

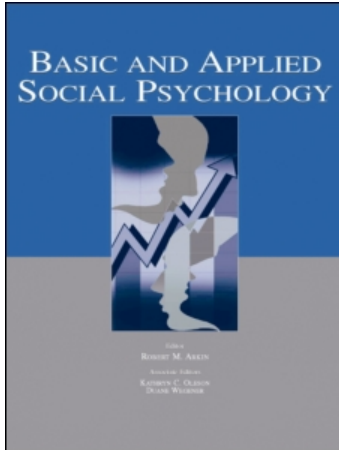
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Renting to Owning: An Exploration of the Theory of Planned Behavior in the Homeownership Domain

Taya R. Cohen ^a; Mark R. Lindblad ^a; Jong-Gyu Paik ^a; Roberto G. Quercia ^a

^a Center for Community Capital, University of North Carolina at Chapel Hill,

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Renting to Owning: An Exploration of the Theory of Planned Behavior in the Homeownership Domain

Taya R. Cohen, Mark R. Lindblad, Jong-Gyu Paik, and Roberto G. Quercia
Center for Community Capital, University of North Carolina at Chapel Hill

This study extends the theory of planned behavior (TPB; Ajzen, 1991) to the domain of homeownership. We used a 4-year longitudinal data set of 919 low-and-moderate income renters to explore factors associated with greater homeownership intentions and actual home purchases. Our findings provide strong support for the TPB. Favorable attitudes and subjective norms and greater perceptions of control were all associated with greater homeownership intentions. Homeownership intentions, in turn, predicted home purchases during the following year. The analysis included relevant demographic and economic variables, and the significance of income and geographic location suggests a distinction between respondents' perceived versus actual control. Our use of a longitudinal panel data set represents an important advance over much of the prior TPB literature, which tends to use cross-sectional designs and focus on short-term goals. We discuss implications for behavioral prediction using the TPB as well as implications for housing policy.

From the late 1990s to 2005, the housing market in the United States experienced rapid growth and price appreciation, followed by a sharp downturn in 2006. Since this downturn, declines in house prices and borrower equity have increased delinquencies and dragged down the broader economy. Despite these wide fluctuations in the housing market over the past decade, policy-makers continue to value homeownership, and the attainment of homeownership continues to be an important goal for many Americans. To help address the public policy goal of promoting homeownership, we designed a study to examine factors that affect the attainment homeownership among a group of low-income American renters. Because not all Americans are equally likely to own a home (Di & Liu, 2007; Quercia, McCarthy, & Wachter, 2002), we were interested in understanding what determines who purchases a home versus who does not. We were particularly interested in examining home purchases among minority and low-and-moderate income (LMI) populations because these groups have lower homeownership rates (U.S.

Census Bureau, 2006) and face greater challenges in becoming homeowners. The lower homeownership rate among minorities and LMI households negatively affects their long-term wealth-building capacity. Policies promoting homeownership target these groups, but persistent homeownership gaps remain, and there is a need to better understand what leads minority and LMI renters to both aspire toward homeownership and actually become homeowners.

In this investigation we examined factors affecting the attainment of homeownership among 919 LMI White and minority renters from 2004 through 2007. We used a longitudinal panel dataset to test the theory of planned behavior (TPB; Ajzen, 1988, 1991) while controlling for factors important to procuring a home. We tested the TPB by examining whether homeownership attitudes, subjective norms, and perceived control predicted homeownership intentions, and whether homeownership intentions predicted actual home purchases 1 year later. The first wave of data was collected in 2004, and subsequent data were collected annually in 2005, 2006, and 2007 (approximately 1, 2, and 3 years after the first wave of data was collected). These data allowed us to extend the application of the TPB beyond the short-term goals and cross-sectional designs that characterize most past

Correspondence should be sent to Taya R. Cohen, Northwestern University, Kellogg School of Management, Department of Management and Organizations, 2001 Sheridan Road, Evanston, IL 60208. E-mail: t-cohen@kellogg.northwestern.edu

studies. We used fixed-effects regression to test whether renters' attitudes toward buying a home, subjective norms toward buying a home, and perceived control over buying a home predicted their homeownership intentions, and we used survival analysis to test whether their homeownership intentions influenced whether they subsequently purchased a home.

TPB

TPB was proposed by Ajzen (1988, 1991) as an extension of the theory of reasoned action (Fishbein & Ajzen, 1975). According to the TPB, behavior can be predicted by intentions to perform the behavior. Intentions, in turn, can be predicted by attitudes toward the behavior, subjective norms regarding the behavior, and perceived control over performing the behavior. Attitudes refer to the degree to which a person has a favorable or unfavorable evaluation of the behavior. Subjective norms refer to the perceived social pressure to perform or not perform the behavior. Perceived behavioral control refers to the relative ease or difficulty of performing the behavior and is assumed to be influenced by anticipated obstacles to performing the behavior. Favorable attitudes and norms and greater perceived control are expected to lead to stronger intentions to perform the behavior. Intentions, in turn, are expected to be the most proximal determinant of behavior. According to the TPB, perceived control may also have an effect on behavior, over and above its effect on intentions. The closer perceived control corresponds to actual control, the better it will be at predicting intentions and behavior (Ajzen, 1991; Sheeran, Trafimow, & Armitage, 2003).

The TPB has been, and continues to be, a widely used model for predicting behavior and behavioral intentions. Armitage and Conner (2001) did a meta-analysis of the TPB literature and found that by the end of 1997, there were more than 161 journal articles and book chapters testing the theory. Reviews and meta-analyses in a variety of domains (e.g., exercise, health) have overwhelmingly provided support for the theory (Ajzen, 1991; Armitage & Conner, 2001; Godin & Kok, 1996; Hausenblas, Carron, & Mack, 1997). However, previous research has not tested the TPB in the domain of homeownership and, to our knowledge, no prior TPB study has employed a multiyear longitudinal design to test the theory.

Because buying a home is a difficult task that requires months, if not years, of planning, as well as financial capacity, it is possible that the TPB may not be readily applicable to the domain of homeownership. One difficult-to-achieve goal to which the TPB has been effectively applied is smoking cessation (McMillan, Higgins, & Conner, 2005). Although it is quite difficult for most smokers to quit, smoking cessation does not

require the same degree of either planning or financial capacity as purchasing a home. Unlike purchasing a home, once one decides to quit smoking, the cessation process can begin almost immediately. By examining the TPB in the homeownership domain, we tested whether the TPB could be applied to difficult goals that require financial planning and wherewithal.

Most prior research using the TPB has not considered how demographic factors affect behavior. There are two potential reasons for the lack of research on how demographic variables affect behavioral prediction with the TPB. First, much of the extant TPB research has used college student samples that are homogenous in age, education, income, and marital and family status. Second, the TPB suggests that demographic variables are background factors that should be captured by TPB constructs (i.e., attitudes, subjective norms, perceived control, intentions; Ajzen, 1991). Although the assumption that attitudes, subjective norms, perceptions of control, and intentions should account for demographic variation in behavior is plausible, it should be tested explicitly. Therefore, unlike most prior applications of the TPB, we included in our analyses relevant demographic and economic variables (e.g., race, age, income, area poverty rate). We chose to include these variables for several reasons. First, the sample used in this study contained substantial demographic variation in regards to race, age, income, education, and marital and family status. Second, prior housing research suggests that there are a multitude of demographic and economic variables that can influence one's desire and ability to purchase a home (Di & Liu, 2007). Third, demographic and economic variables may represent real or proxy measures of actual control over buying a home. Previous research has found that people are, in general, not very good at predicting how much control they have over performing a behavior (Sheeran et al., 2003). Such misperceptions are quite problematic for behavioral prediction because perceived control is not likely to predict behavior when perceptions of control are inaccurate (Ajzen, 1991; Sheeran et al., 2003). With the exception of Sheeran et al., little research has been devoted to exploring the impact of perceived versus actual control on behavioral prediction. By including relevant demographic and economic variables we hoped to improve our prediction of homeownership intentions and home purchases, as well as explore whether demographic information should be included in TPB analyses, at least in the domain of homeownership.

RESEARCH OVERVIEW

The present investigation applied the TPB toward predicting renters' homeownership intentions and their

subsequent home purchases. We explored how race, sex, age, income, wealth, employment, educational attainment, marital status, children in the household, and parents' homeownership status affected homeownership attitudes, subjective norms, perceived control, intentions, and home purchases. We also included several relevant economic/housing variables: average state home appreciation index, area poverty rate, and region of the country. For the analysis of home purchases, we explored potential interactions between homeownership intentions and each of the other variables in the model, as well as other interactions suggested by previous research, such as wealth by race (Di & Liu, 2007).

The primary reason the demographic and economic covariates were included was to determine whether homeownership intentions predicted home purchases above and beyond the effects of the demographic and economic variables. In terms of the TPB, these demographic and economic variables could be considered real or proxy indicators of actual, rather than perceived, control. Moreover, the demographic and economic variables might also influence home purchases indirectly via influencing homeownership attitudes, subjective norms, and perceived control, so we wanted to explore these associations as well.

A major contribution of this research is its several waves of longitudinal data. Most TPB research examines outcomes over weeks or months. In contrast, this study examined the outcome over 4 years. The longitudinal panel data set allowed us to use survival analysis and model time-varying predictors. This approach provides a substantial improvement over the ordinary least squares regression models that typify most studies related to the TPB.

METHOD

Random digit dialing was used to provide a sample of likely urban LMI renters across the United States. The data used in this study came from the renter subsample of the Community Advantage Panel Survey (CAPS), an ongoing longitudinal study of the social and financial impacts of homeownership.¹ The renters' subsample was designed

¹CAPS is run by the Center for Community Capital at the University of North Carolina at Chapel Hill to help assess a secondary mortgage market program developed out of a partnership between the Ford Foundation, Fannie Mae, and Self-Help, a leading community development financial institution. The goal of mortgage program is to provide evidence to lenders, policymakers, and the secondary mortgage market that low-wealth borrowers are "bankable" and that Fannie Mae (and, by implication, Freddie Mac) can significantly expand their purchase of affordable housing loans without compromising their balance sheets or the safety and soundness of their practices. The renters subsample analyzed in this study serves as a comparison group to the CAPS homeowners.

as a comparison group to an existing sample of homeowners. Participants in the renters' subsample were matched to homeowners according to geographic location and income (see Atkin et al., 2004, for a more complete description of the data collection procedures).² Although participants in this study were not intended to represent all renters in the United States, they do represent a diverse group living in 30 cities across 20 states.

Respondents and Procedure

Table 1 presents the number of respondents who completed each year of the study, as well as the number of respondents who purchased homes during the course of the study. A total of 1,531 renters participated in the 2004 (Year 1) phone survey on renting. In 2005, individuals who had participated in the initial phone interview were recontacted and asked to participate in an in-person follow-up interview regarding renting and homeownership. Out of the initial 2004 baseline sample of 1,531 renters, the 2005 (Year 2) interview was completed by 919 respondents. As shown in Table 1, 612 cases were dropped from this analysis because they did not respond to later surveys or because they had missing data on one more of the variables of interest. Table 2 presents descriptive information about the 919 respondents from the 2004 baseline sample of renters for whom we had complete data for 2004 and 2005. There were no

²The goal of the renter sample selection was to complete around 1,500 interviews of low-income renters who lived in the same areas as the CAPS owners. We particularly wanted low-income renters who lived in geographic proximity to CAPS owners so as to neutralize the impacts of local market conditions on homeowner outcomes, especially with respect to the financial impacts of homeownership. We also wanted to assess differences between renters and homeowners living in the same areas. To select the low-income renter panel, we limited our search to the 30 metropolitan areas with the largest number of outstanding loans, starting with the subset of CAPS owners in those areas who had participated in the 2003 owner survey. We then looked for "matching" renters, that is, those living in the same neighborhood as a CAPS owner. The term "neighborhood" was defined as the same census block group as the homeowner. If too few qualified renters could be found in a particular census block group, the search was extended to census tract level. If insufficient potential renter respondents were found in the census tract, the neighborhood was extended to a four-mile radius around the CAPS owner. The potential renter survey respondents were identified from a database created and maintained by Genesys Sampling Systems. To be eligible for participation in the low-income renter sample, a respondent had to be the person who signed the rental lease and paid the rent and had to meet CAPS income limits. For renters, the CAPS income limit referenced the household's 2002 income and was equal to 80% of the AMI when the percent minority population was less than 30%, or 115% of AMI when the percent minority population was 30% or greater in census tracts. A total of 15,935 households were sampled to ultimately locate 1,531 qualified, matching low-income renter panel participants. A small financial incentive was provided to respondents at each year.

TABLE 1

Number of Respondents Becoming Homeowners from 2004 to 2007

Year No.	Date	No. Renting	No. Becoming Homeowners	No. Censored	No. Used in Analysis
1	2004	1,531	NA	NA	NA
2	2005	847	72	612	919
3	2006	657	53	137	710
4	2007	505	34	118	539
Total		NA	159	867	2,168

Note. Each respondent that remained a renter 1 year later was entered in the data set as a separate observation for the following year. The final data set consisted of a total of 2,168 observations (919 respondents), including 159 respondents who became homeowners. Respondents were "censored" (i.e., dropped from further analysis) if they did not respond to later surveys or if they had missing data on one more of the variables of interest. NA = not applicable.

statistically significant differences in regards to race, income, marital status, education, employment, or sex between the original group of 1,531 renters and the 919 who were used in our analyses.³

Of the 919 renters from 2004 (Year 1) who completed the 2005 (Year 2) interview, 72 purchased homes by 2005,⁴ and 847 remained renters. The 847 "surviving" renters from 2005 were recontacted in 2006 for the Year 3 phone interview. Of these 847 renters from 2005, 53 purchased homes by 2006, and 657 remained renters (137 were censored due to missing data). The 657 surviving renters from 2006 were recontacted in 2007 for the Year 4 phone interview. Of 2006's surviving 657 renters, 34 purchased homes by 2007, and 505 remained renters (118 were censored due to missing data). Each respondent that remained a renter 1 year later was entered in the data set as a separate observation for the following year. Once a respondent purchased a home, he or she was removed from future surveys. The final data set consisted of 2,168 observations (919 respondents), including 159 respondents who became homeowners (see Table 1).

³Comparing the 919 CAPS renters in our sample with renters from the 2003 American Housing Survey (AHS; U.S. Census Bureau, Housing and Household Economic Statistics Division, 2005) indicated that CAPS renters were more likely to be minority (53% vs. 49%), female (71% vs. 54%), older (>50; 22% vs. 18%), married or partnered (47% vs. 35%) unemployed (39% vs. 34%), and have more than a high school education (83% vs. 77%). Although these differences were statistically significant in chi-square tests ($p < .001$), with the exception of sex, the substantive demographic differences between the CAPS sample and the AHS sample are small. We controlled for all of these demographic characteristics in our analyses.

⁴Of those who purchased homes between 2004 and 2005, 93% reported purchasing their home with a 30-year fixed mortgage that carried an interest rate of 6.06%. Respondents reported paying a median purchase price of \$101,750 for the home. No data are currently available for loans that originated after 2005.

TABLE 2

Descriptive Information about the 2004 Baseline Sample of Renters

*Demographic variables*Annual household income: $M = \$21,458$; $SD = \$12,968$; $Median = \$19,500$; $Min = \$250$; $Max = \$76,250$ Income minus Area Median Income: $M = -\$19,031$; $SD = \$14,164$; $Median = -\$20,983$; $Min = -\$63,224$; $Max = \$36,123$ Relative income: $M = -1.90$; $SD = 1.42$; $Median = -2.10$; $Min =$ -6.32 ; $Max = 3.61$ Networth: $M = \$11,223$; $SD = \$32,938$; $Median = \$4,475$; $Min =$ $-\$54,075$; $Max = \$705,500$ Networth square root: $M = 251.27$; $SD = 46.53$; $Median = 241.98$; $Min = 1.58$; $Max = 871.54$ Received a financial gift or prize of \$500 or more: $No = 866$, $Yes = 53$ Parents owned a home: $No = 256$, $Yes = 663$ Sex: $Male = 270$, $Female = 649$ Race: $White = 428$, $Black = 305$, $Hispanic = 149$, $Other = 37$ Age: $30\text{ years or less} = 279$, $31-40\text{ years} = 203$, $41-50\text{ years} = 232$, $51\text{ or more years} = 205$ Marital status: $Married / Partnered = 429$, $Widowed/Separated = 272$, $Never Married = 218$ Number of children: $No\ children = 491$, $One\ child = 188$, $Two\ or\ more\ children = 240$ Education: $11th\ grade\ or\ less = 155$, $High\ school\ graduate = 294$, $Some\ college = 309$, $Bachelor's\ degree\ or\ more = 161$ Employment: $Employed = 564$, $Unemployed = 301$, $Retired = 54$ *Economic/Housing variables*Average state home appreciation index: $M = 267.65$; $SD = 47.96$; $Median = 255.65$; $Min = 213.46$; $Max = 467.58$ Area poverty rate: $M = .12$; $SD = .04$; $Median = .12$; $Min = .04$; $Max = .20$ Area Poverty Rate $\times 100$: $M = 11.76$; $SD = 3.82$; $Median = 11.75$; $Min = 4.20$; $Max = 20.22$ Region of the United States: $West = 106$, $Midwest = 115$, $South = 698$

Note. $N = 919$ respondents. Relative income = $(Income - Area\ Median\ Income)/10,000$. The other-race category included Asian participants, Native American participants, multi-racial participants, and all other participants who did not identify themselves as White, Black, or Hispanic.

Interview Questions

TPB variables. In the initial 2004 phone interview, respondents were asked a variety of questions regarding homeownership and other related issues. Relevant to TPB, respondents were asked to indicate their agreement, ranging 1 (*strongly disagree*), 2 (*disagree*), 3 (*neither agree nor disagree*), 4 (*agree*), and 5 (*strongly agree*), with four statements regarding homeownership. These were (a) "Buying a home is important to me." (*attitude*), (b) "People who are important to me think I should buy a home." (*subjective norms*), (c) "Nothing can stop me from buying a home." (*perceived control*), and (d) "I eventually intend to buy a home." (*intention*). Table 3 presents a correlation matrix, along with means and standard deviations, of the baseline TPB assessments for the 919 respondents who were not censored due to missing data.

TABLE 3
Intercorrelations Among the Theory of Planned Behavior Variables
for the 2004 Baseline Sample

	<i>Intention</i>	<i>Attitude</i>	<i>Subjective Norm</i>	<i>Perceived Control</i>
Intention	3.93 (1.07)			
Attitude	.66	3.93 (1.06)		
Subjective norm	.47	.54	3.53 (1.12)	
Perceived control	.37	.35	.40	3.07 (1.22)

Note. $N=919$ respondents. Means (with standard deviations) are presented on the diagonal. Pearson correlations are presented in the lower triangle. Responses ranged from 1 (*strongly disagree*) to 5 (*strongly agree*). All correlations were significant at $p < .001$.

Demographic variables. In addition to the TPB assessments, respondents were asked to report demographic information, including race, sex, age, household income, wealth (i.e., “networth”), current employment, educational attainment, marital status, and children in the household. Respondents were also asked whether their parents owned a home, and whether they had received a financial gift during the past year (“During the last 12 months, have you received more than \$500 from a prize, inheritance, legal settlement, or some other source that was unexpected?”). Respondents were classified as White, Black, Hispanic, or “other.” The other-race category included minority and multiracial respondents who did not identify themselves as solely White, Black, or Hispanic. White respondents were specified as the reference group for analyses of race because the CAPS sample contained more White respondents than Black, Hispanic, or other-race respondents.

To provide more meaningful interpretation of the impact of household income on homeownership, we computed a “relative income” variable by subtracting the Area Median Income (AMI) from the 2000 Census from the assessment of household income and dividing this value by 10,000. Thus, relative income represents the respondent’s income relative to the AMI in \$10,000 units. A score of -1 on relative income indicates that the respondent’s household income was \$10,000 below the AMI, whereas a score of 1 indicates that the respondent’s household income was \$10,000 above the AMI.

Networth refers to the respondent’s assets relative to their debts. Assets include checking accounts, savings accounts, CDs, savings bonds, other bonds, stocks, mutual funds, IRAs, cash value life insurance, vehicles owned, and any other financial or nonfinancial assets. Debts include student loans for the respondent, the respondent’s spouse, or the respondent’s children; balances on credit cards; loans against cash value life insurance; debts for major purchases; and any other miscellaneous debt more than \$500. An outlier for networth (i.e., a case with a networth of more than \$700,000)

caused significant skew, which made analyses of the variable in its original metric problematic. We used a square-root transformation to reduce skew. All analyses of networth used the square-root transformed variable.

Economic/Housing variables. Variables from the housing literature were also incorporated. The cost of housing depends largely on geographic location, and we included three regional measures (West, Midwest, South). The data set did not contain homes in the Northeast. We also considered state-level variation and housing appreciation by using the State Home Appreciation Index, which came from the Office of Federal Housing Enterprise Oversight (<http://www.ofheo.gov/>, 2008) and reflected the average home appreciation in each respondent’s state during the periods of this study: 2004Q1–2007Q2. Also included in the analyses was area poverty rate from the 2000 Census (measured at the level of the Metropolitan Statistical Area).⁵ For more meaningful interpretation, area poverty rate was multiplied by 100 (it is a proportion in its original metric).

Time-varying predictors & survey year. During each follow-up interview, respondents were asked whether they had purchased a home that year, as well as many of the original questions from the 2004 survey. Variables that were assessed during each year of the study are referred to as “time-varying.” These time-varying predictors included the TPB variables, income, receipt of a financial prize, educational attainment, employment, marital status, and children in the household. Time-invariant predictors (networth, parents owned a home, sex, race, age, state home appreciation index, region, area poverty rate) were assessed once and remained constant.

All analyses contained a survey year variable that refers to the study year number (2, 3, 4) in which home purchase was assessed (2005, 2006, 2007). All time-varying predictors for the year of purchase were assessed during the preceding year. For example, the rows in the data set for 2005 (Year 2) contain the respondent’s 2004 income and 2005 home purchase status. Likewise, the rows for 2006 (Year 3) contain the respondent’s 2005 income and 2006 home purchase status.

Data Analysis

Given the survival analysis approach, respondents were dropped from the renters’ sample after the year in which

⁵Several other variables from the 2000 Census were also examined: unemployment rate, homeownership rate, and cost of housing. All Census variables were measured at the level of the Metropolitan Statistical Area. When the Census variables were entered simultaneously, only area poverty rate was significant. For parsimony in presentation, we trimmed the nonsignificant Census variables from the model.

they purchased a home. If the respondent did not purchase a home that year, he or she was entered in the data set as a separate observation for the following year (see Table 1). This resulted in 2,168 observations. There would be three observations of the same respondent if that respondent did not purchase a home between 2004 and 2007 and was not censored due to missing data.

Homeownership attitudes, subjective norms, perceived control, and intentions. Because there could be up to three observations of the same respondent, we analyzed the time-varying attitudes, subjective norms, perceived control, and intentions variables using fixed-effects regression. This approach allowed us to account for nonindependence due to multiple observations of respondents who did not purchase a home. We computed these analyses with the “proc mixed” procedure in SAS, and we chose an unstructured covariance structure because it provided the best fit according to model-level fit statistics.

Home purchases. Home purchase was analyzed using survival analysis (Allison, 1984), with a method similar to that of Di and Liu (2007). The outcome of interest was the transition from renting to owning. To conduct the survival analysis, we used logistic regression to model the probability of achieving homeownership. The dependent variable was whether the respondent purchased a home in the year following the previous interview (0 = *no*, 1 = *yes*).

We tested several home purchase models. Model 1 contained main effects for all variables (i.e., TPB variables, demographic variables, economic variables, and year). After testing the main effects model, we tested for potential interactions. To conduct the interaction tests, we trimmed all nonsignificant main effects from Model 1, and conducted one-at-a-time tests of potential two-way interactions. Lower-order terms contained in the interaction were incorporated as well. The goal of the interaction analyses was to test whether any of the variables in the model moderated the effect of intentions on home purchase. In addition to the interactions with intentions, we tested Relative Income \times Race, Networth Square-Root \times Race, Received a Financial Prize \times Race, Relative Income \times Year, Networth Square-Root \times Year, and Received a Financial Prize \times Year. Model 2 contained all the significant main effects revealed by Model 1 and the significant interactions revealed by the one-at-a-time interaction tests.

RESULTS

We report three sets of analyses. The analyses reported in the first section tested whether the demographic and

economic variables predicted the TPB indicators (attitudes toward buying a home, subjective norms toward buying a home, and perceived control over buying a home). If the demographic variables are associated with the TPB indicators but not home purchases, it might suggest that the influence of demographic characteristics on homeownership is indirect. The analyses reported in the second section tested whether homeownership intentions were predicted by the TPB indicators and the demographic and economic variables. The analyses reported in the third section examined home purchases—the primary focus of this investigation.

Homeownership Attitudes, Subjective Norms, and Perceived Control

Attitudes. Table 4 presents the results of the analysis of homeownership attitudes. Year, race, age, number of children, and employment were significantly related to homeownership attitudes. The significant effect of year indicates that the renters who remained in the study became increasingly likely to agree that buying a home was important to them. The significant effects of the demographic variables indicate that more favorable homeownership attitudes were associated with (a) being Black instead of White, (b) being younger instead of older, (c) having children versus not having children, and (d) being employed versus retired.

Subjective norms. Table 5 presents the results of the analysis of subjective norms. Networth, race, age, and employment were significantly related to subjective norms regarding homeownership. Subjective norms in favor of purchasing a home were stronger when the respondent (a) had greater wealth (i.e., when their networth was higher), (b) was Black or Hispanic instead of White, (c) was younger rather than older, and (d) was employed versus unemployed or retired. There was also a significant effect of the widowed/separated versus married/partnered contrast, which suggests that respondents who were widowed or separated were less likely to purchase a home compared to those who were married or had a long-term partner. However, the overall (omnibus) test for marital status was nonsignificant, so we caution against emphasizing the significant contrast.

Perceived control. Table 6 presents the results of the analysis of perceived control. Year, networth, and race were significantly related to perceived control over buying a home. The significant effect of year indicates that the renters who remained in the study became less likely to feel that nothing could stop them from buying a home. Given that we account for other relevant factors with time-varying predictors, the downturn in the

TABLE 4
Fixed-Effects Regression Results for Time-Varying Attitudes

<i>Variables</i>	<i>B (SE)</i>	<i>F</i>	<i>p</i>
Year (T.V.)	.02 (.01)	5.40	.020
Relative income (T.V.)	.02 (.01)	3.74	.054
Networth square root	.001 (.001)	1.03	.309
Received a financial prize (T.V.)	-.01 (.02)	.05	.829
Parents owned a home	-.04 (.07)	.27	.603
Sex: Female vs. male	.12 (.07)	2.62	.106
Race (df = 3)		6.67	<.001
Black vs. White	.33 (.08)	18.61	<.001
Hispanic vs. White	.04 (.10)	.14	.711
Other race vs. White	.01 (.16)	.01	.930
Age (df = 3)		27.79	<.001
30 years or younger vs. 51 years or older	.85 (.10)	76.92	<.001
31–40 years vs. 51 years or older	.68 (.10)	46.90	<.001
41–50 years vs. 51 years or older	.61 (.09)	42.18	<.001
Marital status (T.V.; <i>df</i> = 2)		.06	.944
Widowed/separated vs. married/partnered	-.02 (.06)	.10	.753
Never married vs. married/partnered	-.01 (.06)	.04	.847
No. of children (T.V.; <i>df</i> = 2)		5.10	.006
One child vs. no children	.09 (.03)	8.75	.003
Two or more children vs. no children	.10 (.04)	5.87	.016
Education (T.V.; <i>df</i> = 3)		.13	.943
H.S. graduate vs. 11th grade or less	.00 (.06)	.00	.982
Some college vs. 11th grade or less	.01 (.06)	.04	.843
Bachelor's or more vs. 11th grade or less	-.01 (.08)	.03	.873
Employment (T.V.; <i>df</i> = 2)		3.34	.036
Unemployed vs. employed	-.01 (.02)	.08	.776
Retired vs. employed	-.07 (.03)	4.96	.026
State Home Appreciation Index	.00 (.00)	1.19	.275
Area Poverty Rate × 100	.01 (.01)	.65	.422
Region (<i>df</i> = 2)		1.97	.140
West vs. South	.20 (.12)	2.82	.094
Midwest vs. South	-.08 (.10)	.62	.433

Note. *N* = 2,168 observations (919 respondents). Akaike's Information Criterion = 3,143.4, Bayes' Information Criterion = 3,172.4. Tests for all variables contained 1 *df* except where noted. Significant effects shown in bold. T.V. = time-varying (all other variables were assessed once and remained constant).

housing market during the course of the study seems the most likely explanation for the decrease in respondents' perceptions of control over time. The downturn began in 2006, and our findings suggest that renters felt less control over buying a home as the housing market worsened.

The significant effects of networth and race indicate that minority renters and renters with more wealth felt greater control over buying a home. There were also significant effects of the 30 years old or younger versus 51 years old or older contrast (suggesting that respondents who were 30 or younger felt more control over buying a home), and the one child versus no children

TABLE 5
Fixed-Effects Regression Results for Time-Varying Subjective Norms

<i>Variables</i>	<i>B (SE)</i>	<i>F</i>	<i>P</i>
Year (T.V.)	.01 (.01)	2.36	.125
Relative income (T.V.)	.02 (.01)	3.84	.050
Networth square root	.002 (.001)	4.49	.034
Received a financial prize (T.V.)	-.01 (.03)	.07	.788
Parents owned a home	-.01 (.08)	.01	.907
Sex: Female vs. male	-.03 (.08)	.11	.739
Race (df = 3)		6.71	<.001
Black vs. White	.34 (.08)	16.18	<.001
Hispanic vs. White	.34 (.11)	9.80	.002
Other race vs. White	.07 (.18)	.15	.697
Age (df = 3)		6.17	<.001
30 years or younger vs. 51 years or older	.44 (.11)	17.08	<.001
31–40 years vs. 51 years or older	.33 (.11)	9.21	.003
41–50 years vs. 51 years or older	.33 (.10)	1.47	.001
Marital status (T.V.; <i>df</i> = 2)		2.34	.097
Widowed/separated vs. married/partnered	-.13 (.06)	4.27	.039
Never married vs. married/partnered	.01 (.07)	.05	.828
No. of children (T.V.; <i>df</i> = 2)		1.56	.210
One child vs. no children	.03 (.03)	.62	.430
Two or more children vs. no children	.08 (.05)	3.13	.077
Education (T.V.; <i>df</i> = 3)		.70	.550
H.S. graduate vs. 11th grade or less	-.04 (.07)	.41	.522
Some college vs. 11th grade or less	.01 (.07)	.02	.895
Bachelor's or more vs. 11th grade or less	-.03 (.09)	.11	.744
Employment (T.V.; <i>df</i> = 2)		3.70	.025
Unemployed vs. employed	-.06 (.02)	5.37	.021
Retired vs. employed	-.09 (.04)	6.32	.012
State Home Appreciation Index	.00 (.00)	3.61	.058
Area Poverty Rate × 100	.01 (.01)	.42	.515
Region (<i>df</i> = 2)		1.06	.346
West vs. South	.15 (.13)	1.34	.248
Midwest vs. South	-.08 (.11)	.48	.488

Note. *N* = 2,168 observations (919 respondents). Akaike's Information Criterion = 3,530.7, Bayes' Information Criterion = 3,559.7. Tests for all variables contained 1 *df* except where noted. Significant effects shown in bold. T.V. = time-varying (all other variables were assessed once and remained constant).

contrast (suggesting that respondents with one child felt more control over buying a home than those with no children). However, the overall (omnibus) tests for age and number of children were nonsignificant, so we caution against emphasizing the significant contrasts.

Homeownership Intentions

Table 7 presents the results of the analysis of homeownership intentions. There were significant effects of year, attitudes, subjective norms, perceived control, relative

TABLE 6
Fixed-Effects Regression Results for Time-Varying Perceived Control

Variables	B (S.E.)	F	p
Year (T.V.)	.03 (.01)	7.93	.005
Relative income (T.V.)	.02 (.01)	1.66	.198
Networth square root	.003 (.001)	13.29	<.001
Received a financial prize (T.V.)	-.01 (.03)	.12	.728
Parents owned a home	.03 (.09)	.12	.725
Sex: Female vs. male	-.05 (.09)	.29	.592
Race (df = 3)		11.57	<.001
Black vs. White	.49 (.09)	26.81	<.001
Hispanic vs. White	.48 (.12)	15.78	<.001
Other race vs. White	.50 (.20)	6.13	.014
Age (df = 3)		2.58	.052
30 years or younger vs. 51 years or older	.30 (.12)	6.41	.012
31–40 years vs. 51 years or older	.21 (.12)	2.91	.088
41–50 years vs. 51 years or older	.07 (.11)	.40	.529
Marital Status (T.V.; df = 2)		1.05	.351
Widowed/separated vs. married/partnered	-.09 (.06)	2.09	.148
Never married vs. married/partnered	-.02 (.07)	.06	.809
No. of children (T.V.; df = 2)		2.93	.054
One child vs. no children	.08 (.03)	5.79	.016
Two or more children vs. no children	.06 (.05)	1.74	.187
Education (T.V.; df = 3)		.44	.724
H.S. graduate vs. 11th grade or less	.04 (.07)	.30	.584
Some college vs. 11th grade or less	.00 (.08)	.00	.955
Bachelor's or more vs. 11th grade or less	-.03 (.09)	.10	.753
Employment (T.V.; df = 2)		.86	.424
Unemployed vs. employed	.00 (.02)	.01	.914
Retired vs. employed	.04 (.04)	1.27	.260
State Home Appreciation Index	.00 (.00)	2.37	.123
Area Poverty Rate × 100	-.01 (.01)	.48	.490
Region (df = 2)		1.85	.157
West vs. South	.13 (.15)	.82	.366
Midwest vs. South	-.19 (.12)	2.36	.125

Note. $N = 2,168$ observations (919 respondents). Akaike's Information Criterion = 3,740.3, Bayes' Information Criterion = 3,769.2. Tests for all variables contained 1 *df* except where noted. Significant effects shown in bold. T.V. = time-varying (all other variables were assessed once and remained constant).

income, parents' homeownership status, age, and employment. The overall (omnibus) test of race was also significant, but none of the contrasts involving the reference group (White respondents) reached significance.

Consistent with TPB, attitudes, subjective norms, and perceived control all significantly and independently predicted homeownership intentions. Respondents were more likely to intend to buy a home if they agreed that buying a home was important, that others who were important to them thought they should buy a home, and that nothing could stop them from buying a home.

TABLE 7
Fixed-Effects Regression Results for Time-Varying Intentions

Variables	B (SE)	F	p
Year (T.V.)	-.06 (.02)	10.68	.001
Attitude (T.V.)	.45 (.03)	324.90	<.001
Subjective norm (T.V.)	.07 (.02)	9.54	.002
Perceived control (T.V.)	.10 (.02)	28.54	<.001
Relative income (T.V.)	.05 (.02)	9.23	.003
Networth square root	.00 (.00)	.02	.888
Received a financial prize (T.V.)	.03 (.06)	.28	.600
Parents owned a home	.12 (.05)	5.31	.002
Sex: Female vs. male	-.04 (.05)	.70	.404
Race (df = 3)		2.97	.031
Black vs. White	.10 (.07)	3.44	.064
Hispanic vs. White	-.09 (.07)	1.86	.173
Other Race vs. White	.12 (.11)	1.26	.262
Age (df = 3)		32.74	<.001
30 years or younger vs. 51 years or older	.70 (.07)	88.39	<.001
31–40 years vs. 51 years or older	.52 (.07)	48.06	<.001
41–50 years vs. 51 years or older	.27 (.07)	15.62	<.001
Marital status (T.V.; df = 2)		.72	.489
Widowed/separated vs. married/partnered	-.01 (.06)	.04	.852
Never married vs. married/partnered	-.07 (.06)	1.39	.238
No. of children (T.V.; df = 2)		1.96	.142
One child vs. no children	.06 (.05)	1.38	.241
Two or more children vs. no children	.11 (.05)	3.73	.054
Education (T.V.; df = 3)		1.64	.178
H.S. graduate vs. 11th grade or less	.05 (.07)	.58	.447
Some college vs. 11th grade or less	.11 (.07)	2.63	.105
Bachelor's or more vs. 11th grade or less	.16 (.08)	3.81	.051
Employment (T.V.; df = 2)		13.54	<.001
Unemployed vs. employed	-.14 (.04)	10.35	.001
Retired vs. employed	-.37 (.07)	25.92	<.001
State Home Appreciation Index	-.00 (.00)	.05	.822
Area Poverty Rate × 100	-.006 (.007)	.76	.383
Region (df = 2)		.93	.394
West vs. South	-.03 (.08)	.16	.692
Midwest vs. South	-.09 (.07)	1.83	.176

Note. $N = 2,168$ observations (919 respondents). Akaike's Information Criterion = 5,058.1, Bayes' Information Criterion = 5,087.0. Tests for all variables contained 1 *df* except where noted. Significant effects shown in bold. T.V. = time-varying (all other variables were assessed once and remained constant).

The significant effect of year indicates that the renters who remained in the study became increasingly unlikely to intend to buy a home over time. Similar to the significant effect of year on perceived control, the downturn in the housing market during the course of the study seems the most likely explanation for the decrease in respondents' homeownership intentions over time. The significant effects of the demographic variables indicate that greater homeownership intentions were associated

with (a) greater household income, (b) being employed instead of unemployed or retired, (c) being younger instead of older, and (d) having a parent who owned a home. Of these effects, the importance of parents' homeownership status stands out because it implies an intergenerational effect on renters' intentions to become homeowners.

Home Purchases

Model 1: Main effects. Table 8 presents the results of the home purchase survival analysis that included all main effects. The Nagelkerke R^2 for this model was .20, suggesting that the variables accounted for approximately 20% of the variance in home purchasing. However, the Nagelkerke R^2 statistic is not a true indicator of variance and it tends to be downwardly biased (Cohen, Cohen, West, & Aiken, 2003). As described by Cohen et al., R^2 measures for logistic regression models tend to be smaller than R^2 measures for linear regression models, which may lead to the misperception that logistic models fit worse than they actually do.

As shown in Table 8 there were significant main effects of intentions, relative income, state home appreciation index, and area poverty rate. For each level of increase in agreement with the statement, "I eventually intend to buy a home," respondents were 1.40 times as likely to purchase a home. For each \$10,000 increase in household income relative to the AMI, respondents were 1.65 times as likely to purchase a home. The significant effects of the economic variables indicate that respondents were less likely to purchase a home in states with high appreciation rates and in areas with greater poverty. These findings underscore the role of geography and suggest that policies that promote homeownership are best directed toward low-appreciating states.

Model 2: Significant main effects and interactions. We trimmed all nonsignificant main effects from Model 1 and tested for significant two-way interactions. These analyses revealed two significant interactions: Intention \times Race and Relative Income \times Year (see Table 9). None of the other interactions were significant. The Intention \times Race interaction was significant for all three race contrasts (see Table 9) and is shown in Figure 1. The pattern of simple slopes shows a positive relationship between intentions and the likelihood of purchasing a home among White respondents, but a weaker positive relationship among Black and Hispanic respondents, and a negative relationship among other-race respondents. Alternatively, Figure 1 also shows that there was a race difference in the likelihood of purchasing a home among those with weak homeownership intentions but not among those with strong

TABLE 8
Home Purchase Survival Analysis Model 1—Main Effects

Variables	B (SE)	OR	Wald χ^2	p
Year (T.V.)	-.16 (.11)	.85	2.10	.148
Intention (T.V.)	.34 (.13)	1.40	6.71	.010
Attitude (T.V.)	-.02 (.13)	.98	.03	.863
Subjective norm (T.V.)	.04 (.11)	1.04	.15	.703
Perceived control (T.V.)	.09 (.08)	1.10	1.23	.267
Relative income (T.V.)	.50 (.07)	1.65	57.33	<.001
Networth square root	.002 (.002)	1.00	1.51	.219
Received a financial prize (T.V.)	.42 (.30)	1.52	2.01	.157
Parents owned a home	.22 (.23)	1.24	.92	.338
Sex: Female vs. male	.26 (.21)	1.30	1.63	.202
Race (df = 3)			2.74	.433
Black vs. White	-.10 (.23)	.90	.20	.651
Hispanic vs. White	.34 (.27)	1.41	1.60	.206
Other race vs. White	.25 (.45)	1.28	.31	.580
Age (df = 3)			2.50	.476
30 years or younger vs. 51 years or older	.26 (.36)	1.29	.51	.473
31–40 years vs. 51 years or older	-.01 (.36)	.99	.00	.974
41–50 years vs. 51 years or older	-.12 (.35)	.88	.12	.726
Marital status (T.V.; df = 2)			2.71	.258
Widowed/separated vs. married/partnered	-.21 (.25)	.81	.68	.410
Never married vs. married/partnered	-.40 (.25)	.67	2.49	.115
No. of children (T.V.; df = 2)			2.47	.291
One child vs. no children	.04 (.25)	1.04	.02	.885
Two or more children vs. no children	.34 (.23)	1.41	2.15	.143
Education (T.V.; df = 3)			.99	.805
H.S. graduate vs. 11th grade or less	.20 (.35)	1.22	.34	.561
Some college vs. 11th grade or less	.10 (.35)	1.11	.09	.770
Bachelor's or more vs. 11th grade or less	.30 (.38)	1.35	.63	.426
Employment (T.V.; df = 2)			.45	.799
Unemployed vs. employed	-.14 (.25)	.87	.33	.564
Retired vs. employed	.14 (.54)	1.15	.07	.796
State Home Appreciation Index	-.006 (.003)	.99	4.58	.032
Area Poverty Rate \times 100	-.07 (.03)	.93	5.79	.016
Region (df = 2)			3.84	.147
West vs. South	.13 (.36)	1.14	.13	.721
Midwest vs. South	.54 (.28)	1.72	3.83	.050
Constant	-1.85 (1.18)	.16	2.44	.118

Note. $N = 2,168$ observations (919 respondents). Model Fit: $\chi^2(29) = 182.60$, $p < .001$, $-2 \text{ Log Likelihood} = 954.27$. Nagelkerke $R^2 = .20$, Cox & Snell $R^2 = .08$. Tests for all variables contained 1 *df* except where noted. Significant effects shown in bold. OR = Odds Ratio. T.V. = time-varying (all other variables were assessed once and remained constant).

homeownership intentions. Among respondents who strongly disagreed with the statement "I eventually intend to buy a home," White respondents were least likely to purchase a home, followed by Black, Hispanic, and other-race respondents. Note, however, that there were only 37 other-race respondents (7 of whom purchased a home), and this small number of observations

TABLE 9
Home Purchase Survival Analysis Model 2—Significant Main Effects and Interactions

Variables	B (SE)	OR	Wald χ^2	p
State Home Appreciation Index	-.006 (.003)	.99	5.76	.016
Area Poverty Rate \times 100	-.09 (.03)	.91	10.13	.001
Intention (T.V.)	.71 (.17)	2.03	17.87	<.001
Race (df = 3)			11.49	.009
Black vs. White	2.15 (1.16)	8.62	3.47	.063
Hispanic vs. White	3.09 (1.32)	21.98	5.50	.019
Other race vs. White	4.44 (1.50)	85.14	8.83	.003
Intention \times Race (df = 3)			9.73	.021
Intention \times Black vs. White	-.51 (.26)	.60	4.07	.044
Intention \times Hispanic vs. White	-.60 (.30)	.55	3.97	.046
Intention \times Other Race vs. White	-.97 (.37)	.38	6.97	.008
Year (T.V.)	-.06 (.13)	.94	.24	.623
Relative income (T.V.)	.09 (.20)	1.09	.18	.667
Relative Income \times Year	.16 (.07)	1.18	5.77	.016
Constant	-2.03 (1.10)	.13	3.39	.066

Note. $N=2,168$ observations (919 respondents). Model Fit: $\chi^2(12)=177.73$, $p < .001$, $-2 \text{ Log Likelihood}=959.14$. Nagelkerke $R^2=.19$, Cox & Snell $R^2=.08$. Tests for all variables contained 1 df except where noted. Significant effects are shown in bold. OR=odds ratio; T.V.=time-varying (all other variables were assessed once and remained constant).

makes the interpretation of the Intention \times Other Race vs. White interaction problematic. In fact, the negative simple slope for other-race respondents can be explained by the fact that there was only one other-race respondent who strongly disagreed with the intention item, and this respondent purchased a home by 2007. Overall

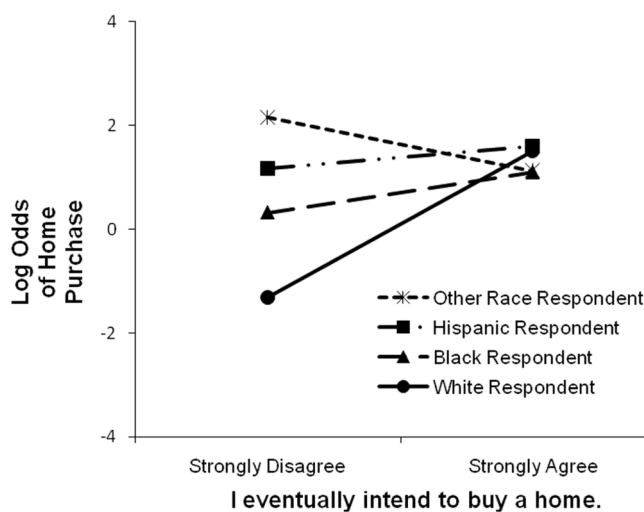


FIGURE 1 Logistic regression estimate of Intention \times Race from home purchase survival analysis (see Table 9). Note. Higher scores indicate a greater likelihood of purchasing a home. $N=2,168$ observations (919 respondents).

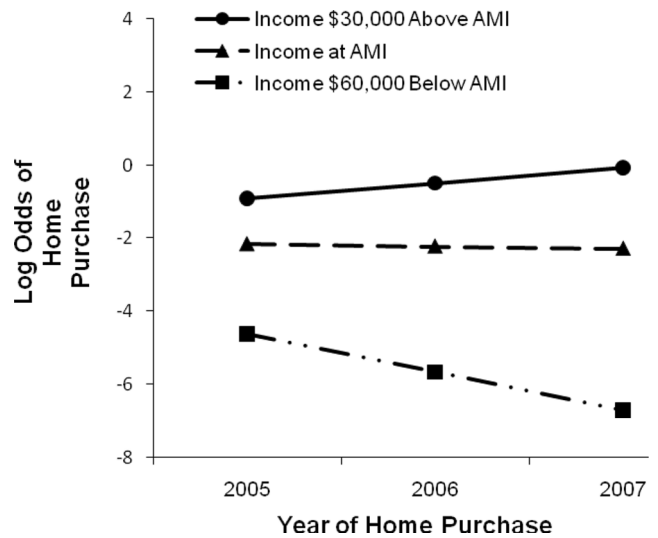


FIGURE 2 Logistic regression estimate of Relative Income \times Year from home purchase survival analysis (see Table 9). Note. Higher scores indicate a greater likelihood of purchasing a home. $N=2,168$ observations (919 respondents). AMI=Area Median Income.

though, the Intention \times Race interaction suggests that the impact of intentions on home purchases varies for different racial groups.

The significant Relative Income \times Year interaction is shown in Figure 2. The pattern of simple slopes shows that respondents with incomes at the low end of the sample range (i.e., \$60,000 below the AMI) became increasingly less likely to purchase a home over time, whereas the likelihood of purchasing a home remained relatively stable over time for respondents with incomes at the AMI and for those at the high end of the sample range (i.e., \$30,000 above the AMI). Alternatively, Figure 2 also shows that there was a larger income difference in the likelihood of purchasing a home in 2005 than in 2006 or 2007. This interaction suggests that the downturn in the housing market during the course of the study decreased home purchases primarily among renters with lower incomes.

DISCUSSION

The longstanding promotion of homeownership in U.S. housing policy highlights the need to better understand homeownership decisions, especially among low-income and minority populations. In this study, we focused on the initial homeownership decision and explored factors associated with greater homeownership intentions and the attainment of homeownership. We examined these outcomes using a longitudinal panel dataset of 919 LMI renters. Our use of a longitudinal panel data set represents an important advance over much of the prior

TPB literature, which tends to use cross-sectional designs and focus on short-term goals. Interviewing individuals over a 4-year period enabled us to extend the theory of planned behavior to a long-term goal that is difficult to achieve. Although there have been hundreds of TPB studies in a diverse array of domains, this study is the first to apply to the TPB toward predicting home purchases and is the first (to our knowledge) to employ a multiyear longitudinal design. Overall, our research found strong support for TPB. As predicted, favorable attitudes and subjective norms toward homeownership, and greater perceptions of control over purchasing a home, were all associated with greater homeownership intentions. Homeownership intentions, in turn, were associated with purchasing a home during the following year. These relationships remained significant even after controlling for numerous demographic and economic variables.

The Impact of Parents' Homeownership Status on Homeownership

Respondents were more likely to intend to buy a home if their parents owned a home. This finding suggests that parents' homeownership status has an intergenerational effect on their children's aspirations to become homeowners. Given that homes are a highly leveraged investment, we suspect that the lower homeownership intentions among individuals whose parents did not own a home could have a substantial impact on their lifelong wealth trajectory. Policies designed to promote more equitable homeownership and build wealth may need to target potential first-generation homeowners.

The Impact of Race on Homeownership

Race differences emerged in our analyses of homeownership attitudes, subjective norms, and perceived control. Compared to White respondents, Black respondents reported stronger homeownership attitudes, subjective norms, and perceived control, Hispanic respondents reported stronger subjective norms and perceived control, and other non-White respondents reported stronger perceived control. Despite these differences, however, significant race main effects did not emerge for homeownership intentions or actual home purchases. Instead, what we found was a significant interaction of intentions by race. Homeownership intentions were more predictive of home purchases among White respondents than among Black, Hispanic, and other non-White respondents. This finding may imply that there are fewer structural constraints on White renters who intend to purchase a home, making it easier for them to actualize their homeownership intentions. Further examination of the race by intentions

interaction, however, revealed a complex pattern of results. Race differences were primarily present for those with low homeownership intentions. Minority respondents were more likely to purchase homes than White respondents when they had low homeownership intentions. Given that we had no solid predictions regarding race, and no clear explanation as to why minority respondents purchased homes when they did not intend to, we are hesitant to make many inferences from this unexpected Race \times Intentions interaction. Yet this finding suggests that future research should further explore how and why the impact of intentions on behavior may differ by race.

The Impact of Age, Employment, Income, & Wealth on Homeownership

In addition to parents' homeownership status, intentions to eventually purchase a home were also affected by age, employment, and income. Age and employment also affected homeownership attitudes and subjective norms, as did several other demographic variables (see Tables 4–6 for a list of these variables). However, household income was the only demographic variable to significantly predict actual home purchases. Whereas younger, employed respondents whose parents owned a home were more likely to intend to buy a home, these demographic characteristics were not reliably associated with the actual attainment of homeownership. Exploring when different factors affect intentions versus actual behaviors is a ripe area for future research.

Although the main effect of household income on home purchases was significant, it was qualified by an interaction with survey year, whereby respondents with very low incomes were less likely to purchase homes over time. We return to this issue in our discussion of the recent downturn of the housing market. What is worth noting here is that income mattered more than wealth in predicting both homeownership intentions and home purchases. Although greater wealth was associated with stronger perceptions of control and stronger normative pressure to buy a home, renters' wealth had no significant effect on their intentions to purchase or their actual purchase of a home. Our findings are at odds with previous research (Di & Liu, 2007) that has found that wealth has a strong impact on home purchases and that minority renters require greater wealth to become homeowners. The divergence between our findings and those of Di and Liu may arise from differences in the samples, time periods of the studies, or the measures of wealth. In this study, wealth was examined as a constant over the 4-year period, whereas Di and Liu examined wealth as a time-varying predictor over a 15-year period. Future research should continue to explore the relationship between wealth and homeownership to clarify whether

and when greater wealth predicts home purchases. One possibility suggested by our findings is that wealth may influence homeownership intentions and home purchases indirectly by strengthening normative pressure and feelings of control.

The Impact of Economic Variables on Homeownership

Beyond homeownership intentions and household income, the only other variables associated with purchasing a home were state home appreciation and the area poverty rate. Indeed, it is not surprising that respondents living in areas with high home appreciation and in areas with greater poverty were less likely to purchase homes—these variables are clear indicators of obstacles to purchasing a home. It is more surprising that agreement with the simple statement, “I eventually intend to buy a home,” predicted actual home purchases after controlling for these economic variables. In regards to public policy, the significance of these geographic indicators suggest that policies promoting homeownership would be most efficiently targeted toward states with lower price appreciation and in cities with lower poverty rates.

The Impact of the Downturn in the Housing Market on Homeownership

Homeownership attitudes, perceived control, and intentions were all impacted by survey year. Given that we controlled for other relevant factors with time-varying predictors, the downturn in the housing market that began in 2006 seems the most likely explanation for these effects. As the housing market worsened, renters became *more* likely to feel that owning a home was important, but they simultaneously became *less* likely to feel that nothing could stop them from buying a home, and *less* likely to intend to buy a home. These seemingly paradoxical results indicate that declines in the housing market are unlikely to lessen the importance of homeownership among Americans, even though declines in the market are likely to make renters feel less control over purchasing a home and less likely to intend to buy a home.

For actual home purchases, there was a significant interaction between survey year and income. The renters in our sample with the lowest incomes became increasingly less likely to purchase a home as the housing market deteriorated over the course of this study. This finding indicates that very low-income renters (e.g., those making \$60,000 less than the area median income) have become less likely to buy homes in recent years.

An implication of the findings regarding survey year is that efforts to promote homeownership will likely

have the most impact when the national housing market is appreciating. However, we also found that individuals were less likely to purchase homes in states experiencing high housing price appreciation. One explanation for these seemingly contradictory results could be that perceptions of the national housing market primarily affect individuals’ feelings of control and intentions, whereas actual home price appreciation in the state where they live affects whether they are able to actually purchase a home.

With regard to TPB, the survey year findings imply that timing matters and broader societal forces affect TPB indicators. Thus, smoking cessation programs may be more successful when cigarette taxes rise. Similarly, carpooling or energy conservation programs may be more successful during a time of rising energy prices. The point to note is that TPB can incorporate the changes that occur over time. This study demonstrates that researchers need not limit the scope of their TPB questions to easily obtained goals or short-term studies. Rather, researchers can model the impact of time on behavioral intentions and outcomes and thus extend TPB to applications involving long-term behavioral change.

Implications and Limitations

One of the more interesting implications of our findings concerns the role of perceived versus actual control in behavioral prediction. Presumably, our measure of perceived control (“Nothing can stop me from buying a home.”) should have accounted for the financial difficulty inherent in buying a home. However, this was not entirely the case. Although perceptions of control were influenced by respondents’ wealth, the relationship between income and perceived control was weak and nonsignificant. The weak relationship between income and perceived control might indicate that perceptions of control are based on factors other than income (e.g., wealth; competing needs to buy a car, pay for education, etc.), but it might also suggest that our measures were imprecise or that renters’ perceptions of control were inaccurate (Sheeran et al., 2003). Whichever the case, the strong effect of income on home purchases, coupled with the weak nonsignificant effect of income on perceived control, suggests that TPB research should incorporate relevant demographic and/or economic variables to ensure more accurate behavioral prediction.

We are not the first to suggest that individuals’ perceptions of control are often inaccurate. Sheeran and colleagues (2003) examined this issue directly and concluded that “people are generally not very accurate at judging how much control they actually have over performing a behaviour” (pp. 407–408). Moreover,

Sheeran et al. pointed out that individuals' inaccurate perceptions have negative consequences for behavioral prediction. Including relevant demographic variables, such as income when the outcome is related to one's financial capacity, may be one way that researchers can overcome the obstacles created by faulty perceptions of behavioral control.

One limitation of this study is that our measures may have been imprecise because we did not include multiple indicators. Although the TPB variables were assessed at multiple time points, they were each assessed with just one item. Fishbein and Ajzen (1975) and others (e.g., Jaccard & Blanton, 2005) have pointed out that behavioral prediction will be improved by the use of multiple indicators. Although including multiple indicators would have been ideal, we were unable to do so because of concerns over with the length of the interview. However, we find it encouraging that our results strongly supported the TPB even with only one item to assess each variable.

A related limitation of the current research is that the TPB indicators (attitudes, subjective norms, perceived control, and intentions) and the behavioral assessment (home purchase) were measured with differing levels of specificity (Fishbein & Ajzen, 1975). The TPB variables did not specify a time frame (e.g., "I *eventually* intend to buy a home"), but the behavioral assessment did (home purchase during *the previous year*). Our prediction of home purchases could have been improved had we included the phrase "this year" in our TPB measures (e.g., "I intend to buy a home *this year*"). Still, even with impoverished measures we found support for the theory of planned behavior, which provides strong evidence of the theory's robustness.

CONCLUSION

Renters who intended to own a home were more likely to purchase a home during the following year than renters who did not intend to own a home. This finding is encouraging because it suggests that strong intentions can help people achieve their goals, even when their goals are difficult to attain and require long-term planning and financial capacity. Despite this encouraging finding, however, intentions to own a home were less associated with home purchases for minority renters compared to Whites renters. Furthermore, renters with lower incomes were less likely to purchase homes (especially as the housing market worsened), as were renters who lived in areas of greater poverty or with high home appreciation rates. The significance of these demographic and economic factors demonstrates that, even for those individuals who intend to purchase a home,

financial and societal forces impose challenging constraints. An important implication of this research for the theory of planned behavior is that relevant demographic and economic variables should be included in behavioral prediction models, especially in circumstances in which perceptions of control over the behavior are not likely to be accurate indicators of actual control over the behavior. Although the current investigation was specific to homeownership domain, our analytic approach and findings indicate that the theory of planned behavior can be applied toward predicting difficult long-term goals.

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