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Does Homeownership Protect Individuals From Economic Hardship During Housing Busts?

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ABSTRACT

Does homeownership protect individuals from experiencing economic hardships even during housing busts? Does the relationship differ by race and ethnicity? Using the Survey of Income and Program Participation 2008 panel in the United States and controlling for income and various family characteristics, we find that the likelihood of experiencing any hardship is 5.6 percentage points lower for homeowners than for renters without rent subsidies, a reduction of about 25%. Owning a home for more than 10 years provides more protection than owning a home for less than 4 years. Homeownership's role in shielding people from economic hardship is significant not only for non-Hispanic whites, but also for non-Hispanic blacks and Hispanics. The negative relationship of homeownership to economic hardship offers additional evidence that it is beneficial to own your home, even during housing busts and even for households of color.

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Americans still regard homeownership as a part of the American dream, even after the dramatic fall in home prices and the decline in homeownership during the Great Recession. According to a 2013 poll from the American Enterprise Institute for Public Policy Research, 80% of Americans view homeownership as “definitely part of the American dream.”¹ Research has shown that there are individual-, family-, and community-level economic and social benefits associated with homeownership (Engelhardt, Eriksen, Gale, & Mills, 2010; Lerman & Mckernan, 2008; Rossi & Weber, 1996; Sekkat & Szafarz, 2011; Shlay, 2006, among others). Owning a home can reduce housing risks by shielding families against increases in rents and therefore lead to less variation or uncertainty in consumption (Sinai & Souleles, 2005). It also generally helps individuals accumulate savings automatically as homeowners build equity in their homes, through paying back mortgages and home price appreciation. Public policies have promoted homeownership with tax subsidies and mortgage credit subsidies for decades.

Still, researchers and policymakers are divided on the value of homeownership, especially for minority and low- to moderate-income households. This issue has received renewed attention because many households were encouraged to purchase homes during the housing boom immediately before the Great Recession. The subsequent collapse of housing prices and the dramatic increase in foreclosures have generated calls to slow or stop promotion of homeownership. Several studies highlight the high risks of homeownership. For example, Bayer, Ferreira, and Ross (2016) find that minority homeowners are exposed to higher risk of foreclosures and those who purchased homes near the peak of the housing boom are vulnerable to adverse economic shocks. Others raise the concern that the deflation of the housing bubble might lock in homeowners,

thereby impeding labor mobility. Blanchflower and Oswald (2013) find that rising homeownership rate in a state is an indicator of sharp rises in state unemployment later on. Using the American Housing Survey, Ferreira, Gyourko, and Tracy (2009, 2011) find that homeowners with negative equity are one third less likely to move. Using state-to-state migration between 2006 and 2009 based on Internal Revenue Service data, Modestino & Dennett (2013) find evidence that negative home equity decreased geographic mobility, although the reduction had a negligible impact on the national unemployment rate. Not all studies find negative equity restricts labor mobility, however. Using the same American Household Survey, Schulhofer-Wohl (2012) finds that negative equity does not reduce mobility.

Earlier studies show that assets generally help families weather emergencies and therefore reduce the likelihood that they experience economic hardship, although most evidence comes from liquid assets and less from housing assets. Using a survey of Chicago, Illinois, residents from 1983 to 1985, Mayer and Jencks (1989) observe that the ability to borrow \$500 when needed, which is a measure of liquid assets or access to credit, does as much to reduce hardship as tripling the family income, all else being equal. Owning a home without a mortgage has the same relationship to hardship reduction as does a 33% increase in family income. Using the 1996 and 2001 Survey of Income and Program Participation (SIPP) panels, Mckernan, Ratcliffe, and Vinopal (2009) examine the relationship between adverse events and material hardship such as food insecurity or trouble paying bills.² They show that among families that experience an adverse event, asset-poor families—those who do not have enough liquid assets to cover 3 months' consumption at the federal poverty level—are 14 percentage points more likely to experience material hardship than are nonasset-poor families, after controlling for income. Using the 2008 SIPP panel, Keating (2012) examines the role of both liquid assets and homeownership in reducing material hardship among families that experience the same type of adverse events as those Mckernan et al. (2009) studied. She finds that higher incidence of material hardships is associated with higher likelihood of being asset-poor and that this relationship is strongest for families in the bottom third of the income distribution. Keating also finds that homeownership is associated with lower hardship rates.

The role of homeownership in shielding against economic hardship becomes particularly ambiguous during a housing bust when home values decline sharply. In a normal economic downturn, homeowners with low mortgage payments might be expected to weather the storm and limit hardship by drawing on home equity to overcome liquidity constraints. In addition, for many homeowners who have paid off some or all of their mortgages, their monthly housing costs are lower than costs for renters. A few years of inflation can significantly reduce real mortgage debt. However, the dramatic declines in home values that accompanied the Great Recession wiped out large amounts of equity and left many grappling with how to keep up payments on their homes or other basic needs. In addition, homeowners who owe more than the value of their homes cannot draw down home equity to overcome liquidity constraints. Therefore, we distinguish different types of homeowners, such as whether they had negative home equity, whether they purchased their homes immediately before the Great Recession, or whether they had a risky mortgage. By comparing homeowners with renters, we also acknowledge that renters who received subsidies from the government have lower housing costs; therefore, those renters may be able to overcome other emergency needs during the recession. Rent subsidies may perversely affect self-sufficiency by reducing labor supply through an income effect or undermining the upward mobility of households, although empirical studies do not find any strong evidence of this (for a review see Shroder, 2002).

This article contributes to the literature of benefits of homeownership during housing busts by examining the relationship of homeownership and how well families cope with economic hardships during and after the Great Recession, using the SIPP from late 2008 to late 2011. We also contribute to the literature by looking at different types of housing status during the recent housing bust. We distinguish between homeowners, renters with a federal rent subsidy or public housing, and renters paying market rents. We look separately at different types of homeownership experiences, including

when they purchased their homes, whether they purchased a home through a risky mortgage, and whether they owed more in mortgage debt than the value of their home (the latter are often called underwater owners). Finally, we investigate housing–hardship relationships by race and ethnicity. Racial and ethnic disparity in homeownership or housing tenure choice is well documented and the disparity may be caused by household characteristics or discrimination (Bostic & Surette, 2001; Bourassa, 2000; Megbolugbe & Cho, 1996; Skaburskis, 1996). We develop separate multivariate estimates for non-Hispanic whites, non-Hispanic blacks, and Hispanics, controlling for liquid assets, average income, income variability, and demographic characteristics.

The estimates in this article show that initial housing status is significantly related to subsequent material hardship. The likelihood of experiencing any material hardship is 5.6 percentage points (or about 25%) lower for homeowners than for unsubsidized renters, after controlling for age, education, race and ethnicity, family composition, liquid assets, income, and income variability. Rent subsidies offer some protection against hardship, but not as much as owning a home with positive equity does. Homeowners who bought their home around the time of the housing crash are still better able to ward off hardship than unsubsidized renters are. Owning a home for a longer period (more than 10 years) provides more protection than having purchased a home recently (in the past 4 years). Homeownership through risky mortgage does not provide significant protection against material hardship, compared with unsubsidized renters. Non-Hispanic blacks and Hispanics are less likely to own homes and more likely to have negative home equity if they do own homes. However, homeownership's role in shielding people from material hardship appears at least as important for non-Hispanic blacks and Hispanics as for non-Hispanic whites. Among low-income individuals, the relationship between homeownership and hardship avoidance is larger than the relationship found for all income groups in the study sample.

The findings from this study are relevant to policy discussions about whether homeownership remains a sound strategy during housing bust or economic downturns. Certainly, homeownership policies should depend partly on the timing of potential home purchases, particularly home prices relative to rentals and mortgage interest rates. For example, homeownership looks particularly favorable after the wake of post-2006 declines in home prices, low interest rates, and continuing increases in rents. This study indicates that reducing material hardship offers additional evidence for benefits of homeownership (with prime mortgage), even among low-income families.

1. Data and Methodology

1.1. Data

The study's data come from the 2008 SIPP panel. The SIPP is a continuous series of nationally representative panels that collect detailed information on government program participation, economic well-being, and demographic characteristics. SIPP respondents are interviewed every 4 months, a period referred to as a wave. The full sample is divided into four approximately equal rotation groups. One rotation group is interviewed in each month of a wave. The SIPP content includes a core module survey instrument used to collect common items over each wave and topical modules that cover special topics in specific waves.³

The core data available in all waves include income, demographic characteristics, homeownership, and an indicator specifying whether the respondent received a rent subsidy or lived in a public housing project. Information on home equity and liquid assets is available from the assets and liabilities module that took place in wave 4 (September–December 2009), wave 7 (September–December 2010), and wave 10 (September–December 2011). Material hardship measures come from the adult well-being topical module at waves 6 (May–August 2010) and 9 (May–August 2011). We use these waves to examine the relation of housing status and the immediate outcome of material hardship experience right after the Great Recession. The study sample includes individuals who are either the household reference person or the spouse or unmarried cohabitant of the

reference person at wave 4, who are under age 69 at wave 4, and who are continuously observed in the sample between waves 4 and 9.⁴ These criteria yield a total sample of 32,807 individuals. Among them, 23,854 are non-Hispanic white, 3,335 are non-Hispanic black, and 3,427 are Hispanic (the remaining 2,191 are other races).⁵ Because the SIPP oversamples low-income households, we weight all analyses using the longitudinal weight. All dollar values are deflated into December 2009 dollars using the Consumer Price Index Research Series using Current Methods (CPI-U-RS).

1.2. Housing Status Measures

The housing status variables are generally measured in wave 4 (September–December 2009). We categorize housing status in five different ways. The first and most straightforward comparison is homeowners versus all others. We define homeownership as a housing status in which the living quarters are owned or being bought by the respondent or someone else in the household. Second, we divide housing status into four categories: *homeowner*; *subsidized renter*—someone who receives a federal, state, or local government rent subsidy or who lives in a public housing project (i.e., owned by a local housing authority or other agency); *unsubsidized renter*—any other renter who pays for housing costs and does not receive government subsidies; and a residual category, *not paying rent*.⁶ Third, we further distinguish homeowners by whether they have negative home equity: *underwater homeowner*—someone with home mortgage debt greater than the home value; *above-water homeowner*—someone without home mortgage debt or with home mortgage debt less than the home value; *unsubsidized renter*; *subsidized renter*; and *not paying rent*. Fourth, we further distinguish homeowners by when they purchased their homes: *purchased home 0–4 years ago*—that is, after 2004; *purchased home 5–10 years ago*—that is, between 2000 and 2004; *purchased home 10+ years ago*—that is, before 2000; *unsubsidized renter*; *subsidized renter*; and *not paying rent*. Whereas more recent homebuyers are most likely to experience negative equity, the reason for falling underwater is less linked to the unobserved personal characteristics than would be the case with the negative equity variable. Last but not least, we distinguish homeowners by whether they hold a risky mortgage—*hold risky mortgage*, *hold prime mortgage*, and *no mortgage*—alongside *unsubsidized renter*, *subsidized renter*, and *not paying rent*. Construction of the risky mortgage indicator is described in [section 1.5](#).

1.3. Material Hardship Measures

Most studies that examine material hardship look at four hardship domains: the ability to pay bills, unmet health problems, food insufficiency, and housing problems (Pilkaukas, Currie, & Garfinkel, 2012). We follow this convention and group material hardship measures available in the SIPP topical module into these four domains.⁷ For each domain, we use a dummy variable equal to 1 if the hardship is present and 0 if it is not present. The survey respondent answers the material hardship experiences on behalf of the entire household.

1.3.1. Inability to Pay Bills

We define a household as unable to pay bills if at any time in the past 12 months, a household did not pay the full amount of the rent or mortgage, or gas, oil, or electricity bills, or the telephone company disconnected service because payments were not made.

1.3.2. Unmet Medical or Dental Need

This variable measures whether in the past 12 months a household member needed to see a doctor or a dentist but did not go.⁸

1.3.3. Food Insufficiency

Food insufficiency occurs if one of three criteria was met in the past 4 months: sometimes or often the individual did not have enough to eat; adults in the household cut the size of meals or skipped meals because of a lack of money for food; and/or, at one point in the month, adults in the household ate less than they felt they should because there was not enough money to buy food.

1.3.4. Housing Problem

This variable is defined based on dilapidated housing. It equals 1 if three or more of the following seven conditions exist in the home: a problem with pests, such as rats or mice, or cockroaches or other insects; a leaking roof or ceiling; broken window glass or windows that cannot be shut; exposed electrical wires in the finished areas of the home; a toilet, hot water heater, or other plumbing that does not work; holes in the walls or ceiling, or cracks wider than the edge of a dime; and holes in the floor big enough for someone to catch their foot on. This measure is defined at the time of the interview.

In addition, we use a variable—any hardship—that equals 1 if a household experienced any of the above four hardships. Using the longitudinal feature of the data, we also examine entries and exits from material hardship. Entry and exit variables equal 1 if the individual transitioned into or out of any hardships between May–August 2010 (wave 6) and May–August 2011 (wave 9) and 0 otherwise.⁹

1.4. Income and Asset Measures

The multivariate regressions control for both the level of income and income instability. The level of income is measured as the average monthly income-to-needs ratio (household income to household poverty threshold) between September–December 2008 (wave 1) and May–August 2010 (wave 6), prior to our key measures of material hardship. Income instability is measured as the standard deviation of the monthly income-to-needs ratio between wave 1 and wave 6.

We measure home equity and liquid assets using the September–December 2009 (wave 4) information. Liquid assets are measured as the amount in interest-earning assets held in banking institutions. Monthly rent or monthly mortgage cost is also measured during the same period as home equity. In [Section 2](#) we describe the demographic characteristics we control in the regression model, and they are measured as of May–August 2011 (wave 9).

1.5. Risky Mortgage Indicator

We construct the indicator of risky mortgages based on the year of home purchase, whether the mortgage rate is fixed or variable, and the interest rate of the primary home in wave 4. We compare the household self-reported mortgage rate with the historical national average 30-year fixed mortgage rate monthly data provided by FreddieMac. If a household holds a fixed-rate mortgage, we examine whether the first mortgage or second mortgage (if applicable) exceeds the national average fixed rate at the year of home purchase.¹⁰ In the SIPP data, more than 90.9% of households with a mortgage have a fixed-rate mortgage. In our main models, we treat all adjustable-rate mortgages (ARMs) as risky mortgages because the uncertainty of rates going up or down with the economy after the first 3–5 years puts individuals with ARMs in riskier positions than those with fixed-rate mortgages. In an alternative specification, we exclude households with ARMs and find that results are similar.

2. Empirical Models

Our empirical models measure the relationship between housing status and economic hardship, taking into account liquid assets, income, income variability, race and ethnicity, age, education, and

family status. The seven dependent variables are inability to pay bills, unmet medical or dental need, food insufficiency, housing problems, any of the four hardships, hardship entry, and hardship exit. We measure housing status in several ways and report some specifications separately for non-Hispanic whites, non-Hispanic blacks, and Hispanics. Since all outcome variables are binary, we use a logistic regression and report the marginal effects of independent variables, estimated at the means of all the other variables. For analysis using the instrumental variable approach, we report the results from the linear model. The standard errors are clustered at the state level, the finest geographic identifier available in the SIPP data.¹¹ The regression model for an individual i is as follows:

$$Y_i = \alpha + \beta_1 \text{Housing}_i + \beta_2 \text{LiquidAsset}_i + \beta_3 \text{Race}_i + \beta_4 I_i + \beta_5 X_i + \varepsilon_i \quad (1)$$

where Y_i indicates an incidence of material hardship for individual i at wave 9 (May–August 2011), or a transition in hardship between wave 6 (May–August 2010) and wave 9.

The key explanatory variable, Housing_i , indicates the housing status for individual i in wave 4 (September–December 2009).¹² Each regression model specification (models 1 through 5) corresponds to one of the housing status measures described in Section 1.2. In addition, we estimate models 4 and 5 for non-Hispanic whites, non-Hispanic blacks, and Hispanics separately, so we can explore the disparate relationship between housing status and hardship by race and ethnicity.

The other independent variables include the following: LiquidAssets_i indicates whether household liquid assets reach a certain level in wave 4: no liquid assets, liquid assets under \$2,000, liquid assets between \$2,000 and \$9,999, and liquid assets over \$10,000.¹³ Liquid assets are considered a measure of emergency savings, the first financial resource to draw from when needed. Race_i indicates race and ethnicity (non-Hispanic white, non-Hispanic black, Hispanic, and other) in wave 9. I_i includes average monthly household income-to-needs ratio and a measure of income variability, the standard deviation of monthly household income-to-needs ratio between wave 1 (September–December 2008) and wave 6 (May–August 2010). Income and poverty status have been associated with material hardship (Beverly, 2000; Mayer & Jencks, 1989). In addition, research suggests that higher income variability is associated with higher incidence of material hardship (Leete & Bania, 2010; Lerman, 2002). X_i is a set of individual and family characteristics in wave 9, including an individual's age, age squared, completed education (no high school diploma or General Educational Development [GED], a high school diploma or GED, and some college, with a bachelor degree or higher being the excluded category), and family composition (single without children, single with children, and married without children, with married with children being the excluded category). Even after controlling for these characteristics, it is possible that some unobserved factor—such as financial capability—accounts for the relationship we find. Therefore, we interpret our main results as the association between housing status and material hardship, rather than a causal effect from homeownership or rent subsidies.

We attempt to address the potential endogeneity of homeownership using the instrumental variable approach. Existing studies use geographic level and/or demographic group average homeownership rate as the instrument for household homeownership status. For example, Van Leuvensteijn and Koning (2004) use the regional homeownership rate. Munch, Rosholm, and Svarer (2006) use the labor market-level aggregate homeownership rate. DiPasquale and Glaeser (1999) and Aaronson (2000) use the group average homeownership rate by race, income, year, and state as an instrument for individual homeownership. Based on the available information in the SIPP data, we use group average homeownership rate by state and by race and ethnicity. The key identifying assumption is that group homeownership rate is correlated with household homeownership status, but has no direct impact on material hardship experiences. We acknowledge that this assumption is not perfect, as some local economic shocks could affect both the local homeownership rate and household material hardship experiences. Nevertheless, the Instrumental Variable (IV) results provide a robustness check of the logistic regression results.

We further acknowledge that some other aspect of homeownership might provide a direct shield against material hardships. Homeowners are usually more careful in taking care of their own place; hence, they are less likely than renters to have housing problems such as a broken window. Homeowners are also more likely to have excess room than renters are, which allows them the flexibility to take in boarders without the risk of irritating their landlord. This could help them relieve hardship stress such as being behind on bill payments. We also acknowledge that rents were likely decreasing in many locations during the Great Recession. Therefore, renters may have had a reduced housing cost and more resources to weather hardships such as food insufficiency.

3. Results

3.1. Macroeconomic Context

This analysis of housing status and material hardship tracks the period during and soon after the Great Recession of December 2007 to June 2009, when housing and labor markets were disrupted. According to the Bureau of Labor Statistics, by the first wave of the SIPP in late 2008, the unemployment rate had jumped from about 4.5% in early 2007 to about 6.5%. Over the next several waves, the unemployment rate rose sharply to 10% in October 2009 and remained near that level for about a year before starting a modest decline to about 9% in mid-2011 and then falling to about 8% by mid to late 2012. The unemployment rates of non-Hispanic blacks and Hispanics reached 16 and 13%, respectively, by 2010. Meanwhile, home prices began to fall before the first wave of the SIPP 2008 panel and continued to decline over the entire sample period through late 2011.

These employment and housing conditions provide a particularly interesting context for examining the connections between housing status and material hardship. One reason is that high joblessness increases the likelihood that individuals and families would experience one or another hardship, whether homeowners or not. Another is that the sharp declines in home prices were unusually high because they followed a period of rapid (and also unusual) housing price increases. These factors likely weaken the advantages of homeownership in avoiding hardship much more in the Great Recession than in normal times or even normal downturns. Thus, the estimated relationship between owning a home and hardship in our sample period is almost assuredly lower compared with other periods when home prices are rising or stable.

3.2. Descriptive Results

The breakdown of homeownership status and rental patterns reveals surprisingly little overall change between the last thirds of 2009 and 2011. In fact, for this sample, the share in households with a homeowner rose slightly from 71.1% to 72.0% (see [Table 1](#)). At the same time, the share of these homeowners who faced an underwater, negative equity situation rose from 12.0% to 14.0%.

The housing status of non-Hispanic blacks and Hispanics also changed only slightly. Although initial housing patterns differed dramatically by race and ethnicity—non-Hispanic blacks and Hispanics had homeownership rates 28.0 and 24.9 percentage points, respectively, lower than those of whites—the changes in housing status were similarly modest across categories.¹⁴ One notable pattern is that the share of homeowners who became underwater owners increased significantly for non-Hispanic blacks, from 16.3% to 20.2% between late 2009 and late 2011. The share of underwater Hispanic homeowners also increased, from 21.8% to 23.1%. The higher likelihood of being underwater among households of color may put them at higher risk of not making other ends meet, as they are unable to draw from home equity to weather emergencies.

More than one in five working-age individuals reported experiencing at least one hardship (see [Table 1](#)). The most common hardship was being behind on bill payments, which usually meant falling behind on utility bills or behind on rent or mortgage payments. Far less common was

Table 1. Homeownership rate and experiences in material hardship by race and ethnicity (%).

	All	Non-Hispanic white	Non-Hispanic black	Hispanic
Housing status				
Homeownership rate 2009	71.1	78.1	50.1	53.2
Homeownership rate 2011	72.0	78.8	51.3	54.0
Underwater 2009	12.0	10.4	16.3	21.8
Underwater 2011	14.0	12.2	20.2	23.1
Material hardship				
Behind on bill payment	14.7	11.6	28.1	21.1
Unmet medical/dental need	12.7	11.4	15.5	17.3
Food insufficiency	6.9	5.2	12.4	11.0
Dilapidated housing	1.8	1.5	2.6	2.2
Any of the four hardships	22.8	19.0	36.3	32.1
Hardship entry	12.1	9.9	22.0	18.7
Hardship exit	40.5	42.3	36.4	39.9

Note. Homeownership rate is measured in September–December 2009 (wave 4) and September–December 2011 (wave 10). Underwater proportion is calculated among those who own a home. Hardships are measured in May 2011–August 2011 (wave 9), and hardship entry and exit are measured May 2010–August 2010 (wave 6) and May 2011–August 2011 (wave 9). Authors' tabulations of data from the Survey of Income and Program Participation 2008 panel.

having dilapidated housing (1.8%). Nearly 7% of respondents had at least one indicator of food insufficiency.

Non-Hispanic blacks and Hispanics were far more likely to experience hardships than non-Hispanic whites were. For example, they were twice as likely to experience food insufficiency compared with whites (12.4% for non-Hispanic blacks, 11.0% for Hispanics, and 5.2% for whites). For the *any hardship* category, the non-Hispanic black rate of 36% was almost double the white rate of 19%. Living in dilapidated housing was highly unusual for all groups, with rates ranging from 1.5% for whites to 2.6% for non-Hispanic blacks.

About 4 in 10 of those who experienced at least one hardship in wave 6 (May–August 2010) managed to avoid any hardship in wave 9 (May–August 2011). Again, the pattern varied by race and ethnicity. Families of color were twice as likely to move into hardship between 2010 and 2011, compared with non-Hispanic whites (22.0% for non-Hispanic blacks, 18.7% for Hispanics, and 9.9% for whites). Minorities were also slightly less likely to exit hardship within 1 year, but movements into and out of hardship were frequent for all groups. More than one third of non-Hispanic blacks who experienced any hardship in May–August 2010 were no longer in the hardship pool by May–August 2011. In contrast, more than one fifth of non-Hispanic blacks not experiencing hardship in mid-2010 faced hardship in mid-2011.

The above descriptive analyses suggest the following: between late 2008 and late 2011, when the unemployment rate remained high and housing prices continued to decline, non-Hispanic blacks and Hispanics were more likely to experience hardships than were non-Hispanic whites. The raw correlation provides some evidence that homeowners, even those who were underwater, were better able to avoid material hardship than renters. However, this relationship likely stems from the higher incomes of homeowners. The next section discusses the regression models on the role of housing status in reducing material hardship, after controlling for income and other factors that could be related to material hardship.

3.3. Estimates of Housing–Hardship Relationship

Our regression results yield consistent and suggestive evidence about the association between owning a home and a reduced incidence of material hardship. Table 2 suggests that homeownership plays a major role in protecting families from hardship, after controlling for income, income variability, race and ethnicity, age, educational attainment, and family status. The likelihood of experiencing any of the four dimensions of hardships is 5.1 percentage points lower for homeowners than for renters (and those not paying rent), a statistically significant reduction of about

Table 2. Homeownership and material hardship, logistic regression.

	Inability to pay bills	Unmet medical/dental need	Food insufficiency	Housing problem	Hardship		
					Any	Entry	Exit
Housing status							
Homeowner	− 0.018*** (0.006)	− 0.033*** (0.008)	− 0.018*** (0.003)	0.001 (0.001)	− 0.051*** (0.010)	− 0.031*** (0.007)	0.037* (0.019)
Liquid asset (omitted: liquid asset over \$10,000)							
No liquid asset	0.092*** (0.012)	0.055*** (0.009)	0.033*** (0.007)	0.007** (0.003)	0.104*** (0.014)	0.052*** (0.010)	− 0.060* (0.032)
Liquid asset \$1–\$1,999	0.089*** (0.016)	0.058*** (0.010)	0.030*** (0.008)	0.006** (0.003)	0.108*** (0.017)	0.051*** (0.013)	− 0.061* (0.037)
Liquid asset \$2,000–\$9,999	0.032*** (0.011)	0.024** (0.010)	0.007 (0.006)	0.002 (0.002)	0.035** (0.014)	0.011 (0.009)	− 0.015 (0.038)
Race and ethnicity (omitted: non-Hispanic white)							
Non-Hispanic black	0.048*** (0.008)	− 0.019*** (0.006)	0.004 (0.003)	0.000 (0.002)	0.037*** (0.012)	0.035*** (0.009)	0.005 (0.027)
Hispanic	− 0.002 (0.008)	− 0.010 (0.007)	− 0.000 (0.003)	− 0.001 (0.002)	− 0.005 (0.014)	0.002 (0.009)	0.025 (0.026)
Non-Hispanic other race	0.013 (0.008)	0.007 (0.007)	0.007 (0.005)	0.004** (0.002)	0.028** (0.012)	0.015 (0.012)	− 0.054* (0.033)
Individual and family characteristics							
Monthly income-to-needs ratio	− 0.023*** (0.001)	− 0.023*** (0.002)	− 0.011*** (0.001)	− 0.003*** (0.000)	− 0.040*** (0.002)	− 0.016*** (0.001)	0.054*** (0.006)
Average wave 1–6	0.012*** (0.002)	0.013*** (0.002)	0.002 (0.002)	− 0.001 (0.001)	0.019*** (0.002)	0.009*** (0.002)	− 0.012 (0.008)
Standard deviation wave 1–6							
Age							
Age	0.011*** (0.001)	0.010*** (0.001)	0.003*** (0.000)	0.000 (0.000)	0.018*** (0.002)	0.008*** (0.001)	− 0.027*** (0.004)
Age squared	− 0.000*** (0.000)	− 0.000*** (0.000)	− 0.000*** (0.000)	− 0.000 (0.000)	− 0.000*** (0.000)	− 0.000*** (0.000)	0.000*** (0.000)
Education (omitted: college degree and above)							
No high school diploma or GED	0.063*** (0.009)	0.043*** (0.009)	0.018*** (0.004)	0.002 (0.002)	0.093*** (0.011)	0.070*** (0.011)	− 0.022 (0.022)
High school diploma or GED	0.051*** (0.007)	0.029*** (0.007)	0.011*** (0.004)	0.003* (0.001)	0.064*** (0.011)	0.036*** (0.009)	− 0.049*** (0.018)
Some college	0.064*** (0.006)	0.040*** (0.005)	0.016*** (0.003)	0.002 (0.002)	0.078*** (0.007)	0.040*** (0.007)	− 0.080*** (0.018)
Family composition (omitted: married, children)							
Single, no child	0.017** (0.007)	0.010 (0.007)	0.013*** (0.004)	0.000 (0.002)	0.032*** (0.011)	0.022*** (0.008)	− 0.039 (0.024)
Single, with child	0.053*** (0.013)	0.004 (0.007)	0.014*** (0.005)	0.000 (0.002)	0.066*** (0.017)	0.042*** (0.013)	− 0.062** (0.026)
Married, with child	0.018** (0.007)	− 0.007 (0.006)	0.003 (0.004)	− 0.002 (0.002)	0.015 (0.009)	0.014** (0.007)	− 0.010 (0.026)
Observations	32,807	32,807	32,807	32,807	32,807	25,370	7,437
Pseudo R ²	0.148	0.101	0.160	0.073	0.147	0.100	0.049
Mean of hardship (%)	14.7	12.7	6.9	1.80	22.8	12.1	40.5

Note. Weighted logistic regression marginal effects are reported with robust standard errors clustered at the state level in parentheses. Four material hardships and any hardship are measured as of May 2011–August 2011 (wave 9). Hardship entry and exit are measured as changes between May 2010–August 2010 (wave 6) and May 2011–August 2011 (wave 9). Housing status and liquid asset are measured as of September 2009–December 2009 (wave 4). Race and ethnicity, individual and family characteristics are measured as of wave 9, unless otherwise noted. Authors' tabulations of data from the Survey of Income and Program Participation 2008 panel. GED = General Educational Development.

* $p < .1$. ** $p < .05$. *** $p < .01$.

25%. Similar percentage reductions appear for other individual hardships, with the exception of dilapidated housing, in which there is no significant relationship. One potential explanation is that renters often do not pay to fix housing problems. Landlords or building managers might provide such services for free, whereas homeowners must generally pay to repair their homes.

One way to interpret the relationship between homeownership and material hardship is to compare it with other factors that reduce hardship. For example, the 5.1-percentage-point reduction in hardship associated with homeownership is higher than the 4.0-point reduction associated with an increase in income relative to need from 2 times the poverty level to 3 times the poverty level. The relationship between owning a home and hardship reduction, moreover, is also greater than the reduction in hardship moving from a high school dropout to a high school graduate (5.1 vs. 2.9 percentage points). In contrast, having more than \$2,000 in liquid assets is associated with a larger decline in hardship than homeownership is. Clearly, savings in any form makes a significant difference. Given the decline in housing values nationwide over this time period, liquid assets provide more accessible resources than home equity to prevent emergencies and hardships.

The results in Table 2 reveal that the experience of hardship depends on many factors beyond family income level. More income variability increases hardship, similar to being unmarried, being less educated (compared with having a college degree or more), and being non-Hispanic black or non-Hispanic other race. On the other hand, hardship is no higher among Hispanics than non-Hispanic whites, controlling for the other independent variables. The associations of these control variables with material hardship are consistent across models.

Using the average homeownership rate by state and by race and ethnicity as the instrument for household homeownership, we still find a significant relationship between homeownership and material hardship (see Table 3). The first-stage regressions of each hardship outcome report an *f* statistic over 100, indicating a strong relation between the instrument and household housing status. After controlling for potential endogeneity of housing status, the role of housing status is associated with fewer material hardship measures. Homeownership only significantly affects inability to pay bills, any hardship, and hardship entry.

When we examine the relationship by income quartile, we find being a homeowner provides protection among low- to moderate-income households. Logistic regression marginal effects by

Table 3. Homeownership and material hardship, instrumental variable regression.

	Inability to pay bills	Unmet medical/dental need	Food insufficiency	Housing problem	Hardship		
					Any	Entry	Exit
Homeowner	-0.088** (0.042)	0.006 (0.036)	-0.034 (0.030)	-0.023 (0.017)	-0.130*** (0.049)	-0.079* (0.046)	0.117 (0.110)
No liquid asset, wave 4	0.088*** (0.008)	0.074*** (0.007)	0.052*** (0.006)	0.008*** (0.003)	0.107*** (0.010)	0.058*** (0.008)	-0.048 (0.030)
Liquid asset \$1-\$1,999, wave 4	0.063*** (0.006)	0.056*** (0.006)	0.023*** (0.004)	0.005** (0.002)	0.088*** (0.007)	0.045*** (0.007)	-0.057** (0.025)
Liquid asset \$2,000-\$9,999, wave 4	0.002 (0.005)	0.008* (0.005)	-0.006** (0.003)	-0.000 (0.002)	0.007 (0.006)	0.001 (0.005)	-0.012 (0.028)
Non-Hispanic black	0.077*** (0.011)	-0.014 (0.010)	0.022*** (0.008)	-0.002 (0.004)	0.050*** (0.012)	0.053*** (0.013)	0.015 (0.023)
Hispanic	-0.001 (0.009)	-0.002 (0.009)	0.005 (0.007)	-0.005 (0.004)	-0.002 (0.011)	0.006 (0.011)	0.030 (0.021)
Other race non-Hispanic	0.009 (0.010)	0.020** (0.009)	0.016** (0.007)	0.004 (0.004)	0.024** (0.012)	0.013 (0.011)	-0.041 (0.029)
Observations	32,807	32,807	32,807	32,807	32,807	25,370	7,437
R ²	0.101	0.056	0.064	0.005	0.128	0.067	0.058

Note. Weighted Two-Stage Least Squares (2SLS) regression with standard errors in parentheses. The first-stage instrumental variable is homeownership rate in each state, by race and ethnicity. Four material hardships and any hardship are measured as of May 2011–August 2011 (wave 9). Hardship entry and exit are measured as changes between May 2010–August 2010 (wave 6) and May 2011–August 2011 (wave 9). Housing status and liquid asset are measured as of September 2009–December 2009 (wave 4). Race and ethnicity, individual and family characteristics are measured as of wave 9, unless otherwise noted. Other control variables include average and standard deviation of monthly income-to-needs ratio, age, age squared, no high school diploma, high school diploma only, some college, single without a child, single with children, and married with children. Authors' tabulations of data from the Survey of Income and Program Participation 2008 panel.

* $p < .1$. ** $p < .05$. *** $p < .01$.

Table 4. Homeownership and material hardship, by income quartile.

	Any hardship				Hardship entry			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Homeowner	-0.063*** (0.023)	-0.084*** (0.020)	-0.063*** (0.015)	-0.019 (0.019)	-0.065*** (0.024)	-0.055*** (0.016)	-0.029*** (0.011)	-0.007 (0.012)
Subsidized renter, wave 4	-0.024 (0.027)	0.103* (0.054)	0.031 (0.084)	0.365 (0.266)	-0.031 (0.024)	0.085* (0.049)	0.055 (0.065)	-
Not paying rent, wave 4	-0.011 (0.041)	-0.099*** (0.030)	0.035 (0.042)	-0.003 (0.050)	-0.045 (0.039)	-0.061** (0.026)	0.017 (0.048)	-0.024 (0.024)
No liquid asset, wave 4	0.215*** (0.037)	0.124*** (0.031)	0.105*** (0.022)	0.025** (0.012)	0.103*** (0.038)	0.050** (0.023)	0.060*** (0.018)	0.024* (0.012)
Liquid asset \$1– \$1,999, wave 4	0.193*** (0.037)	0.117*** (0.032)	0.129*** (0.022)	0.061*** (0.018)	0.075* (0.039)	0.044* (0.024)	0.072*** (0.017)	0.046*** (0.016)
Liquid asset \$2,000– \$9,999, wave 4	0.059 (0.039)	0.050 (0.035)	0.033 (0.020)	0.024*** (0.009)	-0.016 (0.053)	0.021 (0.025)	0.009 (0.015)	0.015 (0.009)
Non-Hispanic black	0.029 (0.026)	0.033* -0.019	0.059*** (0.021)	0.069*** (0.027)	0.055** (0.026)	0.027 (0.020)	0.041** (0.019)	0.055** (0.023)
Hispanic	-0.037 (0.030)	-0.017 (0.023)	0.033 (0.022)	0.017 (0.011)	0.011 (0.024)	-0.019 (0.015)	0.012 (0.020)	0.009 (0.014)
Other race non- Hispanic	0.004 (0.032)	0.011 (0.024)	0.078*** (0.019)	0.021 (0.013)	0.018 (0.040)	-0.022 (0.024)	0.063*** (0.019)	0.005 (0.011)
No. observations	8,431	8,222	8,051	8,103	5,007	6,063	6,796	7,503
Pseudo R ²	0.047	0.069	0.076	0.068	0.043	0.055	0.057	0.049
Mean of hardship	41.1%	26.2%	15.8%	7.5%	23.0%	14.6%	9.4%	5.3%

Note. Weighted logistic regression marginal effects are reported with robust standard errors clustered at the state level in parentheses. Q1–Q4 indicate the four income quartiles, with Q1 representing the lowest income quartile. Other control variables include age, age squared, no high school diploma, high school diploma only, some college, single without a child, single with children, and married with children. Authors' tabulations of data from the Survey of Income and Program Participation 2008 panel.

* $p < .1$. ** $p < .05$. *** $p < .01$.

household income quartile are presented in Table 4. The relationship between being a homeowner and experience of any hardship or hardship entry is significant for the three bottom income quartiles but not for the top income quartile. This might be due to the fact that few high-income households experience material hardship, as shown in the last row of Table 4.

Comparing homeownership with all renters misses important distinctions. In particular, some renters receive rent subsidies that substantially reduce their housing costs, which lowers their chances of experiencing hardships, especially when compared with other renters with the same incomes. As model 2 shows (see top panel, Table 5), renters with government subsidies experience less material hardship than unsubsidized renters do, but the estimate is not significant for food insufficiency or hardship entry or exit, and the estimate is small for unmet medical/dental need or a housing problem. This reduction in hardship overturns the unadjusted increases in hardship linked to rent subsidies in the descriptive analysis. Net of other factors, subsidized renters have a 2.1% lower probability of experiencing any hardship than do unsubsidized renters. Relative to the mean levels of this hardship measure, this represents about a 10% decline. This reduction is less than half the decline in *any hardship* associated with homeownership.

The bursting of the housing bubble cast a dark shadow on the presumed benefits of homeownership. In particular, underwater homeowners faced serious problems during the Great Recession. They did not have equity in their homes to draw upon when faced with an adverse shock to income, such as a job loss. In addition, underwater homeowners may have faced limited geographic mobility. For both reasons, we expect underwater homeowners to be far less protected against material hardship than other homeowners were. As model 3 reveals (see middle panel, Table 5), homeowners who had negative equity did better than unsubsidized renters in avoiding hardships such as inability to pay bills, unmet medical or dental needs, and food insufficiency. However, they did not perform better for any hardship or hardship entry or exit. One reason for this

Table 5. Housing status and its relationship to material hardship.

	Inability to pay bills	Unmet medical/dental need	Food insufficiency	Housing problem	Hardship		
					Any	Entry	Exit
Model 2 (omitted category: unsubsidized renter)							
Homeowner	- 0.023*** (0.006)	- 0.038*** (0.008)	- 0.019*** (0.003)	0.001 (0.001)	- 0.056*** (0.010)	- 0.035*** (0.007)	0.041** (0.019)
Subsidized renter	- 0.023*** (0.007)	- 0.030*** (0.006)	- 0.002 (0.003)	- 0.003 (0.002)	- 0.021** (0.010)	- 0.011 (0.009)	0.037 (0.036)
Not paying rent	- 0.018 (0.011)	- 0.012 (0.008)	- 0.012*** (0.004)	0.005 (0.004)	- 0.027** (0.013)	- 0.026*** (0.009)	- 0.008 (0.045)
Model 3 (omitted category: unsubsidized renter)							
Underwater homeowner	0.022*** (0.008)	- 0.016** (0.008)	- 0.010*** (0.004)	- 0.000 (0.002)	- 0.001 (0.012)	- 0.004 (0.009)	0.007 (0.032)
Above-water homeowner	- 0.034*** (0.006)	- 0.041*** (0.008)	- 0.019*** (0.003)	0.002 (0.001)	- 0.068*** (0.011)	- 0.041*** (0.007)	0.050** (0.020)
Subsidized renter	- 0.023*** (0.007)	- 0.031*** (0.006)	- 0.002 (0.003)	- 0.003 (0.002)	- 0.021** (0.010)	- 0.012 (0.009)	0.037 (0.036)
Not paying rent	- 0.018 (0.011)	- 0.012 (0.008)	- 0.012*** (0.004)	0.005 (0.004)	- 0.027** (0.013)	- 0.026*** (0.009)	- 0.007 (0.046)
Model 4 (omitted category: unsubsidized renter)							
Purchased home 0-4 years ago	- 0.011* (0.006)	- 0.032*** (0.007)	- 0.012*** (0.003)	- 0.002* (0.001)	- 0.040*** (0.009)	- 0.018*** (0.005)	0.057 (0.039)
Purchased home 5-10 years ago	- 0.019*** (0.007)	- 0.026*** (0.006)	- 0.011*** (0.002)	- 0.004* (0.002)	- 0.041*** (0.009)	- 0.030*** (0.007)	0.001 (0.027)
Purchased home 10+ years ago	- 0.033*** (0.006)	- 0.045*** (0.005)	- 0.017*** (0.003)	- 0.002 (0.002)	- 0.070*** (0.008)	- 0.042*** (0.005)	0.055** (0.022)
Subsidized renter	- 0.022*** (0.007)	- 0.029*** (0.007)	0.000 (0.003)	- 0.004** (0.002)	- 0.018* (0.010)	- 0.010 (0.009)	0.033 (0.035)
Not paying rent	- 0.017 (0.012)	- 0.011 (0.008)	- 0.011** (0.004)	0.002 (0.004)	- 0.024* (0.013)	- 0.025*** (0.009)	- 0.012 (0.044)
Model 5 (omitted category: unsubsidized renter)							
Risky mortgage	0.015 (0.011)	- 0.019** (0.008)	- 0.004 (0.004)	0.003 (0.003)	- 0.007 (0.015)	- 0.011 (0.010)	0.009 (0.042)
Prime mortgage	- 0.020*** (0.006)	- 0.033*** (0.007)	- 0.015*** (0.003)	- 0.002 (0.002)	- 0.058*** (0.010)	- 0.029*** (0.007)	0.042* (0.024)
No mortgage	- 0.051*** (0.006)	- 0.051*** (0.007)	- 0.021*** (0.003)	0.001 (0.002)	- 0.090*** (0.011)	- 0.049*** (0.007)	0.092*** (0.034)
Subsidized renter	- 0.023*** (0.006)	- 0.030*** (0.006)	- 0.002 (0.003)	- 0.002 (0.002)	- 0.023** (0.010)	- 0.012 (0.009)	0.039 (0.036)
Not paying rent	- 0.017 (0.011)	- 0.011 (0.008)	- 0.011*** (0.004)	0.005 (0.004)	- 0.026** (0.013)	- 0.026*** (0.008)	- 0.009 (0.046)
No. observations	32,807	32,807	32,807	32,807	32,807	25,370	7,437
Mean of hardship	14.7%	12.7%	6.9%	1.8%	22.8%	12.1%	40.5%

Note. Weighted logistic regression marginal effects are reported with standard errors clustered by state in parentheses. Four material hardships and any hardship are measured as of May 2011–August 2011 (wave 9). Hardship entry and exit are measured as changes between May 2010–August 2010 (wave 6) and May 2011–August 2011 (wave 9). Housing status and liquid asset are measured as of September 2009–December 2009 (wave 4). The omitted category of all models is unsubsidized renter. Other control variables include no liquid asset, liquid asset \$1–\$1,999, liquid asset \$2,000–\$9,999, average monthly income-to-needs ratio, standard deviation of monthly income-to-needs ratio, age, age squared, no high school diploma, high school diploma only, some college, single without a child, single with children, and married with children. Authors' calculations using data from the Survey of Income and Program Participation 2008 panel.

* $p < .1$. ** $p < .05$. *** $p < .01$.

surprising outcome may be that monthly mortgage payments, even for underwater homeowners, are still low compared with monthly rents. Another possibility is that homeownership reflects a lack of controls for unobserved factors such as financial capability. Even homeowners with negative equity may have better financial management skills than renters, making them more likely to make ends meet.

Homeowners with positive equity in their homes are least associated with material hardship across all housing status measures. Even after accounting for liquid assets, income, income variability, age, race and ethnicity, education, and family status, these homeowners were 6.8 percentage points less likely to experience any hardship than unsubsidized renters were. This decline represents a nearly 30% reduction from the mean hardship level. The differential in hardship by home equity is not surprising, given the enormous gap in net equity relative to home values. The median net equity-to-home value ratio was – 21% for underwater homeowners and nearly 80% for above-water homeowners (not shown).

Some uncontrolled factors, such as weak financial literacy, weak local housing and employment conditions, or variable mortgage rate across different areas, may account for both underwater status on a mortgage and material hardship. For example, after a legislative experiment in Illinois mandated financial counseling for mortgage loan applicants with low credit scores, Agarwal, Amromin, Ben-David, Chomsisengphet, and Evanoff (2009) found that the legislation caused much lower default rates and better loan choices for those counseled borrowers in the market. Although endogeneity is hard to avoid, the timing of the home purchase may be linked to the declines in home equity but may have no direct association with hardship. In model 4 of Table 5, we capture the timing by dividing the homeownership variable into three periods: purchasing the home 0–4 years ago, 5–10 years ago, and more than 10 years ago. As expected, the largest reductions in hardship occur among those with the longest home tenures. But even among those who bought homes during the housing bubble, incidence of hardship is lower than among unsubsidized renters with similar socioeconomic characteristics.

The last model in Table 5 examines the relationship between mortgage riskiness and material hardship. Here, we divide homeowners into three groups: those with risky mortgages, those with prime mortgages, and those who do not hold mortgages. Homeowners with risky mortgages do not have sufficient protection against material hardship, compared with unsubsidized renters. The only exception is unmet medical need, which risky mortgage homeowners are less likely to experience compared with unsubsidized renters. The protective role of homeownership mainly comes from those with prime mortgages. Homeowners with prime mortgages are less likely to experience all hardships (except housing issues) compared with unsubsidized renters.

3.4. Alternative Specification

In an alternative specification, we separate *purchased home 0–4 years ago* into two categories: purchased home less than 2 years ago—that is, after home price started to fall in 2007; and purchased home 3–4 years ago—that is, during the housing boost between 2005 and 2006. Individuals who purchased homes after 2007, when home price started to fall, are significantly less likely to experience hardship than unsubsidized renters are for all hardship measures. Individuals who purchased homes between 2005 and 2006—those likely to have high mortgages and thus be underwater, as they purchased when prices were at their peak—are still significantly associated with less hardship incidence for unmet medical/dental need, food insufficiency, or any hardship, but the relationship is not significant for the other four hardship measures.

One possibility is that homeownership is a proxy for high net worth, conditional on the other independent variables. If so, the reduced hardship levels linked to homeownership might simply result from having more wealth. (Of course, some of the added wealth might stem from the induced savings linked to homeownership.) To better examine this issue, we estimate one specification that controls for net worth and separates net worth into liquid assets and net worth excluding all liquid assets. The results show continuing and significant relationships between owning a home and material hardships. The links are smaller than in the standard specification. The estimates linking homeownership to hardship outcomes are – 0.041 for any hardship, – 0.028 for hardship entry, and 0.032 for hardship exit; without net worth, the homeownership variable shows impacts of – 0.051, – 0.031, and 0.037, respectively.

In another test, we add indicators of public transfers, specifically whether the individual received SNAP, TANF, and/or unemployment insurance (UI) benefits, all defined as of September–December 2009 (wave 4; not shown). Controlling for receiving public transfers does little to change the relationship between homeownership and hardship, but it increases the relationship between government rent subsidy and hardship. Being a subsidized renter is associated with a 4.1-percentage-point reduction in any hardship after controlling for the selected public transfer benefits, compared with a 1.8-percentage-point reduction in any hardship in the original model 4 (see bottom panel, Table 5). We did not include these indicators of public transfers in our main regression model, as they are likely to suffer from endogeneity problems.¹⁵ For example, people falling behind on bill payments are likely to turn to public programs for help.¹⁶

Because material hardship is most likely to occur among low-income individuals, we also examine the relationship between housing status and hardship, restricting our sample to individuals whose average monthly income-to-needs ratio is below 2.0. The relationship between homeownership and hardship avoidance is larger than the relationship found for the main study sample. For example, purchasing a home 0–4 years ago is associated with a 10.0-percentage-point reduction in any hardship. With a mean of 44.0%, this is equivalent to about a 22.7% reduction. For the main study sample, the estimate is 17.5%.

Our main models primarily examine housing status in September–December 2009 (wave 4), the first time that home equity and year of home purchase were reported in the SIPP. We also examine the robustness of the results using housing status from September–December 2008 (wave 1). We compare the regression including homeownership at wave 1, without controlling for liquid assets (as this information is also first available at wave 4), with the regression including homeownership at wave 4 without controlling for liquid assets. The former exhibits slightly smaller gains from homeownership. For example, owning a home in wave 1 is associated with a 5.0-percentage-point reduction in any hardship, compared with a 6.0-percentage-point reduction for owning a home in wave 4. This exercise also shows the difference between model 1 and the same model without controlling for liquid assets: the role of homeownership is larger when not controlling for liquid assets.

Controlling for state fixed effects, which partly controls for variation in home price declines across areas, does not change the results significantly. In one specification we include state dummies to control for geographic differences. The marginal effects of the relationship between housing status and hardship are by and large the same as the main model, except for the hardship of being unable to pay bills, where the estimate is relatively smaller when controlling for state fixed effects. This result does not indicate that hardships were similar across states, only that the link between housing status and hardships remained even after controlling for state differences.

Overall, the multivariate analyses indicate homeownership plays a significant role in averting material hardship. The patterns vary modestly with the specification of housing status, but lower levels of hardship are associated with homeownership even among individuals with similar socioeconomic characteristics.

3.5. Do the Gains From Homeownership Extend to Non-Hispanic Black and Hispanic Families?

Households of color face a higher risk of material hardship than do non-Hispanic white families, in part because of their lower income and asset levels. The proportion of non-Hispanic blacks and Hispanics experiencing food insufficiency is more than double the share for non-Hispanic whites. However, after controlling for economic, individual, and household characteristics, the hardship gap is insignificant between Hispanics and non-Hispanic whites (see, e.g., Table 2). Racial disparities remain for non-Hispanic blacks, who are 3.7 percentage points more likely to experience one of the four hardships than non-Hispanic whites are.

A separate issue is whether housing status relates to hardship in different ways by race and Hispanic origin. The results in Table 6 indicate a beneficial but varying role for homeownership among non-Hispanic blacks and Hispanics. Non-Hispanic blacks show the biggest decline in any

Table 6. The timing of home purchase related to material hardship and how it differs among races and ethnicities.

	Inability to pay bills	Unmet medical/dental need	Food insufficiency	Housing problem	Hardship		
					Any	Entry	Exit
Non-Hispanic white							
Purchased home	- 0.016***	- 0.029***	- 0.008***	- 0.001	- 0.040***	- 0.019***	0.075*
0–4 years ago	(0.005)	(0.006)	(0.002)	(0.002)	(0.008)	(0.005)	(0.042)
Purchased home	- 0.016***	- 0.025***	- 0.006***	- 0.004**	- 0.035***	- 0.026***	- 0.031
5–10 years ago	(0.005)	(0.006)	(0.002)	(0.001)	(0.008)	(0.005)	(0.039)
Purchased home 10	- 0.031***	- 0.046***	- 0.011***	- 0.002	- 0.067***	- 0.041***	0.061**
+ years ago	(0.005)	(0.005)	(0.002)	(0.002)	(0.007)	(0.005)	(0.029)
Subsidized renter	- 0.012	- 0.022***	0.001	- 0.004**	- 0.020	- 0.018*	0.058
	(0.008)	(0.006)	(0.004)	(0.002)	(0.012)	(0.010)	(0.049)
Not paying rent	- 0.013	- 0.009	- 0.006*	0.000	- 0.022*	- 0.030***	- 0.038
	(0.009)	(0.010)	(0.003)	(0.003)	(0.013)	(0.010)	(0.051)
No. observations	23,854	23,854	23,854	23,854	23,854	19,242	4,612
Mean of hardship	11.6%	11.4%	5.2%	1.5%	19.0%	9.9%	42.3%
Non-Hispanic black							
Purchased home	0.072*	- 0.034	- 0.029	- 0.015***	0.015	0.017	- 0.004
0–4 years ago	(0.038)	(0.029)	(0.024)	(0.004)	(0.041)	(0.037)	(0.055)
Purchased home	- 0.023	- 0.063***	- 0.043**	0.005	- 0.086**	- 0.087***	0.091
5–10 years ago	(0.031)	(0.023)	(0.017)	(0.013)	(0.035)	(0.029)	(0.063)
Purchased home 10	0.024	- 0.023	- 0.057***	0.002	- 0.044	- 0.041	- 0.003
+ years ago	(0.035)	(0.027)	(0.007)	(0.005)	(0.040)	(0.031)	(0.081)
Subsidized renter	- 0.036	- 0.034*	- 0.008	- 0.004	- 0.007	0.040	0.076
	(0.026)	(0.020)	(0.015)	(0.003)	(0.040)	(0.044)	(0.061)
Not paying rent	- 0.046	- 0.065**	- 0.033	0.015	- 0.084	- 0.036	0.167
	(0.049)	(0.032)	(0.024)	(0.017)	(0.069)	(0.073)	(0.106)
No. observations	3,335	3,335	3,335	3,335	3,335	2,183	1,152
Mean of hardship	28.1%	15.5%	12.4%	2.6%	36.3%	22.0%	36.4%
Hispanic							
Purchased home	0.000	- 0.072***	- 0.027	- 0.004	- 0.065*	- 0.031	0.088
0–4 years ago	(0.029)	(0.026)	(0.020)	(0.007)	(0.040)	(0.029)	(0.087)
Purchased home	- 0.037*	- 0.021	- 0.035**	- 0.003	- 0.053	- 0.036	0.032
5–10 years ago	(0.020)	(0.022)	(0.015)	(0.006)	(0.034)	(0.043)	(0.041)
Purchased home 10	- 0.051***	- 0.064**	- 0.045***	- 0.002	- 0.083***	- 0.042*	0.081**
+ years ago	(0.017)	(0.026)	(0.014)	(0.004)	(0.030)	(0.022)	(0.040)
Subsidized renter	- 0.012	- 0.063**	0.005	- 0.003	0.006	- 0.014	- 0.069
	(0.027)	(0.025)	(0.018)	(0.005)	(0.041)	(0.041)	(0.051)
Not paying rent	- 0.098**	0.002	- 0.024	0.018	- 0.050	0.001	- 0.257***
	(0.040)	(0.053)	(0.035)	(0.014)	(0.069)	(0.079)	(0.033)
No. observations	3,427	3,427	3,427	3,427	3,427	2,264	1,163
Mean of hardship	21.1%	17.3%	11.0%	2.2%	32.1%	18.7%	39.9%

Note. Weighted logistic regression marginal effects are reported with robust standard errors in parentheses. Four material hardships and any hardship are measured as of May 2011–August 2011 (wave 9). Hardship entry and exit are measured as changes between May 2010–August 2010 (wave 6) and May 2011–August 2011 (wave 9). Housing status and liquid asset are measured as of September 2009–December 2009 (wave 4). Other control variables include no liquid asset, liquid asset \$1–\$1,999, liquid asset \$2,000–\$9,999, average monthly income-to-needs ratio, standard deviation of monthly income-to-needs ratio, age, age squared, no high school diploma, high school diploma only, some college, single without a child, single with children, and married without a child. Authors' calculations using data from the Survey of Income and Program Participation 2008 panel.

* $p < .1$. ** $p < .05$. *** $p < .01$.

hardship among those who purchased a home 5–10 years ago. Reductions in food insufficiency are large and significant among all non-Hispanic black homeowners, regardless of when they purchased their homes. Hardships among Hispanic households are particularly sensitive to homeownership. Again, independent of income, assets, and other characteristics, Hispanic homeowners are much less likely to experience various hardships than are Hispanic unsubsidized renters. Compared with non-Hispanic whites, where purchasing a home more than 10 years ago is

associated with 6.7 percentage points less incidence of any hardship, the relationship is greater for Hispanics (8.3 percentage points) and smaller for non-Hispanic blacks (4.4 percentage points).

Surprisingly, rent subsidies are associated with lower material hardship only among non-Hispanic whites (except for unmet medical/dental need). Why these subsidies do not lower hardship among non-Hispanic blacks and Hispanics is unclear, especially in light of the significantly lower housing costs borne by recipients of housing subsidies. The lack of a subsidy relationship might be the result of the small sample size for non-Hispanic blacks and Hispanics, or unobserved differences between those who receive rental housing subsidies and those who do not.

A few interesting results emerge from the variables other than housing status. One example is education. Net of income, assets, and other factors, non-Hispanic blacks with some college

Table 7. Relationship between mortgage riskiness and material hardship

	Inability to pay bills	Unmet medical/dental need	Food insufficiency	Housing problem	Hardship		
					Any	Entry	Exit
Non-Hispanic white							
Risky mortgage	0.006 (0.009)	- 0.017** (0.007)	- 0.002 (0.003)	0.003 (0.003)	- 0.011 (0.013)	- 0.012 (0.010)	- 0.003 (0.043)
Prime mortgage	- 0.021*** (0.005)	- 0.033*** (0.006)	- 0.008*** (0.002)	- 0.001 (0.002)	- 0.047*** (0.008)	- 0.028*** (0.006)	0.037 (0.033)
No mortgage	- 0.046*** (0.004)	- 0.050*** (0.005)	- 0.015*** (0.002)	0.000 (0.002)	- 0.086*** (0.007)	- 0.048*** (0.005)	0.123*** (0.036)
Subsidized renter	- 0.014* (0.008)	- 0.023*** (0.006)	- 0.001 (0.003)	- 0.002 (0.003)	- 0.026** (0.012)	- 0.021** (0.009)	0.066 (0.051)
Not paying rent	- 0.014* (0.008)	- 0.010 (0.009)	- 0.006** (0.003)	0.003 (0.004)	- 0.025** (0.012)	- 0.030*** (0.009)	- 0.033 (0.055)
No. observations	22,762	22,762	22,762	22,762	22,762	18,504	4,258
Non-Hispanic black							
Risky mortgage	0.078 (0.058)	- 0.026 (0.030)	- 0.008 (0.027)	0.002 (0.013)	0.019 (0.057)	- 0.051 (0.040)	- 0.083 (0.087)
Prime mortgage	0.033 (0.029)	- 0.030 (0.023)	- 0.050*** (0.013)	- 0.007* (0.004)	- 0.044 (0.033)	- 0.026 (0.033)	0.056 (0.055)
No mortgage	- 0.022 (0.040)	- 0.053*** (0.017)	- 0.069*** (0.011)	0.008 (0.009)	- 0.061 (0.039)	- 0.039 (0.036)	0.024 (0.071)
Subsidized renter	- 0.041* (0.024)	- 0.034* (0.019)	- 0.013 (0.014)	- 0.002 (0.004)	- 0.011 (0.040)	0.038 (0.045)	0.076 (0.064)
Not paying rent	- 0.053 (0.047)	- 0.066** (0.032)	- 0.036 (0.023)	0.019 (0.020)	- 0.091 (0.068)	- 0.039 (0.074)	0.173 (0.108)
No. observations	3,190	3,190	3,190	3,190	3,190	2,087	1,103
Hispanic							
Risky mortgage	- 0.003 (0.034)	- 0.068** (0.027)	- 0.030 (0.019)	0.000 (0.008)	- 0.048 (0.054)	- 0.026 (0.047)	0.138** (0.069)
Prime mortgage	- 0.029 (0.022)	- 0.050** (0.020)	- 0.045*** (0.015)	- 0.006 (0.004)	- 0.076** (0.031)	- 0.045 (0.031)	0.059 (0.051)
No mortgage	- 0.059* (0.035)	- 0.060 (0.039)	- 0.034* (0.018)	0.001 (0.005)	- 0.096* (0.058)	- 0.037 (0.040)	0.111 (0.111)
Subsidized renter	- 0.007 (0.028)	- 0.065*** (0.025)	0.001 (0.018)	- 0.003 (0.005)	0.002 (0.041)	- 0.015 (0.038)	- 0.057 (0.056)
Not paying rent	- 0.097** (0.040)	- 0.002 (0.051)	- 0.027 (0.032)	0.018 (0.015)	- 0.055 (0.069)	- 0.001 (0.078)	- 0.249*** (0.036)
No. observations	3,233	3,233	3,233	3,233	3,233	2,149	1,084

Note. Weighted logistic regression marginal effects are reported with standard errors clustered by state in parentheses. Four material hardships and any hardship are measured as of May 2011–August 2011 (wave 9). Hardship entry and exit are measured as changes between May 2010–August 2010 (wave 6) and May 2011–August 2011 (wave 9). Housing status and liquid asset are measured as of September 2009–December 2009 (wave 4). (4) Other control variables include no liquid asset, liquid asset \$1–\$1,999, liquid asset \$2,000–\$9,999, average monthly income-to-needs ratio, standard deviation of monthly income-to-needs ratio, age, age squared, no high school diploma, high school diploma only, some college, single without a child, single with children, and married without a child. Authors' calculations using data from the Survey of Income and Program Participation 2008 panel.

* $p < .1$. ** $p < .05$. *** $p < .01$.

education face higher levels of material hardship than do non-Hispanic blacks with less education.¹⁷ This result does not hold for Hispanics. Increases in hardship associated with single parenthood are large among non-Hispanic whites and non-Hispanic blacks but not among Hispanics.

Another way we examine the disparate relationship between housing status and material hardship by race and ethnicity is through mortgage riskiness (see Table 7). Homeownership through risky mortgage, in general, does not provide the benefit of reducing hardship for all race and ethnicity groups. Prime mortgages provide homeowners with more protection for non-Hispanic whites than for non-Hispanic blacks or Hispanics.

In summary, the benefits of homeownership for reduced hardship hold for households of color as well as for non-Hispanic whites, primarily for those without a mortgage or with a prime mortgage. In some cases, the benefits for households of color exceed the benefits for non-Hispanic whites. For example, owning a home for more than 10 years provides a larger protection against all hardships (except dilapidated housing) for Hispanics than for non-Hispanic whites.

4. Conclusion

Housing status reflects a range of factors, including income, wealth, job location, the relative prices of renting and owning homes, the availability of housing subsidies, and preferences for owning versus renting. Homeownership offers residential stability, reduces risks by locking in monthly housing costs, and generally helps individuals accumulate savings automatically as they build equity in their homes through paying back mortgages and home price appreciation. However, the dramatic declines in home prices as well as the sharp increases in home foreclosures during the Great Recession have raised questions about the potential risks of homeownership, especially for families of color and low-income Americans.

Assets that yield high rates of return come with risks. From a pure asset perspective, homeownership is no exception. However, owner-occupied housing is distinctive because having a set mortgage prevents housing costs from increasing unexpectedly, except when the homeowner moves to a more expensive area. In other words, owner-occupied housing is a type of insurance that can reduce risks.

This article investigates the interactions between housing status—especially homeownership—and material hardship immediately after a serious economic downturn. The Great Recession saw especially sharp declines in income, employment, and asset prices, which raised the likelihood of material hardship. The article asks whether, even in this period, homeownership can shield families from various hardships and whether gains from homeownership apply to families of color.

The results are broadly positive for homeownership. Using a wide variety of specifications of housing status, we find homeownership is associated with lower material hardship, even when comparing families with the same incomes, income instability, liquid assets, age, race, and education. The benefits depend partly on the ability of households to retain positive equity in their home and on the timing of their home purchase. However, even those who are underwater on their mortgages and those who purchased homes a few years before prices plummeted experience lower material hardship than renters who pay market rates.

After controlling for income and other characteristics, renters with government subsidies have a 2.1% lower probability of experiencing any hardship than unsubsidized renters. Relative to the mean levels of this hardship measure, this represents about a 10% decline. Still, this reduction is less than half the decline in any hardship associated with homeownership.

Notwithstanding our efforts to control for characteristics other than housing status, the possibility remains that some unobserved advantages—such as household members' higher level of financial capability or financial literacy—are systematically correlated with a higher likelihood of homeownership and a lower likelihood of hardship. Still, the results for homeownership look sufficiently positive to raise questions about the recent skepticism concerning homeownership for low-income and minority households. Certainly, homeownership was encouraged excessively

before the Great Recession, when market prices were high relative to income and the carrying costs of homes were high relative to rents. More research is necessary before we can fully attribute reductions in hardship to homeownership itself. An experiment that randomly provides access to homeownership, such as random down payment assistance, interest rate buydowns, or soft second mortgages, or even an experiment that randomly restricts access to homeownership, could be helpful to identify the causal effect of homeownership on the experience of hardship or other socioeconomic outcomes.¹⁸ Meanwhile, policymakers should be cautious about initiatives aimed at cutting back homeownership, especially for homeowners with prime mortgages.

Notes

1. AEI Political Report. (2013 May). *Homeownership and the American Dream*. Retrieved from http://www.aei.org/files/2013/05/14/-aei-political-report-may-2013-pdf_08440695891.pdf
2. Adverse events include involuntary job loss, onset of a health-related work limitation, or a parent leaving the family through death or divorce.
3. For more information see http://www.census.gov/sipp/usrguide/ch2_nov20.pdf.
4. We follow individuals rather than households because a change in households is likely to accompany foreclosure or eviction. In addition, following individuals allows us to capture the potential hardships faced by people who have to leave their household of origin. We limit the ages of individuals to between 25 and 69 in recognition of the normally high residential instability among the youth and the high stability among older individuals.
5. Although the complete 2008 SIPP panel contains 16 waves, we only use data up to wave 10, as the topical modules in subsequent waves do not collect information on material hardship or asset and liabilities.
6. As housing status in the SIPP is only reported at the household level, all individuals living in the same household report the same housing status. Therefore, a doubled-up young adult would report his or her housing status as own home. The not paying rent category does not include individuals whose rent is fully subsidized by the government. These individuals are in the subsidized renter category.
7. We measure some domains of hardships following Nelson (2011), such as dilapidated housing.
8. The SIPP does not ask explicitly whether a household member missed doctor or dentist visits because of lack of monetary resources.
9. Transition into any hardship is defined as having none of the four hardships in May–August 2010 (wave 6) and having at least one hardship in May–August 2011 (wave 9). Transition out of any hardship is defined as having at least one hardship out of the four in May–August 2010, and having no hardship in May–August 2011.
10. Since the historical data are given at the monthly level, we compare the household reporting rate with the highest rate during the 12 months of the year of home purchase in the FreddieMac data.
11. We acknowledge that there is a large housing price variation across districts within a state, and ideally we would like to cluster standard error at the district level. However, SIPP does not provide a geographic identifier finer than the state level.
12. We measure housing status in wave 4, when underwater status and year home was purchased are first available in the SIPP 2008 panel.
13. We control for liquid assets without adjusting for household size. The eligibility of certain social safety net programs, such as the Temporary Assistance for Needy Families (TANF) and the Supplemental Nutrition Assistance Program (SNAP), requires that liquid assets do not exceed a certain amount (the amount varies across states), and such an asset limit does not depend on household size.
14. The racial and ethnic disparities in homeownership are well documented, and some studies show that homeownership rate rose more for non-Hispanic blacks and Hispanics than for other families (Bostic & Surette, 2001). The faster increase in the homeownership rate for blacks and Hispanics is partly due to prohomeownership policies during the George W. Bush era, which emphasized promoting homeownership for households of color. However, promoting homeownership for these marginal households also made them vulnerable during the Great Recession.
15. Pilkauskas et al. (2012) find that SNAP, UI, TANF, and Medicaid are all significantly associated with the unemployment rate, whereas public housing is not.
16. Although a housing subsidy is a form of public transfer, it is less likely to have the simultaneity/endogeneity problems than are other transfers, since it takes a much longer time to apply for and receive a housing subsidy than to receive benefits from other public transfer programs, such as TANF, SNAP, or UI.
17. Full regression results are available upon request.

18. In several cities in China, home purchase restriction is implemented to mitigate the potential housing price bubbles. Some of these cities restrict home purchasing through a lottery.

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References

- Aaronson, D. (2000). A note on the benefits of homeownership. *Journal of Urban Economics*, 47(3), 356–369.
- Agarwal, S., Amromin, G., Ben-David, I., Chomsisengphet, S., & Evanoff, D. D. (2009). *Do financial counseling mandates improve mortgage choice and performance? Evidence from a legislative experiment* (Working Paper 2009-07). Chicago, IL: Federal Reserve Bank of Chicago.
- Bayar, P., Ferreira, F., & Ross, S. L. (2016). The vulnerability of minority homeowners in the housing boom and bust. *American Economic Journal: Economic Policy*, 8(1), 1–27.
- Beverly, S. G. (2000). Using measures of material hardship to assess well-being. *Focus*, 21(2), 65–69.
- Blanchflower, D. G., & Oswald, A. J. (2013). *Does high home-ownership impair the labor market?* (Working Paper 19079). Cambridge, MA: National Bureau of Economic Research.
- Bostic, R. W., & Surette, B. J. (2001). Have the doors opened wider? Trends in homeownership rates by race and income. *Journal of Real Estate Finance and Economics*, 23(3), 411–434.
- Bourassa, S. C. (2000). Ethnicity, endogeneity, and housing tenure choice. *Journal of Real Estate Finance and Economics*, 20(3), 323–341.
- DiPasquale, D., & Glaeser, E. L. (1999). Incentives and social capital: Are homeowners better citizens? *Journal of Urban Economics*, 45(2), 354–384.
- Engelhardt, G. V., Eriksen, M. D., Gale, W. G., & Mills, G. B. (2010). What are the social benefits of homeownership? Experimental evidence for low-income households. *Journal of Urban Economics*, 67(3), 249–258.
- Ferreira, F., Gyourko, J., & Tracy, J. (2009). Housing busts and household mobility. *Journal of Urban Economics*, 68(1), 34–45.
- Ferreira, F., Gyourko, J., & Tracy, J. (2011). *Housing busts and household mobility: An update*. (No. w17405). Cambridge, MA: National Bureau of Economic Research.
- Keating, E. 2012. *The Relationship between asset holdings and material hardship following economic shocks in a household* (Thesis). Georgetown University. Retrieved from <http://repository.library.georgetown.edu/handle/10822/557795>
- Leete, L., & Bania, N. (2010). The effect of income shocks on food insufficiency. *Review of Economics of the Household*, 8(4), 505–526.
- Lerman, R. (2002). *How do marriage, cohabitation, and single parenthood affect the material hardships of families with children?* Washington, DC: The Urban Institute. Retrieved from <http://www.urban.org/publications/410539.html>

- Lerman, R., & McKernan, S.-M. (2008). Benefits and consequences of holding assets. In S.-M. McKernan & M. Sherraden (Eds.), *Asset building and low-income families* (pp. 175–206). Washington, DC: Urban Institute Press.
- Mayer, S. E., & Jencks, C. (1989). Poverty and the distribution of material hardship. *Journal of Human Resources*, 24(1), 88–114.
- McKernan, S.-M., Ratcliffe, C., & Vinopal, K. (2009). *Do assets help families cope with adverse events?* (Opportunity and Ownership Project Brief 10). Washington, DC: The Urban Institute. Retrieved from <http://www.urban.org/publications/411994.html>
- Megbolugbe, I. F., & Cho, M. (1996). Racial and ethnic differences in housing demand: An econometric investigation. *The Journal of Real Estate Finance and Economics*, 12(3), 295–318.
- Modestino, A. S., & Dennett, J. (2013). Are American homeowners locked into their houses? The impact of housing market conditions on state-to-state migration. *Regional Science and Urban Economics*, 43(2), 322–337.
- Munch, J. R., Rosholm, M., & Svarer, M. (2006). Are homeowners really more unemployed? *The Economic Journal*, 116(514), 991–1013.
- Pilkaskas, N., Currie, J., & Garfinkel, I. (2012). The great recession, public transfers, and material hardship. *Social Service Review*, 86(3), 401–427.
- Rossi, P. H., & Weber, E. (1996). The social benefits of homeownership: empirical evidence from national surveys. *Housing Policy Debate*, 7(1), 1–35.
- Schulhofer-Wohl, S. (2012). Negative equity does not reduce homeowner's mobility. *Federal Reserve Bank of Minneapolis Quarterly Review*, 35(1), 2–14.
- Sekkat, K., & Szafarz, A. (2011). Valuing homeownership. *The Journal of Real Estate Finance and Economics*, 43(4), 491–504.
- Shlay, A. B. (2006). Low-income homeownership: American dream or delusion? *Urban Studies*, 43(3), 511–531.
- Shroder, M. (2002). Does housing assistance perversely affect self-sufficiency? A review essay. *Journal of Housing Economics*, 11(4), 381–417.
- Skaburskis, A. (1996). Race and tenure in Toronto. *Urban Studies*, 33(2), 223–252.
- Sinai, T., & Souleles, N. S. (2005). Owner-occupied housing as a hedge against rent risk. *Quarterly Journal of Economics*, 120(2), 763–789.
- Van Leuvensteijn, M., & Koning, P. (2004). The effect of home-ownership on labor mobility in the Netherlands. *Journal of Urban Economics*, 55(3), 580–596.