

**Erasing the Advantage: Homeownership and the Impact of Financial Hardship on Health
for Lower-Income Americans**

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Abstract

Is homeownership associated with better health? Several past studies have suggested that this is the case. However, these studies tended to attribute these effects to the financial advantage that homeownership conferred. In light of the housing market downturn and the recession which began in 2008, it is important to revisit the question of whether homeownership is still associated with better health outcomes. Using a sample of lower-income residents in urban communities, this study uses propensity score analysis to compare the health outcomes of homeowners and renters. Results show that homeownership is associated with a reduced risk of health problems, yet financial hardship increases that risk. There is a significant interaction effect as well; homeowners experiencing financial hardship are at greater risk for health problems than similar renters. These findings suggest that policies aimed at helping homeowners weather financial emergencies can potentially have wider impacts. Policies aimed at improving the rental experience are also discussed.

Introduction

Does financial hardship have a different impact on health for homeowners than it does for renters? Since the housing market collapse and recession which began in 2008, there have been calls to re-evaluate research on the benefits of homeownership. While past studies have found that homeowners report better health than renters, this may no longer be the case due to fundamental changes in the homeownership experience post-downturn. In fact, homeownership may be associated with an increased risk of health problems as struggling homeowners divert household time and resources towards maintaining the home over other priorities. In light of continuing government investments in policies and programs to promote homeownership, it is important to understand the relationship between homeownership, financial hardship, and health.

Contributions

This paper tests whether homeownership is associated with a decreased risk of an acute health problem. I also analyze whether financial hardship increases that risk. Finally, I examine whether there is an interaction effect between financial hardship and homeownership; do homeowners who experience financial problems take an “extra hit” when it comes to their health? This study offers three important contributions to existing research on homeownership. First, changing economic realities have fundamentally altered the homeownership experience in the United States. Many of the benefits of homeownership, particularly for lower-income families, described in previous studies were predicated on homeownership functioning as a robust asset-building strategy. Now that home equity can be expected to grow much slower, if at all, it is important to re-evaluate past findings in this area. By using data collected in 2009, after the housing market collapse and at the peak of the subsequent recession, this study offers a valuable contribution to research on the new reality of homeownership.

Second, previous research on homeownership has often been besieged with criticisms of selection bias. Families select whether or not to become homeowners, and their choices are heavily constrained by individual and structural inequalities. These inequalities also likely have an influence on health; people with lower incomes and less education are at greater risk for poor health. To account for selection bias, this study uses propensity score analysis to identify a sample of homeowners and renters who are demographically similar. As a result, any effects of homeownership found in this research are independent effects and not spurious findings related to socio-economic differences between homeowners and renters.

Finally, this research can inform current policy debates on the costs and benefits of continuing to invest in promoting homeownership. If the financial realities of homeownership have changed, it is possible that the social benefits once associated with homeownership have also changed. This study can also contribute to policy discussions concerning programs aimed at helping financially stressed homeowners. That discussion becomes more urgent if the consequences of financial hardship extend beyond the balance sheet and have an impact on health and well-being.

Housing and Health

There is a substantial body of research documenting an association between housing and health. In their review of research on the topic, Fuller-Thompson (2000) identified over 600 studies published since 1985 which document an association between housing and health. In fact, some public health practitioners often for housing reform in order to improve public health outcomes. “Housing” incorporates more than just the physical structure in which one resides; it also includes the neighborhood and surrounding community as well as the social, economic, and psychological climate of the residence (Fuller-Thomson, 2000). For example, people living in

attractive neighborhoods are more likely to spend time being active outside of their homes (Kuo et al., 1998) and may therefore have better health outcomes. Poor housing conditions are associated with an increased risk of injury, and with both acute and chronic health problems (Dunn, 2000).

Similarly, health can affect access to housing. People with chronic health problems may find it more difficult to obtain and sustain good-quality housing. This, in turn, impacts their access to employment, recreation facilities, and health care. This cycle between housing and health has been termed the “drift hypothesis” (Kellett, 1989). People with poor health get sorted in to lower-quality housing which puts them at risk for further health problems. Alternatively, people in poor housing conditions may develop health problems which limit their opportunities to improve their housing situation. While most research focuses only on one direction of the two-way relationship between housing and health, it is important to recognize that the two can reinforce each other.

The Role of Homeownership

Given the association between housing and health, it follows that disparities in housing lead to disparities in health outcomes. I argue that one such key cleavage is homeownership status. There are three reasons why homeownership may be linked with better health outcomes. First, compared to renters, homeowners are more likely to live in higher-quality dwellings in more affluent neighborhoods. Second, “homeowner” is also a social identity which places people in advantaged structural positions. Finally, homeownership has been associated with a greater sense of control over one’s life, sometimes referred to as “ontological security”, which can decrease psychological stress and therefore impact health.

Housing and Neighborhood Quality

Perhaps the most readily-apparent link between homeownership and health is the physical dwelling itself. In their review of the literature on housing and health, Fuller-Thompson, Hulchanski, and Hwang (2000) found that most of the research has focused on the health impacts of the physical dwelling and the surrounding neighborhoods. Dwelling characteristics which can impact health include exposure to chemical or biological hazards, unsafe structural elements which can increase the risk of injury, and environmental conditions such as coldness or dampness (Northridge et al., 2003). People who live in dwellings that expose them to disease or injury risk are naturally more likely to experience the health consequences of such exposure.

There is also a well-documented link between homeownership and dwelling quality. Compared to homeowners, renters are more likely to live in dwellings that expose them to health risks (Hiscock et al., 2003; Rosenbaum, 1996). Landlords have a financial disincentive to invest in dwelling maintenance and improvements since any money spent doing so reduces the profit they realize from their property. Homeowners, on the other hand, have a financial incentive to invest in their dwellings since doing so preserves the property value and increases the eventual return they will receive on their investments. Homeowners are also more likely than renters to live in single-family, detached structures, another factor linked to a reduced risk of health problems (Blackman et al., 1989).

In addition to dwelling conditions, neighborhood physical conditions also have an impact on health. Homeowners are more likely than renters to be in areas where there are amenities and resources which promote health. These neighborhoods are more likely to have public spaces for recreation and have less car traffic, both of which draw residents outdoors and encourage exercise (Hartig and Lawrence, 2003). In one recent study, neighborhood affluence was shown

to be a stronger predictor of health outcomes than individual socio-economic status or even health insurance coverage (Browning and Cagney, 2003).

Social Status

Along with the health benefits associated with dwelling and neighborhood quality, homeowners also benefit from the advantaged social position of being a homeowner. Homeownership is a privileged social status, so much so that owning a home is often referred to in popular culture as a key part of the “American Dream”. Studies have found that privileged social statuses, such as being a homeowner, influence health via the social comparison effect (Abbott, 2007; Macleod and Davey Smith, 2003). People compare themselves to others around them. When they feel that they are at a disadvantage compared to others, they experience negative self-concept which, in turn, increases their risk for health problems. Renters may be at greater risk for health problems because American culture places a high value on homeownership and therefore views renters as less privileged or advantaged.

Ontological Security

Ontological security refers to a feeling of “confidence, continuity, and trust in the world” (Hiscock et al., 2001). Several researchers have documented an association between homeownership, health, and ontological security. A qualitative study in Scotland found that homeowners talked about their homes as a source of stability and consistency, and they felt greater autonomy than renters felt (Dupuis and Thorns, 1998; Hiscock et al., 2001). A similar study in New Zealand found similar results; owning a home provided people with a sense of identity and a secure, consistent space to which they could return (Dupuis and Thorns, 1998).

While limited research to-date has tied ontological security directly to health outcomes, likely because ontological security is a complex concept which does not lend itself well to survey

research, there is evidence that the two are correlated. A study in New York City in the 1990s found that people with significant mental health problems, a condition which generally erodes ontological security, felt increased ontological security when provided with independent housing (Padgett, 2007). Ontological security also reduces the risk of anxiety and depression (Hawkins and Maurer, 2011), so it merits consideration that ontological security via homeownership may also protect against physical health problems (Shaw, 2004).

Financial Hardship

There is a long tradition of research linking financial hardship to poor health outcomes. Whether as a result of unemployment (Bartley, 1994), chronic poverty (Pappas et al., 1993), or high debt (Drentea and Lavrakas, 2000), people experiencing financial hardship are at greater risk for health problems. Not only do they have fewer resources to draw upon in the event of a health problem, the psychological and interpersonal stress of financial hardship raises the risk of health problems. While researchers have traditionally considered owning a home to be a buffer against financial hardship, this may no longer be the case. It is important to note that almost all the studies discussed above relied on data collected prior to the Great Recession and housing market downturn which have significantly altered the homeownership experience. High unemployment rates mean that some homeowners are experiencing prolonged unemployment and financial hardship. Sharply declining house values have caused many homeowners in the hardest hit areas to lose half their equity or more. Widespread sub-prime lending leading up to the crisis resulted in many borrowers seeing their monthly mortgage payments increase rapidly beyond what they could afford to pay. In this environment, homeowners might be more financially stressed than renters.

Financial Hardship and Homeownership

In addition to the health consequences associated with financial hardship generally, it is possible that homeowners experiencing financial hardship may experience even greater negative effects than renters in similar situations. Why might financial hardship be especially bad for homeowners' health? First, the long-term consequences of involuntarily losing one's residence are significantly greater for homeowners. Mortgage delinquency has a negative effect on health (Cairney and Boyle, 2004), so it follows that foreclosure would also. Foreclosure has a long-lasting and highly negative impact on one's credit report; eviction may not even be reported to a credit bureau. Along similar lines, homeowners stand to lose all the accumulated equity in their property if they lose their home to foreclosure. For most homeowners, and especially for lower-income owners, the home represents the single largest financial asset they will ever own. Losing that asset can have wide-reaching impacts. While we were not able to locate any studies which examined the health effects associated with foreclosure, Bennett, Scharoun-Lee, and Tucker-Seeley (2009) recently presented a compelling theoretical model of how foreclosure and health could be linked. Finally, homeowners may be more willing than renters to divert household resources towards maintaining a home. Because foreclosure does have such detrimental effects on one's financial life, financially stressed homeowners may choose to direct their limited resources towards keeping their mortgage current instead of spending those resources on healthcare.

Research Objectives

This study aims to answer four key research questions:

1. Is homeownership associated with better health outcomes in post-downturn America?
2. What impact does financial hardship have on health?
3. Were homeowners or renters more financially stressed during 2009?

4. Does financial hardship have a greater impact on health for homeowners than for renters?

Data

This study uses data collected during the 2009 wave of the Community Advantage Panel Study (CAPS). CAPS is an annual survey which focuses on housing issues. CAPS began in 2004 as an offshoot of the Community Advantage Program (CAP), a secondary mortgage market demonstration project. CAP allowed mortgage lenders to make prime-rate home loans to low-income buyers who likely would not have qualified for a traditional mortgage otherwise. The risk associated with these loans was underwritten through a grant from the Ford Foundation. The objective of the CAP demonstration was to determine whether low-income home buyers could successfully sustain homeownership when provided with access to high-quality mortgage products. All CAP borrowers had annual incomes of no more than 80% of the area median income, although minority families or those purchasing in a high-minority or high-poverty census tract¹ could have annual incomes up to 115% of the area median income. By the end of 2004, CAP had funded 28,573 mortgages.

In 2004, the CAPS surveys began as a way to determine the social and financial impacts that access to homeownership had on the lives of families who became homeowners as a result of CAP. Initially, 3,743 CAP households were randomly selected to participate in CAPS. A comparison group of 1,530 renters were also included. The renters were selected by randomly calling residences within the same census blocks as selected participating CAPS homeowners. Selected renters were screened using the same income eligibility criteria as the CAP

¹ A high-minority tract was defined as one in which more than 30% of residents were non-white. A high-poverty tract was defined as one in which the median income for all residents was less than 80% of the area median income. These exceptions were intended to expand homeownership opportunities in these traditionally-disadvantaged neighborhoods which tend to have lower homeownership rates.

homeowners. When this approach did not yield any eligible renters, participants were recruited from an area up to four miles from a participating homeowner.

While CAPS is a panel study, and hence the same participants are interviewed during each wave of data collection, only a core group of questions are actually repeated each year. In 2009, for the first time, the survey included questions about health. Therefore the sample used in this research includes only the 2,225 homeowners and 915 renters who participated in the 2009 survey². CAPS is not a representative sample of low-income households; the CAPS homeowners are a representative sample of people who purchased homes as a result of the CAP demonstration project. However, there is evidence that the socio-demographic composition of CAPS is similar to a random sample of lower-income households. Riley and Ru (2009) compared the baseline homeowners in CAPS to low-income homeowners who participated in the 2004 Current Population Survey. They found that CAPS included more minority homeowners than one would expect from a random sample, likely because one of the aims of CAP was to increase access to homeownership for minority families. CAPS also included more people who were employed as opposed to retired.

Measures

The key dependent variable is whether or not a respondent reported having experienced a limitation in their usual activities in the prior four weeks due to a physical health problem. All respondents were asked, “During the past four weeks, were you limited in the kind of work or other regular activities you do as a result of your physical health?” This question is widely used by the World Health Organization and is considered a reliable single-item measure of overall

² This represents an overall attrition rate of 40.45% between 2004 and 2009. Attrition was highest among minorities and people with lower levels of education.

physical health. The measure is coded 1/0, and “don’t know” and “refused” responses are recoded as missing data.

There are two key independent variables of interest, homeownership and financial hardship. Homeownership status is coded 1/0 to indicate homeownership as of the 2009 survey. People who began participating in CAPS as renters and subsequently purchased a home are coded 1 for homeownership, while original homeowners who returned to renting are coded 0.

Financial hardship is measured using an index composed of twelve items indicating different experiences of financial hardship, each of which is coded 1/0. The items are summed so a household which experienced all twelve hardships would have a score of 12, while those experiencing no hardships would have a score of 0. The items have a correlation coefficient of 0.79. The financial hardship index items are whether the respondent did the following during the prior year:

- Postponed paying bills
- Postponed routine dental visits
- Postponed routine doctor visits
- Postponed purchasing prescription medications
- Postponed other medical treatment
- Postponed home repair (for homeowners)/home purchase (for renters)
- Borrowed money from friends or family members
- Delayed starting or expanding a family
- Reduced household expenses
- Increased shopping at discount stores
- Bounced a check

- Missed credit card or loan payments

This study uses propensity score matching, described in detail later in this paper, to account for selection bias. As such, all the models are run using a matched sample of homeowners and renters who are demographically similar. Therefore there are two sets of control variables – variables which are used in the propensity score model to predict differences between owners and renters, and variables which appear in the models predicting health.

The propensity score model includes the following control variables which predict homeownership: education, marital status, employment, race, and the presence of children in the home. Education is measured using the following categories: high school degree or less, some college, 2-year degree, 4-year degree, and advanced or professional degree. High school degree or less is the reference category. Marital status is measured using the categories: married, divorced/separated, widowed, single, and cohabiting. Married is the reference category. Employment is measured using the categories: employed full-time, employed part-time, unemployed, retired, or not in the paid labor force. Employed full-time is the reference category. Race is measured using the categories white, black, Asian, and other race. The reference category is white. Finally, respondents are coded 1/0 to indicate whether or not there are children under 18 living in the home.

While the models predicting health control for all the above variables, either via propensity score matching or via inclusion in the model, there are three other variables which previous research has shown to be correlated with homeownership, financial hardship, and health. These are age, gender, and neighborhood disadvantage. Age is obviously correlated with health, and studies have shown that older people are more likely to be homeowners than younger people (Speare, 1970). Age is measured as a continuous variable. Similarly, studies have shown

that men are at greater risk for health problems than women, yet women are at greater risk of financial hardship. Gender is measured using a 1/0 indicator variable which is coded 1 for male.

Finally, the models control for neighborhood disadvantage since studies have found that people living in disadvantaged neighborhoods are at greater risk of health problems (Sampson et al., 2002). These communities also have lower homeownership rates and, by definition, higher levels of financial hardship. Neighborhood disadvantage is measured using a variation of the index of concentrated disadvantage (Sampson and Groves, 1989). The index includes census tract-level measures of the percent of single parents, households below the poverty line, families receiving public assistance, and people who are unemployed. The percentages are transformed to z-scores, summed together, and divided by four. Among CAPS participants, the neighborhood disadvantage scores range from -1 to 6.24 with a mean of close to zero.

Methods

This study uses propensity score matching to account for observed differences between homeowners and renters. One of the problems inherent in all research using observed data is that participants are not randomly assigned to the available categories on the independent variables of interest. In this case, people cannot be assigned to own a home or rent; respondents self-select their housing status. Therefore, it is possible that some of the factors which influence a participant's housing status also influence their health. For example, higher-educated people are both more likely to be homeowners (Gyourko and Linneman, 1997) and less likely to experience a health problem (von dem Knesebeck et al., 2006). Without accounting for selection bias, it is possible that statistical models could show a significant relationship between homeownership and health when such a relationship is spurious.

We therefore use propensity score matching to identify a sub-sample of homeowners and renters who share similar socio-demographic profiles. Specifically, we use within-caliper one-to-one matching (Rosenbaum and Rubin, 1983, 1985) which uses a binary logistic regression model to estimate the likelihood that any given participant is a homeowner as compared to a renter, based on the socio-demographic variables described above – education, marital status, employment, race, and the presence of children in the home. Homeowners and renters are matched to each other based on this predicted probability, yet no matches will be made for participants for whom a match cannot be found within one-quarter of one standard deviation of the sample estimated propensity score (Rosenbaum and Rubin, 1985). This ensures that only renters and homeowners who are similar are included in the matched sub-sample.

Once the matched sample has been identified, we run t-tests on all the socio-demographic variables which we identified as predicting homeownership. When the t-test indicates significant differences remain between owners and renters, we retain the variable in the model predicting health. If the groups have been successfully balanced on a given variable, then the variable is dropped.

For the substantive analysis, we use logistic regression models predicting whether a respondent reported experiencing a physical health problem in the prior month. From this model, we calculate the marginal effects – the percentage-point increase in the proportion of people experiencing a health problem for a one-unit increase in the independent variable.

Results

Descriptive statistics for all variables are presented in Table 1. Before matching, the sample is about 70% homeowners and 30% renters. 54.9% were either married or living with a

partner. Most were employed full-time, and the sample unemployment rate of 8.3% closely matches the national average at the time. By design, the sample over-represents blacks at 24%.

TABLE 1 ABOUT HERE

Table 2 presents the odds ratios from the logistic regression model predicting homeownership. Homeowners are more likely to have higher levels of education, and they are more likely to be married than single, divorced, cohabiting, or widowed. Homeowners are more likely to be employed full-time, and minorities are more likely to be renters. These findings are all consistent with previous research and confirm that the model predicting homeownership is robust. Based on this model, we calculate propensity scores and match 746 homeowners to 746 similar renters.

TABLE 2 ABOUT HERE

It is worth noting that propensity score matching cannot account for selection based on unobserved factors. It is possible that some variables which we do not capture in the data set are significantly related to both homeownership and health. However, given the strong association between housing status and socio-demographic factors, we anticipate that this model includes the majority of relevant measures.

TABLE 3 ABOUT HERE

Table 3 presents the demographic profile of the sample after matching. The variables which appear in bold remained unbalanced after matching; t-tests indicated significant differences between owners and renters at the $p < 0.05$ level. Therefore these variables are included in the final set of models predicting health. As shown, the sample was successfully

balanced on all measures except for the categories of married, single, black, and having children in the home³.

TABLE 4 ABOUT HERE

Table 4 shows a cross-tabulation between homeownership status and financial hardship. One of the key questions we sought to answer was whether homeowners in 2009 were more financial stressed than renters, or whether the greater financial resiliency associated with homeownership before the downturn remained. We find that renters were more likely than homeowners to have experienced four of the financial hardship indicators: postponing dental care, postponing other medical (non-routine) care, postponing making a housing payment, and postponing starting or expanding a family. On all other indicators, the owner/renter differences were not statistically significant. This supports our theory that homeowners may divert household resources towards staying current on the housing payment, since losing a home through foreclosure is more damaging than eviction.

Interestingly, the other three experiences of financial hardship – delaying dental care, non-routine medical care, and having children – all focus on the family’s financial ability to provide some type of care. This suggests that renters, not homeowners, are experiencing financial hardship to a degree that prompts them to cut back on what many would view as essential spending. This is also reflected in the overall financial hardship score; renters are almost a half a point higher, at the mean, on the financial hardship scale when compared to homeowners.

³ The children variable was not significant in the logistic model predicting homeownership, so the significant differences between owners and renters in the matched sample is likely an artifact of how the sample was matched.

It is important to note, however, that we make no causal claims about the relationship between homeownership and financial hardship. Rather, the two are likely correlated due to a wide range of other factors. People who are able to become homeowners are generally on more solid financial footing and better able to weather income and expense shocks. Thus we stipulate that renting does not cause financial hardship, but people who are renters are more likely to experience financial hardship. Having established that there are differences in financial hardship experiences by housing status, we turn next to the question of how these two factors relate to health outcomes.

TABLE 5 ABOUT HERE

Table 5 presents the average marginal effects from the logistic regression models predicting health. Model 1 tests whether there is a homeownership effect and finds that homeownership reduces the risk of a health problem by 4.3 percentage points. Only a few of the other variables in the model are significant, again offering evidence that the propensity score matching accounted for socio-demographic differences between owners and renters. We find that each year of age is associated with a small (0.6 percentage points) yet significant increase in the likelihood of a health problem. Contrary to past research, we find that men have a decreased risk of reporting a health problem (-5.9 percentage points). This may reflect that while men are less likely than women to report a health problem, even if they are more likely to experience one. Finally, also contrary to past studies, we find that a one-point increase in the neighborhood disadvantage score is associated with a 3.6 percentage point decline in the likelihood of a health problem. It is possible that this is due to the matching; neighborhood disadvantage was not included in the propensity score model so the matching process could have introduced measurement error in the variable.

Model 2 finds that financial hardship is also associated with health. For each 1-point increase on the financial hardship scale, there is an associated 2.1 percentage point increase in the likelihood of a health problem. One difference between Model 2 and Model 1 is that Model 2 finds a significant effect associated with having children in the home. Families with dependent children are six percentage points less likely to have a physical health problem.

Model 3 includes the variables for both financial hardship and homeownership. We find that, once financial hardship is included in the model, the homeownership variable is not significant. This suggests that there may be some interaction or correlation between homeownership and financial hardship, which would be significant with the descriptive data shown in Table 4. Therefore, Model 4 includes an interaction term for homeownership and financial hardship. Model 4 shows that, while homeownership reduces the risk of a health problem and financial hardship increases it, there is a significant interaction effect. Homeowners who experience financial hardship have a 1.6 percentage point increase in their risk of a health problem, over and above the independent effects associated with either homeownership or financial hardship.

Discussion

This study has yielded four key findings in answer to the research questions we posed previously:

1. Homeownership is correlated with a reduced likelihood of financial hardship as compared to renting
2. Homeownership is associated with a reduced risk of health problems for lower-income families
3. Financial hardship increases the risk of a health problem

4. There is an interaction effect between homeownership and financial hardship; homeowners who are financially stressed experience an additional risk for health problems beyond the impact associated with financial hardship independently

This study has a couple of limitations worth noting. First, CAPS is not a random sample of low-income families. While we have reasons to expect that the findings would be similar among a random sample, further research using other data sets is needed to confirm this. Second, we are unable to offer an explanation for the counterintuitive finding that people in disadvantaged neighborhoods have a reduced risk of having a health problem. This runs contrary to previous studies in the field. While the finding is likely the result of imbalanced introduced as a result of matching on other factors, it highlights one of the limitations of propensity score matching. When matching reduces the imbalance between two groups on one variable, it can increase it on another. A newer technique, coarsened exact matching (Iacus et al., 2012), purports to eliminate this problem and may prove to be an alternative analytic approach in future studies.

The findings presented in this study offer some important insights to the field of housing research, and some key contributions to current debates on housing policy. First, at least one of the non-financial benefits associated with homeownership remains strong in the post-downturn economy. Since the downturn began, some scholars have argued that the risks of promoting homeownership outweigh the benefits (Dickerson, 2009). While the risks associated with high-cost, subprime mortgages outweigh the benefits associated with homeownership, we note that all the CAP borrowers had prime, fixed-rate mortgages. When mortgage terms are fair and responsible, we find that the health benefits correlated with homeownership remain.

Second, we propose that this research offers some insight on how to best target policy interventions aimed at providing acute relief to families experiencing significant financial hardship. While homeowners in general are less financially stressed and experience fewer health problems, those who do experience financial hardship suffer consequences beyond the pocketbook. Emergency assistance for families who experience income or expense shocks can not only help families stay in their homes but can potentially mitigate the health consequences – which bring their own share of expenses – of such shocks.

On a final note, studies which find an association between low-income, affordable housing and health problems are numerous. While homeownership can provide a pathway to better housing conditions and fewer acute health problems, we argue that policies aimed at reforming the rental experience can also make better-quality housing more widely available. Subsidies or tax incentives can be structured to give landlords a financial incentive to maintain and improve their investment properties. Incentivizing landlords to maintain high-quality rental properties creates value for both landlords and tenants; landlords see financial benefits for their investments and renters have access to healthy housing.

Tables

Table 1: Descriptive Statistics Before Matching (N=3140)

Variable	Freq.	Percent	Mean	Std. Dev.	Min	Max
Homeowner	2225	70.9%			0	1
HS degree or less	866	27.6%			0	1
Some college	723	23.0%			0	1
2-year degree	563	17.9%			0	1
4-year degree	547	17.4%			0	1
Advanced degree	417	13.3%			0	1
Married	1511	48.1%			0	1
Divorced/separated	680	21.7%			0	1
Widowed	120	3.8%			0	1
Single	604	19.2%			0	1
Cohabiting	215	6.8%			0	1
Employed full-time	2057	65.5%			0	1
Employed part-time	308	9.8%			0	1
Retired	200	6.4%			0	1
Unemployed	262	8.3%			0	1
Not in the labor force	314	10.0%			0	1
White	1867	59.5%			0	1
Black	754	24.0%			0	1
Asian	410	13.1%			0	1
Other race	109	3.5%			0	1
Children in the home	1509	48.1%			0	1
Age			43.206	11.48	20	86
Male	1342	42.7%			0	1
Neighborhood disadvantage			-0.004	0.72	-1.00	6.24
Financial hardship score			3.400	2.82	0	12

**Table 2: Odds Ratios from Logistic Regression Model
Predicting Homeownership (N=3101)**

	Odds Ratio	Std. Err.
Some college	1.095	0.13
2-year degree	1.446**	0.19
4-year degree	1.297	0.18
Advanced degree	1.598**	0.25
Divorced/separated	0.436***	0.05
Widowed	0.334***	0.07
Single	0.306***	0.04
Cohabiting	0.471***	0.08
Employed part-time	0.610***	0.09
Retired	0.253***	0.04
Unemployed	0.410***	0.06
Not in the labor force	0.224***	0.03
Black	0.475***	0.05
Asian	0.537***	0.07
Other race	0.545**	0.12
Children in the home	1.187	0.12
Constant	6.823***	0.92

Note: *p<0.05, **p<0.01, ***p<0.001

Table 3: Demographic Profile of Homeowners and Renters After Matching

	Renters (n=746)	Homeowners (n=746)
HS degree or less	31.5%	32.2%
Some college	26.0%	23.1%
2-year degree	16.6%	14.9%
4-year degree	14.7%	16.0%
Advanced degree	10.7%	12.7%
Married	33.1%	28.2%
Divorced/separated	26.8%	26.0%
Widowed	5.2%	6.2%
Single	26.0%	31.0%
Cohabiting	8.0%	8.6%
Employed full-time	55.4%	51.7%
Employed part-time	10.7%	10.7%
Retired	9.0%	10.1%
Unemployed	11.9%	12.7%
Not in labor force	13.0%	14.7%
White	47.2%	44.6%
Black	33.8%	38.1%
Hispanic	14.6%	12.6%
Other race	4.4%	4.7%
Children in home	40.2%	31.0%

Note: Variables in bold remained unbalanced following matching as demonstrated by t-tests

Table 4: Cross-tabulation of Housing Status and Financial Hardship Scale

	Renters	Owners
Postponed paying bills	29.9%	25.8%
Postponed dental visits	42.1%	34.3%
Postponed doctor visits	30.8%	26.7%
Postponed prescriptions	21.7%	18.2%
Postponed other medical care	17.7%	14.0%
Postponed housing payment	54.6%	46.1%
Borrowed from friends/family	27.9%	28.3%
Delayed starting/expanding family	22.6%	15.6%
Reduced household expenses	64.8%	60.9%
Increased shopping at discount stores	53.6%	49.7%
Bounced a check	15.0%	12.8%
Missed a loan payment	17.9%	19.8%
Mean financial hardship score (0-12)	3.99	3.53

Note: measures in bold indicate significant ($p < 0.05$) differences between owners and renters based on chi-square tests

Table 5: Average Marginal Effects from Logistic Regression Models Predicting Physical Health Problem

	Model 1	Model 2	Model 3	Model 4
Homeowner	-0.043* (0.02)		-0.038 (0.02)	-0.108** (0.04)
Financial hardship score		0.021*** (0.00)	0.020*** (0.00)	0.012* (0.00)
Homeowner*Financial hardship				0.016* (0.01)
Age	0.006*** (0.00)	0.006*** (0.00)	0.006*** (0.00)	0.006*** (0.00)
Male	-0.059* (0.02)	-0.048* (0.02)	-0.046 (0.02)	-0.046 (0.02)
Married	0.021 (0.03)	0.034 (0.03)	0.033 (0.03)	0.037 (0.03)
Single	-0.049 (0.03)	-0.038 (0.03)	-0.035 (0.03)	-0.033 (0.03)
Black	0.011 (0.02)	0.004 (0.02)	0.007 (0.02)	0.007 (0.02)
Children in the home	-0.045 (0.03)	-0.060* (0.03)	-0.062* (0.03)	-0.062* (0.03)
Neighborhood disadvantage	-0.036* (0.01)	-0.039** (0.01)	-0.039** (0.01)	-0.038** (0.01)

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

Note: Standard errors in parentheses

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