Racial and ethnic stratification in the relationship between homeownership and self-rated health

Ryan Finnigan [a, b, *]

[a] Department of Sociology, University of California at Davis, One Shields Avenue, Davis, CA 95616, USA
[b] WZB Berlin Social Science Center, Reichpietschufer 50, 10997 Berlin, Germany

A B S T R A C T

Social scientists have long demonstrated that socioeconomic resources benefit health. More recently, scholars have begun to examine the potential stratification in the health returns different groups receive for a given resource. Motivated by fundamental cause theory, this paper examines homeownership as a salient health resource with potentially stratified benefits. Homeowners have significantly greater housing quality, wealth, neighborhood quality and integration, and physical and mental health than renters. However, there are compelling theoretical reasons to expect the health advantage of homeownership to be unequally distributed across racial and ethnic groups. Regression analyses of 71,874 household heads in the United States from the 2012 March Current Population Survey initially suggest all homeowners experience a significant health advantage. Further examination finds robust evidence for a homeowner health advantage among Whites, on par with the difference between the married and divorced. The advantage among minority households is considerably smaller, and not significant among Latinos or Asians. Conditioning on a broad array of observable characteristics, White homeowners emerge as exceptionally healthy compared to White renters and all minority groups. This leads to the unexpected finding that racial/ethnic differences in health are concentrated among homeowners. The findings demonstrate the interactive nature of racial/ethnic stratification in health through both access to and returns from socioeconomic resources.

© 2014 Elsevier Ltd. All rights reserved.

1. Introduction

Homeownership has long been the symbol of the "American Dream" and has played a central role in defining success in American society. Homeownership has been associated with a broad set of social and economic advantages, ranging from greater wealth to higher life satisfaction (Dietz and Haurin, 2003; Rossi and Weber, 1996). Some studies also link homeownership to better physical and mental health (Dietz and Haurin, 2003; Evans et al., 2003; Kearns et al., 2000; Macintyre et al., 1998; Manturuk, 2012; Rossi and Weber, 1996). The literature suggests this is because homeownership confers higher perceptions of control and security, and residential stability and neighborhood integration (Dietz and Haurin, 2003; Kearns et al., 2000; Rohe and Stewart, 1996; Rossi and Weber, 1996). Homeowners also have better average physical housing quality (Friedman and Rosenbaum, 2004; Rosenbaum, 1996) and much greater economic resources (Boehm and Schlottmann, 2008).

Though past literature has focused on identifying the relative salience of the direct and indirect pathways through which homeownership may improve health, much less attention has been paid to potential stratification in this relationship. Homeownership is profoundly stratified by race and ethnicity, as is health. Approximately 74 percent of White households own their homes, compared to only 45 percent of Black and Latino households (U.S. Census Bureau, 2013). Even if they attain homeownership, racial and ethnic minorities are also disadvantaged by large disparities in the social and economic returns to homeownership. Non-White homeowners are often restricted to houses in resource-poor areas, accumulate far less equity, and have disproportionately higher mortgage rates that increase the tenuousness of their residency (Boehm and Schlottmann, 2004; Flippen, 2001; Krivo and Kaufman, 2004; Massey and Denton, 1993). These inequalities give one reason to suspect that returns to homeownership might be stratified. Nevertheless, existing research has not thoroughly examined this possible racial and ethnic stratification in the health returns to homeownership.

* Department of Sociology, University of California at Davis, One Shields Avenue, Davis, CA 95616, USA.
E-mail address: rfinnigan@ucdavis.edu.

This study scrutinizes homeownership as an important socioeconomic resource for health. Moreover, this study uniquely examines whether and how the health returns to this resource may be stratified for different racial and ethnic groups. Building on fundamental cause theory (Link and Phelan, 1995) and prior research, the paper constructs hypotheses for the relationship between homeownership and health and its potential stratification. I empirically evaluate the hypotheses for the US's four largest racial and ethnic groups using the March 2012 Current Population Survey (CPS). First, I provide a recent and nationally representative evaluation of homeowners' potential health advantage over renters. Second, I test whether any such health advantage is stratified by race/ethnicity, following sociological literature on racial and ethnic stratification. The findings indicate that homeowners have significantly better self-rated health than comparable renters. The relationship is robust to the inclusion of a variety of controls, consistent with the fundamental cause argument. However, the advantage applies primarily to Whites, and White homeowners are an exceptionally healthy group among the overall population. In contrast, Black homeowners have a much smaller health advantage over Black renters, and Latino and Asian homeowners have no significant advantage. These findings demonstrate the interactive nature of racial and ethnic stratification in the generation of health disparities.

2. Homeownership and health

Link & Phelan's (1995) theory of fundamental causes posits that socioeconomic resources fundamentally affect health, regardless of specific diseases or health behaviors that operate as mechanisms. Homeownership may represent one such socioeconomic resource, which benefits health through multiple social and economic pathways. Past literature provides evidence that homeownership is beneficial for health through both direct pathways and indirect pathways. Direct pathways include homeowners' greater perceptions of control and security, and residential stability and social integration compared to renters (Dietz and Haurin, 2003; Rohe and Stewart, 1996; Rohe et al., 2002; Rossi and Weber, 1996). Indirect pathways include social and economic benefits associated with homeownership, but potentially attainable outside it. For instance, homeownership provides higher average housing quality (Friedman and Rosenbaum, 2004), and a basis for wealth accumulation (Boehm and Schlottmann, 2008).

The first direct pathway is homeowners' higher level of self-efficacy, self-satisfaction, and perceived control over life significant events (Rossi and Weber, 1996). Homeowners experience higher levels of security and autonomy related to their physical homes (Kearns et al., 2000). This enhanced sense of control likely represents a buffer and coping resource for stressful events (Rohe and Stegman, 1994a). Those with greater self-efficacy are more likely to select into homeownership. However, even among matched sets of low-income homeowners and renters, homeowners have significantly higher perceptions of control, higher life satisfaction, and lower mental distress (Manturuk, 2012; Rohe and Stegman, 1994a).

Another potential direct pathway is homeowners' greater residential stability and neighborhood integration. Homeowners' longer lengths of residency are due to both selection and high transaction costs for buying and selling homes. Despite selection of more residentially stable households into homeownership, the greater difficulty for homeowners to move quickly and easily makes greater stability an intrinsic element of homeownership (Dietz and Haurin, 2003; Rohe and Stewart, 1996). Relatedly, homeowners are more likely than renters to be integrated into residentially stable neighborhoods with greater affluence, lower poverty, and better health service provision, all of which significantly benefit health (Dietz and Haurin, 2003; Kawachi and Berkman, 2003; Kirby, 2008; Macintyre and Ellaway, 2003). Homeowners are also more civically engaged in the local community, and express higher trust in their neighbors (McCabe, 2013; Rohe and Stegman, 1994b; Rossi and Weber, 1996). The salience of this neighborhood integration for health by homeownership is somewhat unclear (Manturuk, 2012). However, social cohesion and control, operationalized as collective efficacy (Sampson et al., 2002), are positively related to both individual health and local homeownership rates (Browning and Cagney, 2002; Entwisle, 2007; Sampson, 2003).

Indirect pathways through which homeowners may experience health benefits include higher average housing quality, and greater wealth accumulation. Fewer homeowners than renters live in poor quality housing (Friedman and Rosenbaum, 2004; Rosenbaum, 1996). Dampness and mold lead to respiratory disease, pest infestations and infectious disease, and illness due to cold or heat exposure (Dunn, 2000). Those living in poor quality housing report higher mental and emotional stress, and higher rates of diagnosed mental disorders due to overcrowding (Evans et al., 2000). Finally, homeowners are much more likely to live in single-family, detached homes. Residents of these houses report less mental distress and greater positive affect than residents of other structural types (see Evans et al. (2003) for a review).

Homeowners experience far greater wealth accumulation through tax advantages and home equity. Wealth has been linked with lower mortality, higher self-rated health, fewer chronic conditions, higher functional status, and better mental health (see Pollack et al. (2007) for a review). Home equity accumulation and accompanying tax benefits form the foundation for most households' wealth accumulation. Second mortgages or home equity loans also provide a buffer against negative economic shocks (Dietz and Haurin, 2003; Oliver and Shapiro, 1995). Homeownership is a unique component of wealth because it is both an investment and consumption good, making it a higher priority for most households than other investments (Shlay, 2006).

Overall, homeownership may be related to health through a complex array of direct and indirect pathways. Regardless of variation in particular mechanisms, homeownership likely represents a significant health resource consistent with fundamental cause theory (Link and Phelan, 1995). These relationships motivate the first hypothesis.

Hypothesis 1. Homeowners exhibit a significant health advantage over comparable renters.

Though a positive relationship between homeownership and physical and mental health has been previously demonstrated (Dietz and Haurin, 2003; Manturuk, 2012; Rossi and Weber, 1996), the literature lacks an empirical evaluation of health differences between homeowners and renters in recent years. To the best of my knowledge, Rossi and Weber (1996) conducted the most recent nationally representative study for the US, using data from 1988 through 1993. Conversely, more recent studies investigating the pathways through which homeownership influences health lack representative data for the entire population. A recent and representative empirical examination may be particularly relevant in light of the recent housing and foreclosure crisis of the late 2000s.

3. Racial/ethnic stratification in homeownership and health

Fundamental cause theory also recognizes racial inequality as a social condition influencing health (Link and Phelan, 1995). Racial stratification increases socioeconomic disadvantage and other risk factors for poor health among minorities relative to Whites. However, racial stratification may also undermine the health benefits of

socioeconomic resources. If homeownership is a salient health resource, racial inequality in homeownership attainment would contribute to health disparities. However, racially unequal health returns to homeownership would compound and further intensify the salience of racial stratification to health disparities. In this sense, both socioeconomic resources and racial stratification would jointly be fundamental causes of disease.

Past research has thoroughly documented racial and ethnic stratification in access to homeownership. Racial and ethnic segregation to disadvantaged neighborhoods and housing markets (Flippen, 2001; Massey and Denton, 1993), lender and realtor discrimination (Rugh and Massey, 2010), and lower inter-generational wealth transmission for down payments (Oliver and Shapiro, 1995) all constrain minorities' opportunities to attain homeownership. More recently, scholars have expanded the debate beyond disparities in attainment to stratification in returns to homeownership. Studies have established stratification in minority homeowners' advantages over same-race renters in residential stability and neighborhood integration (Alba et al., 2000), housing quality (Friedman and Rosenbaum, 2004), and wealth accumulation (Flippen, 2004; Krivo and Kaufman, 2004). However, it is not yet known if stratification in the pathways between homeownership and health also leads to inequality in the overall homeowner health advantage.

There are compelling reasons to suspect there may also be racially stratified health returns to homeownership. The owner–renter difference in neighborhood quality, one of the potential pathways between homeownership and health, is much smaller for non-Whites (Alba et al., 2000). Segregation undermines predominantly non-White neighborhoods' economic and social integration, opportunities for geographic and socioeconomic mobility, and resources for strong community institutions and services (Massey and Denton, 1993). Additionally, Black and Latino homeowners are more segregated from Whites than Black renters (Alba et al., 2000; Friedman et al., 2013). As a result, non-Whites are limited in their ability to purchase homes in more advantaged areas than they could live in as renters. Similarly, Blacks and Latinos are more likely than Whites to live in crowded, low-quality housing, and the racial/ethnic difference is as large or larger among owners than renters (Friedman and Rosenbaum, 2004; Rosenbaum, 1996).

Further, minority homeownership is not as strongly associated with large economic advantages. This is partly because segregation and mortgage discrimination restrict many non-Whites to purchasing less valuable homes with higher interest rates (Flippen, 2001; Massey and Denton, 1993). Blacks' and Latinos' homes also accumulate much less equity than Whites' homes (Boehm and Schlottmann, 2008; Flippen, 2004; Krivo and Kaufman, 2004). Subprime lenders disproportionately target racial and ethnic minorities, particularly those with lower incomes (Rugh and Massey, 2010). Higher mortgage strain and the possibility or fear of foreclosure increases the tenuousness of minority homeownership (Boehm and Schlottmann, 2004; Rugh and Massey, 2010). Heightened ownership insecurity has been shown to elevate mental distress, decrease self-rated health, and increase the frequency of doctor's visits (Cairney and Boyle, 2004; Nettleton and Borrows, 1998).

The evidence for racial/ethnic inequality in each of the proposed pathways between homeownership and health suggests minorities may exhibit a smaller homeowner health advantage than whites. This implication motivates the second hypothesis.

Hypothesis 2. Minority homeowners are less likely than Whites to have a significant health advantage over comparable same-race renters.

There are at least two additional questions related to these hypotheses. First, there is some debate over whether homeownership is a larger benefit or burden for many low-income households (Retsinas and Belsky, 2002; Shlay, 2006). Low-income homeowners experience lower than average equity appreciation and higher financial strain (Beslky and Duda, 2002; Boehm and Schlottmann, 2008; Herbert and Belsky, 2008; Van Order and Zorn, 2002). High transaction costs with selling a home may lock low-income owners into disadvantaged areas, preventing them from moving to more desirable neighborhoods, better job opportunities, or even more affordable housing options (Dietz and Haurin, 2003; Retsinas and Belsky, 2002). The intersection of race and class stratification may make homeownership particularly burdensome for low-income minority households, further undermining any potential homeownership health advantage. Conversely, homeownership is essentially a proxy for any household wealth among low-income households (Boehm and Schlottmann, 2008; Oliver and Shapiro, 1995). Relatively compressed economic inequality among low-income households may reduce any racial/ethnic stratification in the homeowner health advantage.

Second, the housing crisis of the late 2000s, and ensuing wave of foreclosures, may make the present period atypical for evaluating homeownership as a potential health resource, particularly the examination of racial/ethnic differences. Foreclosures were concentrated among low-income, and predominantly minority neighborhoods (Rugh and Massey, 2010). Systematic selection of low-income minority households out of homeownership could raise the average health of minority homeowners, and lower the average health of minority renters. If so, any potential homeowner health advantage for non-whites would then be biased upward. Therefore estimates of racial/ethnic disparities in the advantage compared to whites would be biased downward, leading to a more conservative test of racial/ethnic differences in the homeowner health advantage. Additional analyses discussed later estimate the relationship between homeownership and health including years prior to the housing bubble.

4. Methods

4.1. Current Population Survey

Data for this study are from the March wave of the 2012 Current Population Survey (CPS). I use CPS data from the Integrated Public Use Microdata Series (IPUMS), made available by the Minnesota Population Center (King et al., 2010). The CPS collects individual information about all persons in the household from the "most knowledgeable household member," referred to as the household head. I restrict the analyses to White, Black, Latino, and Asian household heads. Household heads are the only household members for whom the general health measure is a self-report, rather than a proxy. The large, representative, and recent nature of the CPS is a clear advantage of the data because it allows for analysis of Latinos and Asians, often-overlooked groups.

4.2. Health

The dependent variable, *Health*, is measured by respondents' evaluations of their general health on a five-point scale, and is the only general health measure present in the CPS. Interviewers ask respondents to rate their overall health as "excellent," "very good," "good," "fair," or "poor." Self-rated health has well-established reliability and validity as a measure of general health, and is highly correlated with functional ability, morbidity, and mortality

Table 1
Means and (standard deviations) of variables for the analytic sample, and by race/ethnicity.

Variables	Total sample	White	Black	Latino	Asian
Good health	0.83	0.84	0.77	0.84	0.87
Owner	0.66	0.74	0.44	0.46	0.58
Housing Characteristics					
Moved last yr.	0.10	0.09	0.12	0.11	0.12
House (ref.)	0.70	0.76	0.55	0.56	0.58
Mobile home	0.04	0.04	0.03	0.05	0.00
Duplex	0.05	0.04	0.07	0.07	0.05
Multi-family	0.09	0.07	0.14	0.13	0.12
Apt/condo	0.13	0.09	0.21	0.19	0.24
Controls					
Age	49.48	50.78	49.65	44.39	46.96
	(16.35)	(16.46)	(16.19)	(14.96)	(15.99)
Female	0.50	0.48	0.61	0.50	0.45
Never married	0.20	0.16	0.35	0.24	0.21
Married (ref.)	0.53	0.57	0.31	0.53	0.64
Separated	0.03	0.02	0.06	0.06	0.01
Divorced	0.15	0.16	0.17	0.13	0.07
Widowed	0.09	0.09	0.11	0.05	0.06
Number of adults	1.95 (0.87)	1.91 (0.78)	1.76 (0.90)	2.18 (1.02)	2.26 (1.10)
Number of children	0.76 (1.12)	0.71 (1.07)	0.66 (1.12)	1.07 (1.28)	0.72 (1.06)
Children under 5	0.15	0.14	0.13	0.22	0.16
Native born (ref.)	0.83	0.95	0.89	0.42	0.27
Imm < 5 Yrs	0.02	0.00	0.01	0.05	0.12
Imm < 10 Yrs	0.01	0.00	0.01	0.05	0.06
Imm < 15 Yrs	0.03	0.01	0.02	0.12	0.12
Imm < 20 Yrs	0.02	0.00	0.01	0.06	0.06
Imm > 20 Yrs	0.09	0.03	0.05	0.30	0.37
Less than HS	0.12	0.07	0.16	0.33	0.08
HS/G.E.D. (ref.)	0.28	0.28	0.32	0.28	0.20
Some college	0.18	0.18	0.21	0.16	0.12
Associate's	0.10	0.11	0.09	0.07	0.08
Bachelor's or above	0.31	0.35	0.22	0.15	0.51
HH income	45,284.97 (50,653.3)	50,212.23 (53,336.02)	32,744.74 (44,060.92)	31,877.86 (37,760.14)	50,952.7 (50,232.11)
Log (HH income)	10.21 (1.53)	10.39 (1.34)	9.70 (1.97)	9.83 (1.63)	10.30 (1.69)
Private insurance	0.67	0.74	0.54	0.47	0.71
Public insurance	0.32	0.32	0.40	0.26	0.24
Uninsured (ref.)	0.15	0.11	0.17	0.32	0.14
Percent of sample	100	66.77	13.04	14.68	5.52
N	71,874	47,989	9371	10,548	3966

Note: Estimates use sampling weights to adjust for sampling design and nonresponse.

(Farmer and Ferraro, 1997; Idler and Benyamini, 1997; Idler and Kasl, 1995). I dichotomize the variable for use with logistic regression by collapsing the responses "excellent," "very good," and "good" into good health equal to one, and "fair" and "poor" health into poor health equal to zero. This well-established practice is consistent with other forms of coding five-point self-rated health (Manor et al., 2000).

As robustness checks, I analyzed dichotomous health by coding "excellent" and "very good" equal to one, and "good," "fair," and "poor" equal to zero. Second, I analyzed self-rated health as a continuous five-point variable with OLS, and as an ordered five-point variable with ordered-logistic regression. Both analyses yield substantively similar results to those presented. However, the binary operationalization of the health variable is preferable because linearity cannot be assumed for OLS. It also violates the proportional odds assumption for ordered logistic regression, as evaluated by the Brant parallel line test (Long and Freese, 2006).

4.3. Race/ethnicity and homeownership

Race and ethnicity are coded using dichotomous variables equal to one for being *Black*, *Latino*, or *Asian*, all in reference to White. The CPS asks respondents to identify Hispanic or Latino origin on the basis of descent or nationality. The analyses omit non-Latino

respondents identifying with multiple racial groups, which constitute very small fraction of the total sample.

The binary variable *Owner* indicates being a homeowner relative to being a non-homeowner, hereafter referred to as renters. The CPS identifies homeowners as those who report currently owning their primary residence. Homeownership includes those with a mortgage or other loan arrangement. I examine differences in the relationship between homeownership and health across racial and ethnic groups by using separate homeownership categories for each racial/ethnic group: *White Owner*, *Black Owner*, *Latino Owner*, *Asian Owner*, *Black Renter*, *Latino Renter*, and *Asian Renter*. These variables measure the conditional difference in health for each group relative to White renters. The homeowner health advantage is then calculated using the difference in the predicted probabilities of good health between homeowners and same-renters.

4.4. Housing-related characteristics

A series of binary variables categorize respondents' dwellings: *Mobile Home*, *Duplex* (two single-family units), *Multi-Family Dwelling* (three to five single-family units), and *Apt/Condo* (six or more single family units), all relative to single-family detached houses.

The analyses control for residential stability and local geographic contexts with two kinds of variables. First, one-year

migration status, *Moved Last Yr.*, roughly represents residential stability by distinguishing between recent movers and longer-term residents. Second, the analyses control for city/state-level differences in housing markets, segregation, and health service provision with Metropolitan Statistical Area (MSA) or rural-by-state fixed effects. These models include binary indicators for each of the 262 MSAs and 48 rural-states of residence in the sample.

4.5. Other controls

The analyses control for key demographic characteristics commonly associated with homeownership and health. Some of these controls might not be exogenous to health, but their inclusion is designed to remove potential spuriousness between homeownership and health.

Age is measured in years. Alternative analyses code age categorically with seven age categories, and results do not substantively differ. I code sex with a binary variable, *Female*, equal to one for women. Marital status includes four binary variables, *Never Married*, *Separated*, *Divorced*, and *Widowed*, each relative to currently married. Household composition is accounted for with *Number of Adults*, the number of persons over 18 living in the household, *Children in the Household*, the number of household members under age 18, and *Children Under 5*, a binary indicator for the presence of any children under 5 years old. Immigrant status is measured with a series of categorical variables for the number of years since immigration, *Imm < 5 Yrs, Imm < 10 Yrs, Imm < 15 Yrs, Imm < 20 Yrs, Imm > 20 Yrs*. Each of these variables is in reference to being native born.

Education is coded with four binary variables, *Less Than HS* for respondents without a high school diploma or G.E.D, *Some College* for those with some college education, *Associate's* for a technical or Associate's degree, and *Bachelor's* for those with a Bachelor's degree or higher. The reference category is having a high school diploma or G.E.D. Binary variables *Unemployed* and *Out of Labor Force* are in reference to employment. The measure of income, *Log HH Income*, is the logged value of total household income from all sources, including wages, private transfers, and public assistance. Household income is also adjusted for household size by dividing by the square root of the number of household members (Brady, 2009). Finally, the dichotomous variable *Private Insurance* indicates health insurance provided by employers or individually purchased, and *Public Insurance* includes coverage through Medicaid or Medicare. Both are in reference to being uninsured.

4.6. Analytic strategy

This study tests the hypothesis that homeowners have a robust health advantage by comparing the probabilities of good health between renters and owners, and then tests the hypothesis of racial

stratification by comparing the owner—renter health difference between racial and ethnic groups. I first descriptively compare the prevalence of good health between homeowners and renters across each racial and ethnic group. I then use logistic regression to make the same comparison when conditioning on observable factors. The regression models include sampling weights provided by the Census Bureau to adjust for the sampling design. Finally, I conduct a variety of additional analyses to test variability in the relationship for low-income households, to limit potential reverse causation, and to examine potential variation over time.

5. Results

5.1. Descriptive patterns

Table 1 presents descriptive statistics for the analytic sample, by race/ethnicity. There are significant racial/ethnic disparities in health ($p < 0.001$ for a Chi-square test between each group except between Whites and Latinos). Black household heads report the worst health, and Asians report the best health. There are also significant disparities in homeownership ($p < 0.01$ for a Chi-square test between each group except between Blacks and Latinos). Nearly three out of four White household heads own their homes. In contrast, fewer than half of Black and Latino household heads and fewer than two of three Asian heads own their homes.

Table 2 shows the cross-tabulations of the proportion of respondents reporting good health in each racial/ethnic group by homeownership status. The third column presents the owner—renter difference in the prevalence of good health. The asterisks denote the statistical significance levels of Chi-square tests between owners and renters within each racial/ethnic group.

Among all households, the proportion of households reporting good health is 3.5 percentage-points higher among homeowners than renters. Among Whites, the difference is 3.7 percentage points. The differences are much smaller for Black and Asian households, approximately 2 percentage points, and significant at the 0.05 level only for Blacks. The difference for Latino households is less than one percentage point, and not statistically significant. Overall, Asians report the best health, followed by White owners. Black household heads report the worst health.

Clearly, an array of relevant demographic and socioeconomic characteristics influences these patterns. However, these unadjusted estimates demonstrate meaningful variation in the distribution of good health by homeownership status and race/ethnicity in the population.

5.2. Regression results

Table 3 presents logistic regression results of self-rated health on homeownership, housing-related characteristics, and race and ethnicity. The estimates are presented as the marginal effect of the each variable, with all other variables held constant at their means. The marginal effect for categorical variables is simply the difference in the predicted probability of good health compared to the reference group. The marginal effect of continuous variables is the change in the predicted probability of good health for small differences in the independent variable.

Consistent with past research, recent immigrants, those with higher education, income, and private insurance have higher probabilities of good health. Women also have higher probabilities of good health, consistent with the upward trend in women's self-rated health over time (Schnittker, 2007). This gender difference may partially be an artifact of how the CPS selects the most knowledgeable household member as the household head. Also

Table 2
Prevalence of good health by race/ethnicity and homeownership status.

Total	Owner	Rent	Owner −rent
	0.843	0.808	0.035***
White	0.848	0.811	0.037***
Black	0.780	0.760	0.020*
Latino	0.841	0.834	0.007
Asian	0.884	0.861	0.023+

Note: Estimates use sampling weights to adjust for sampling design and nonresponse.
***$p < 0.001$, **$p < 0.01$, *$p < 0.05$, and +$p < 0.10$ denote Chi-Squared significance levels.

Table 3
Logistic regression for good health on homeownership among the total sample, presented as marginal effects and (t-statistics).

Variables	Model 1	Model 2	Model 3	Model 4
Owner (ref = renter)	0.025*** (7.19)	0.031*** (7.66)		
Black (ref = White)	−0.030*** (−7.88)	−0.028*** (−7.13)		
Latino (ref = White)	−0.004 (−0.91)	−0.011* (−2.19)		
Asian (ref = White)	−0.019* (−2.55)	−0.025*** (−3.32)		
White owner (ref = White renter)			0.033*** (7.77)	0.037*** (8.03)
Black owner (ref = White renter)			−0.008 (−1.18)	0.001 (0.08)
Latino owner (ref = White renter)			0.016* (2.43)	0.014 (1.95)
Asian owner (ref = White Renter)			0.007 (0.69)	0.004 (0.37)
Black renter (ref = White renter)			−0.022** (−3.27)	−0.022** (−3.27)
Latino renter (ref = White Renter)			0.012 (1.80)	0.003 (0.35)
Asian renter (ref = White renter)			−0.007 (−0.54)	−0.014 (−1.10)
Moved Last Yr. (1 = yes)		0.012* (2.43)		0.012* (2.44)
Mobile home (ref = house)		−0.045*** (−7.53)		−0.044*** (−7.46)
Duplex (ref = house)		−0.009 (−1.49)		−0.009 (−1.49)
Multi-family (ref = house)		0.003 (0.61)		0.003 (0.54)
Apt/Condo (ref = house)		−0.009 (−1.84)		−0.009 (−1.92)
Age	−0.001*** (−8.79)	−0.001*** (−9.77)	−0.001*** (−8.86)	−0.001*** (−9.82)
Female (ref = male)	0.010*** (3.54)	0.009** (3.28)	0.010*** (3.52)	0.009** (3.27)
Never married (ref = married)	−0.000 (−0.03)	−0.004 (−0.78)	−0.000 (−0.03)	−0.003 (−0.74)
Separated (ref = married)	−0.047*** (−6.63)	−0.045*** (−6.45)	−0.047*** (−6.65)	−0.045*** (−6.45)
Divorced (ref = married)	−0.041*** (−9.90)	−0.039*** (−9.43)	−0.040*** (−9.60)	−0.038*** (−9.17)
Widowed (ref = married)	−0.003 (−0.65)	−0.003 (−0.66)	−0.002 (−0.46)	−0.002 (−0.48)
Number of adults	−0.011*** (−6.14)	−0.011*** (−6.54)	−0.010*** (−5.90)	−0.011*** (−6.33)
Number of children	0.008*** (4.51)	0.008*** (4.50)	0.008*** (4.43)	0.008*** (4.44)
Children under 5 (1 = yes)	0.039*** (6.80)	0.038*** (6.78)	0.039*** (6.78)	0.038*** (6.76)
Imm < 5 Yrs (ref = native born)	0.053*** (4.17)	0.047*** (3.72)	0.049*** (3.84)	0.043*** (3.41)
Imm < 10 Yrs (ref = native born)	0.051*** (3.93)	0.046*** (3.58)	0.048*** (3.68)	0.043*** (3.36)
Imm < 15 Yrs (ref = native born)	0.028** (2.96)	0.021* (2.30)	0.026** (2.74)	0.020* (2.12)
Imm < 20 Yrs (ref = native born)	0.018 (1.65)	0.012 (1.08)	0.018 (1.62)	0.012 (1.08)
Imm > 20 Yrs (ref = native born)	0.011* (2.11)	0.003 (0.65)	0.012* (2.24)	0.004 (0.83)
Less than HS (ref = HS/GED)	−0.035*** (−8.81)	−0.030*** (−7.75)	−0.035*** (−8.80)	−0.030*** (−7.76)
Some college (ref = HS/GED)	0.019*** (4.87)	0.016*** (4.19)	0.019*** (4.93)	0.016*** (4.22)
Associate's (ref = HS/GED)	0.016** (3.11)	0.012* (2.39)	0.016** (3.17)	0.012* (2.43)
Bachelor's or above (ref = HS/GED)	0.060*** (15.14)	0.051*** (12.96)	0.060*** (15.17)	0.052*** (12.99)
Unemployed	−0.025*** (−3.63)	−0.024*** (−3.65)	−0.025*** (−3.68)	−0.025*** (−3.68)
Not in labor force	−0.122*** (−34.47)	−0.119*** (−33.95)	−0.122*** (−34.48)	−0.119*** (−33.97)
Log (HH income)	0.006*** (7.05)	0.005*** (6.54)	0.006*** (7.10)	0.005*** (6.59)
Private insurance (ref = uninsured)	0.055*** (17.96)	0.052*** (17.12)	0.055*** (17.85)	0.052*** (17.05)
Public insurance (ref = uninsured)	−0.059*** (−16.10)	−0.058*** (−16.02)	−0.060*** (−16.22)	−0.059*** (−16.12)
Area F.E.	No	Yes	No	Yes
Observations	71,874	71,874	71,874	71,874
BIC	−7123	−4093	−7108	−4073

Notes: Robust t-statistics in parentheses. Reference categories for binary variables indicated after variable names. BIC indicates the model fit relative to the null model; more negative numbers indicate better model fit.
***p < 0.001, **<0.01, and *p < 0.05 (two-tailed test).

consistent with previous findings, older age and all non-married statuses are associated with lower probabilities of good health.

Model 1 in Table 3 shows homeowners have higher probabilities of good health than renters by 2.5 percent, net of controls. Both Black and Asian household heads have significantly lower probabilities of good health than White heads. There is no significant difference between Whites and Latinos.

Model 2 adds the housing-related variables to the regression from Model 1. Recent movers have significantly higher probabilities of good health, possibly due to health selection into moving. Residents of single-family detached houses have higher probabilities of reporting good health than those living in mobile homes, but no significant difference with other housing types.

The most notable result from Model 2 is the robust homeowner health advantage, which is slightly larger with housing-related controls. The 3.1 percent advantage in Model 2 is larger than the conditional difference between Whites and any minority group. It is as large as the difference between those with less-than-high school education and high school, and almost as large as the conditional difference between the married and the divorced.

Results from Models 3 and 4 show the pattern for racial/ethnic-homeownership group relative to White renters. The pattern of

results is highly consistent with or without housing-related controls. The results for all control variables are also consistent with those in the previous models. The differences between owners and renters, and between racial/ethnic groups, are somewhat difficult to assess in the table because the marginal effects are all relative to White renters. To ease interpretation, I present the predicted probabilities of good health in Fig. 1. The right side presents the predicted probabilities for homeowners and renters by race/ethnicity, estimated by Model 4 in Table 3. For comparison, the left side presents the predicted probabilities for homeowners and renters overall, estimated by Model 2 in Table 3. All control variables are held constant at their means, removing the effect of observable compositional differences between groups.

The predicted probability of good health for White homeowners is 3.7% higher than for comparable renters, larger than the 3.1% difference estimated for the total sample. The homeowner–renter difference is also statistically significant among Black households, but is much smaller at 2.3%. The differences for Latino and Asian homeowners compared to renters are 1.2% and 1.9% respectively. Neither difference is statistically significant. These owner–renter differences are also presented in the first column of Table 4, below.
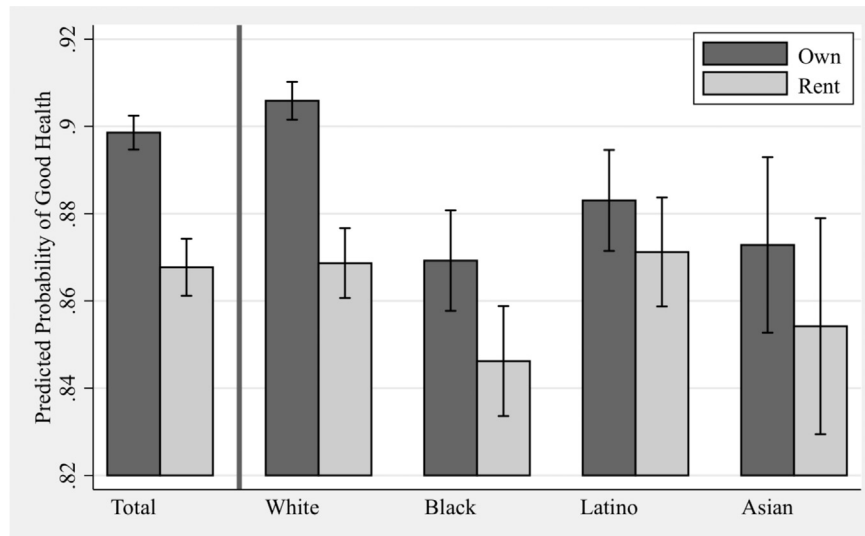
Notes: Predicted probabilities for all households (left) are calculated using estimates from Model 2, Table 3; probabilities by race/ethnicity (right) are calculated using estimates from Model 4, Table 3. All control variables are held constant at the sample means. The homeownership advantage is significant for the total sample (left), and White and Black households (right). White homeowners have significantly higher probabilities of good health than all other groups. Black renters have significantly lower probabilities than White and Latino homeowners and renters.

Fig. 1. Predicted Probability of Good Health by Race/Ethnicity and Homeownership, with 95% Confidence Intervals.

Another clear finding illustrated in Fig. 1 is the substantial health advantage of White homeowners over all other groups. White homeowners' predicted probability of good health is statistically significantly higher than all other groups by 2.2–6.0 percent, and all differences are statistically significant. White renters, however, are only significantly healthier compared to Black renters.

Overall, the results of Models 1 and 2 support Hypothesis 1, that homeowners experience a significant health advantage over renters. The results of Models 3 and 4 support Hypothesis 2, that the homeowner health advantage is stratified by race and ethnicity. White homeowners experience a substantial health advantage over White renters. The size of this health difference is comparable to differences by education and marital status. Black homeowners experience a statistically significant, but health smaller health advantage. The owner–renter differences for Asians and Latinos are not significant.

5.3. Additional analyses

As discussed above, there are reasons to expect that home-ownership for low-income households may be a greater burden than benefit (Shlay, 2006). Race and class stratification may also intersect, intensifying any potential burden for minority home-owners. I test the relationship between homeownership and health among low-income households by re-estimating Model 2 and 4 of Table 3. The sample includes households with equivalized income below half of the median. The results are presented in the second column of Table 4 as the difference in the predicted probabilities of good health between homeowners and same-race renters, with all controls held constant at the means. The first column displays these predicted differences from Models 2 (above) and 4 (below), from Table 3, for comparison.

Despite potential burdens, the health advantage for low-income homeowners over renters is almost twice the size of the difference in the total sample, 6.0 compared to 3.1 percent. The homeowner health advantages among each racial/ethnic group are much larger among the low-income sample than the total sample, and

statistically significant for White, Black, and Asian households (marginally significant for Latinos with p slightly greater than 0.05). Homeownership appears to be much more salient to health among low-income households than on average. Moreover, racial/ethnic stratification in the homeowner health advantage is lower.

Table 4 also presents the results of additional analyses designed to limit reverse causation. These models examine health variation among respondents who are presumably not too physically limited to achieve or maintain homeownership. First, I re-estimate Models 2 and 4 from Table 2, excluding disabled respondents (those with any functional limitations, or difficulties with activities of daily living or instrumental activities of daily living). Second, I exclude household heads with "poor" or "fair" self-rated health. The regression in the third column of Table 4 predicts "very good" or "excellent" self-rated health relative to "good" health. Finally, I exclude household heads that moved in the previous year in the final column of Table 4. This limitation increases the probability that homeownership status is determined temporally prior to health status.

The pattern of results is similar to the main results. The owner–renter health differences are smaller without disabled household heads, but the general pattern is consistent. White homeowners exhibit a significant health advantage over White renters in all models. Black homeowners have a smaller but significant health advantage over Black renters, but have a non-significant health disadvantage when excluding the disabled and poor/fair health. The owner–renter health differences among Latino and Asian households are not statistically significant in any of the three models.

Finally, extended consequences of the housing crisis might lead one to suspect atypical selection effects bias the results shown here, as discussed above. Unhealthy individuals may have been dispro-portionately selected out of homeownership through foreclosure, artificially exaggerating the size of the homeowner health advan-tage. However, the results shown here are consistent with those using the March CPS since 1996, the first year including the self-rated health measure. Additional analyses examined a pooled

Table 4
Results of logistic regression analyses under sample restrictions, presented as the owner-renter difference in the predicted probability of good health and (t-statistics).

	Model 4, Table 3	Low income	No disabled	No poor health	No movers
Total	0.031*** (7.66)	0.060*** (5.21)	0.020*** (5.78)	0.027*** (4.40)	0.028*** (6.42)
White	0.037*** (8.03)	0.067*** (4.80)	0.026*** (6.24)	0.045*** (6.13)	0.034*** (6.71)
Black	0.023** (2.72)	0.047* (2.25)	0.015 (1.96)	−0.024 (−1.95)	0.020* (2.22)
Latino	0.012 (1.55)	0.041 (1.95)	0.006 (0.89)	0.009 (0.81)	0.011 (1.32)
Asian	0.019 (1.22)	0.089* (2.10)	0.019 (1.38)	−0.012 (−0.75)	0.020 (1.24)
Observations	71,874	16,402	63,052	60,404	64,743

Note: Differences in predicted probabilities among all households are calculated using the same model specification as Model 2, Table 3; the differences within racial/ethnic groups are calculated using Model 4 of Table 3, changing the reference category to renters of the racial group in each row. The model for low-income households controls for the unlogged value of household income. All control variables are held constant at their means.
***$p < 0.001$, **<0.01, and *$p < 0.05$ (two-tailed test).

sample of household heads from 1996 to 2012. A logistic regression model with categorical variables for race/ethnicity-homeownership status-year estimates the time trends in the predicted probability of good health for each group. The predicted probabilities of good health by race/ethnicity and homeownership status over time are presented in Fig. A.1 in the Appendix. There is some fluctuation in the homeowner advantage, but there is no clear and significant time trend in the homeowner−renter health difference. Overall, the patterns observed in the 2012 CPS are typical of the patterns since 1996.

6. Discussion

The results of this study point to several conclusions. First, homeowners have a significant health advantage over renters, on average. In the total sample, homeowners have higher probabilities of good health by 2.5 percent. The homeowner advantage is even larger, 3.1 percent, when adjusting for an array of demographic, socioeconomic, and housing-related characteristics. This finding clearly supports Hypothesis 1, that homeownership represents a significant health resource.

Second, disaggregating the relationship between homeownership and health reveals large racial and ethnic disparities. White homeowners have almost four percent higher probabilities of good health than comparable White renters. Black homeowners also exhibit a health advantage over Black renters, but the advantage is smaller than among Whites. There is little evidence that Latino and Asian homeowners experience a significant advantage. These patterns support Hypothesis 2, that homeownership's significance as a health resource is stratified by race and ethnicity.

An unanticipated finding of this study is racial/ethnic health disparities are relatively small among renting household heads. Black renters are less healthy than White and Latino renters, but no other racial differences among renters are statistically significant. Most notably, Fig. 1 suggests these relative disparities are small because the health advantage for Whites is concentrated among homeowners, and not renters. White homeowners exhibit an exceptionally high predicted probability of good health, significantly greater than all other groups.

The results also suggest homeownership is a particularly salient health resource among low-income households (see Table 4). It is possible that selection of unhealthy household heads out of homeownership is more prevalent in this sample. However, homeownership is also effectively a proxy for the presence of any household wealth among low-income households (Herbert and Belsky, 2008). Homeownership's positive effects on individuals' sense of control and mental health may also be particularly salient relative to low-income renters (Manturuk, 2012). Contrary to expectations that race and class inequality intersect to particularly

burden low-income minority homeowners, homeowners of all racial/ethnic groups exhibit a significant health advantage over same-race renters.

Beyond the empirical results, this study emphasizes the relevance of racial/ethnic inequality in both access to and returns from important socioeconomic resources. Both the significant health advantage for homeowners compared to renters, and the significant disadvantages for minorities relative to Whites, are consistent with fundamental cause theory. However, the findings of this study clearly support the argument that racial stratification affects health profoundly enough to undermine homeownership's health advantages. This stratification is similar to racial disparities in the health benefits of other key socioeconomic resources (Crimmins, 2004). This theoretical and methodological perspective advances the sociological understanding of racial stratification beyond attempts to "explain away" residual racial disparities, and toward an understanding of the interactive processes generating inequalities (James, 2008). Racial and ethnic stratification generates barriers both to non-Whites' attainment of salient socioeconomic resources, and the degree to which they can translate these resources into health advantages.
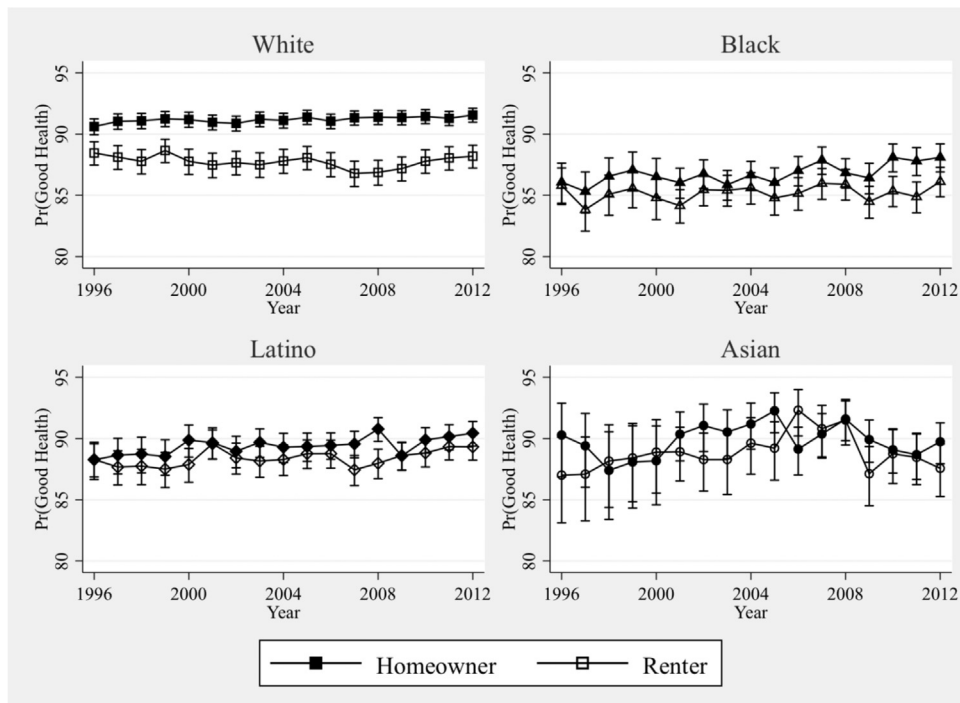
Future research can build on the present analysis by addressing some limitations of the data used here. One advantage of the CPS is the large sample size that allows for racial/ethnic and income decompositions. However, the cross-sectional nature of the data represents an empirical limitation. As previously discussed, it is possible that poor health impairs individuals' abilities for socioeconomic and homeownership attainment. Additionally, the CPS unfortunately lacks measures of wealth. This and other measures for the potential pathways may help determine the mechanisms for homeownership's stratified health benefits. Aside from mechanisms however, future research in the fundamental cause tradition should examine health disparities as products of both inequality in access to socioeconomic resources, and stratification in their health benefits.

Appendix

Note: The predicted probabilities are calculated using estimates from a re-estimation of Model 4 in Table 3, but with separate indicators for respondents' race/ethnicity-homeownership status-year. The model includes all housing characteristics and control variables, and the predicted probabilities are calculated with these variables held constant at their means for the total sample.

Fig. A.1. Predicted Probability of Good Health by Race/Ethnicity and Homeownership Status, with 95% Confidence Intervals.

References

Alba, R., Logan, J., Stults, B., 2000. How segregated are middle-class African Americans? Soc. Probl. 47, 543–558.

Beslky, E., Duda, M., 2002. Asset appreciation, timing of purchases and sales, and returns to low-income homeownership. In: Retsinas, N., Belsky, E. (Eds.), Low-income Homeownership: Examining the Unexamined Goal. The Brookings Institute, Washington D.C., pp. 208–238.

Boehm, T., Schlottmann, A., 2004. The dynamics of race, income, and homeownership. J. Urban Econ. 55, 113–130.

Boehm, T., Schlottmann, A., 2008. Wealth accumulation and homeownership: evidence for low-income households. Cityscape 10, 225–256.

Brady, D., 2009. Rich Democracies, Poor People: How Politics Explain Poverty. Oxford University Press, New York.

Browning, C., Cagney, K., 2002. Neighborhood structural disadvantage, collective efficacy, and self-rated physical health in an urban setting. J. Health Soc. Behav. 43, 383–399.

Cairney, J., Boyle, M., 2004. Home ownership, mortgages, and psychological distress. Hous. Stud. 19, 161–174.

Crimmins, E., 2004. Trends in the health of the elderly. Annu. Rev. Sociol. 25, 79–98.

Dietz, R., Haurin, D., 2003. The social and private micro-level consequences of homeownership. J. Urban Econ. 54, 401–450.

Dunn, J., 2000. Housing and health inequalities: review and prospects for research. Hous. Stud. 15, 341–366.

Entwisle, B., 2007. Putting people into place. Demography 44, 687–703.

Evans, G., Wells, N., Chan, H., Saltzman, H., 2000. Housing quality and mental health. J. Consult. Clin. Psychol. 68, 526–530.

Evans, G., Wells, N., Moch, A., 2003. Housing and mental health: a review of the evidence and a methodological and conceptual critique. J. Soc. Issues 59, 475–500.

Farmer, M., Ferraro, K., 1997. Distress and perceived health: mechanisms of health decline. J. Health Soc. Behav. 39, 298–311.

Flippen, C., 2001. Residential segregation and minority homeownership. Soc. Sci. Res. 30, 337–362.

Flippen, C., 2004. Unequal returns to housing investments? A study of real housing appreciation among black, white, and hispanic households. Soc. Forces 82, 1527–1555.

Friedman, S., Rosenbaum, E., 2004. Nativity status and racial/ethnic differences in access to quality housing: does homeownership bring greater parity? Hous. Policy Debate 15, 865–901.

Friedman, S., Tsao, H.S., Chen, C., 2013. Housing tenure and residential segregation in metropolitan America. Demography 50, 1477–1498.

Herbert, C., Belsky, E., 2008. The homeownership experience of low-income and minority households: a review and synthesis of the literature. Cityscape 10, 5–60.

Idler, E., Benyamini, Y., 1997. Self-rated health and mortality: a review of twenty-seven community studies. J. Health Soc. Behav. 38, 21–37.

Idler, E., Kasl, S., 1995. Self-ratings of health: do they also predict change in functional ability? J. Gerontol. 50B, 344–355.

James, A., 2008. Making sense of race and racial classification. In: Zuberi, T., Bonilla-Silva, E. (Eds.), White Logic, White Methods: Racism and Methodology. Rowman and Littlefield, Lanham, MD, pp. 31–45.

Kawachi, I., Berkman, L., 2003. Neighborhoods and Health. Oxford University Press, New York.

Kearns, A., Hiscock, R., Ellway, A., Macintyre, S., 2000. "Beyond four walls". The psycho-social benefits of home: evidence from West Central Scotland. Hous. Stud. 15, 387–410.

King, M., Ruggles, S., Alexander, J., Flood, S., Genadek, K., Schroeder, M., Trampe, B., Vick, R., 2010. Integrated Public Use Microdata Series, Current Population Survey: Version 3.0 [Machine-Readable Database]. University of Minnesota, Minneapolis, MN.

Kirby, J., 2008. Poor people, poor places and access to health care in the United States. Soc. Forces 87, 325–355.

Krivo, L., Kaufman, R., 2004. Housing and wealth inequality: racial-ethnic differences in home equity in the United States. Demography 41, 585–605.

Link, B., Phelan, J., 1995. Social conditions as fundamental causes of disease. J. Health Soc. Behav. 35, 80–94.

Long, S., Freese, J., 2006. Regression Models for Categorical Dependent Variables Using Stata, 2nd ed. Stata Press, College Station, TX.

Macintyre, S., Ellaway, A., 2003. Neighborhoods and health: an overview. In: Kawachi, I., Berkman, L. (Eds.), Neighborhoods and Health. Oxford University Press, New York, pp. 20–44.

Macintyre, S., Ellaway, A., Der, G., Greaeme, F., Hunt, K., 1998. Do housing tenure and car access predict health because they are simply markers of

income or self-esteem? A Scottish study. J. Epidemiol. Community Health 52, 657–664.

Manor, O., Matthews, S., Power, C., 2000. Dichotomous or categorical response? Analyzing self-rated health and lifetime social class. Int. J. Epidemiol. 29, 149–157.

Manturuk, K., 2012. Urban homeownership and mental health: mediating effect of perceived sense of control. City Community 11, 409–430.

Massey, D., Denton, N., 1993. American Apartheid: Segregation and the Making of the Underclass. Harvard University Press, Cambridge, MA.

McCabe, B., 2013. Are homeowners better Citizens? homeownership and community participation in the United States. Soc. Forces 91, 929–954.

Nettleton, S., Borrows, R., 1998. Mortgage debt, insecure homeownership and health: an exploratory analysis. Sociol. Health Illn. 20, 25–30.

Oliver, M., Shapiro, T., 1995. Black Wealth/White Wealth: A New Perspective on Racial Inequality. Routledge, New York.

Pollack, C., Chideya, S., Cubbin, C., Williams, B., Dekkar, M., Braveman, P., 2007. Should health studies measure wealth? A systematic review. Am. J. Prev. Med. 33, 250–264.

Retsinas, N., Belsky, E., 2002. Low-Income Homeownership: Examining the Unexamined Goal. The Brookings Institution, Washington, D.C.

Rohe, W., Stegman, M., 1994a. The effects of homeownership on the self-esteem, perceived control and satisfaction of low-income people. J. Am. Plan. Assoc. 20, 173–184.

Rohe, W., Stegman, M., 1994b. The impact of homeownership on the social and political involvement of low-income people. Urban Aff. Q. 30, 152–172.

Rohe, W., Stewart, L., 1996. Homeownership and neighborhood stability. Hous. Policy Debate 7, 27–78.

Rohe, W., Van Zandt, S., McCarthy, G., 2002. Home ownership and access to opportunity. Hous. Stud. 17, 51–61.

Rosenbaum, E., 1996. Racial/ethnic differences in home ownership and housing quality, 1991. Soc. Probl. 43, 403–426.

Rossi, P., Weber, E., 1996. The social benefits of homeownership: empirical evidence from national surveys. Hous. Policy Debate 7, 1–35.

Rugh, J., Massey, D., 2010. Racial segregation and the american foreclosure crisis. Am. Sociol. Rev. 75, 629–651.

Sampson, R., 2003. Neighborhood-level context and health: lessons from sociology. In: Kawachi, I., Berkman, L. (Eds.), Neighborhoods and Health. Oxford University Press, New York, pp. 132–146.

Sampson, R., Morenoff, J., Gannon-Rowley, T., 2002. Assessing 'neighborhood effects': social processes and new directions in research. Annu. Rev. Sociol. 28, 443–478.

Schnittker, J., 2007. Working more, feeling better: women's health, employment, and family life, 1974–2004. Am. Sociol. Rev. 72, 221–238.

Shlay, A., 2006. Low-income homeownership: american dream or delusion? Urban Stud. 43, 511–513.

U.S. Census Bureau, 2013. Residential Vacancies and Homeownership in the Fourth Quarter 2012. Retrieved from: http://www.census.gov/housing/hvs/files/qtr412/q412press.pdf.

Van Order, R., Zorn, P., 2002. Performance of low-income and minority mortgages. In: Retsinas, N., Belsky, E. (Eds.), Low-income Homeownership: Examining the Unexamined Goal. The Brookings Institute, Washington, D.C., pp. 322–347.