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# A Framework for Explaining Black–White Inequality in Homeownership Sustainability

Chunhui Ren  
Delta State University

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 Washington University in St. Louis

# A Framework for Explaining Black–White Inequality in Homeownership Sustainability

## *Abstract*

To explain racially differential housing outcomes, previous studies tend to concentrate on discriminatory processes within the mortgage market while ignoring the home-owning family’s broad socioeconomic challenges. This study proposes a conceptual framework for understanding Black–White inequality in homeownership sustainability, which emphasizes Black homeowners’ socioeconomic challenges that are external to mortgage-market evaluations, with a particular focus on the mediating role of liquid assets. Based on the Panel Study of Income Dynamics (PSID), the framework is put to an empirical test on the differential exit rates between Black and White homeowners during the recent housing crisis. The findings indicate that (1) the racial gap in homeownership exit is eliminated after liquid wealth is controlled in the model alongside other covariates and (2) the inclusion of liquid wealth renders all mortgage-oriented variables nonsignificant with regard to their explanatory power for Black–White inequality in exit rates. Policy implications of the findings are also discussed.

**Key words:** Homeownership; Race; Liquid Assets; Wealth Building; Social Policy

## Introduction

Due to various structural and economic barriers, African-American families have long suffered from limited access to homeownership, which restricts their ability to build wealth, gain access to public services, avoid delinquent environments, and assimilate into mainstream economic and social life (Rohe et al., 2002; Sampson et al., 2002). After decades of federal initiatives to eliminate discriminatory practices in housing markets, the structural barriers to homeownership have been reduced, which has led to significant increases in African-American homeownership rates (Rohe et al., 2002; Shlay, 2006). Despite the advances, the Black–White homeownership gap remains substantial. According to the U.S. Census, the Black–White gap in homeownership rates never fell below 25 percentage points over the past two decades and exhibited a widening trend following the Great Recession (Rosenbaum, 2012).

In the historical context of promoting an “ownership society”<sup>1</sup> (Clark, 2013), research and policy efforts concentrate on helping minority families become homeowners, while less attention is paid to their ability to retain ownership status. Two implications emerge with this imbalance. First, homeownership exit plays an essential role in determining a minority group’s overall homeownership rate, which is the net outcome of both entry and exit (Turner & Smith, 2009). More

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<sup>1</sup> Compared with European welfare societies where public rental housing plays a more significant role, the U.S. housing policies have consistently focused on increasing private homeownership as part of a new “ownership society”. For a discussion on the historical evolution of the “ownership society” experiment as well as its contemporary challenges in the post-recession era, please see Clark (2013) and Forrest and Yip (2011).

importantly, minority families' ability to sustain homeownership, to a great extent, determines their chances of reaping long-term homeownership-related benefits (e.g., wealth accumulation and social cohesion building), which constitute the central theme of the “ownership society” paradigm (Clark, 2013; Davis, 2012).

The issue of racial inequality in homeownership sustainability was brought to the forefront during the Great Recession, as the housing crisis delivered a disproportionately hard hit on African Americans (Clark, 2013, 2019; Kuebler & Rugh, 2013). Extensive works have been done to assess the unequal spread of foreclosure risk between Black and White homeowners. In general, African-American families are found to have a higher likelihood of being steered into distressed neighborhoods (Galster, 1990), to hold a larger share of subprime mortgages (Avery et al., 2007), and to be subject to a greater risk of predatory lending (Quercia et al., 2007). The combination of these factors, unsurprisingly, leads to African Americans' higher rates of foreclosure (Bocian et al., 2010).

Housing foreclosures, however, only account for extreme cases of homeownership exit (Herbert & Belsky, 2008) and therefore underrepresent African-American families' challenges, which go beyond mortgage-market dynamics. One set of such factors are liquid assets, which refer to cash or financial assets that can be easily converted to cash (Tippett et al., 2014). The positive effects of liquid assets on the economic well-being of low- and moderate-income households have been extensively documented (Gjertson, 2016; Haveman & Wolff, 2005), but their potential influence on homeownership sustainability has been neither theoretically discussed nor empirically tested. This under-exploration carries particular importance when it comes to the Black–White disparity in homeownership sustainability. For one thing, a substantial Black–White gap in the possession of liquid wealth exists (Oliver & Shapiro, 2006). For another thing, liquidity-constrained families are likely to draw on home equity to compensate for stagnating wages and keep up with consumption needs (Clark, 2013; Hurst & Stafford, 2005), which could make their ownership status vulnerable in times of economic stress.

An investigation on the role of liquid assets in homeownership sustainability, therefore, could generate valuable policy information for eliminating homeownership-related Black–White inequalities. More importantly, as empirical description helps improve theorizing (Besbris & Khan, 2017; Gross, 2009), I seek to propose a conceptual framework for understanding homeownership sustainability, which highlights home-owning families' broad socioeconomic challenges that go beyond mortgage-market evaluations.

Based on the Panel Study of Income Dynamics (PSID), this study investigates the Black–White disparity<sup>2</sup> in homeownership exit during the housing crisis, with a particular focus on the mediating role of liquid assets. The findings show that a substantial gap exists between Black and White homeowners in their exit rates during the 2007–2013 period. As mediating variables are added, the raw gap starts to narrow and becomes statistically nonsignificant after liquid wealth is controlled in

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<sup>2</sup> While Hispanic/Latino homeowners were also hit by the housing crisis (Faber, 2013; Rugh, 2015), the residential experiences of Hispanic/Latino families are different from those of their African-American counterparts in terms of both historical experiences (Jargowsky, 1997) and contemporary challenges (Rugh, 2015). For that reason, this study leaves the specific issues facing Hispanic/Latino homeowners to be explored by separate works.

the model. Moreover, the inclusion of liquid wealth significantly weakens the explanatory power of the mortgage-oriented variables, pointing to the hidden significance of the socioeconomic dynamics that are external to the mortgage market. Policy implications of the findings are discussed at the end.

## Theoretical Explanation for Racial Homeownership Inequality

### Microeconomic Thesis vs. Stratification Thesis

As a fundamental mechanism through which resources are distributed and maintained, homeownership draws considerable attention in the discussions on racial economic inequality (Conley, 1999; Oliver & Shapiro, 2006). Prior studies are primarily built upon microeconomic models that conceptualize housing tenure decisions, be it entry or exit, as the result of a household's housing needs as well as their ability to command financial resources (Eilbott & Binkowski, 1985; Gyourko & Linneman, 1996). According to the microeconomic thesis, a household's housing needs are determined by life-course characteristics such as age and marital status. The ability to command resources to meet housing needs depends on their socioeconomic characteristics such as education and income. From a microeconomic perspective, therefore, Black–White differences in life-course and socioeconomic attributes contribute to African-American families' disadvantages in homeownership outcomes (Alba & Logan, 1992; Rosenbaum, 1996). The microeconomic thesis receives criticism for its incompleteness but remains as a basic framework for explaining homeownership inequality. More recent developments along this line of reasoning start to explore racial differences in financial and social resources that are embedded in extended social networks (Charles & Hurst, 2002; Hall & Crowder, 2011; Hilber & Liu, 2008).

Unlike microeconomic theories that explain homeownership gaps through the uneven distribution of resources among individual families, stratification theories focus on structural barriers in housing markets. The stratification thesis emphasizes discriminatory forces on the part of mortgage lenders (Munnell et al., 1996), real estate agents (Besbris & Faber, 2017), and land use policies (Rothwell, 2011), which interact with race-based residential decisions by Whites (Ellen, 2000) and create a dual housing market where African-American families are restricted in their housing options (Apgar & Calder, 2005; Massey & Denton, 1993; Ross & Turner, 2005). The dual market structure not only limits African-American families' mortgage options but restricts their location choices, which often leads to the less desirable residential environment (Adelman, 2005; Ren, 2019a), slower home equity accumulation (Kriwo & Kaufman, 2004), and greater risk of foreclosure (Bocian et al., 2010).

### Mortgage-Oriented Framework

Based on the two overarching theories, numerous analytical models have been constructed to explore racial homeownership inequality. Most of these models, however, are designed within the mortgage-oriented framework—that is, they focus on racially differential outcomes of different life stages of the mortgage loan, from origination, through stress/default/modification, to maturity/foreclosure. The well-being of mortgage holders, who are often indiscriminately referred to as homeowners, is implicitly equated to the performance of the loan. From a perspective of the mortgage-oriented framework, therefore, prior studies explain racial homeownership inequality by exposing discriminatory practices involved in the two mortgage-market processes, which either restrict minority families' access to mortgage entry (Berkovec et al., 1996; Horne, 1994; LaCour-Little, 1999; Ladd, 1998; Longhofer, 1996; Munnell et al., 1996) or undermine their ability to sustain

the loan (Bayer et al., 2016; Bocian et al., 2010; Engel & McCoy, 2016; Hall et al., 2015; Immergluck, 2011). While mortgage-oriented research greatly enhanced understanding of racial dynamics within the housing market, it overlooks two crucial aspects of minority families’ ability to sustain ownership status: (1) mortgage outcomes are determined by not only within-market but beyond-market dynamics; (2) mortgage outcomes portray an incomplete picture of minority families’ homeownership challenges.

### **A Framework for Homeownership Sustainability**

#### **External Variables**

It only takes a slight change of focus, from the mortgage itself to the mortgage-holding family, to realize that homeownership sustainability depends both on homeowners’ direct and indirect abilities to sustain mortgage payments. The former ability is determined by the homeowner characteristics factored in during the lending process (e.g., income). Since the effects of these characteristics on homeownership outcomes are already incorporated in mortgage terms, they are referred to as “internal variables.” The latter ability is determined by the homeowner socioeconomic resources not directly accounted for during the lending process. Since the effects of these characteristics are not completely absorbed into mortgage terms, they are referred to as “external variables.” Examples of these include networking resources, insurance coverage, and other, hidden financial resources/risks. Since homeownership is sustained by the homeowner’s internal and external resources, a conceptual framework that goes beyond mortgage-market evaluations is necessary.

It should be noted that an important feature of external variables lies in their different functions in the two mortgage stages. During homeownership entry, resources in various aspects of the family’s economic life are converged into the down payment. After homeownership entry, resources are also needed to sustain mortgage payments and other homeownership-related expenses. The two functions are apparently at strain with each other as they compete for limited financial resources, and the strain might be intensified during times of economic recession when home equity appreciation stops. The strain will also have racial implications if racial groups have different patterns of allocating resources between homeownership entry and sustainability, as discussed in more detail below.

#### **Liquid Assets**

For three reasons, this study uses liquid assets as a key external variable to model Black–White inequality in homeownership sustainability. First, liquid assets fit the nature of external resources. Although barriers to homeownership entry are viewed as a contributor to the racial wealth gap, the reverse causal link—the impacts of wealth on homeownership, receives little more attention than accumulated wealth being a condition in securing the down payment. While some studies do consider the role of total wealth in retaining ownership status (Boehm & Schlottmann, 2004, 2009; Haurin & Rosenthal, 2004, 2005), these models treat housing tenure transition as one single process without differentiating dynamics before and after homeownership entry—that is, more wealth is simply better, be it for obtaining homeownership or retaining it. The overlooked perspective is the nature of mortgage entry as a process of assets transformation, which brings about two conditions that elevate the importance of liquid assets in sustaining ownership status. On the one hand, liquid assets are drawn down as they are turned into home equity. On the other hand, new financial

obligations are created (e.g., repayments and maintenance costs), which tend to entail more liquid resources.<sup>3</sup> The simultaneously engendered increase in demand and decrease in availability, to the extent that these effects are not rationalized into mortgage terms, could make the possession of liquid assets a crucial factor in determining homeownership outcomes, particularly during times of economic stress.

In addition to its direct effects, liquid wealth is chosen as the pillar of the new framework because of its function to proxy for other ownership-strengthening/undermining variables, either external or internal to the mortgage market. Externally, liquid wealth helps weather negative impacts of shock events (e.g., divorce and job loss), which are found to undermine people’s ability to sustain ownership status (Haurin & Rosenthal, 2004; Sharp & Hall, 2014). The availability of liquid assets also captures the financial benefits of social programs, which are found to strengthen homeownership (Berger et al., 2015). Internally, liquid wealth is correlated with many socioeconomic factors that are incorporated into mortgage terms, but it measures the remaining resources after the process of assets transformation during homeownership entry. In other words, what distinguishes those who successfully sustain homeownership might not be their internal characteristics (e.g., income), as suggested by previous findings (Boehm & Schlottmann, 2004, 2009; Dieleman et al., 1995; Sharp & Hall, 2014), but their ample liquid resources that are associated with these internal characteristics. Thus, since liquid wealth serves as a good indicator for a home-owning family’s overall financial security, it could save researchers from constructing a comprehensive model that takes into account opportunities/risks in every aspect of their economic life, which is difficult if not impossible.

Finally, liquid assets carry particular importance when it comes to Black–White inequality in homeownership sustainability. First, African-American families have lower possession of liquid wealth than White families (Haveman & Wolff, 2005). As of 2011, African Americans on average held a median liquid wealth of \$200, compared to \$23,000 held by Whites, translating to an astonishing ratio of 1 to 115 (Tippett et al., 2014). Second, home equity accounts for a larger share of the total wealth for African-American families than for Whites. As of 2011, home equity accounted for 92 percent of the net worth for an average Black homeowner, compared to 58 percent for an average White homeowner (Tippett et al., 2014). Third, liquidity-constrained families are found to be more likely to draw down home equity to weather financial shocks and keep up with consumption needs (Hurst & Stafford, 2005), which increases the risk of exit. All these considered, the transformation from nonhousing assets to home equity, in the context of stunning racial disparities in liquid wealth, could place African-American homeowners at vulnerable positions during times of economic recession.

### **Empirical Studies on Racial Inequality in Homeownership Exit**

Apart from its theoretical imperfections, another limitation of mortgage-oriented research on homeownership sustainability lies in the incomplete picture of minority families’ housing challenges. For one thing, with foreclosure being the least desirable way of exiting homeownership, financially

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<sup>3</sup> This is particularly true when it comes to racial inequality, as minority homeowners tend to have limited financial resources, benefit less from tax deductions, and have to deal with unexpected home maintenance costs (Herbert & Belsky, 2008).

stressed mortgage holders are likely to exert all possible options before foreclosure becomes inevitable (Herbert & Belsky, 2008). These include refinancing, mortgage modification, and broker sales to avoid damaging credit records (Fields et al., 2010). Recent studies indicate that African Americans are even more likely than Whites to seek counseling services to avoid foreclosure (Collins et al., 2013). For another thing, financial stress on homeowners goes beyond mortgage repayments, affecting both mortgage holders and non–mortgage holders. Tapping into usually the largest asset of their portfolios, moderate-income homeowners tend to rely on home equity to finance expenditures like college education (Lovenheim, 2011) and health-related expenses (Davidoff, 2010). Thus, when urgent financial needs occur, which are common during times of economic recession (Pilkauskas et al., 2012), the financial pressure on home equity is likely to increase the risk of exit. This mechanism might also deliver race-varying effects due to African-American families' well-known vulnerability during economic downturns (Ren, 2019b).

The few empirical works that went beyond the mortgage market by including both non–mortgage holders and nonforeclosure exit cases can be found in the literature of housing tenure choice. These include Boehm and Schlottmann's two studies (2004, 2009), which analyzed the PSID's longitudinal data and found that minority homeowners were more likely than Whites to exit and were less likely to return to owning. Similar results were confirmed by Hirschl and Rank (2010), who used the PSID to track American families' housing tenure changes throughout their life trajectories and discovered a higher likelihood of homeownership exit among minority households. Using data from the National Longitudinal Studies of Youth, Haurin and Rosenthal (2004) focused on first-time homeowners and found that minority families had shorter lengths of ownership spells than comparable Whites. Besides the studies on housing tenure choice that treat owning and renting as outcomes of the same longitudinal process, recent works begin to specifically focus on homeownership exit. Based on the PSID, Turner and Smith (2009) investigated racial differences in the long-term trend of homeownership exit by breaking their temporal frame into two periods. The results indicate that Black homeowners' higher exit rates could be fully explained for the 1968–1997 period but not for the more recent 1999–2005 period. Similarly, Sharp and Hall (2014) examined the homeownership exit trend over the past four decades and showed that Black homeowners were subject to an increasingly higher likelihood of exit. Berger and colleagues (2015) analyzed the PSID data from 1999 to 2009 and discovered significant effects of social programs on homeownership retention.

While these empirical tests verified the notion that housing discrimination has changed from pure racial exclusion to a system of economic exploitation (Bostic & Lee, 2008; Engel & McCoy, 2016), racial inequality in homeownership exit remains an underexplored field with several important limitations. First, previous efforts paid little attention to housing dynamics during times of economic recession. Three studies partially covered the Great Recession, but none explored the dynamics during this specific period. Two of them (Sharp & Hall, 2014; Berger et al., 2015) concentrated on identifying long-term patterns of homeownership exit, while the other one's focus (Seah et al., 2015) was on comparing the racial gaps in homeownership rate before and after the housing bust, rather than the processes through which homeownership exit takes place.

Moreover, past research primarily relied on the mortgage-oriented framework for model construction. Some treated homeownership entry and exit as two outcomes of the same process (Boehm & Schlottmann, 2004, 2009), without considering the critical impacts of assets

transformation on homeownership sustainability. Even for those that specifically modeled homeownership exit, variables that are external to mortgage assessment are inadequately explored. None of the previous models included liquid assets as a predictor variable. Other underexplored external variables include health insurance coverage<sup>4</sup> and resources embedded in one’s family and social networks.<sup>5</sup>

Finally, previous studies generated limited policy-relevant information. For example, Sharp and Hall (2014) focused on trigger events (e.g., job loss) in modeling homeownership exit. By measuring trigger events as predictor variables, however, the study carries limited policy significance—after all, the odds of adverse life events are not under control by public policies. By contrast, access to liquid assets, which mitigate the impacts of adverse events when they occur, is much easier to be intervened by social programs, and thus can be used as an effective tool to enhance minority homeowners’ economic security.

The empirical part of this study, therefore, aims to put the above-proposed framework to an empirical test, in order to assess its theoretical soundness and generate information for policy intervention. Two hypotheses will be evaluated. First, I hypothesize that homeowners’ external socioeconomic characteristics, particularly liquid assets, played a significant role in mediating the Black–White disparity in homeownership exit<sup>6</sup> during the housing crisis. If this hypothesis is verified, it casts natural doubts on the role of internal variables in homeownership sustainability. That is, I suspect that internal variables’ effects are not independent but caused by their association with external variables—after all, internal socioeconomic characteristics are, in theory, incorporated into mortgage terms. Therefore, the second hypothesis is that the inclusion of external variables significantly weakens internal variables’ explanatory power for Black–White difference in homeownership exit. It should be noted that treating liquid assets as an external variable is not to assert that they are completely irrelevant to mortgage assessment, but to evaluate the degree to which their effects on homeownership sustainability are inadequately rationalized into mortgage terms and inadequately controlled by previous models.

## Data and Methods

The Panel Study of Income Dynamics (PSID) is a longitudinal survey on a nationally representative sample of U.S. families. It was launched in 1968, and follow-up interviews have been conducted ever since. Compared with the data of the Home Mortgage Disclosure Act (HMDA), the PSID not only allows longitudinal observation of participating families’ housing tenure status but supplies a wealth of information on their changing characteristics. For example, HMDA-based studies on mortgage

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<sup>4</sup> Insurance coverage serves as a security against health-related financial shocks, which reduces the pressure on home equity (Davidoff, 2010). Berger and colleagues included health insurance as a predictor variable for homeownership exit, but they did not test its role in explaining racial inequality.

<sup>5</sup> Hilber and Liu (2008) included parental wealth in modeling the cross-sectionally measured overall racial homeownership gap. Hall and Crowder (2011) discovered significant effects of extended-family resources on racial disparity in transition to homeownership, though no analysis was performed on sustainability.

<sup>6</sup> While broadly defined homeownership sustainability implies both the risk of exit and the duration of ownership status, the empirical model tests homeownership exit only, mainly because of this study’s narrow temporal focus on the Great Recession. Please see Haurin and Rosenthal (2004, 2005) for similar studies on homeownership duration.

denial are often criticized for the lack of control for wealth and asset variables<sup>7</sup> (Munnell et al., 1996). The PSID’s longitudinal structure and rich information make it a commonly used dataset for homeownership studies (Dawkins, 2005; Hall & Crowder, 2011; Hirschl & Rank, 2010; Sharp & Hall, 2014; Turner & Smith, 2009). Choosing the PSID, therefore, makes it convenient to compare findings.

### Measurement of Homeownership Exit and the Analytical Sample

Two approaches for measuring homeownership exit can be found in the literature. One treats housing tenure changes between renting and owning as a longitudinal process (Boehm & Schlottmann, 2004, 2009) and cuts a family’s lifetime housing tenure into short spells, typically in one or two years, as analysis units. Tenure transition within each observation window is then explored by either time-fixed (Sharp & Hall, 2014) or time-varying variables (Berger et al., 2015). Despite its strength in identifying general driving forces behind tenure transition, this approach is not adopted due to its mismatches with the framework of this study.

Theoretically, as discussed above, since liquid wealth plays different roles between the renting-to-owning and owning-to-renting transition, it cannot be conceptualized as a consistent predictor for tenure status’ longitudinal switches. Even if the attention is solely limited to the owning-to-renting transition, the interactions between liquid assets and homeownership exit are too complex to be thought of as an independent process that repeats itself in each observation window. For example, for a home-owning household facing mortgage stress, they could either draw on savings directly or liquidate other assets (e.g., retirement accounts). When the mortgage stress is carried to the next observation window, therefore, liquid wealth as a predictor variable could take either a high or low value contingent on the previous decision, but the homeownership outcome would be the same. That said, the conceptual challenge for the longitudinal approach, in the context of this study, lies in the fact that (1) the causal process of homeownership exit often takes more than one short window to complete, and (2) within the short window, it is almost impossible to hypothesize a reliable causal relationship between liquid wealth and tenure transition. Besides conceptual concerns, using repeatedly observed tenure spells as analysis units is in obvious violation with the i.i.d. assumption of linear regression. Past studies tend to handle this by reporting robust standard errors (Berger et al., 2015; Sharp & Hall, 2014). Robust standard errors, however, while raising the bar for accepting significant coefficients, do not correct model misspecification (Fomby & Murfin, 2005). That is, robust standard errors help validate a mis-specified model only if the model is justified by strong theoretical reasons, which is apparently not the case for this study.

Based on both conceptual and methodological considerations, I adopt the more practically oriented approach (Haurin & Rosenthal, 2004, 2005; Turner & Smith, 2009)—homeownership exit is measured by tenure change within a single but wide observation window.<sup>8</sup> The choice of this method conveys three advantages over the longitudinal approach. First, by focusing on

<sup>7</sup> Recent empirical tests based on more specialized surveys show that race plays a significant role in mortgage lending decisions even after wealth and asset variables are controlled (Munnell et al., 1996).

<sup>8</sup> Haurin and Rosenthal (2004, 2005) define an observation window as a completed housing tenure spell, which begins at the time of homeownership entry and ends at the time of exit. Turner and Smith (2009) employ a six-year fixed window to observe whether or not homeownership exit occurs.

homeownership exit from 2007 to 2013, which coincides with the course of the housing crisis,<sup>9</sup> this study is able to explore specific dynamics during times of economic recession, which not only matches the framework’s focus on liquid assets but generates valuable information for policymaking. Second, the six-year window is wide enough to allow the homeownership outcome to be observed, avoiding modeling extremely complicated household decisions during the process of handling financial stress. Third, unlike the longitudinal approach that relies on complex interactions over time to explain housing tenure transition, this study employs a simple predictive model that uses beginning-of-period characteristics to predict end-of-period outcomes. Given the wide availability of cross-sectional data, therefore, the findings can be easily turned into policy-relevant information for constructing at-risk factors associated with homeownership exit (Haurin & Rosenthal, 2004, 2005).

Three PSID intervals (2007–2009, 2009–2011, 2011–2013) are combined into a single observation window, and homeownership exit is conceptualized as a process that operates throughout the 2007–2013 period. Accordingly, the model addresses a specific question: “What types of home-owning families are more likely than others to successfully sustain ownership status during the housing crisis?” At the beginning of the 2007–2013 window, the PSID sample included 4,325 home-owning families<sup>10</sup> with either non-Hispanic Black or non-Hispanic White heads (1,130 Black and 3,195 White). After eliminating missing cases due to attrition (4,325 to 3,353) and cases with missing values on explanatory variables (3,353 to 3,173), the final analytical sample contains 3,173 families<sup>11,12</sup> (808 Black and 2,365 White).

## Variables

The logistic regression<sup>13</sup> is employed for the multivariate analysis. The dependent variable is defined as homeownership exit during the 2007–2013 period. The variable is coded “1” if the family’s tenure

<sup>9</sup> PSID surveys collect the information of the year before. So, the 2007–2013 period reflects an observation window from 2006 to 2012. The national mortgage delinquency rate started to ascend in 2006 and showed no sign of decline until the end of 2012 (Board of Governors of the Federal Reserve System, 2018).

<sup>10</sup> Prior research on racial wealth gaps sometimes treats the omission of renters as a sample selection bias (Flippen, 2001). When it comes to homeownership sustainability, however, taking renters into account faces difficulty in interpreting results—if renters are considered part of the sample, the findings (on homeownership sustainability) should apply to renters as well, which makes little intuitive sense. For that reason, this study deems the renting-to-owning transition as a separate process and strictly focuses on homeowners as the target population.

<sup>11</sup> Potential resampling biases are examined, and the results indicate that the final sample is representative of the original sample (Appendix A).

<sup>12</sup> Black homeowners account for 25.5% of the sample, far exceeding their representation in the general population. The PSID purposely oversamples African Americans to improve the analytical reliability on issues where Black representation is low (Wilson et al., 2015). So, it is a common practice to not apply weights in race-oriented homeownership research (Berger et al., 2015; Boehm & Schlottmann, 2004, 2009; Hall & Crowder, 2011; Sharp & Hall, 2014), which is also the choice made for this study.

<sup>13</sup> Another option is to apply a survival model, which explores the variation (by two-year intervals) in homeownership duration. However, since this study’s conceptual framework requires (1) a focus on the housing crisis (six-year limited window) and (2) a conceptualization of liquid assets as a time-fixed variable, a survival model will not materialize its major strength—the ability to explore longer-term processes with time-varying predictors, but lose the benefits associated with the logistic regression (e.g., compatibility with the conceptual framework, policy convenience, and the ability to assess predictor variables’ mediating effects).

status changed from “owning” to “not-owning” and “0” if it remained “owning” in both 2007 and 2013.<sup>14</sup> All explanatory variables are measured in their 2007 values.<sup>15</sup> A dichotomous variable is created to indicate the racial identity of the family head, with “1” standing for non-Hispanic Black and “0” standing for non-Hispanic White. Three demographic variables are used to measure life-cycle stages. These are the family head’s age, gender, and number of children. The quadratic term of age is added to capture its nonlinear effects on housing outcomes.<sup>16</sup> Following the routine, family income is added as a numerical variable, and education is measured by the number of years of schooling. Employment status is measured by three binary variables indicating whether the head was working, not working, or retired.<sup>17</sup> Since African Americans are subject to higher incidences of illness (Williams & Jackson, 2005), which might bring extra financial stress, health insurance coverage is added as a dummy variable (1 = no). Also, the growing-up family background is used as a proxy for the availability of resources embedded in family and social networks. The variable takes three levels: relatively poor, average, and relatively well off.

Based on the PSID’s detailed information on a variety of financial assets, two variables are created to capture the home-owning family’s portfolio characteristics. Liquid wealth is calculated by aggregating the total values of bank accounts,<sup>18</sup> shares of stock, mutual funds, investment trusts, bond funds, the cash value in life insurance policies, and other valuable collections. The variable is measured ordinally<sup>19</sup> with nine levels corresponding to the nine equal intervals of the sample distribution. The family’s net nonliquid and non-home equity wealth is calculated by summing up the total values of farm/business, other real estates, annuities, vehicles, and other nonliquid assets, minus total debts. The variable is measured by a nine-level ordinal variable in the same manner as the liquid wealth variable. The coefficients of these two ordinally measured wealth variables can be

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<sup>14</sup> The sample includes 84 (<3%) families who exited ownership in intermediate years (2009 and 2011) but returned to “owning” in 2013. These cases with only intermediate tenure changes are considered as “not exiting homeownership” during the study period. Also, excluding them from the sample does not lead to any change in major findings.

<sup>15</sup> When the dependent variable is measured as a change during a PSID interval, explanatory variables should be measured in their beginning-of-period values to avoid endogeneity. For example, Sharp and Hall’s (2014) study regressed housing tenure change during one PSID window on the changes of a set of predictor variables (e.g., divorce) during the same window, which creates a simultaneous causality problem, as it is impossible to determine whether divorce causes tenure change or divorce occurs as a result of it.

<sup>16</sup> Prior research shows that older families tend to exhibit a higher likelihood of maintaining ownership but the positive effects of age on sustaining homeownership decline once passing retirement age (Painter & Lee, 2009).

<sup>17</sup> An age restriction is not applied on the sample because doing so runs the risk of underappreciating elderly homeowners’ financial stress (Danziger et al., 2013). Instead of implementing an arbitrary threshold age, all cases are retained but with the family head’s labor-market status specified. Plus, I reestimated the model with different scenarios of age-restricted samples. The findings are consistent with each other (Appendix B).

<sup>18</sup> It includes the money in checking or savings accounts, money market funds, certificates of deposit, government savings bonds, and treasury bills.

<sup>19</sup> This measuring strategy minimizes the influence of outlier cases by the PSID’s self-reported data (Rohe et al., 2002) while retaining maximum information. I also tried log-transforming the asset variables, though it caused a substantial sample reduction (3,117 to 2,326) due to the eliminated cases with zero/negative wealth. The two versions of findings are nevertheless consistent with each other. Detailed results are available upon request.

interpreted as “the change in the odds of homeownership exit with one unit ascendance on the nine-rung wealth ladder.”

For two reasons, it is deemed unnecessary to as comprehensively control for mortgage characteristics as previous mortgage-oriented studies: (1) Due to the substantial portion of non-mortgage-holding families in the sample,<sup>20</sup> the number of mortgage variables must be limited to avoid multicollinearity; (2) Consistent with the conceptual framework, I trust the market’s ability to rationalize socioeconomic factors and test only those mechanisms with well-documented racial biases involved. Three mortgage-related variables are created. Loan-to-value (LTV) is calculated by the outstanding loan divided by the house value. LTV serves as a proxy for many unobserved variables that contribute to racial homeownership disparity, especially Black homeowners’ slow equity accumulation due to discriminatory market practices and residential segregation (Krivo & Kaufman, 2004). The other two variables are the length of homeownership and whether or not exit occurred in the past. The former captures the recent trend of subprime lending (Herbert & Belsky, 2008)—those who obtained mortgage more recently during the subprime boom might have a higher risk of exit, and the latter indicates the homeowner’s credit history and other unmeasured attributes. Finally, regional geographic variables are added to control for regional differences in housing dynamics.<sup>21</sup>

The explanatory variables can be conceptualized into three categories: homeowner characteristics that are internal to mortgage-market evaluations (e.g., income and education), homeowner characteristics that are external to mortgage-market evaluations (e.g., liquid wealth), and mortgage characteristics. To the extent that the effects of liquid assets on homeownership sustainability are not rationalized into mortgage terms, I expect to see them play a significant role in mediating Black–White inequality in homeownership exit.

The mediating effects of explanatory variables will be evaluated through a series of nested logistic regression models—newly added variables’ mediating effects are captured by the changes in the race coefficient. This conventional approach has been employed by numerous studies, but its validity is facing increasing challenges (Mood, 2010). Unlike models with a continuous dependent variable whose total variance does not change as new independent variables are added, the logistic regression has constant residual variance. Consequently, as new variables are added, the total variance of the logistic regression gets rescaled, making it problematic to compare coefficients/odds ratios across nested models (Williams, 2011). Fortunately, several approaches have been developed to address the problem. This study adopts the Karlson/Holm/Breen (KHB) method,<sup>22</sup> which can isolate the part of coefficient/odds ratio changes caused by additional explanatory variables from the part caused by rescaling.

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<sup>20</sup> About 24 percent of the homeowners in the sample were not holding a mortgage.

<sup>21</sup> This is not an ideal measurement, as housing markets do not operate regionally but within each metropolitan area. Unfortunately, the PSID’s public-access data do not contain metro-specific locational information. Given this study’s focus on nonspatial analyses, the rough measure of geographic controls can be tolerated.

<sup>22</sup> For a detailed discussion on the KHB method and other solutions, please see Karlson, Holm, and Breen (2012) and Williams (2011).

## Results

### Descriptive Statistics

Table 1 displays descriptive statistics for the pooled sample, alongside the two subsamples by race. The data demonstrate a substantial Black–White gap in homeownership exit rate. During the 2007–2013 period, about 17.7% of Black homeowners exited ownership status, nearly doubling White homeowners’ exit rate of 9.6%. There are also racial differences in explanatory variables. On average, Black homeowners are more likely to be unemployed, to live in female-headed households with more children, and to have no health insurance coverage, while White homeowners tend to be older in age, have more education and income, and grow up in relatively wealthier families.

**Table 1.** Descriptive Statistics for Variables Used in the Analysis of Black–White Gap in Homeownership Exit: Panel Study of Income Dynamics, 2007–2013

	Pooled Sample Percent/Mean (SD)	Black Percent/Mean (SD)	White Percent/Mean (SD)
Homeownership Exit	11.6%	17.7%	9.6%
Race (1 = Black)	25.5%		
Demographics			
Age	49.3 (14.3)	47.8 (12.6)	49.8 (14.8)
Female-headed family (1 = Yes)	19.0%	36.7%	13.0%
Number of children	0.77 (1.09)	0.91 (1.13)	0.72 (1.07)
Socioeconomics			
Employed (1 = Yes)	78.6%	74.1%	80.0%
Not working (1 = Yes)	7.4%	14.7%	4.9%
Retirement (1 = Yes)	14.1%	11.1%	15.1%
Years of schooling	13.62 (2.31)	12.76 (2.26)	13.91 (2.25)
Annual family income	90,495 (94,158)	59,891 (44,044)	100,950 (103,944)
Health insurance coverage (1 = no)	3.2%	5.8%	2.4%
Family economic background (1 = poor)	36.4%	48.0%	32.4%
Family economic background (1 = average)	47.7%	35.7%	51.9%
Family economic background (1 = well off)	15.9%	16.3%	15.7%
Assets			
Total liquid assets (\$)	107,465 (521,338)	19,608 (80,618)	137,482 (599,110)
Total nonliquid assets net of debts (\$)	216,661 (1,333,857)	51,885 (200,961)	272,956 (1,536,570)
Mortgage			
Loan-to-value ratio	0.44 (0.35)	0.48 (0.37)	0.43 (0.34)
Length of Homeownership	17.55 (11.97)	13.61 (10.06)	18.89 (12.28)
Previous Exit (1 = Yes)	23.1%	26.0%	22.1%
Region			
Northeast	14.7%	6.6%	17.5%
Northcentral	28.2%	13.6%	33.2%
South	41.6%	75.5%	30.0%
West	15.2%	4.3%	18.9%
Number of respondents	3,173	808	2365

*Note:* All variables, except for homeownership exit, are measured in 2007 values.

The most noticeable difference between the Black and White subsamples lies in financial portfolio characteristics. On average, the net value of nonliquid and non–home-equity assets of White homeowners is more than five times that of Black homeowners (\$272,956 vs \$51,885). When it comes to liquid assets, the average total value for White homeowners is about seven times that of Black homeowners (\$137,482 vs \$19,608). Black homeowners also tend to have a shorter length of ownership status, are subject to a higher loan-to-value ratio, and are more likely to have previous exit experience. To summarize, a large Black–White gap exists in homeownership exit, so do extensive racial differences. The remaining question is to what extent the homeownership exit gap can be explained by these observed racial differences.

### Mediating Effects<sup>23</sup>

The logistic regression analysis proceeds in a step-wise manner. As shown in Table 2, the six nested models are corresponding to six blocks of explanatory variables. Liquid wealth is intentionally added the last to assess its independent effects on closing the racial gap. To address the rescaling issue when comparing odds ratios across models, the KHB method is employed, the results of which are reported in the lower section of Table 2. Specifically, for each model, the KHB method breaks the total variance explained by the race variable into two parts: the direct effect, which stands for the variance explained by race independently, and the indirect effect, which stands for the variance explained by race through other variables in the model. Therefore, the net effects of race on homeownership exit (the direct effects) can be identified despite the obvious rescaling in the race coefficient (total variance explained) across nested models.

Model 1 considers race only. As the model shows, the race variable has an odds ratio of 2.04 and is statistically significant at the .001 level, which can be interpreted to indicate that Black homeowners are 2.04 times as likely, or 1.04 times more likely, to exit homeownership as White homeowners. Demographic controls are added to Model 2. Unsurprisingly, exit is more likely to occur among younger and female-headed families. After controlling for demographics, the odds ratio on race drops from 2.04 to 1.82, indicating that Black homeowners' higher exit rates can be partially explained by their demographic and family characteristics. The mediating effects of demographic variables on the racial gap are also confirmed by the KHB results. As reported in the table, the total effects of race are broken into a direct effect of 0.60 and an indirect effect of 0.15, which means that race remains a significant predictor for homeownership exit.

Model 3 further includes homeowners' socioeconomic characteristics that are typically part of mortgage-market evaluations. Among these variables, income and total nonliquid assets are significantly associated with the odds of exit. Families with employed or more educated heads also exhibit a reduced likelihood of exit, though the effects are not strong enough to pass significance tests. The addition of internal socioeconomic variables leads to a substantial drop in the odds ratio on the variable of female-headed family, indicating that the impacts of family structure on homeownership exit are partially realized through the possession of economic resources. At this stage, the racial gap further narrows but remains significant. As the KHB results show, the direct effect of race decreases as a response to the increase in the indirect effect, but both remain

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<sup>23</sup> All analyses of this study are performed using Stata 13. All data sets, syntax, and detailed Stata outputs are available upon request.

**Table 2.** Logistic Regression Results of Homeownership Exit: Panel Study of Income Dynamics, 2007–2013

	Model 1 Odds ratio (SE)	Model 2 Odds ratio (SE)	Model 3 Odds ratio (SE)	Model 4 Odds ratio (SE)	Model 5 Odds ratio (SE)	Model 6 Odds ratio (SE)
Race (1 = Black)	2.04***(0.24)	1.82***(0.23)	1.46** (0.19)	1.38* (0.21)	1.36* (0.20)	1.27 (0.19)
Demographics						
Age		0.82***(0.02)	0.84***(0.02)	0.83***(0.02)	0.83***(0.02)	0.82***(0.02)
Age square		1.01***(0.01)	1.01***(0.01)	1.01***(0.01)	1.01***(0.01)	1.01***(0.01)
Female-headed family (1 = Yes)		1.98*** (0.27)	1.55** (0.23)	1.53** (0.23)	1.56** (0.23)	1.53** (0.23)
Number of children		1.11+ (0.06)	1.09+ (0.06)	1.09 (0.06)	1.11+ (0.06)	1.10+ (0.06)
Socioeconomics						
Years of schooling			0.96 (0.03)	0.95+ (0.03)	0.96 (0.03)	0.98 (0.03)
Family income (\$1,000 per unit change)			0.99** (0.01)	0.99* (0.01)	0.99* (0.01)	0.99 (0.01)
Total nonliquid assets			0.91*** (0.02)	0.93* (0.03)	0.93* (0.03)	0.96+ (0.03)
Employed (1 = Yes)			0.86 (0.17)	0.91 (0.19)	0.94 (0.20)	0.96 (0.20)
Retired (1 = Yes)			0.59+ (0.17)	0.67 (0.20)	0.70 (0.21)	0.75 (0.22)
Not working (1 = Yes) (omitted)						
Mortgage & Location						
Loan-to-value ratio				1.37+ (0.26)	1.42+ (0.27)	1.37+ (0.26)
Length of ownership				0.96*** (0.01)	0.95*** (0.01)	0.96*** (0.01)
Previous exit (1 = Yes)				2.27*** (0.32)	2.24*** (0.32)	2.19*** (0.31)
Northcentral				1.13 (0.24)	1.08 (0.23)	1.08 (0.23)
South				1.06 (0.22)	1.03 (0.21)	1.01 (0.21)
West				1.60* (0.37)	1.56+ (0.36)	1.57+ (0.36)
Northeast (omitted)						
External variables						
Health insurance (1 = no)					1.95** (0.50)	1.82* (0.46)
Growing-up background					0.87 (0.07)	0.87 (0.08)
Total liquid assets						0.87** (0.03)
Number of Observations	3173	3173	3173	3173	3173	3173
LR Chi-Square	35.93***	186.43***	227.96***	300.39***	309.23***	318.26***
Degree of freedom	1	5	10	16	18	19
Pseudo R2	0.02	0.08	0.10	0.13	0.14	0.14
KHB						
Total variance by race	2.04***(0.24)	0.75***(0.12)	0.84***(0.12)	0.90***(0.13)	0.90***(0.13)	0.90***(0.13)
Direct effect by race	N/A	0.60***(0.13)	0.38** (0.13)	0.33* (0.15)	0.31* (0.15)	0.24 (0.15)
Indirect effect by race	N/A	0.15** (0.05)	0.46*** (0.08)	0.58*** (0.10)	0.59*** (0.10)	0.66*** (0.11)

Note: + stands for "P<0.1," \* stands for "P<0.05," \*\* stands for P<.01," \*\*\* stands for "P<.001" (two-tailed tests)

significant. Model 4 is featured by mortgage variables, and their significant odds ratios prove that the discriminatory practices during homeownership entry affect homeownership exit as well. After controlling for all important variables that are internal to mortgage-market evaluations, Model 4 can be seen as a complete model based on the mortgage-oriented framework. Like previous models of the kind, Model 4 significantly reduces the effects of race but does not eliminate it — a further shift between the direct and indirect effects of the race variable is observed, but the independent effect of race on homeownership exit remains significant.

Finally, the three external variables are tested in Model 5 and Model 6. While health-insurance coverage and growing-up background incrementally reduce the effects of race (Model 5), the real change occurs when liquid wealth is included in Model 6. As confirmed by both the logistical regression and the KHB method, statistically significant Black–White difference in homeownership exit can no longer be detected after controlling for liquid wealth. Moreover, the inclusion of liquid wealth renders the odds ratios for all internal socioeconomic variables nonsignificant, including income and nonliquid assets. This is strong evidence that, when it comes homeownership sustainability, these traditionally important predictors serve as proxies for liquid financial resources.

### **A Parsimonious Model for Black–White Inequality**

The nested models generate two important findings: (1) Liquid wealth plays a key role in mediating the Black–White gap in homeownership exit; (2) liquid wealth, as an external variable, serves as a more efficient predictor for homeownership outcomes than traditional variables that are internal to mortgage evaluations. To further assess the relative role of internal and external variables in predicting racial inequality in homeownership exit, a parsimonious model is constructed in which nonsignificant predictors are systematically removed. Toward that goal, I rerun the nested models in a backward manner, eliminating explanatory variables as long as significant racial difference does not reappear. Findings are summarized in Table 3.

I begin by dropping the internal socioeconomic variables and locational variables that fail to exhibit significant effects. As expected, the elimination of them does not result in any significant change in the odds ratio on race (Model 6 and Model 7). The elimination of demographic variables leads to the same result (Model 8), indicating that demographic characteristics, despite their significant impacts on homeownership exit in general, do not affect Black and White families differently. For the remaining six variables that capture the effects of mortgage and external socioeconomic characteristics, I experiment with all possible scenarios by adding and dropping each combination of them.<sup>24</sup> This results in Model 9, which includes liquid wealth and length of ownership status as the only two explanatory variables—dropping any one of them will lead to the reappearance of significant racial effects on homeownership exit.

Model 9 can be seen as a parsimonious model specifically for explaining the Black–White disparity in homeownership exit. Apart from the length of ownership status, which captures the effects of the recent trend of subprime lending, liquid wealth is the only significant factor in determining differential exit rates between Black and White homeowners. The robustness of this finding is reinforced by the KHB results of the nine nested models. Moving through the first 6 models (Table 2), it is clear that the direct effect of race decreases and the indirect effect increases whenever a new group of explanatory variables are added. Moving from Model 6 to Model 9, however, the step-by-step elimination of these same explanatory variables does not cause any significant change in either the direct or indirect effect of race. The key factor here is liquid wealth. Once it is controlled in the model, the presence or absence of other variables, with the exception of homeownership length, becomes nonsignificant, indicating that these variables affect the Black–White difference in exit rates through their associations with liquid wealth.

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<sup>24</sup> The detailed results are available upon request.

**Table 3.** Logistic Regression Results of Homeownership Exit (Backward Selection), Panel Study of Income Dynamics, 2007–2013

	Model 6	Model 7	Model 8	Model 9
	Odds ratio (SE)	Odds ratio (SE)	Odds ratio (SE)	Odds ratio (SE)
Race (1 = Black)	1.27 (0.19)	1.21 (0.17)	1.18 (0.15)	1.22 (0.15)
Demographics				
Age	0.82***(0.02)	0.82***(0.01)		
Age square	1.01***(0.01)	1.01***(0.01)		
Female-headed family (1 = Yes)	1.53** (0.23)	1.67** (0.24)		
Number of children	1.10+ (0.06)	1.10+ (0.06)		
Socioeconomics				
Years of schooling	0.98 (0.03)			
Family income (\$1,000 per unit change)	0.99 (0.01)			
Total nonliquid assets	0.96+ (0.03)			
Employed (1 = Yes)	0.96 (0.20)			
Retired (1 = Yes)	0.75 (0.22)			
Not working (1 = Yes) (omitted)				
Mortgage & Location				
Loan-to-value ratio	1.37+ (0.26)	1.35+ (0.25)	1.25 (0.22)	
Length of ownership	0.96***(0.01)	0.95***(0.01)	0.96***(0.01)	0.96***(0.01)
Previous exit (1 = Yes)	2.19***(0.31)	2.27***(0.32)	1.69***(0.22)	
Northcentral	1.08 (0.23)			
South	1.01 (0.21)			
West	1.57+ (0.36)			
Northeast (omitted)				
External factors				
Health insurance (1 = no)	1.82* (0.46)	1.93** (0.49)	1.73* (0.42)	
Growing-up background	0.87 (0.08)	0.86+ (0.07)	0.88 (0.07)	
Total liquid assets	0.87** (0.03)	0.88*** (0.02)	0.85*** (0.02)	0.83*** (0.02)
Number of Observations	3173	3173	3173	3173
LR Chi-Square	318.26***	304.60***	202.85***	178.32***
Degree of freedom	19	11	7	3
Pseudo R2	0.14	0.13	0.09	0.08
KHB				
Total variance by race	0.90***(0.13)	0.86***(0.12)	0.84***(0.12)	0.83***(0.12)
Direct effect by race	0.24 (0.15)	0.19 (0.14)	0.17 (0.13)	0.20 (0.13)
Indirect effect by race	0.66***(0.11)	0.67*** (0.08)	0.67***(0.07)	0.63***(0.07)

Note: + stands for "P<0.1", \* stands for "P<0.05", \*\* stands for "P<.01", \*\*\* stands for "P<.001" (two-tailed tests)

## Conclusion and Discussion

This study investigates the differential rates of homeownership exit between Black and White homeowners during the 2007–2013 period, with the purpose of testing a conceptual framework built upon the explanatory power of liquid assets. Consistent with previous findings, a substantial racial gap is found, but the gap is eliminated after liquid wealth is controlled in the model. The inclusion of liquid wealth also renders all mortgage-oriented socioeconomic variables nonsignificant with regard to their explanatory power for Black and White homeowners' differential exit rates. These findings indicate that a switch of attention is needed from mortgage-market dynamics to home-owning families' broad socioeconomic challenges. After all, mortgage-oriented variables cause racially differential outcomes only to the extent that their effects are not rationalized by market mechanisms. Past studies seek to improve Black homeownership, be it entry or sustainability, by targeting discriminatory processes within the housing market, but this direction of efforts is bound to be insufficient when market biases are not the only source of sustainability risks facing Black homeowners. As suggested by the new framework, racial differences in broad socioeconomic challenges must be taken into account if homeownership is to be sustained as an effective approach to enhancing African-American families' long-term economic well-being. These include, as indicated directly or indirectly by the findings, insurance coverage, saving behavior, access to affordable financial services and public assistance, and other activities that affect the accumulation of liquid assets.

To place the findings in the context of housing inequality theories, homeowners' socioeconomic characteristics that are not directly involved in mortgage-market evaluations can be considered as additions to the microeconomic thesis. As for the stratification thesis, the implication is straightforward—African Americans' broad challenges in nonhousing institutions need to be taken into account in order to better understand how racial disparities are produced in the dual housing market.

In social policy discussions, there has been a long-debated proposal that calls for the transition from income-oriented programs that focus on consumption aid, to asset-oriented policies that encourage saving and investment (Sherraden, 1991, 2005, 2014; Schreiner & Sherraden, 2007). This proposal is supported by the findings of this study. Being widely perceived as a desirable investment, homeownership had rarely been considered as consumption goods until the recent housing crisis exposed the exploitive nature of the mortgage market. If the word *consumption* is used loosely and *homeownership retaining* is defined as sustained consumption of the mortgage loan, then homeownership sustainability will be determined by a competition for the home-owning family's limited financial resources between mortgage consumption and alternative allocations such as insurance coverage and education. If mortgage consumption wins, that should satisfy the purpose of the market but apparently not the purpose of public policy. For that reason, the validity and efficiency of income assistance programs have become increasingly questionable in comparison with social insurance and asset-building programs that highlight security and investment (McKernan & Sherraden, 2008), especially in the context of a consumption-dominated society like the United States (Cohen, 2004; Frank, 1985).

When it comes to the persistent Black–White homeownership gap, two general directions of policy intervention can be inferred from this study. If homeownership is still considered as a preferable

type of housing tenure, given its enormous economic and social benefits within the existing socioeconomic system (Dawkins, 2006; Sampson, 2002), policy interventions should focus on removing racial barriers to acquiring and retaining liquid assets. This is particularly important when increasing evidence suggests that minority and immigrant families’ lack of accumulated financial resources constitutes a major challenge to sustained progress toward an “ownership society” (Clark, 2019). If racism and market exploitation are considered too institutionalized to go away in the foreseeable future, more radical policies that bypass market mechanisms might be worth a discussion. One example of such initiatives, on top of frequently discussed policy changes like single-payer health care and social security expansion, is the concept of “baby bond” accounts,<sup>25</sup> which operate by providing all newborns seed funding. The account can be accessed when the child reaches adulthood and the money can be used to finance asset-enhancing events such as higher education, business investment, and mortgage-related expenses. The advantage of these class-based policies is that they help close the racial gap without making race explicit, which is becoming increasingly relevant in the current social-political climate of the U.S. society (Darity & Hamilton, 2012).

To be sure, it is relatively easy to have big policy ideas but a much larger challenge to put them in place. In this regard, Sherraden (1991) first proposed universal accounts at birth and has led an experimental policy test of Child Development Accounts (CDAs). This research has demonstrated feasibility of a universal and progressive CDA policy, which can also be potentially lifelong (Sherraden et al., 2015). Informed by results of this test, seven U.S. states have now adopted universal child accounts, often with local community engagement (Clancy et al., 2019). Thus, a secure and sustainable CDA policy infrastructure is gradually being put in place that can include all children, provide a mechanism for progressive funding, and redress historical inequalities should policy move in this direction. CDA policy research is making proposals for “baby bonds” and other CDA variations more politically and practically achievable.

Several caveats must be emphasized to avoid overinterpretation. First, the role of liquid assets in eliminating the Black–White gap in homeownership exit is contingent on controlling for within-market discriminatory practices. That is, asset-building strategies might make African-American homeownership as sustainable as that of Whites only if racial inequality in mortgage evaluation is achieved. This assumption, of course, cannot be further from the truth. Second, the time frame of this study only covers the housing crisis; thus, it is unknown whether the findings are unique to this period of severe economic hardship or they indicate an upcoming trend. This question remains to be explored by future studies as more recent data become available. Third, Black–White economic inequality is contributed by various forms of institutionalized racial biases, the subtle and tremendous impacts of which go far beyond the scope of this study. If the racially segregated residential patterns remain unchanged, for example, the enormous wealth gap will likely continue to exist, whether Black homeowners can sustain their homes or not. Finally, while this study solely focuses on the Black–White homeownership gap, Hispanic/Latino families exhibit very similar patterns of inequality with Whites in terms of both portfolio characteristics and homeownership outcomes. According to recent statistics (Tippett et al., 2014), Hispanic/Latino Americans on average faced a ratio of 1 to 68 in liquid wealth, and a median Hispanic/Latino homeowner lost 56%

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<sup>25</sup> For a detailed discussion of the “baby bond” proposal, please see Hamilton and Darity (2010).

of home equity during the housing crisis, which is the highest among all racial/ethnic groups (32% for Whites and 36% for African Americans). The rising significance of intergenerational wealth transfers in homeownership obtainment/sustainment also adds to the disproportional stress of new immigrant families (Clark, 2019). One major direction of future research, therefore, points to the specific financial challenges facing Hispanic/Latino and other immigration-oriented groups, particularly in the context of the United States moving toward a multiethnic society.

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**Appendix A**  
**Results for Sample Representativeness Evaluation:**  
**Panel Study of Income Dynamics, 2007–2013**

		Black	White		Black	White	
		Percentage			Mean (SE)		
% Black	Before	26.1%		Ave Age	Before	48.5 (0.41)	50.2 (0.28)
	After	25.5%			After	47.8 (0.44)	49.8 (0.30)
% Single-adult family	Before	45.5%	22.3%*	Ave # of children	Before	0.93 (0.03)	0.72 (0.02)
	After	45.1%	20.1%*		After	0.91 (0.04)	0.72 (0.02)
% Employed	Before	73.5%	76.8%***	Ave years of schooling	Before	12.6 (0.07)	13.8 (0.04)
	After	74.1%	80.1%***		After	12.8 (0.08)	13.9 (0.05)
% Retired	Before	12.3%	17.1%*	Ave income	Before	\$59,296 (\$1,313)	\$97,932 (\$2,044)
	After	11.1%	15.1%*		After	\$59,892 (\$1,549)	\$100,950 (\$2,137)
% W/O Insurance	Before	6.0%	3.0%	Ave liquid wealth	Before	\$19,083 (\$2,256)	\$128,922 (\$9,814)
	After	6.0%	3.0%		After	\$19,609 (\$2,836)	\$137,482 (\$12,319)
% Rich family background	Before	16.3%	16.6%	Ave nonliquid wealth	Before	\$51,115 (\$6,667)	\$247,189 (\$24,200)
	After	16.3%	15.7%		After	\$51,885 (\$7,070)	\$272,957 (\$31,596)
% Poor family background	Before	48.3%	32.3%	Ave loan-to-value ratio	Before	0.48 (0.01)	0.43 (0.01)
	After	48.0%	32.4%		After	0.48 (0.01)	0.43 (0.01)
% W/previous exit	Before	25.0%	21.1%	Ave length of homeownership	Before	13.4 (0.31)	18.4 (0.22)
	After	26.0%	22.1%		After	13.6 (0.35)	18.9 (0.25)

*Note: + stands for "P<0.1", \* stands for "P<0.05", \*\* stands for "P<.01", \*\*\* stands for "P<.001" (two-tailed tests).*

Note: The degree to which the final sample (after the attribution) is representative of the original sample is evaluated on explanatory variables. The left side of the table contains the results of Pearson's Chi-Square test for categorical variables, and the right side of the table contains the results of two-sample T-test for numerical variables. As shown in the table, there is no significant resampling bias for the Black sample on all explanatory variables. That is mostly true for the White sample as well except that slightly fewer single-adult families and more families with employed heads are present in the final sample after the attribution.

**Appendix B**  
**Results Based on Age-Restricted Samples:**  
**Panel Study of Income Dynamics, 2007–2013**

	Model 6 Odds ratio (SE)	Model 6A Odds ratio (SE)	Model 6B Odds ratio (SE)	Model 6C Odds ratio (SE)	Model 6D Odds ratio (SE)
Race (1 = Black)	1.27 (0.19)	1.46* (0.23)	1.47* (0.23)	1.54* (0.28)	1.67* (0.39)
Family income	0.99 (0.01)	0.99 (0.01)	0.99 (0.01)	0.99 (0.01)	1.00 (0.01)
Years of schooling	0.98 (0.03)	0.98 (0.03)	0.98 (0.03)	0.92 (0.04)	0.93 (0.05)
Health insurance (1 = no)	1.81* (0.46)	1.87* (0.48)	1.89* (0.49)	2.52** (0.77)	2.70* (1.07)
Total liquid assets	0.87** (0.03)	0.89** (0.03)	0.89** (0.03)	0.92* (0.04)	0.88* (0.04)
Sample age restriction	none	≤70	≤60	≤50	≤40
Number of observations	3173	2911	2535	1704	928
LR Chi-Square	318.26***	310.74***	257.92***	202.00***	111.68***
Degree of freedom	19	19	19	19	19
Pseudo R2	0.14	0.15	0.13	0.14	0.12

Note1: + stands for "P<0.1", \* stands for "P<0.05", \*\* stands for "P<.01", \*\*\* stands for "P<.001" (two- tailed tests).

Note2: The model specifications are consistently based on those of Model 6. Full results are available upon request.

Note: The final model (Model 6) is reestimated with four age-restricted samples. As reported in the table, as older homeowners are excluded from the sample, the ability of the model to explain Black–White difference in homeownership exit becomes weaker. On the other hand, across all age groups, the explanatory power of external variables (e.g., liquid assets and health insurance) remain consistently significant, while the explanatory power of internal variables (e.g., income and education) remain consistently nonsignificant.

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### Contact Us

**Center for Social Development**  
 Brown School  
 Washington University in St. Louis  
 CB 1196  
 One Brookings Dr.  
 St. Louis, MO 63130

[csd.wustl.edu](http://csd.wustl.edu)