to debt and so voluntarily choose larger downpayments. Finally, minorities may be disproportionately concentrated in higher cost markets, which could not be controlled for in the estimated model due to a lack of geographic identifiers in the data. The model results also support the view that the proliferation of mortgage products allowing for low downpayments in the late 1990s may have contributed to a reduction in the importance of wealth for achieving homeownership during the 1994-to-99 period. These results are somewhat fragile, however, so further research is needed to support this conclusion.

We also did not find any support for a reduction in the importance of income on homeownership, despite the fact that mortgage product innovation has increased the allowable ratios of debt to income. Most existing research, however, has found that wealth constraints have been more important than income constraints in limiting homeownership. Thus, the results of this article may be taken to mean that the relaxation of downpayment requirements has been more important in increasing homeownership opportunities than changes in allowable debt ratios have been. It is possible, however, that relaxed debt-to-income ratios had less impact on the ability to purchase a home and a greater impact on the value of the home that purchasers could afford—an impact that was not evaluated in this study.

One contribution of this study is the use of a longitudinal data set to investigate the change over time in the importance of wealth and income on homeownership. The model results of the study are based on data of actual observations following more than 1,000 household heads from 1984 to 1999. In contrast, the existing literature largely employs a simulation methodology on a cross-section of data from one point in time. Our results both reinforce the existing literature and strengthen the current understanding of the role of wealth and income in the transition toward homeownership.

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Notes

1. See Bostic, Calem, and Wachter (2004) for an analysis of trends in credit score by tenure and race and ethnicity.
2. Because logs are not defined for 0 or negative values, cases of 0 or negative wealth were recoded as \$1 so the log value is 0.

3. Ideally, we would like to include more narrowly defined age categories (such as 5-year age brackets), but the relatively small sample size required these broader categories.
4. Only this time period is shown because little difference exists in the graphs for other time periods.
5. The interaction term between wealth and the period 1989 to 1994 (period 2) is very small and not significant, indicating that the baseline coefficient on wealth of 0.204 is unchanged in this period; however, the coefficient on the interaction term for 1994 to 1999 (period 3) is significant and negative. This observation indicates that the effect of wealth was reduced by 0.053 in this later period, yielding a coefficient of 0.151 in the late 1990s.
6. Figures cited appear in Federal Register (2004).

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