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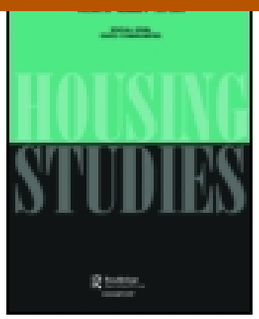

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First-time homebuying: attitudes and behaviors of low-income renters through the financial crisis

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ABSTRACT

We use psychological theory to investigate how attitudes toward homebuying relate to first-time home purchases over the past decade. Homeownership rates in the US have dropped to 20-year lows, but whether views toward homebuying shifted due to the financial crisis is not known because studies have not compared attitudes for the same respondents pre- and post-crisis. We address this gap with 2004–2014 panel data from low-income renters. We find that a negative shift in homebuying attitudes is associated with a decline in first-time home purchases. Older renters aged more than 35 years at baseline report the greatest declines in homebuying intentions. Younger renters aged 18–34 also report diminished homebuying intentions, yet express highest overall levels of homebuying intentions pre- and post-crisis. Blacks report greater homebuying intentions although their odds of home purchase are 29 per cent lower than whites. Homebuying norms and favorability are associated with homebuying intentions but not with actual purchases, while perceived control over homebuying influences both outcomes.

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Introduction

The economic upheaval related to the September 2008 financial crisis is unprecedented in modern times. As house prices in the United States declined steeply from their 2006 peak, mortgage delinquencies and home foreclosures increased rapidly, especially for homes purchased with subprime loans. According to Mortgage Bankers Association's (MBA) National Delinquency Survey (2008), 5.82 per cent of adjustable rate mortgage loans on residential properties were delinquent in the fourth quarter of 2007. By the first quarter of 2008, 8.11 per cent of all US mortgages were either in delinquency or foreclosure, and by the first quarter of 2010, this figure increased to 14.01 per cent (Mortgage Bankers Association, 2010). According to CoreLogic National Foreclosure Report (2013), more than 4.4 million homes completed foreclosure between September 2008 and April 2013.

High mortgage delinquency and home foreclosure rates were only part of the problem in the US housing market. Both the increase in home foreclosures and the surplus of unsold

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homes from the prior building boom placed downward pressure on house prices. This lowered homeowners' equity and led more homeowners to be at risk of default or foreclosure. According to Zillow Home Value Index (2011), by the first quarter of 2011, average US home values had plummeted by 29.5 per cent from their mid-2006 peak, and 28.4 per cent of all single-family homes were worth less than their mortgage.

Direct or indirect experiences with the subprime mortgage crisis, the dramatic plunge in house prices, drops in home equity, the home foreclosure crisis, and a lengthy economic recession could all negatively influence attitudes toward homeownership. The homeownership rate in the United States has fallen to 1993 levels; it fell to 63.7 per cent in the first quarter of 2015 from its 2005 all-time peak of 69.3 per cent (Belsky *et al.*, 2014; Joint Center for Housing Studies, 2015). Trends suggest that the financial crisis negatively influenced homeownership rates, but how the financial crisis relates to attitudes toward homebuying is an open question.

Historically, most Americans have regarded homeownership positively and considered it an essential piece of the "American Dream." Achieving homeownership has been a personal goal for many who believe in the social and economic merits of homeownership. Scholars have also found that homeownership is associated with benefits including wealth creation, greater residential stability, safer neighborhoods, improved health, better educational outcomes, and higher civic engagement (Rohe & Lindblad, 2014; Rohe & Watson, 2007; Schwartz, 2014). Homeownership has long been central to US housing policy, and Federal programs dating back to the New Deal reforms of the 1930s have promoted homeownership by making mortgages accessible, affordable, and desirable (Schwartz, 2014).

It is reasonable to ask, however, whether the financial crisis may have shaken America's strong belief in homeownership. In order to better understand these beliefs, we base this study in psychological theory. We explore whether the financial crisis is associated with renters' homebuying intentions and purchases and relate these outcomes to race/ethnicity and age cohorts.

A strong rationale for bringing a psychological approach to the home purchase decision can be found in work by economists Case & Shiller (1988), who collected data on homebuyers to understand what motivated their decision to buy a home. These researchers found that, rather than knowledge of economic fundamentals, the decision to buy a home is based upon the individual's perception that home prices will increase, the excitement surrounding recent housing price changes, and beliefs that the location is a "good place to live" or that the "economy is strong." Given these findings, Case and Shiller concluded that psychological factors are fundamental to the homebuying decision.

Scholars have explored preferences, expectations, and beliefs about owning or renting a home, yet data constraints have left most scholars unable to link these and other attitudes to the behavior of home purchase. Consequently, empirical tests of psychological theory are largely absent in research on the decision to own or rent. In this context, we draw upon psychological theory to consider how homebuying attitudes and home purchase behavior may have changed over a decade of financial turbulence. Specifically, we ask three questions:

(1) How does psychological theory complement economic and sociological perspectives in explaining homebuying intentions and home purchase decisions?
(2) How did the recent financial crisis relate to the first-time homebuying intentions and home purchase decisions of low-income renters in the US?

(3) How did these homebuying intentions and home purchase decisions vary with respect to age cohorts and race/ethnicity?

We consider these questions using pre- and post-crisis panel data collected from low-to-moderate income (LMI) renters in the United States between 2004 and 2014. The housing market collapse led to post-crisis research considering how the financial and foreclosure crises might relate to homeownership attitudes. This study, however, distinguishes itself as the first to bring psychological theory to assess homebuying attitudes and behaviors using longitudinal data covering the pre-crisis housing boom; the great recession, the financial crisis and related housing bust; and the ensuing foreclosure crisis and tepid economic recovery.

We review what is known to influence the decision to own or rent as well as recent studies that examine whether exposure to the financial crisis influenced these preferences. We build on existing perspectives in housing and present a complementary framework based in the psychological theory of behavioral goal attainment. Findings support the theorized links between attitudes and behavior. Findings also show that the financial crisis is negatively associated with homebuying intentions and home purchases. The negative shift in homebuying intentions is magnified for older renters aged 35+ years at baseline. Younger cohorts report the highest level of homebuying intentions pre- and post-crisis, yet their homebuying intentions also decline. Blacks express stronger homebuying intentions than whites, yet have a lower probability of home purchase. We discuss implications of these findings for low-income and minority households and the future of the housing market.

What drives the decision to own or rent a home?

Scholars have long tried to understand what factors influence the decision to own or rent a home, commonly referred to as tenure choice. Historically, tenure choice explanations derive from two disciplinary perspectives: economics and sociology. We summarize these traditions in context of the financial crisis. We then identify psychological theory linking attitudes to behaviors.

Economics perspective

The economics perspective assumes that households are economically rational and that tenure choices depend on maximizing economic benefits given budget constraints (Arnott, 1987; Fu, 2014). Household finances affect tenure choice due to the savings needed for mortgage downpayments, the expenses of home maintenance, tax burdens, and transaction costs. Homeownership is not only a consumption decision but also an investment decision.

While early economic research found that income was the key determinant of tenure choice, more recent studies also consider assets and the user costs of housing (such as mortgage, taxes, and deductions). Jones (1995) found that tenure decisions are associated with not only income but also households' liquefiable net wealth. Linneman & Wachter's (1989) found that while both income and wealth constraints reduce the likelihood of buying a home, wealth constraints have a stronger impact. A study by Di & Liu (2007) examining the transition to homeownership for minorities over a 15-year period resulted in similar findings.

Besides income and wealth, research has also shown that a lower tax burden, lower transaction costs, and a longer expected stay in a home increase the likelihood of owning a home (Haurin & Gill, 2002; Rosen & Rosen, 1980). Henderson & Ioannides (1983) showed that households are owned when investment demand for housing is greater than consumption demand. From this economics perspective then, the plunge in home values during the financial and foreclosure crises may have shaken confidence in the investment value of homeownership and shifted tenure preferences away from owning and toward renting.

Sociological perspective

In the sociological perspective, tenure choices are driven by life cycle events, socioeconomic status, and demographic background (Clark *et al.*, 1994; Dieleman & Everaers, 1994; Fu, 2014). Scholars have found that life cycle events such as marriage and parenthood are positively associated with homeownership (Clark *et al.*, 1994; Clark & Dieleman, 1996; Deurloo *et al.*, 1994; Kendig, 1984; Mulder & Wagner, 1998; Smits & Mulder, 2008). The research suggests that family formation leads to homeownership because people believe that owner-occupied homes are more suitable for families and perceive expenses as more manageable due to the ability of couples to pool resources (Mulder & Wagner, 1998). Scholars have also examined intergenerational effects: parents' status as homeowners influences the likelihood that their children will become homeowners as adults (Boehm & Schlottmann, 1999; Haurin & Morrow-Jones, 2006; Henretta, 1984).

Studies analyzing the demographics of tenure choice have found associations for gender, race/ethnicity, and age. The financial resources of men play a larger role in attaining homeownership than do the financial resources of women (Marjolein, 2010; Mulder & Hooimeijer, 1995; Mulder & Smits, 1999). Race and ethnicity studies show that over the past two decades in the United States, the homeownership rate for whites has averaged nearly 20 percentage points higher than that of blacks and Hispanics and about 10 percentage points higher than that of Asians (Belsky *et al.*, 2014). Even after controlling for demographic factors, the likelihood of homeownership among blacks and Hispanics is lower than that for whites (Flippen, 2001; Kain & Quigley, 1972; Krivo, 1986; Long & Caudill, 1992). Scholars suggest that lower income, less education, immigrant status, discrimination in the housing and mortgage markets, poor credit, and a lack of information about the homebuying process partly explain the gap in homeownership rates (Haurin *et al.*, 2007; Haurin & Morrow-Jones, 2006; Krivo, 1986; Painter *et al.*, 2001).

The relationship between householder age and tenure choice is complicated by cohorts, which help explain many age-related patterns in homeownership rates. On the one hand, the likelihood of owning a home increases with the age of the householder (Hood, 1999; Segal & Sullivan, 1998). On the other hand, continuity can be observed in tenure choice as cohort members continue owning or renting while entering different age groups through natural processes of aging (Myers, 1999). Given this process, homeownership rates within age groups can shift as cohort momentum accrues differently across generations (Myers & Lee, 2016).

The financial crisis could therefore imprint a cohort legacy that sustains the tenure choices of affected generations. Clark (2013) finds a higher proportion of low-income and minority populations who entered the market prior to financial crisis were not able to sustain homeownership. From the sociological perspective, then, the financial crisis is associated with a disruption of traditional links between household formation and homeownership.

Psychological perspective

The psychological perspective links attitudes to tenure choice. The research considers housing preferences, desires, beliefs, and expectations, but few studies connect such attitudes to the behaviors of homebuying. For instance, Anderson (2011) finds that preferences for owning rather than renting are associated with a desire to customize the dwelling. Drew (2014) finds that beliefs in the benefits of homeownership have a stronger association with expectations to own a home than do family composition and income. Expecting to own a home is also associated with younger ages, being a minority, having negative experiences with renting, and the anticipation of financial sacrifices. Reid (2014) examines how low-income households make decisions about buying a home and finds that the ideals of upward mobility and achievement, as well as the belief in homeownership as part of the "American Dream," are persistently associated with the desire to own a home among low-income households.

The financial turbulence of the past decade raised the question of whether attitudes toward homeownership shifted as a result of the crisis and recession. With pre-crisis attitudinal data unavailable, studies could not directly answer this question. Scholars did gauge attitudes post-crisis, and some findings suggest that the collapse in home prices may have diminished peoples' desires to own a home. For example, Bracha & Jamison (2011) consider whether exposure to the housing market crash altered opinions of whether owning a home is better financially than renting. Their findings suggest that effects vary by location and age: survey participants who lived in an area of large decline in housing prices—as compared to those in relatively stable housing market areas—were more likely to identify financial benefits of owning a home if they were 58 years old or older, but less likely if they were younger.

The Pew Research Center (2011) examined whether the exposure to house price declines altered the American public's confidence in homeownership. Their nationwide survey in March 2011 found that 81 per cent of adults surveyed still believed in the investment value of homeownership and indicated they would purchase a home in the future. However, young adults were less likely to hold this belief: only 35 per cent of young adults ages 18–29 and 32 per cent of those ages 30–49 agree that homeownership is the best long-term investment, compared to 39 per cent of those ages 50–64 and 48 per cent of those ages 65 and older.

Hart Research Associates (2014) also conducted a nationwide telephone survey, first in 2013 and again in 2014, to consider whether the foreclosure crisis transformed people's views about housing, particularly those spending more than 30 per cent of their income on rent or mortgage. While a large majority (70 per cent) of renters aspire to own a home one day, more than half of young adults aged 18–34 believed that homeownership is less likely to build equity and wealth.

Other studies suggest a strong and continued interest in homeownership. Collins and Choi (2010) examined 2008 data of 400 renters in the San Francisco Bay Area with incomes less than $75,000. The researchers found that changes in neighborhood house price appreciation and foreclosure rates were not associated with renters' self-reported likelihood of buying a home or to their assessment of the risks and benefits of homeownership.

Similarly, Drew and Herbert (2013), using Fannie Mae's National Housing Survey data collected in 2010 and 2011, examined whether exposure to the US foreclosure crisis and house price declines altered preferences for owning vs. renting. The authors found that exposure to the crisis did not fundamentally alter individuals' preferences in tenure choice,

except for those who are underwater on their mortgage. Tenure preferences were unrelated to exposure to recent house price declines, the foreclosure crisis, or knowing people who defaulted on their mortgages.

Based upon these and other studies, Rohe and Lindblad (2014) conclude from their review of the literature that "the impact of the foreclosure crisis on attitudes toward owning seems to have been short lived" (p. 132). They further suggest that "no extraordinary efforts will be needed to attract American households back into the housing market" (p. 134). This conclusion, however, rests on studies that lack pre-crisis comparison data. Because the same people were not surveyed before, during, and after the crisis, the data used in prior studies do not allow researchers to assess whether macroeconomic events changed attitudes.

Psychological theory explaining mobility and tenure choice

Perhaps the most compelling psychological framework clarifying links between attitudes and tenure choice can be found in theories of reasoned action and planned behavior. Motivation for these theories came from social psychological research revealing surprisingly weak correlations between attitudes and behavior (Ajzen, 2012). Investigating why attitudes were not more predictive of behavior, Ajzen & Fishbein (1977) showed that context and specificity determine the strength of the attitude–behavior link.

Building on this work, Ajzen & Fishbein (1980) posited that deliberate behavior is driven by intentions which are a function of an individual's attitude and subjective norms toward the behavior. Attitudes toward the behavior are an individual's overall evaluation of the behavior, combining his or her beliefs about consequences of the behavior and judgments about the behavior. Subjective norms about the behavior are an individual's perception of the social pressure to perform the behavior. This "reasoned action" approach described behaviors that people can control.

As appreciation grew that many behaviors are difficult to achieve, the "reasoned action" approach was expanded to account for degree of difficulty. Perceived behavioral control was introduced as a third dimension rooted in beliefs about the power of factors that affect behavior. Perceived behavioral control is about an individual's assessment of his or her ability to enact the behavior, which is influenced by the individual's control over the behavior as well as the level of confidence the individual feels about being able to perform or not perform the behavior. With this addition, the "reasoned action" approach evolved to the Theory of Planned Behavior (TPB).

As conceived, the TPB predicts individual's deliberate behavior driven by intentions that are influenced by attitudes toward the behavior, subjective norms about the behavior, and perceived behavior control (Ajzen, 1991). Derived from social psychology, the TPB has been widely applied to an extensive body of literature in health sciences, environmental psychology, nutrition, and applied economics (Ajzen, 2012; Hardeman et al., 2002). Contributions of the TPB include an improved understanding of how people achieve difficult behavioral goals such as smoking cessation, weight reduction, and exercise regimens.

Lu (1998) studied residential satisfaction, mobility intentions, and moving behavior with a "reasoned action" approach. Using the American Housing Survey, Lu (1998) found that demographic factors such as income, age, and race continue to have direct effects on migration over and above the effects of residential satisfaction and mobility intentions. The data lacked measures for subjective norms and perceived control, yet Lu (1998) showed that even when adjusting for demographics, residential satisfaction contributes to moving decisions.

A study by Cohen *et al.* (2009) related homebuying attitudes to the behavior of home purchase. The findings supported the TPB in showing that renters' home purchases can be predicted by higher intentions to become a homeowner, and that such intentions are influenced by homebuying attitudes, norms, and perceived control. However, TPB indicators did not entirely explain homebuying intentions or behaviors; demographic factors such as race and income also mattered.

Such demographic factors constitute an "actual control" dimension that the TPB now accommodates (Ajzen, 2012). *Actual control*, which can differ from *perceived control*, measures the power of resources and constraints that facilitate or impede the behavior. Thus, most tenure choice research—explaining the decision to own or rent as a function of income, education, race, mortgage credit, etc.—can be seen as identifying the *actual control* dimension while relegating unmeasured attitudes as constant or inconsequential.

Contribution: linking attitudes to behavior

This failure to link attitudes to behavior characterizes nearly all empirical efforts to consider how psychological dimensions might inform tenure choice. A related shortcoming stems from a lack of theoretically driven inquiry: studies rarely identify a priori how and why particular psychological measures might relate to the decision to own or rent. Absent a theoretical framework that is grounded in a behavioral link to homebuying, the study of tenure preferences and expectations has questionable utility.

The retrospective comments of homebuyers can raise insightful questions (Case & Shiller, 1988; Case *et al.*, 2012). But without pre-purchase attitudes and a comparison group of non-buyers, little can be inferred about the relation of attitudes to homebuying. Thus, a knowledge gap has arisen that reflects data limitations leading to an impoverished understanding of how attitudes do—and do not—influence home purchases.

To date, Cohen *et al.* (2009) provide the only study that situates homebuying within established psychological theory linking attitudes to behavior. That study and other research on mobility and tenure choice preferences suggest that economic and sociological explanations will exert influence even when psychological measures are introduced (Andersen, 2011; Cohen *et al.*, 2009; Drew, 2014; Drew & Herbert, 2013; Lu, 1998). Thus, a more comprehensive approach is needed: models of the decision to own or rent will be incomplete unless they include economic, sociological, and psychological factors.

Figure 1 applies the TPB to homebuying. Note that positive views toward homebuying do not directly predict home purchases—*attitudes*, *norms*, and *perceived control* influence as main effects only intention, not behavior. *Actual control* consists of demographic factors from the economic and sociological perspectives of tenure choice. These can influence *perceived control*, as well as intentions and homebuying behavior. Elsewhere, *actual control* is theorized to moderate the impact of intentions but not predict the behavior (Ajzen, 2012). Figure 1 shows that our approach deviates slightly from this conception by identifying *actual control* as a vector of main effects that directly constrain or facilitate homebuying.

Thus, we consider how the financial crisis relates to homebuying by extending data from the Cohen *et al.* (2009) study to a full decade, from 2004 to 2014. We add seven years of panel data and connect homebuying attitudes to home purchase behaviors. We ground our study in psychological theory as depicted in Figure 1.

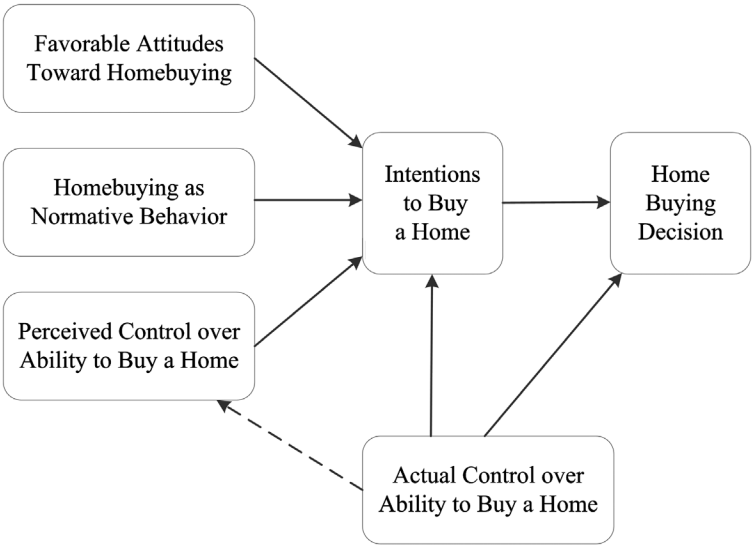

Figure 1. Homebuying theory of planned behavior.

Methods

Data

The primary data source is the renter subsample of the Community Advantage Panel Survey (CAPS), which collects data on low-to-moderate-income and minority households in the US. The threshold for household income was established using the Area Median Income (AMI) and the percent minority population in the Census tract.[1] In the 2004 baseline survey, nearly all participants (97 per cent) had household incomes that fell below 80 per cent of the AMI. Table 1 displays the distributions for household income at baseline and the entire 2004–2014 study period. Changes in indicators and panel composition over time are presented after detailing measures.

The renters panel was obtained through random digit dialing that targeted the head of household and screened participants according to several criteria including the income threshold, age, educational status, and geographic location. Individuals over the age of 65 and full-time students were excluded from the pool of eligible participants. Eligibility for CAPS renters was also determined by neighborhood proximity to urban participants in the CAPS homeowner's subsample.[2]

Thus, eligibility as low-income renters in CAPS was established once, at baseline. After baseline, no respondents were added; consequently, the panel shrinks over time due to attrition. Of the 15,943 individuals who were originally called as potential eligibles, a total of 1,531 completed the 2004 baseline interview. Baseline participants were eligible for annual follow-up interviews, which were administered annually for 11 years through 2014. Response rates for these follow-up interviews ranged from 76–93 per cent.[3]

Representativeness

CAPS participants have been compared to two nationally representative surveys that were administered in 2003 by the US Census Bureau: the Current Population Survey (CPS) and

Table 1. Categorical indicators for baseline and analytic samples, 2004–2014.

		Baseline ($N = 1267$)	Intentions ($N = 7120$ person-years)	Purchase ($N = 6617$ person-years)
Indicator	Category	Freq (Pct)	Freq (Pct)	Freq (Pct)
Intentions to buy	Strongly agree	424 (33.5)	2381 (33.4)	2137 (32.3)
	Agree	605 (47.8)	1839 (25.8)	1922 (29.0)
	Neither	44 (3.5)	982 (13.8)	825 (12.5)
	Disagree	169 (13.3)	1038 (14.6)	975 (14.7)
	Strongly disagree	25 (2.0)	880 (12.4)	758 (11.5)
Age Cohort in 2004*	<25 years old	158 (12.5)	581 (8.2)	510 (7.7)
	25–34	384 (30.3)	1774 (24.9)	1640 (24.8)
	35–44	287 (22.7)	1683 (23.6)	1548 (23.4)
	45–54	256 (20.2)	1653 (23.2)	1570 (23.7)
	≥55	182 (14.4)	1429 (20.1)	1349 (20.4)
Income	<10 k	263 (20.8)	1808 (25.4)	1693 (25.6)
	10 k-24.9 k	539 (42.5)	2572 (36.1)	2495 (37.7)
	25 k-39.9 k	345 (27.2)	1592 (22.4)	1526 (23.1)
	40 k-54.9 k	94 (7.4)	707 (9.9)	596 (9.0)
	≥55 k	26 (2.1)	441 (6.2)	307 (4.6)
Relative income	<0.2	336 (26.5)	2325 (32.7)	2156 (32.6)
	0.2–0.4	457 (36.1)	2050 (28.8)	2023 (30.6)
	0.4–0.6	326 (25.7)	1488 (20.9)	1433 (21.7)
	0.6–0.8	113 (8.9)	636 (8.9)	569 (8.6)
	≥0.8	35 (2.8)	621 (8.7)	436 (6.6)
Parents owned home*	No	363 (28.7)	2188 (30.7)	2047 (30.9)
	Yes	904 (71.3)	4932 (69.3)	4570 (69.1)
Gender*	Female	907 (71.6)	5280 (74.2)	4918 (74.3)
	Male	360 (28.4)	1840 (25.8)	1699 (25.7)
Race*	White	543 (42.9)	3196 (44.9)	3000 (45.3)
	Black	422 (33.3)	2678 (37.6)	2506 (37.9)
	Hispanic	248 (19.6)	971 (13.6)	863 (13.0)
	Other race	54 (4.3)	275 (3.9)	248(3.7)
Partner status	Partnered/married	469 (37.0)	2050 (28.8)	1841 (27.8)
	Separated/divorced	410 (32.4)	2821 (39.6)	2624 (39.7)
	Single	388 (30.6)	2249 (31.6)	2152 (32.5)
Children at home	None	669 (52.8)	4435 (62.3)	4040 (61.1)
	1–2 children	467 (36.9)	2075 (29.1)	2020 (30.5)
	3 or more children	131 (10.3)	610 (8.6)	557 (8.4)
Educational Attainment	11thgrade	233 (18.4)	1166 (16.4)	1073 (16.2)
	HS graduate	396 (31.3)	1942 (27.3)	1864 (28.2)
	Some college	414 (32.7)	2668 (37.5)	2456 (37.1)
	Bachelor's or more	224 (17.7)	1344 (18.9)	1224 (18.5)
Employment status	Employed	818 (64.6)	3956 (55.6)	3704 (56.0)
	Unemployed	149 (11.8)	752 (10.6)	718 (10.9)
	Retired	59 (4.7)	1038 (14.6)	885 (13.4)
	Out of labor force	241 (19.0)	1374 (19.3)	1310 (19.8)
Geographic coverage	Midwest	176 (13.9)	1115 (15.7)	1020 (15.4)
	South	934 (73.7)	5222 (73.3)	4880 (73.7)
	West	157 (12.4)	783 (11.0)	717 (10.8)

*Denotes a constant. All other indicators are time-varying.

the American Housing Survey (AHS). The CPS collects information about demographics and household characteristics for the non-institutionalized civilian population in the US. The AHS collects information on the US housing stock, such as housing costs and the physical attributes, and also captures demographic information on the people who inhabit the surveyed housing units.

In evaluating demographic patterns across surveys, Riley (2015) found that income and household size distributions are similar for CAPS renters when compared to low-income CPS and AHS renters. Relative to these CPS and AHS renters, the CAPS renters are less

likely to be white and more likely to be black. Employment status is similar between CAPS renters and those of the AHS, but CAPS renters who are not working are more likely to be looking for work when compared to CPS renters. CAPS renters are more likely to be female, and are more likely to be married. CAPS renters are slightly older and more educated than their counterparts in the CPS and AHS.

The largest discrepancy between CAPS renters and those of the CPS and AHS involves geographic coverage (Riley, 2015). Over 72 per cent of CAPS renters are located in the south, compared with 35 per cent of CPS renters and 34 per cent of AHS renters. Nearly 20 per cent of CPS and AHS renters come from the northeast, while none of the CAPS renters do.

Overall, these comparisons indicate that the CAPS samples are largely representative of low-income and minority renter population in the United States in 2003. CAPS participants are somewhat more educated and more attached to the labor force, and are more likely to be black and female. Most notably, CAPS renters are more likely to be located in the south when compared with the general low-income and minority renter population.

Samples

We construct the panel as person-years data by concatenating participant responses to the annual surveys. We track and assess respondents to either their final year of surveying or the household's removal from the panel due to a first-time home purchase, as detailed later in the Analysis section. List-wise deletion was applied to missing data. Respondents who missed a follow-up survey were kept in the sample if they rejoined the panel in subsequent years.

We create two analytic samples in order to capture the 2004–2005 period of rising house prices that preceded the financial crisis, while also accounting for differences in the timing of measurement for attitudes and behaviors. More specifically, for the *Intentions* sample ($N = 7{,}120$ person-years), homebuying attitudes such as favorability, norms, and perceived control relate *contemporaneously* to the outcome, homebuying intentions. In contrast, for the *Purchase* sample ($N = 6{,}617$ person-years), these attitudes must *precede* the behavior of homebuying. Consequently, measurement of the second outcome, the home purchase decision, *lags by one-year* the homebuying attitudes and intentions. Additional details about timing appear in the statistical equations specified in the Analysis section.

Measures

We consider the confounding effects of time, age, and cohorts by assessing baseline age cohorts as well as time-varying indicators for age and survey year. We use the year of survey administration to create a binary indicator in which "*During/After the Crisis* 2008–2014" is compared to the reference category, "*Before the Crisis* 2004–2007." We use these years given the financial crisis occurred in the fall of 2008 (US Financial Crisis Inquiry Commission, 2011).

Table 1 displays sample statistics for household demographics. At baseline 2004, the median household income was $22,000, with a mean of $27,538. A measure of relative household income was used for modeling (mean = .36, median = .31, standard deviation .28).[4] At baseline, about 65 per cent of participants were employed and 25 per cent were either retired or out of the labor force. About 50 per cent of the participants had completed at least some college. More than a third were married or had a partner; 32 per cent were either separated or divorced and 31 per cent were single. About 47 per cent reported one

or more children living in the household. The sample composition at baseline was 71 per cent female, and race/ethnic background was 43 per cent white, 33 per cent black, 20 per cent Hispanic, and 4 per cent Other. Most survey participants were located in the south (74 per cent) and reported that their parents owned a home (71 per cent).

Homebuying attitudes

Using five-point Likert-style response options that ranged from "strongly disagree" to "strongly agree," participants rated their level of agreement with attitudinal statements about homeownership, as follows: (1) *Favorability* toward buying a home: "Buying a home is important to me," (2) *Norms* about homebuying: "People who are important to me think I should buy a home," (3) *Perceived Control* over the ability to buy a home: "Nothing can stop me from buying a home,"[5] and (4) *Intentions* to buy a home: "I intend to buy a home sooner or later"[6] With these items, we apply the TPB to homebuying.

Responses to homebuying *intentions* are displayed in Table 1. Across the baseline and analytic samples, one-third of survey participants "Strongly Agree" that they intend to own a home. In contrast, the proportion that merely "Agree" drops 19 percentage points over the course of the study, from 48 per cent in 2004 to just 29 per cent through 2014. Similarly, the proportion of survey participants who "Strongly Disagree" increases 9 percentage points during the panel, from only 2 per cent in 2004 to 11 per cent through 2014. These proportions suggest that, over the 10-year study period, changes in intentions occurred among those who at baseline expressed moderate (rather than strong) intentions to buy. Overall averages and intercorrelations are shown in Table 2. Between 2005–2014, renters' *intentions to buy a home* averaged 3.53 on the five-point scale.

Home purchase decision

Survey questions ask and verify whether participants own the residence in which they live. The starting sample in 2004 consists entirely of low-income renters. We include in the analysis a small portion (3 per cent) of survey respondents who lived rent-free in later years of the panel.[7]

The middle column of Table 3 shows that the *Purchase* sample derives from 1,018 baseline renters who also participated in the 2005 follow-up survey. Of these, 94 (9.23 per cent) purchased their first home in 2005. Conversely, 924 stayed renters in 2005. Those who stayed renters remained in the panel given their eligibility for a first-time home purchase in the following year. In contrast, those who made a first-time home purchase in a given year of the panel were subsequently right-censored or removed from the data-set.

Table 2. Homebuying attitudes (2005–2014).

		1	2	3	4
	Indicators	Intentions	Favorable	Norms	Ability
1	Intentions to buy a home	3.534 (1.397)			
2	Favorable attitudes toward homebuying	0.420	3.708 (1.166)		
3	Homebuying as normative behavior	0.328	0.614	3.412 (1.180)	
4	Perceived control over ability to buy a home	0.326	0.419	0.397	3.097 (1.228)

Note: $N = 7120$. Table presents intercorrelations with means (and standard deviations) on the diagonal. Response options follow: *Strongly Disagree = 1, Disagree = 2, Neither = 3, Agree = 4, Strongly Agree = 5*.

Table 3. First-time home purchases in the CAPS renters panel.

Year	Original sample		Analytic sample			
Of home purchase decision	Starting sample of renters	Number missing data	Total person-years modeled	Stayed renting	Purchased home	Home purchase rate (%)
2004	1531	n/a	n/a	n/a	n/a	n/a
2005	1267	249	1018	924	94	9.23
2006	1173	319	854	806	48	5.62
2007	1125	413	712	666	46	6.46
2008	1079	414	665	619	46	6.92
2009	1033	383	650	637	13	2.00
2010	1020	416	604	583	21	3.48
2011	999	443	556	545	11	1.98
2012	988	436	552	541	11	1.99
2013	977	451	526	500	26	4.94
2014	951	471	480	463	17	3.54
Total	n/a	n/a	6617	6284	333	5.03

Note: Households are censored following home purchase.

Of the 1,018 baseline renters who participated in one or more follow-up surveys, 333 (32.7 per cent) reported purchasing their first home between 2005 and 2014. The highest percentage of first-time home purchases occurs in the earlier years of the panel, between 2005 and 2008. A five percentage point drop in home purchases occurs in the year span 2008–2009, reflecting difficulties in the broader housing market during these years. The rate of first-time home purchases rises once again in 2013 and 2014.[8]

Changes over time

We compute change scores for all indicators and display results in the right-hand column of Table 4. The mean average age of respondents increased from 42 to 52 years. Between 2005 and 2014, the panel as a whole experienced a 2.38 percentage point increase in unemployment and a 13.95 per cent point increase in retirement. The composition of blacks in the panel increased about 8 percentage points, while that of Hispanics and whites both decreased about 4 per cent points. Female panel composition increased about 5 per cent points. Relative income was essentially unchanged.

Time-varying homebuying intentions diminished over the study period, dropping from a mean average of 3.96–3.16, which is a decrease of 0.80 between 2005 and 2014. Some of this decrease reflects attrition as higher intention renters bought homes and exited the panel. This attrition is evident from the 2004 baseline measure of intentions, which is a constant that Table 4 shows is 0.14 lower in 2014, at the end of the study. This .14 lower value for the constant baseline homebuying intentions represents a small portion (18 per cent) of the overall average 0.80 decline in time-varying homebuying intentions between 2005 and 2014. Thus, about 82 per cent of the overall decline in time-varying homebuying intentions appears to be due to factors other than panel attrition.

Analysis

Bias is a concern in longitudinal studies when estimating the conditional mean of a continuous dependent variable such as homebuying intentions. Renters who purchase homes are dropped from the sample in follow-up surveys as they are no longer eligible for a first-time

Table 4. Indicator Changes from 2005 to 2014.

Indicator	Category	2005 (Avg or Pct)	2014 (Avg or Pct)	2005–2014 Change
Attitudes (reasoned action indicators)				
Intend to buy a home (baseline 2004)*		3.92	3.78	−0.14
Intend to buy a home (2005–2014)		3.96	3.16	−0.80
Favorable to homebuying		3.96	3.33	−0.64
Homebuying as normative		3.56	3.33	−0.24
Perceived control over homebuying		3.10	3.05	−0.05
Demographics				
Age Cohort in 2004*	<25 years old	9.38%	7.06%	−2.32
	25–34	28.04%	22.98%	−5.05
	35–44	24.02%	23.99%	−0.03
	45–54	21.16%	25.60%	4.44
	≥55	17.41%	20.36%	2.95
Age in years		41.62	52.00	10.38
Relative income		0.38	0.37	−0.01
Parents owned home*	No	28.57%	32.46%	3.89
Gender*	Female	71.61%	76.21%	4.60
Race*	White	46.16%	42.34%	−3.82
	Black	33.84%	41.53%	7.69
	Hispanic	15.71%	12.30%	−3.42
	Other race	4.29%	3.83%	−0.46
Partner status	Partnered/married	33.66%	25.00%	−8.66
	Separated/divorced	37.14%	43.15%	6.00
	Single	29.20%	31.85%	2.66
Children at home	None	64.82%	66.13%	1.31
	1–2 children	28.13%	25.40%	−2.72
	3 or more children	7.05%	8.47%	1.41
Educational	11thgrade	17.14%	15.52%	−1.62
Attainment	HS graduate	30.71%	25.40%	−5.31
	Some college	33.30%	39.11%	5.81
	Bachelor's or more	18.84%	19.96%	1.12
Employment status	Employed	64.46%	49.60%	−14.87
	Unemployed	7.50%	9.88%	2.38
	Retired	9.64%	23.59%	13.95
	Out of labor force	18.39%	16.94%	−1.46
Geographic coverage	Midwest	13.93%	16.13%	2.20
	South	74.64%	73.39%	−1.26
	West	11.43%	10.48%	−0.94

*Denotes a constant. All other indicators are time-varying. Slight discrepancies in change scores occur due to rounding.

home purchase. Because renters with positive attitudes toward homebuying are more likely to purchase homes, a non-random group of original renters become homeowners and no longer receive follow-up questions about their homebuying attitudes. To address this potential bias, we control for time-independent baseline homebuying intentions in 2004 while modeling time-varying intentions from 2005 to 2014. By including the threshold level of homebuying intention as a time-independent explanatory variable, we control for potential censorship effects. Although renters who become homeowners are dropped from the sample in years following home purchase, the modeling of each household's baseline intention adjusts for the less positive attitudes toward homebuying within the remaining renters. A similar technique can be found in Rotnitzky and Robins (1995).

We also address this potential bias by adjusting for the correlation of errors among observations within survey participants that occurs due to *repeated* measures on continuous outcomes (Allison, 2005). For the continuous dependent variable, *homebuying intentions*, we specify mixed effect regression models. We let y_{it} represent the dependent variable of

homebuying intentions, where i refers to different households and t refers to a given year. The formal specification follows:

$$y_{it} = \mu + \alpha_i + \beta X_{it} + \gamma Z_i + \theta_t + \varepsilon_{it} \quad (1)$$

where X_{it} identifies the time-varying explanatory variables including homebuying attitudes, household demographics, and year; and Z_i identifies time-independent variables including the *baseline* homebuying intention of household i, the respondent's gender, race/ethnicity, age cohort in 2004, and whether parents owned a home.

The error term ε_{it} is a random variable, with a normal distribution $(0, \sigma^2)$. The random effects $\alpha = [\alpha_1, \ldots, \alpha_1]$ control the random heterogeneity of the household, with a multivariate normal distribution $(\mathbf{0}, \Sigma)$. Note that the variance–covariance matrix Σ adjusts for the correlation due to repeated measures and thus addresses the response dependency that can occur within households over time. The remaining parameters are fixed, including β , γ and year effects θ_t.

For the binary dependent variable, *home purchase*, we specify an event history analysis using logistic regression. We apply a one-year lag to the home purchase decision to establish temporal precedence of homebuying attitudes predicting tenure choice behavior a year later. The research design right censors or removes households from the data-set once a renter becomes a homeowner. Thus, the data are structured to contain only one home purchase per household.

For *binary* outcomes of *non-repeated* events, such as a first-time home purchase, there is no dependence among observations (Allison, 1984; Allison, 2010).[9] We let P_{it} be the conditional probability that household i becomes a homeowner in year t, given that the respondent has not already become a homeowner before year t. The formal specification follows:

$$\log\left(\frac{P_{it}}{1 - P_{it}}\right) = \mu + \beta_1 X_{i,t-1} + \beta_2 W_{i,t} + \gamma Z_i + \theta_t \quad (2)$$

where $X_{i,t-1}$ identifies the time-varying explanatory variables including homebuying attitudes and household demographics; $W_{i,t}$ identifies the contemporaneous indicators such as year and the financial crisis; Z_i identifies time-independent variables including the *baseline* homebuying intention of household i, the respondent's gender, race/ethnicity, age cohort in 2004, and whether the respondent's parents owned a home. The remaining parameters are fixed, including β_1, β_2, γ, and year effects θ_t.[10]

Results

Bivariate trends indicate that renters' intentions to buy a home and actual home purchases both decreased between 2005 and 2014. Next, we assess whether this pattern holds while accounting for panel attrition, censoring, and other plausible explanations.[11] In the Appendix 1, we provide alternate specifications as robustness checks.

Homebuying intentions

We first estimate two restricted models that contain only the "reasoned action" attitudinal indicators. Results shown in Table 5 indicate that favorability, norms, and perceived

Table 5. Homebuying intentions regressed on attitudes.

	Specification 1		Specification 2	
Predictors	Beta	(StdErr)	Beta	(StdErr)
Attitudes (reasoned action indicators)				
Favorable to homebuying	**0.14**	**(0.02)**	**0.10**	**(0.02)**
Homebuying as normative	**0.07**	**(0.02)**	**0.04**	**(0.02)**
Perceived control over homebuying	**0.11**	**(0.01)**	**0.09**	**(0.02)**
Intend to buy a home (baseline 2004)	–		**0.60**	**(0.02)**
Intercept	**2.58**	**(0.07)**	**0.54**	**(0.10)**
Model information				
Akaike information criterion (AIC)	19,790.82		19,284.76	
Adjusted R^2	0.2045		0.3361	

Note: $N = 7120$ person-years. Table displays results of mixed effects regressions which assume a constant covariance within households for *homebuying intentions* that are measured on a five-point Likert scale annually 2005–2014. Specification 2 adds baseline homebuying intentions measured in 2004. All effects are statistically significant ($p < 0.05$), shown in bold.

control are positively associated with homebuying intentions, as expected from the TPB. Together, these three indicators explain 20 per cent of the variation in homebuying intentions (Specification 1). For all three indicators, the effects on 2005–2014 homebuying intentions decrease slightly once 2004 baseline homebuying intentions are introduced (Specification 2), which increases the explained variation to about 34 per cent.

Table 6 presents results that add demographic indicators to the mixed model specifications for homebuying intentions. With these additions, the explained variation in homebuying intentions increases about 13 percentage points to 47 per cent. Estimates for the "reasoned action" attitudinal indicators are displayed in the first four rows. Two of the three attitudinal indicators are statistically significant and positive: favorable to homebuying and perceived control over homebuying. The third indicator, homebuying as normative, is no longer significant in these unrestricted models. With the exception of homebuying norms, the results indicate that changes in attitudes predict changes in homebuying intentions as expected by "reasoned action" psychological theory.

Specification 3 clarifies the role of demographic factors. Homebuying intentions are positively associated with higher incomes, employment, being married/partnered, and raising children. Blacks report homebuying intentions that are .12 higher than whites on the five-point scale. Hispanics and the Other race/ethnicity groups are not statistically different from whites.

Younger renters report higher intentions to buy a home. Millennials—born after 1980—display the strongest intentions of any age cohort. A similar pattern exists for Generation-Xrs aged 25–34 in 2004.[12] Compared to the reference category (aged 35–44), these two youngest cohorts express significantly higher homebuying intentions.

Age is somewhat entangled with time as both increase annually. The continuous measure of age is significant and negative. The *Year* estimate from Specification 3 compares each year to the reference category 2005. Results show a downward trend in homebuying intentions between 2005 and 2014.

How this trend unfolds over the study period can be seen in Figure 2, which displays trajectories of homebuying intentions by age cohort. These trajectories are predicted value conditional means derived from model estimates. Most noteworthy are the diminished homebuying intentions among the youngest cohorts. In a growing economy, we would expect rising homebuying intentions for younger renters as they age into a different life

Table 6. Homebuying intentions regressed on attitudes, demographics, and time.

	Specification 3		Specification 4	
Predictors	Beta	(StdErr)	Beta	(StdErr)
Attitudes (reasoned action indicators)				
Favorable to homebuying	**0.06**	**(0.02)**	**0.06**	**(0.01)**
Homebuying as normative	0.02	(0.02)	0.03	(0.02)
Perceived control: homebuying	**0.10**	**(0.01)**	**0.10**	**(0.01)**
Intend to buy a home (baseline 2004)	**0.37**	**(0.02)**	**0.37**	**(0.02)**
Demographics				
Age Cohort in 2004: <25 (vs. 35–44)	**0.23**	**(0.10)**	−0.05	(0.11)
25–34	**0.21**	**(0.07)**	−0.01	(0.08)
45–54	−0.13	(0.07)	−0.00	(0.08)
≥55	**−0.42**	**(0.10)**	−0.12	(0.10)
Age in years	**−0.01**	**(0.00)**	**−0.02**	**(0.00)**
Income (relative to CBSA)	**0.26**	**(0.05)**	**0.23**	**(0.05)**
Parent's owned a home (Yes)	−0.01	(0.05)	−0.01	(0.05)
Gender: male (vs. Female)	0.05	(0.05)	0.06	(0.05)
Race: black (vs. White)	**0.12**	**(0.05)**	**0.11**	**(0.05)**
Hispanic	−0.06	(0.07)	−0.06	(0.07)
Other	−0.03	(0.11)	−0.04	(0.11)
Partner: sep/div (vs. partner/married)	**−0.13**	**(0.04)**	**−0.12**	**(0.04)**
Single	**−0.09**	**(0.04)**	**−0.10**	**(0.04)**
Children: 1–2 kids (vs. None)	**0.10**	**(0.03)**	**0.07**	**(0.03)**
3 or more kids	**0.15**	**(0.05)**	0.11	(0.05)
Education: HS graduate (vs. 11th grade)	0.00	(0.05)	−0.01	(0.05)
Some college	0.04	(0.05)	0.02	(0.05)
Bachelors or more	0.12	(0.06)	0.09	(0.06)
Unemployed (vs. Employed)	**−0.10**	**(0.04)**	**−0.10**	**(0.04)**
Retired	**−0.18**	**(0.05)**	**−0.16**	**(0.05)**
Out of labor force	**−0.19**	**(0.04)**	**−0.20**	**(0.04)**
Region: Midwest (vs. South)	−0.05	(0.06)	−0.05	(0.06)
West	0.01	(0.07)	0.03	(0.07)
Year				
2006 (vs. 2005)	**−0.11**	**(0.04)**	–	
2007	**−0.21**	**(0.04)**	–	
2008	**−0.27**	**(0.04)**	–	
2009	**−0.29**	**(0.04)**	–	
2010	**−0.37**	**(0.05)**	–	
2011	**−0.45**	**(0.05)**	–	
2012	**−0.43**	**(0.05)**	–	
2013	**−0.42**	**(0.05)**	–	
2014	**−0.50**	**(0.06)**	–	
Financial crisis and cohort interactions				
Financial crisis: 2008–2014 (vs. 2005–2007)	–		**−0.24**	**(0.05)**
Financial crisis X age-Cohort <25	–		**0.17**	**(0.09)**
Financial crisis X age-Cohort 25–34	–		**0.18**	**(0.06)**
Financial crisis X age-Cohort 45–54	–		−0.02	(0.06)
Financial crisis X age-Cohort >55	–		−0.10	(0.06)
Intercept	**2.24**	**(0.21)**	**2.78**	**(0.20)**
Model Information				
Akaike information criterion (AIC)	18,724.80		18,734.09	
Adjusted R^2	0.4664		0.4644	

Note: $N = 7120$ person-years. Table displays results of mixed effects regressions which assume a constant covariance within households for *homebuying intentions* that are measured on a five-point Likert scale annually from 2005 to 2014 while controlling for baseline intentions measured in 2004. Statistically significant effects ($p < 0.05$) are shown in bold.

cycle of household formation. Instead, the trajectories indicate that, between 2005 and 2014, the homebuying intentions of the two youngest age groups decreased about ½ a point on the five-point Likert scale.

A decrease in homebuying intentions over time is less surprising for older cohorts. Having aged a decade during the study, the decline in homebuying intentions among older

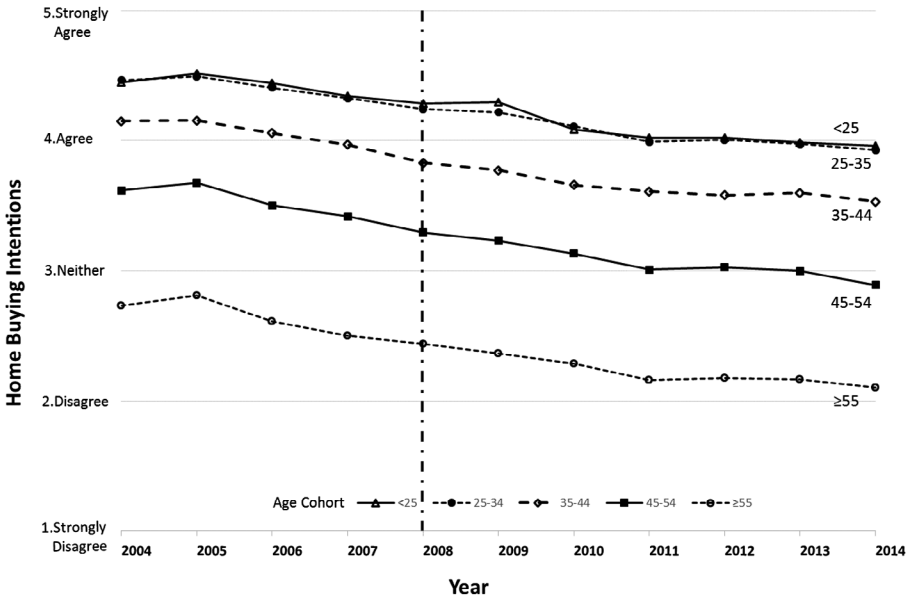

Figure 2. Homebuying intentions by age cohort, 2004–2014.

renters may partly reflect concerns about the risks of buying a home later in life. Consistent with this idea, the slopes are somewhat steeper for the older age cohorts.

These age-related declines in homebuying intentions could be associated with the financial crisis. Specification 4 tests this idea: the interaction terms indicate that the pre-/post-crisis slopes of the youngest cohorts are significantly different from those of the reference category aged 35–44 at baseline. Slopes for the older cohorts 45–54 and ≥55 are statistically similar to those for the 35–44 age group. Thus, the greatest post-crisis reduction in homebuying intentions occurs among those aged 35 or older in 2004. Those aged 34 years or younger at baseline 2004 also experience diminished homebuying intentions, but the effect of the financial crisis on homebuying intentions is slightly less pronounced for the youngest cohorts.

Home purchase decisions

Next, we turn from homebuying intentions to home purchases. Results are displayed in Table 7 as estimates from an event history logistic regression analysis of first-time home purchase decisions. Time-varying homebuying intentions predict first-time home purchases in the following year: for every one-point increase on the five-point Likert scale of homebuying intentions, the odds of home purchase are 0.53 per cent higher.

Favorability toward homebuying and homebuying as normative *do not directly* influence homebuying behavior. These results are consistent with theory. However, perceived control over the ability to buy a home predicts the likelihood of home purchase in the following year. This finding is somewhat unexpected as theory does not posit such a main effect on behavior, but rather a moderation of intentions by perceived control. Our test of an interaction between perceived control and homebuying intentions on the home purchase decision

Table 7. Home purchase decisions regressed on attitudes, demographics, and time.

	Specification 5			Specification 6		
Predictors	Beta	(StdErr)	Odds ratio	Beta	(StdErr)	Odds ratio
Attitudes (reasoned action indicators)						
Favorable to homebuying	0.09	(0.08)	1.09	0.07	(0.08)	1.07
Homebuying as normative	−0.03	(0.07)	0.97	−0.03	(0.07)	0.97
Perceived control over homebuying	**0.18**	**(0.06)**	**1.19**	**0.20**	**(0.06)**	**1.22**
Intend to buy a home	**0.43**	**(0.08)**	**1.53**	**0.41**	**(0.08)**	**1.51**
Demographics						
Age Cohort in 2004: <25 (vs. 35–44)	−0.07	(0.30)	0.93	−0.25	(0.28)	0.78
25–34	−0.01	(0.20)	1.00	−0.10	(0.19)	0.90
45–54	0.18	(0.19)	1.19	0.26	(0.18)	1.30
≥55	−0.02	(0.35)	0.99	0.18	(0.32)	1.20
Age in Years	−0.01	(0.02)	0.99	−0.02	(0.01)	0.98
Income (relative to CBSA)	**1.12**	**(0.20)**	**3.07**	**1.07**	**(0.19)**	**2.90**
Parent's owned a home (Yes)	0.14	(0.07)	1.15	**0.14**	**(0.07)**	**1.15**
Gender: male (vs. female)	**−0.18**	**(0.07)**	**0.84**	**−0.18**	**(0.07)**	**0.84**
Race: black (vs. white)	**−0.34**	**(0.12)**	**0.71**	**−0.35**	**(0.12)**	**0.71**
Hispanic	**0.29**	**(0.15)**	**1.34**	0.27	(0.14)	1.31
Other	−0.08	(0.23)	0.92	−0.05	(0.23)	0.95
Partner: sep/div (vs. partner/married)	−0.04	(0.10)	0.96	−0.04	(0.10)	0.96
Single	**−0.28**	**(0.10)**	**0.76**	**−0.29**	**(0.10)**	**0.75**
Children: 1–2 kids (vs. none)	−0.07	(0.09)	0.93	−0.07	(0.09)	0.93
3 or more kids	0.09	(0.13)	1.09	0.09	(0.13)	1.09
Education: HS graduate (vs. 11th grade)	−0.07	(0.11)	0.93	−0.06	(0.11)	0.94
Some college	−0.09	(0.10)	0.92	−0.09	(0.10)	0.91
Bachelors or more	**0.28**	**(0.12)**	**1.32**	**0.26**	**(0.12)**	**1.30**
Unemployed (vs. Employed)	−0.37	(0.19)	0.69	−0.37	(0.19)	0.69
Retired	**0.53**	**(0.23)**	**1.70**	**0.50**	**(0.23)**	**1.64**
Out of labor force	−0.28	(0.16)	0.76	−0.26	(0.16)	0.77
Region: Midwest (vs. South)	**0.29**	**(0.12)**	**1.34**	**0.28**	**(0.12)**	**1.32**
West	**−0.30**	**(0.14)**	**0.74**	−0.28	**(0.14)**	0.76
Year						
2006 (vs. 2005)	0.19	(0.17)	1.21		–	
2007	**0.39**	**(0.16)**	**1.47**		–	
2008	**0.50**	**(0.16)**	**1.64**		–	
2009	**−0.81**	**(0.27)**	**0.45**		–	
2010	−0.12	(0.22)	0.89		–	
2011	**−0.65**	**(0.29)**	**0.52**		–	
2012	**−0.64**	**(0.29)**	**0.53**		–	
2013	0.35	(0.21)	1.43		–	
2014	0.00	(0.25)	1.00		–	
Financial crisis interactions						
Financial crisis: 2008–14 (vs. 2004–07)		–		**−0.66**	**(0.19)**	**0.52**
Financial crisis X perceived control		–		**0.11**	**(0.05)**	**1.12**
Intercept	**−5.83**	**(0.83)**	**0.00**	**−5.12**	**(0.77)**	**0.01**
Model information						
Akaike information criterion (AIC)		2347.922			2370.654	
−2 Log L		2273.922			2310.654	
Cox & Snell's R^2		0.054			0.049	

Note: $N = 6617$ person-years. Table displays results of event history analyses for 333 first-time *home purchases*. Households that purchase homes are right censored or removed from the database in later years. Statistically significant effects ($p < 0.05$) are shown in bold.

is not statistically significant.[13] With this one exception, the "reasoned action" indicators perform as expected.

First-time home purchases are also associated with higher incomes, a college degree, being female, and married/partnered.[14] The odds of blacks purchasing a home are 29 per cent lower than those for whites. The odds of Hispanics purchasing a home are 35 per cent

higher than those of whites. Compared to the south, home purchases are more likely in the Midwest and less likely in the west.

Specification 5 provides annual estimates for these 2005–2014 home purchase decisions. First-time home purchases increased in 2007 and 2008 when compared to 2005. Then, in 2009, home purchases took a dramatic negative turn relative to 2005. This negative trend lasted through 2012. Home purchase decisions in 2013 and 2014 are not statistically different to those of 2005.

Finally, we consider whether relations between attitudes and behavior changed after the financial crisis. We create pre-/post-interaction terms for each of the "reasoned action" indicators. For three of the four indicators (favorability toward homebuying, homebuying as normative, and homebuying intentions), the effects on home purchase behavior are not significantly altered post-crisis (not shown). However, Specification 6 displays statistically significant effects for the interaction of the financial crisis with perceived control. Post-crisis, first-time home purchases were less likely among those with lower perceived control over homebuying. Put another way, the financial crisis has a smaller effect on first-time home purchases for households who report higher perceived control.

Discussion

While housing preferences will continue to be shaped by historical and cultural contexts, this study contributes to our understanding of the decision to own or rent by bringing psychological theory into the mix. We link attitudes to behavior and show that first-time homebuying is associated with intentions to buy, which are positively related to favorability toward homebuying, views of homebuying as normative, and perceived control over the ability to buy. Thus, we build on existing perspectives of tenure choice and lend credence to the call by housing economists to include psychological indicators when investigating homebuying decisions (Case & Shiller, 1988).

More traditional tenure choice explanations are largely supported. Household demographics including educational attainment and higher incomes as well as life cycle explanations of age cohorts, being married/partnered, and raising children all predict first-time home purchases in the following year. Together with robustness checks shown in the Appendix 1[15], these findings support a complementary role for psychological theory in explaining tenure choice intentions and decisions.

The period covered by this study encompasses an unprecedented housing boom and bust: one that was severe enough to trigger a global financial crisis, a home foreclosure crisis, and the Great Recession. Over this decade of macroeconomic upheaval, we find evidence that the financial crisis negatively influenced both homebuying intentions and home purchases. Because the data analyzed include a comparison group of non-buyers as well as pre- and post-crisis attitudinal indicators, the results present a comprehensive picture of how the Great Recession relates to the first-time homebuying attitudes and behaviors of low-income renters.

Specifically, the findings show diminished first-time homebuying intentions across all age groups. Over the 10-year study period, first-time homebuying intentions peaked in 2005. Then, homebuying intentions dropped through 2014 more than ½ a point on the five-point scale.

Millennials—those born after 1980—express the highest level of homebuying intentions both pre- and post-crisis. But despite these high levels of homebuying intentions, the findings document a measureable decline in homebuying intentions among Millennials. This decline is slightly stronger than that of the Generation X cohort that was aged 25–34 in 2004. These declines in homebuying intentions occur just as these cohorts reach their 30s and 40s, traditionally the peak years for household formation and first-time homebuying.

Even so, the greatest post-crisis declines in homebuying intentions occur among survey participants aged 45 and older by 2014. These results point to a group of middle- to upper aged renters whose homebuying intentions were the most disillusioned by the housing bust. Thus, it is not younger renters, but rather those of middle-age who lost the most interest in first-time homebuying following the financial crisis.

The most perplexing result involves race/ethnicity. Blacks report greater intentions to buy a home, yet purchase disproportionally fewer homes. This finding points toward a strong and persistent racial/ethnic disconnect between homebuying intentions and actual home purchases. Possible explanations include racial/ethnic differences in the time frame expected between homebuying intentions and home purchases, information asymmetry in the requirements for mortgage qualification, and discrimination in homebuying. Perhaps these race/ethnicity effects appear less contradictory when placed in context of the long-standing 20+ percentage point gap between black and white homeownership rates. Absent a policy response, the racial disconnect observed between homebuying intentions and purchases portends a future in which the black/white homeownership gap, and its close relationship to corresponding wealth gaps (Oliver & Shapiro, 2006; Shapiro *et al.*, 2013), appears likely to continue.

These racial/ethnic distinctions could differ in populations characterized by alternate cultural contexts. Further caveats apply as our data are for low-income renters and survey participants are concentrated in the southern region of the US. Another limitation is measuring homebuying attitudes using single-item indicators where multi-item indices would enhance reliability. Finally, surveying occurred during a time of macroeconomic upheaval that influenced study outcomes. In a housing market that is more closely aligned with historical norms, the "reasoned action" indicators may increase their explanatory power over tenure decisions.

Perhaps the most promising area for advancing our understanding of housing decisions lies in research that connects attitudes to behavior. Our review suggests that attitudes about housing are too often presumed. The result is a knowledge gap of how attitudes relate to mobility, choice of neighborhood, type of dwelling, and the decision to own or rent. Our study helps address this gap in showing that two attitudinal measures (perceived control and intentions to buy) changed over time and directly affected first-time homebuying behavior.

While the aftermath of the financial crisis was accompanied by a curtailing of predatory mortgage products, other aspects of tightened mortgage lending, such as higher downpayment requirements, bear little relation to mortgage delinquency and simply make homebuying more difficult for lower income households (Freeman & Harden, 2014; Quercia *et al.*, 2011). Meanwhile, our data corroborate that homeownership remains an important, difficult, and distant goal for many low-income renters (Belsky, 2013; Reid, 2014).

Scholars have observed that, "Buying a home means making a series of very difficult decisions that will in all likelihood affect the buyers' lives forever." (Case *et al.*, 2012, p. 266). With homebuying as with other difficult behavioral goals, "The prediction of behavior from

intentions is fraught with potential problems" (Ajzen, 2014, p. 2). Housing policies can help minimize such difficulties: low downpayment requirements combined with 30-year fixed rate mortgages are proven ways for lower income households to realize the sustainable homeownership opportunities that remain a key part of their American Dream.

Notes

1. The income threshold was equal to 80 per cent of the AMI if the percent minority population was less than 30 per cent or equal to 115 per cent of the AMI if the percent minority population was 30 per cent or greater. Area median income is calculated according to the Core Based Statistical Area (CBSA) or the state median income (when CBSA does not apply).
2. Details of the renter's eligibility criteria and the original pool of baseline renters are available (Akin *et al.*, 2004). Additional information about the CAP program, the surveys, and database is available from Riley, Ru, and Quercia (2009).
3. A total of 792 renters completed the final interview in 2014. The number of completed interviews and response rates for each of the 11 years of surveying are available in the online technical report by Riley (2015).
4. Relative income equals annual household income divided by area median income as indicated by the CBSA or the state median income (when CBSA does not apply).
5. Response options were reverse coded after data collection so that higher responses indicate stronger agreement. All respondents answered these items at baseline. In follow-up surveys, these items were anchored with the phrase "within the next three years," and only those participants who agreed that they intended to buy a home were administered the questions about attitudes, norms, and perceived control. The latter two items were not assessed after 2011. Baseline responses were used when these items were missing in later years.
6. This item wording began in the first follow-up of 2005 and continued through 2014. A slightly different wording was presented at 2004 baseline: "I eventually intend to buy a home." Model results show non-significant differences by year when baseline 2004 *Intentions* are compared to those in 2005. Regardless, the 2004 baseline wording does not drive the changes observed over time because that item is modeled as a control variable, whereas 2005 serves as the comparison group reference category for 2006–2014. Model results show that, when compared to 2005 (and while controlling for 2004 baseline *Intentions*), the downturn in *Homebuying Intentions* gathers strength in 2007 and then intensifies over the remainder of the panel.
7. Robustness checks indicate that model results do not change whether or not this "living rent-free" group is excluded from the analysis.
8. The proportion of renters purchasing homes between 2005 and 2007 is similar to the 6–8 per cent reported for this same time period in an earlier analysis of CAPS data (Cohen *et al.*, 2009). However, the sample size and number of home purchases that we show in Table 3 are higher due to (1) a data retrieval effort in the 2008 survey that captured the housing history of the respondents, (2) manual cleaning to correct address/tenure inconsistencies over time, and (3) the addition of new rows to include data from 2007 to 2014. These updates improve the quality of the data and increase statistical power.
9. Additional information about this issue is provided on pages 246–247 of Allison's (2010) manual on survival analysis.
10. Whereas homebuying intentions are estimated as a conditional mean, first-time home purchase is estimated as a non-repeating event history survival analysis that has been shown to produce unbiased estimates for right censoring (Allison, 1984, 2010). Thus, we would not expect home purchase estimates to be biased by the fact that, over time, the sample contains a higher proportion of renters with less positive attitudes toward homebuying. Our robustness check in Specification 9 of the Appendix 1 supports this empirically in showing that the time-invariant baseline covariate homebuying intentions is not a significant predictor of home purchase when time-varying intentions are also entered in the home purchase model.

11. Variance inflation scores fall below 3 for all predictors, indicating an acceptably low level of empirical overlap to proceed with multivariate analysis.
12. These generational names come from popular culture, according to The Pew Research Center (2010), which notes that Generation X, or *Gen-Xrs*, refer to those people born from 1965 to 1980. The Millennial generation, or *Millennials,* refers to those people born after 1980 (through 1999).
13. Results shown in the Appendix 1.
14. A test of the interaction between gender and marital status (not shown) indicates that single males are more likely to purchase a home than married/partnered females.
15. Robustness checks in the Appendix 1 indicate that alternate samples (i.e. balanced and unbalanced panels of participants who stayed renters) provide highly consistent results.

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Appendix 1

Robustness checks: homebuying intentions

We consider whether the results for homebuying intentions change when the sample is limited to those who stayed renters and did not purchase a home between 2004 and 2014. We rerun the analysis on both an unbalanced panel (N = 5758 person-years) and a balanced panel of survey participants who responded to every wave of the annual survey (N = 3100 person-years). Descriptive statistics for these subsamples confirm that those who remain renters over the study period report somewhat lower homebuying intentions (Table A1).

As shown in Table A2, both models are consistent in showing a statistically significant downward trend for homebuying intentions between 2005 and 2014. The magnitude of this decrease in homebuying intentions for those who stayed renters is identical across balanced and unbalanced panels (−.53), and very similar to that shown for the full sample (-.50, as shown in Specification 3 of the main paper). Thus, these robustness checks are consistent with earlier results in showing that, since their 2005 peak, homebuying intentions decreased about ½ point on the five-point Likert scale.

Robustness checks: home purchase decision

Finally, we display two additional specifications for the home purchase model in Table A3. Specification 9 adds baseline homebuying intentions to the home purchase model. Results indicate that these time-invariant baseline intentions (2004) are not predictive when time-varying homebuying intentions (2005–2013) are also entered into the home purchase model. This result is to be expected given that we construct the database to right censor households after home purchase; consequently, the binary outcome—the first-time home purchase decision—contains at most one home purchase event per household, in which case, as demonstrated by Allison (2010, 1984), there is no dependence among observations over time (Additional information about this issue is provided on pages 246–247 of Allison's (2010) manual on survival analysis).

Thus, Specification 9 simply demonstrates that baseline homebuying intentions are not needed for the home purchase model. Consequently, we drop this baseline control in our preferred specifications of the *purchase* outcome (though we retain it for the *intentions* outcome). Given that we lag the *purchase* decision by one year, dropping the non-significant baseline control also allows us to increase statistical power as home purchase decisions in 2005 can be included in the analysis, thus increasing the sample size by 1,018 (from 5,599 to 6,617 to person-years, as shown in preferred Specifications 5 and 6 of Table 7 in the main paper).

The final specification tests the interaction of homebuying intentions with perceived control. The TPB predicts that perceived control will moderate the impact of intentions on behavior. However, Specification 10 of Table A3 shows that in our study, the interaction between perceived control and homebuying intentions is not a statistically significant predictor of the home purchase decision. Instead, both covariates are significant as main effects (as shown in preferred Specifications 5 and 6 of Table 7 in the main paper).

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Table A1 Categorical indicators for sub-samples who stayed renters.

Indicator	Category	Un-balanced panel $N = 5758$ person-years	Balanced panel $N = 3100$ person-years
		Freq (Pct)	Freq (Pct)
Intentions to buy	Strongly agree	1609 (27.9)	833 (26.9)
	Agree	1455 (25.3)	732 (23.6)
	Neither	891 (15.5)	546 (17.6)
	Disagree	967 (16.8)	519 (16.7)
	Strongly disagree	836 (14.5)	470 (15.2)
Age cohort in 2004	<25 years old	412 (7.2)	190 (6.1)
	25–34	1267 (22.0)	680 (21.9)
	35–44	1384 (24.0)	630 (20.3)
	45–54	1373 (23.8)	920 (29.7)
	≥55	1322 (23.0)	680 (21.9)
Income	<10 k	1682 (29.2)	915 (29.5)
	10 k-24.9 k	2193 (38.1)	1119 (36.1)
	25 k-39.9 k	1175 (20.4)	680 (21.9)
	40 k-54.9 k	440 (7.6)	234 (7.5)
	≥55 k	268 (4.7)	152 (4.9)
Relative income	<0.2	2155 (37.4)	1146 (37.0)
	0.2–0.4	1718 (29.8)	888 (28.6)
	0.4–0.6	1125 (19.5)	659 (21.3)
	0.6–0.8	402 (7.0)	221 (7.1)
	>=0.8	358 (6.2)	186 (6.0)
Parent's owned home	No	1815 (31.5)	980 (31.6)
	Yes	3943 (68.5)	2120 (68.4)
Gender	Female	4270 (74.2)	2405 (77.6)
	Male	1488 (25.8)	695 (22.4)
Race	White	2520 (43.8)	1440 (46.5)
	Black	2252 (39.1)	1320 (42.6)
	Hispanic	755 (13.1)	240 (7.7)
	Other race	231 (4.0)	100 (3.2)
Partner status	Partnered/Married	1460 (25.4)	640 (20.6)
	Separated/Divorced	2432 (42.2)	1353 (43.6)
	Single	1866 (32.4)	1107 (35.7)
Children at Home	None	3726 (64.7)	2113 (68.2)
	1–2 children	1558 (27.1)	791 (25.5)
	3 or more children	474 (8.2)	196 (6.3)
Educational Attainment	11thgrade	1012 (17.6)	474 (15.3)
	HS graduate	1612 (28.0)	824 (26.6)
	Some college	2159 (37.5)	1180 (38.1)
	Bachelor's or more	975 (16.9)	622 (20.1)
Employment status	Employed	2906 (50.5)	1613 (52.0)
	Unemployed	660 (11.5)	338 (10.9)
	Retired	984 (17.1)	544 (17.5)
	Out of labor force	1208 (21.0)	605 (19.5)
Geographic coverage	Midwest	885 (15.4)	455 (14.7)
	South	4221 (73.3)	2370 (76.5)
	West	652 (11.3)	275 (8.9)

Table A2 Robustness check on sub-samples who stayed renters: Homebuying Intentions regressed on attitudes, demographics, and time.

Predictors	Specification 7 Un-balanced panel	Specification 8 Balanced panel
Years covered:	2005–2014	2005–2014
Sample Size (person-years):	5758	3100
	Beta (StdErr)	*Beta (StdErr)*
Attitudes (reasoned action indicators):		
Favorable to homebuying	**0.04 (0.02)**	**0.08 (0.02)**
Homebuying as normative	0.02 (0.02)	0.02 (0.02)
Perceived control over homebuying	**0.10 (0.01)**	**0.10 (0.02)**
Intend to buy a home (baseline 2004)	**0.37 (0.03)**	**0.33 (0.05)**
Demographics:		
Age cohort in 2004: <25 (vs. 35–44)	0.17 (0.13)	0.23 (0.24)
25–34	**0.20 (0.09)**	**0.32 (0.16)**
45–54	−0.15 (0.09)	**−0.33 (0.14)**
≥55	**−0.46 (0.12)**	**−0.70 (0.20)**
Age in years	**−0.01 (0.00)**	0.00 (0.01)
Income (relative to CBSA)	**0.25 (0.06)**	**0.25 (0.10)**
Parent's owned a home (Yes)	−0.02 (0.06)	−0.11 (0.10)
Gender: male (vs. female)	0.10 (0.06)	0.07 (0.09)
Race: black (vs. white)	**0.20 (0.06)**	0.05 (0.10)
Hispanic	0.01 (0.09)	−0.05 (0.18)
Other	0.01 (0.14)	−0.02 (0.25)
Partner: sep/div (vs. partner/married)	**−0.10 (0.05)**	**−0.24 (0.07)**
Single	−0.08 (0.05)	−0.12 (0.08)
Children: 1–2 kids (vs. None)	**0.11 (0.04)**	**0.20 (0.06)**
3 or more kids	**0.19 (0.06)**	**0.25 (0.10)**
Education: HS graduate (vs. 11th grade)	−0.01 (0.06)	0.01 (0.09)
Some college	0.00 (0.06)	0.00 (0.10)
Bachelors or more	0.06 (0.08)	0.19 (0.12)
Employment: unemployed (vs. employed)	**−0.09 (0.04)**	−0.12 (0.06)
Retired	**−0.15 (0.06)**	**−0.22 (0.08)**
Out of labor force	**−0.19 (0.04)**	**−0.24 (0.06)**
Region: Midwest (vs. South)	−0.06 (0.07)	0.03 (0.11)
West	−0.06 (0.08)	0.01 (0.15)
Year:		
2006 (vs. 2005)	**−0.15 (0.04)**	**−0.15 (0.07)**
2007	**−0.22 (0.05)**	**−0.16 (0.07)**
2008	**−0.31 (0.05)**	**−0.25 (0.07)**
2009	**−0.33 (0.05)**	**−0.27 (0.07)**
2010	**−0.38 (0.05)**	**−0.41 (0.08)**
2011	**−0.50 (0.06)**	**−0.46 (0.08)**
2012	**−0.46 (0.06)**	**−0.46 (0.08)**
2013	**−0.46 (0.06)**	**−0.49 (0.09)**
2014	**−0.53 (0.06)**	**−0.53 (0.09)**
Intercept	**2.25 (0.25)**	**1.89 (0.44)**
Model information		
Akaike information criterion (AIC)	15,480.40	8229.918
Adjusted R^2	0.4468	0.4433

Notes: Table displays results of mixed effects regressions which assume a constant covariance within households for homebuying intentions that are measured on a five-point Likert scale annually from 2005 to 2014 while controlling for baseline intentions measured in 2004. In the unbalanced panel of Specification 7, some respondents did not participate in every survey. In contrast, the balanced panel of Specification 8 consists of respondents who participated in every survey wave. Statistically significant effects ($p < 0.05$) are shown in bold.

Table A3 Robustness check on home purchase decisions regressed on attitudes, demographics, and time.

Predictors	Specification 9			Specification 10		
Years covered:	2004–2014			2005–2014		
Sample size (person-years):	5599			6617		
	Beta	*(StdErr)*	*Odds Ratio*	*Beta*	*(StdErr)*	*Odds Ratio*
Attitudes (reasoned action indicators):						
Favorable to homebuying	0.10	(0.09)	1.10	0.09	(0.08)	1.09
Homebuying as normative	−0.14	(0.08)	0.87	−0.03	(0.07)	0.97
Perceived control over homebuying	**0.26**	**(0.07)**	**1.30**	−0.02	(0.23)	0.98
Intend to buy a home (baseline)	0.04	(0.10)	1.04	–	–	–
Intend to buy a home (time-varying)	**0.47**	**(0.09)**	**1.60**	0.29	(0.17)	1.33
Demographics:						
Age Cohort in 2004: < 25 (vs. 35–44)	0.07	(0.33)	1.07	−0.07	(0.30)	0.93
25–34	0.08	(0.23)	1.08	−0.00	(0.20)	1.00
45–54	0.22	(0.21)	1.24	0.18	(0.19)	1.20
≥55	−0.17	(0.40)	0.84	−0.02	(0.35)	0.98
Age in years	−0.01	(0.02)	0.99	−0.01	(0.02)	0.99
Income (relative to CBSA)	**1.15**	**(0.22)**	**3.15**	**1.12**	**(0.20)**	**3.06**
Parent's owned a home (Yes)	0.10	(0.08)	1.10	0.14	(0.07)	1.15
Gender: male (vs. female)	**−0.19**	**(0.08)**	**0.83**	**−0.18**	**(0.07)**	**0.83**
Race: Black (vs. White)	**−0.34**	**(0.15)**	**0.71**	**−0.34**	**(0.12)**	**0.71**
Hispanic	0.32	(0.17)	1.37	**0.29**	**(0.15)**	**1.34**
Other	−0.08	(0.28)	0.92	−0.08	(0.23)	0.92
Partner: sep/div (vs. partner/married)	0.06	(0.12)	1.06	−0.04	(0.10)	0.96
Single	**−0.25**	**(0.12)**	**0.78**	**−0.28**	**(0.10)**	**0.76**
Children: 1–2 kids (vs. none)	−0.13	(0.11)	0.88	−0.07	(0.09)	0.93
3 or more kids	0.10	(0.16)	1.10	0.09	(0.13)	1.09
Education: HS graduate (vs. 11th grade)	−0.08	(0.13)	0.92	−0.09	(0.11)	0.93
Some college	−0.20	(0.12)	0.82	−0.09	(0.10)	0.91
Bachelors or more	**0.28**	**(0.13)**	**1.32**	**0.27**	**(0.12)**	**1.32**
Employment: unemployed (vs. employ)	−0.31	(0.23)	0.73	−0.37	(0.19)	0.69
Retired	0.42	(0.27)	1.52	**0.52**	**(0.23)**	**1.68**
Out of labor force	−0.37	(0.20)	0.69	−0.27	(0.16)	0.76
Region: Midwest (vs. South)	0.23	(0.14)	1.26	**0.29**	**(0.12)**	**1.34**
West	−0.22	(0.17)	0.82	**−0.30**	**(0.14)**	**0.74**
Year:						
2006 (vs. 2005)		–		0.20	(0.17)	1.22
2007	**0.48**	**(0.17)**	**1.62**	**0.39**	**(0.16)**	**1.48**
2008	**0.58**	**(0.17)**	**1.79**	**0.49**	**(0.16)**	**1.64**
2009	**−0.73**	**(0.27)**	**0.48**	**−0.81**	**(0.27)**	**0.44**
2010	−0.02	(0.22)	0.98	−0.12	(0.22)	0.89
2011	−0.56	(0.29)	0.57	**−0.65**	**(0.29)**	**0.52**
2012	−0.56	(0.29)	0.57	**−0.64**	**(0.29)**	**0.53**
2013	**0.44**	**(0.21)**	**1.55**	0.36	(0.21)	1.43
2014	0.09	(0.25)	1.09	0.00	(0.25)	1.00
Interactions						
Intend to buy X perceived control		–		0.05	(0.05)	1.05
Intercept	**−6.43**	**(0.99)**	**0.00**	**−5.23**	**(1.05)**	**0.01**
Model information						
Akaike information criterion (AIC)		1750.540			2349.109	
−2 Log L		1676.540			2273.109	
Cox & Snell's R^2		0.052			0.054	

Note: Table displays results of event history analyses for 333 first-time home purchases. Households that purchase homes are right censored or removed from the database in later years. Statistically significant effects ($p < 0.05$) are shown in bold.