Researching Homeownership Inequalities: A Life-Cycle Perspective

Stephanie Moulton

John Glenn College of Public Affairs, The Ohio State University

Introduction

In 2019, the median Black household in the United States held only one-eighth the wealth of the median White household—\$24,100 in total net wealth, compared with \$188,200 in net wealth for White households (Bhutta et al., 2020). This large racial disparity in wealth has its roots in disparities in homeownership. Housing wealth is the primary source of wealth for many Americans, and Black households own homes at much lower rates than White households. In 2019, only 42 percent of Black households owned a home, compared with 72 percent of White households (McCargo and Choi, 2020)—a 30 percentage point gap in the homeownership rate. This gap has persisted over decades due, in part, to historically racialized policies that locked Black households out of ownership (Rothstein, 2017).

The U.S. Department of Housing and Urban Development's (HUD's) *Learning Objectives* related to homeownership can be a critical opportunity to advance more informed policies. The foundational learning question asks: "How can federal policy make first-time homeownership more available and attainable to all Americans and more likely to result in housing stability and wealth-building for underserved populations?" This is an important question that deserves serious attention. As researchers, however, a well-intended but narrowly conceptualized approach to informing this question can, at the very least, have no impact and, at worst, lead to policies that exacerbate inequities.

While we strive to be objective and unbiased, research is undoubtedly shaped by our perspectives and normative assumptions about the mechanisms underlying a particular relationship (Cancian, 2021). We are further limited by available data and methods to explore a given question. For example, home purchase, credit, and mortgage datasets used to evaluate homeownership outcomes typically lack information on household savings and wealth. Wealth, however, is at the core of all aspects of the homeownership life cycle—from the ability to take out a mortgage to purchase a home, to the ability to maintain a home and make mortgage payments, and ultimately, to be able to pass on housing equity to the next generation. Lack of attention to household savings and wealth may lead to narrow policy solutions that disparately impact racial minorities and other historically marginalized groups.

Researchers must move beyond including race as an indicator variable in regressions to think more systematically about the underlying mechanisms that lead to differences by race (Brown et al., 2019; Darity et al., 2018). Simply observing a significant (or insignificant) coefficient on race in a model predicting loan approvals or loan performance does not advance solutions to close the racial wealth gap. We must think carefully about *why* we observe differences in access to credit. We must move beyond attributing wealth creation with home *buying* to think more holistically about the home *ownership* life cycle.

In this article, I interrogate four specific research topics at different stages in the homeownership life cycle—from mortgage underwriting to post-purchase support, as proposed in the HUD learning objectives. In reviewing each topic, I attempt to broaden the framing to shed light on mechanisms that contribute to observed disparities by race. These mechanisms include institutional practices and processes that may perpetuate inequalities and that could be the focus of targeted interventions for improvement. I also offer caution about potential pitfalls associated with a given topic that should be top of mind for researchers.

Before delving into my perspectives on the research topics, it is important to acknowledge my positionality as a researcher. I am a White, middle-class homeowner who identifies as a woman. I am trained as a policy scholar, which contributes to my pragmatic, problem-oriented methodological approach (Schneider and Ingram, 2003). Homeownership policies, specifically housing finance, are a context where I have worked as a practitioner and researcher. Much of my research uses quantitative or mixed methods—both descriptive and causal—thus, I interpret research topics and questions through that lens. Other scholars with different philosophical perspectives, trained in different methods, and who live and work in different contexts will undoubtedly shed light on other important aspects of the research topics.

Understanding Mechanisms that Contribute to Homeownership Inequalities and the Role of Policy

Algorithmic Underwriting and Equity in Mortgage Lending

Since the 1990s, mortgage approval decisions have largely been driven by automated underwriting models rather than rule-based thresholds (for example, debt-to-income ratios) or loan officer discretion (Foote, Loewenstein, and Willen 2019). On the one hand, computer algorithms may reduce overt racial discrimination in the underwriting process, increasing access to mortgages for previously underserved populations. There is increasing evidence, however, that the inputs to automated underwriting models—particularly credit scores—are biased in ways that disproportionately restrict credit access for historically marginalized groups of consumers (Blattner and Nelson, 2021; Di Maggio, Ratnadiwakara, and Carmichael, 2021).

Understanding the role of automated underwriting in perpetuating inequitable access to mortgage credit is an important research topic to address the racial homeownership gap. It is critical that studies undertaken on this topic explicitly investigate the mechanisms that contribute to variation in disparate predictions by race. For example, Blattner and Nelson (2021) found that credit scores

are less predictive of credit risk for lower-income, Black, or Hispanic mortgage applicants because the historical credit data used to construct credit scores tends to be thinner for these groups. This deficiency results in credit scores that are "nosier" and less accurate—and it contributes to the disproportionately higher rates of mortgage denial for Black mortgage applicants. The mechanism here is a higher probability of having a thin credit file—not higher underlying credit risk.

Research must also move beyond documenting disparate rates of loan approvals to informing solutions. How can underwriting systems be redesigned to accommodate thin credit files? Are there more reliable and less biased indicators on credit reports—such as recent payment history data? What alternative sources of data can be used, such as bank account activity, rental payments, or other indicators of household liquidity? Fintech lenders increasingly rely on these alternative indicators, denying fewer applicants than lenders using traditional underwriting criteria (Di Maggio, Ratnadiwakara, and Carmichael, 2021). Do these alternative credit indicators and sources of data have other forms of inherent bias?

A note of caution is that *any* underwriting system based on predicting default risk will disparately impact historically marginalized individuals. We can (and should) work around the margins to improve underwriting systems that unnecessarily restrict access (for example, based on people being less risky than signaled by a credit score). Income and wealth are not equitably distributed in the United States, however. When a homeowner loses their job or experiences a significant unexpected expense, their ability to keep up with mortgage payments depends on having a savings cushion—which is systematically non-existent for lower-wealth households. This disparity raises the need for alternative mortgage products and programs that buffer against liquidity shocks on the back-end rather than denying access to credit on the front-end, such as forbearance policies and post-purchase support—described in more detail in the following section.

Effects of Down Payment Assistance for First-Time Homebuyers

The racial wealth gap and the racial homeownership gap in the United States are intertwined and reinforcing. Lower levels of homeownership across generations of households contribute to lower levels of wealth held by those households and prevent them from accessing homeownership in the future. Down payment and closing cost assistance programs are designed to break this cycle—providing homebuyers with the cash needed to qualify for a mortgage and pay up-front costs such as a home appraisal or inspection fees. Various federal, state, nonprofit, and even privately funded programs offer grants, forgivable second loans, and other affordable financing options to cover down payment and closing costs—with one study identifying more than 2,500 programs nationwide (Goodman et al., 2017).

Not all sources of assistance are created equally, however, and research can inform which types of down payment assistance are associated with better outcomes. Research must go beyond documenting differences by assistance type to investigating the mechanisms underlying the differences. For example, prior studies found increased rates of default among borrowers with privately funded down payment assistance but lower rates of default among borrowers with public or nonprofit funded down payment assistance (Fout et al., 2020; Hembre, Moulton, and Record, 2021; Leventis, 2014). A key question is *why*? Is it something about the structure of the assistance

that places borrowers at greater (or lesser) risk of default? Or do additional forms of borrower support (such as housing counseling), which are often bundled with public and nonprofit down payment assistance programs, reduce the risk of default? Or is it all about selection—where the types of borrowers who sort into (or persist through) more onerous down payment assistance programs are less likely to default? These *why* questions are critical to informing good policy—as they imply different mechanisms and thus different implications for equitable homeownership.

If some of the effects of homebuyer assistance programs can be attributed to borrower selection, then these programs may unintentionally exacerbate disparities. Particular groups of marginalized homeowners may be less likely to persist through a more onerous down payment assistance process due to competing time and budget constraints. This issue may exacerbate racial inequalities in housing finance. There is a growing body of research in other policy domains that finds people who persist through more complicated or time-consuming application processes may be those who have the slack resources to do so. These extra steps disproportionately reduce take-up from the same populations who are targeted for benefits (Bertrand, Mullainathan, and Shafir, 2004; Deshpande and Li, 2019; Foote, Grosz, and Rennane, 2019). Studies of down payment assistance programs should consider the administrative burdens placed on homebuyers who navigate these processes and how the burdens may disproportionately affect marginalized populations.

Caution must be exerted when attempting to draw causal connections between down payment assistance and homeowner outcomes. This is a research context fraught with selection bias—and often, this bias is on a critical unobserved characteristic—household savings—for which there is no good proxy in existing mortgage and credit data. People who select to use down payment assistance have low levels of liquid savings prior to buying a home (hence the motivation to seek assistance), and they presumably have low levels of liquid savings after buying a home that places them at a higher risk of default if they experience an unexpected income or expense shock. Thus, one could falsely conclude that down payment assistance is associated with a higher risk of default when, in fact, it is lower levels of wealth (the often omitted variable) that cause a higher risk of default. Ideally, a study of this type would incorporate bank account data or other administrative data with dynamic information on household savings levels to better disentangle the effects of down payment assistance from the effects of access to liquidity before and after a home purchase.

Down payment assistance is also a research area where the framing of the question may narrow the policy solutions considered. Framing the question to focus on traditional forms of down payment assistance may miss an opportunity to consider the role of deeper subsidies. Rather than traditional down payment programs that provide just enough assistance to clear the bar of *buying* a home (for example, 3 percent down), considerable subsidies may be required to jump-start wealth creation while *owning* a home. Substantial subsidies may be particularly important for Black households who have been historically shut out of mortgage markets and thus missed generational opportunities to build wealth through homeownership (Hamilton et al., 2015; McCargo and Choi, 2020). Research designs that include forward-looking interventions—such as varying the size of the subsidy—can better inform this sort of policy alternative.

Forbearance and Crisis Recovery

The unprecedented roll-out of mortgage forbearance in the wake of the COVID-19 pandemic likely prevented waves of mortgage defaults and foreclosures that would have occurred otherwise (Dettling and Lambie-Hanson, 2021). Preliminary research indicates that Black homeowners were more likely to enter into forbearance than White homeowners—yet Black homeowners have also been slower to exit forbearance (An et al., 2022; Gerardi, Lambie-Hanson, and Willen, 2021). These findings raise important questions about the implementation and outcomes of forbearance during the current crisis on disparate groups of homeowners. It also raises questions about the future role of forbearance-like policies in the presence of economic shocks and the extent to which such policies can be a tool to increase more equitable homeownership outcomes for homeowners who may be disproportionately affected by economic shocks.

Although it is important to document who benefited from forbearance, such an analysis must move beyond forbearance take-up to examine forbearance outcomes—including how missed payments were ultimately resolved and the extent to which homeowners remained in the home and resumed payments post-forbearance. One of the ways that people exited forbearance was through home sale—repaying missed payments through the proceeds of the sale. Were exits of forbearance through home sale more common along racialized lines? Another way people exited forbearance was by restructuring the mortgage to add the missed payments to the balance of the loan. How does this strategy affect home equity and wealth creation for Black homeowners? Are subsidies needed to reduce mortgage balances for homeowners exiting forbearance in areas with lower rates of house price appreciation or who held lower levels of housing wealth prior to the COVID-19 pandemic? These types of questions are critical to understanding the longer-term effects of COVID-era forbearance policies on homeownership disparities by race, wealth, and income.

COVID-era forbearance policies also offer an opportunity to reconsider how the housing finance system can be better designed to buffer economic shocks for lower-income and lower-wealth households. Mortgage products can be created that have built-in "shock-absorbers" to reduce, pause, or subsidize payments when unemployment rates spike in a region or when people lose their jobs (Collinson, Ellen, and Keys, 2021; Eberly and Krishnamurthy, 2014; Foote et al., 2009; Moulton et al., 2022; Orr et al., 2011). An example is the mortgage insurance (MI Plus) program administered by the Massachusetts Housing Finance Agency. All first-time homebuyers receiving mortgage financing through their program also receive mortgage payment insurance that covers their monthly mortgage payment for up to 6 months if they lose their jobs.¹

These interventions are not simply about preventing default for existing homeowners—they also increase the supply of mortgages to households who may previously have been denied access using conventional underwriting criteria. If mortgage default is primarily about liquidity (income flow and savings), as suggested by recent research (Farrell, Bhagat, and Zhao, 2019; Gerardi et al., 2018), a more equitable housing finance system should identify ways to insure against cash flow risks on the back-end rather than deny access to credit on the front-end. Research can inform when

¹Mass Housing's MI Plus Program is described online at https://www.masshousing.com/en/home-ownership/homeowners/mi-plus-eligibility

and under what conditions prospective homeowners may benefit from this additional insurance to offset default risk—rather than denying the loan.

Post Purchase Borrower Support

Perhaps one of the most promising and simultaneously understudied areas of homeownership research is the support system for homeowners after purchase. Decisions and experiences during the *owning* stage of homeownership are critical to wealth creation—and moderate the extent to which homeownership reduces or exacerbates racial wealth disparities. For example, studies indicate that Black homeowners refinance less when it is in the money to do so (Gerardi, Lambie-Hanson, and Willen, 2021; Gerardi, Willen, and Zhang, 2020), resulting in higher interest rates and lower levels of housing wealth accumulation among Black homeowners compared with White homeowners. Lower-income homeowners are also more likely to purchase older homes with higher maintenance costs and have fewer financial resources to pay for unexpected repairs (Van Zandt and Rohe, 2011). Delayed maintenance can reduce the value of the home (Harding, Rosenthal, and Sirmans, 2007) and the level of wealth created through ownership. First-generation homeowners may lack the support systems that are in place for higher wealth and higher-income homeowners (Reid, 2013).

Research is needed to better understand the effects of post-purchase borrower support systems on homeowner sustainability and, ultimately, wealth creation. One form of support to homeowners is post-purchase counseling provided through HUD-approved housing counseling agencies. Most research on housing counseling and education tends to focus on pre-purchase services or on counseling provided to homeowners in default on their mortgages to prevent foreclosures (Collins and O'Rourke, 2011; Peck et al., 2019). There is increasing evidence, however, that preventative forms of support after purchase—such as access to a financial coach, can help homeowners stay on track with their financial goals and increase mortgage sustainability (Moulton et al., 2015). In addition, there is some evidence that at least a portion of the beneficial effects of pre-purchase counseling on homeowner outcomes can be attributed to access to the counselor after purchase if a hardship arises (Brown, 2016; Stacy, Theodos, and Bai, 2018).

One of the key lessons from preliminary research in this area is the importance of timely, targeted support that connects homeowners to resources throughout the homeownership life cycle rather than generic forms of education and counseling. It is critical that research in this area differentiate between generic forms of post-purchase education and more targeted and timely interventions. Much of what is referred to as post-purchase counseling and education in the housing counseling community is generic information—often in the form of workshops or training material. This approach is very different from embedding a homeowner in a support system that begins prior to purchase and continues at regular intervals during the first few years as a new homeowner. Research in this area should consider how to leverage technology and integrated dynamic data to provide targeted information and financial resources to homeowners after purchase.

It is also important to caution that information alone is not enough—reducing racial disparities in the wealth created through homeownership requires access to financial resources after purchase. How can post-purchase support systems be designed to connect homeowners to financial

resources? For example, when a water heater breaks or a roof needs to be replaced, homeowners need access to funding to pay for these repairs. In this situation, financial resources could include home repair and rehabilitation subsidies—such as the Federal Housing Administration (FHA)'s Title I Insured Loans for Property Improvements. When a homeowner without a savings cushion loses their job, they need financial resources to keep up with mortgage payments during their temporary spell of unemployment. In this situation, financial resources could include the types of shock absorbers described in the previous section. Support for lower-income and lower-wealth homeowners after purchase must shift from reactionary efforts to intervene after a crisis occurs to putting in place systems of support ex ante. Research is needed to inform the design and delivery of such systems.

Putting it All Together: A Life-Cycle Perspective on Equitable Homeownership

In the United States, homeownership is embedded in a system with unequally distributed wealth, income, and access to credit. As researchers, we must consider how inequitable access to financial resources shapes the outcomes we observe at every stage of the homeownership life cycle—not just the purchase decision. Although owning a home is the primary source of wealth for most U.S. households, it would be short-sighted to assume that simply increasing the rate of home purchases will close the racial wealth gap.

The irony is that building wealth through homeownership requires wealth—not only to afford a down payment but also to have a liquidity cushion to buffer the income and expense shocks that most people inevitably experience at some point in their lives. Water heaters break. People get sick. Employees are laid off. For homeowners without access to liquidity—including a cushion of generational wealth passed down over time from parents and grandparents—these shocks have the devastating potential to unravel any equity gained through the purchase of the home.

A higher rate of default among homeowners with lower levels of liquidity not only accelerates exits from homeownership for marginalized homeowners, it also reduces the supply of credit to the same populations often targeted by housing policies. Lenders are less willing to make loans if projected losses are higher, which raises borrowing costs and reduces the supply of mortgage credit. There is evidence that tightened underwriting requirements in response to the housing market crash during the Great Recession disproportionately affected non-White prospective homebuyers (Acolin et al., 2016).

Research is needed on policies and interventions to reduce default risk and maximize homeowner wealth creation throughout the ownership life cycle. A life-cycle perspective requires a fundamental rethinking of housing finance for marginalized groups, such as leveraging insights from the COVID-19 era forbearance policies to build mortgage products with built-in shock absorbers ex ante or creating life-of-loan access to liquidity rather than simply providing a small 3 percent down payment to purchase a home. Such policies and interventions not only help stabilize the current stock of homeowners but may also help increase the supply of credit to future generations of homeowners.

Author

Stephanie Moulton is a Professor at the John Glenn College of Public Affairs. You may contact her at moulton, 23@osu.edu.

References

Acolin, Arthur, Jesse Bricker, Paul Calem, and Susan Wachter. 2016. "Borrowing Constraints and Homeownership," *American Economic Review* 106 (5): 625–629. https://www.aeaweb.org/articles?id=10.1257/aer.p20161084.

An, Xudong, Larry Cordell, Liang Geng, and Keyoung Lee. 2022. Inequality in the Time of Covid-19: Evidence from Mortgage Delinquency and Forbearance. SSRN paper No. 378939. Social Science Research Network. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3789349.

Bertrand, Marianne, Sendhil Mullainathan, and Eldar Shafir. 2004. "A Behavioral-Economics View of Poverty," *American Economic Review* 94 (2): 419–23. https://doi.org/10.1257/0002828041302019.

Bhutta, Neil, Andrew C. Chang, Lisa J. Dettling, Joanne W. Hsu. 2020. *Disparities in Wealth by Race and Ethnicity in the 2019 Survey of Consumer Finances*. FEDS Notes: Board of Governors of the Federal Reserve System, September 28. https://www.federalreserve.gov/econres/notes/feds-notes/disparities-in-wealth-by-race-and-ethnicity-in-the-2019-survey-of-consumer-finances-20200928.htm.

Blattner, Laura, and Scott Nelson. 2021. *How Costly is Noise? Data and Disparities in Consumer Credit.* Cornell University. https://arxiv.org/abs/2105.07554.

Brown, Scott R. 2016. "The Influence of Homebuyer Education on Default and Foreclosure Risk: A Natural Experiment," *Journal of Policy Analysis and Management* 35 (1): 145–172. https://onlinelibrary.wiley.com/doi/10.1002/pam.21877.

Brown, Steven, Kilolo Kijakazi, Charmaine Runes, and Margery Austin Turner. 2019. *Confronting Structural Racism in Research and Policy Analysis*. Urban Institute. https://www.urban.org/research/publication/confronting-structural-racism-research-and-policy-analysis.

Cancian, Maria. 2021. "APPAM Presidential Address: Reflections on Who Counts and Why it Matters," *Journal of Policy Analysis and Management* 40 (2): 324–347. https://onlinelibrary.wiley.com/doi/10.1002/pam.22302.

Collins, J. Michael, and Colin O'Rourke. 2011. *Homeownership Education and Counseling: Do We Know What Works?* Mortgage Bankers Association, Research Institute for Housing America Research Paper 1102. http://massinc.org/wp-content/uploads/2011/06/76378_10554_Research_RIHA_Collins_Report.pdf.

Collinson, Robert, Ingrid Gould Ellen, Benjamin J. Keys. 2021. *Bolstering the Housing Safety Net: The Promise of Automatic Stabilizers*. The Hamilton Project, Brookings Institute Press, Policy Proposal 2021-02. https://www.hamiltonproject.org/assets/files/Bolstering_the_Housing_Safety_Net_The_Promise_of_Automatic_Stabilizers.pdf.

Darity, William Jr., Darrick Hamilton, Mark Paul, Alan Aja, Anne Price, Antonio Moore, and Caterina Chiopris. 2018. What We Get Wrong About Closing the Racial Wealth Gap. Durham, NC: Samuel DuBois Cook Center on Social Equity; Oakland, CA: Insight Center for Community Economic Development. https://www.socialequity.duke.edu/wp-content/uploads/2020/01/what-weget-wrong.pdf.

Deshpande, Manasi, and Yue Li. 2019. "Who Is Screened Out? Application Costs and the Targeting of Disability Programs," *American Economic Journal: Economic Policy* 11 (4): 213–48. https://doi.org/10.1257/pol.20180076.

Dettling, Lisa. J., and Lauren Lambie-Hanson. 2021. Why is the Default Rate so Low? How Economic Conditions and Public Policies Have Shaped Mortgage and Auto Delinquencies During the COVID-19 Pandemic. FEDS Notes: Board of Governors of the Federal Reserve System, March 4. https://www.federalreserve.gov/econres/notes/feds-notes/why-is-the-default-rate-so-low-20210304.htm.

Di Maggio, Marco, Dimuthu Ratnadiwakara, and Don Carmichael. 2021. Invisible Primes: Fintech Lending with Alternative Data. SSRN paper No. 393738. Social Science Research Network. https://ssrn.com/abstract=3937438 or http://dx.doi.org/10.2139/ssrn.3937438.

Eberly, Janice, and Arvind Krishnamurthy. 2014. *Efficient Credit Policies in a Housing Debt Crisis*. Brookings Papers on Economic Activity (Fall 2014), 73–118. https://doi.org/10.1353/eca.2014.0013.

Farrell, Diana, Kanav Bhagat, and Chen Zhao. 2019. *Trading Equity for Liquidity: Bank Data on the Relationship between Liquidity and Mortgage Default.* JPMorgan Chase Institute. https://ssrn.com/abstract=3413995.

Foote, Andrew, Michel Grosz, and Stephanie Rennane. 2019. "The Effect of Lower Transaction Costs on Social Security Disability Insurance Application Rates and Participation," *Journal of Policy Analysis and Management* 38 (1): 99–123. https://doi.org/10.1002/pam.22095.

Foote, Christopher L., Jeffrey C. Fuhrer, Eileen Mauskopf, and Paul Willen. 2009. *A Proposal to Help Distressed Homeowners: A Government Payment-Sharing Plan.* Federal Reserve Bank of Boston Public Policy Briefs No. 09-1. Boston, MA. https://doi.org/10.2139/ssrn.1432514.

Foote, Christopher L., Lara Loewenstein, and Paul S. Willen. 2019. Technological Innovation in Mortgage Underwriting and the Growth in Credit, 1985–2015. Working paper No. 19-11. Federal Reserve Bank of Boston.

Fout, Hamilton, Grace Li, Mark Palim, and Ying Pan. 2020. "Credit Risk of Low Income Mortgages," *Regional Science and Urban Economics* 80 (3): 1–17.

Gerardi, Kristopher, Kyle F. Herkenhoff, Lee E. Ohanian, and Paul S. Willen. 2018. "Can't Pay or Won't Pay? Unemployment, Negative Equity, and Strategic Default," *Review of Financial Studies* 31 (3): 1098–1131. https://academic.oup.com/rfs/article/31/3/1098/4430495?searchresult=1.

Gerardi, Kristopher, Lauren Lambie-Hanson, and Paul S. Willen. 2021. Racial Differences in Mortgage Refinancing, Distress, and Housing Wealth Accumulation During COVID-19. Discussion paper 21-2. Federal Reserve Bank of Philadelphia Payment Cards Center.

Gerardi, Kristopher, Paul Willen, and David Hao Zhang. 2020. Mortgage Prepayment, Race, and Monetary Policy. Working paper 2020–22. Federal Reserve Bank of Atlanta. https://www.frbatlanta.org/research/publications/wp/2020/12/18/22-mortgage-prepayment-race-monetary-policy.

Goodman, Laurie, Alanna McCargo, Edward Golding, Bing Bai, Bhargavi Ganesh, and Sarah Strochak. 2017. *Barriers to Accessing Homeownership: Down Payment, Credit, and Affordability.* Urban Institute. https://www.urban.org/research/publication/barriers-accessing-homeownership.

Hamilton, Darrick, William Darity Jr., Anne E. Price, Vishnu Sridharan, and Rebecca Tippett. 2015. *Umbrellas Don't Make It Rain: Why Studying and Working Hard Isn't Enough for Black Americans.* New York: The New School; Durham, NC: Duke Center for Social Equity; Oakland, CA: Insight Center for Community Economic Development.

Harding, John P., Stuart S. Rosenthal, and C. F. Sirmans. 2007. "Depreciation of Housing Capital, Maintenance, and House Price Inflation: Estimates from a Repeat Sales Model," *Journal of Urban Economics* 61 (2): 193–217.

Hembre, Erik, Stephanie Moulton, and Matthew Record. 2021. "Low-Income Homeownership and the Role of State Subsidies: A Comparative Analysis of Mortgage Outcomes," *Journal of Policy Analysis and Management* 40 (1): 78–106.

Leventis, Andrew. 2014. The Relationship Between Second Liens, First Mortgage Outcomes, and Borrower Credit 1996–2010. Working paper 14–3. FHFA: Federal Housing Finance Agency.

McCargo, Alanna, and Jung Hyun Choi. 2020. *Closing the Gaps Building Black Wealth Through Homeownership*. Urban Institute Research Report. https://www.urban.org/sites/default/files/publication/103267/closing-the-gaps-building-black-wealth-through-homeownership_1.pdf.

Moulton, Stephanie, J. Michael Collins, Cäzilia Loibl, and A. Samek. 2015. "Effects of Monitoring on Mortgage Delinquency: Evidence from a Randomized Field Study," *Journal of Policy Analysis and Management* 34 (1): 184–207.

Moulton, Stephanie, Yung Chun, Stephanie Pierce, Roberto Quercia, Susan Riley, and Holly Holtzen. 2022. "Does Temporary Mortgage Assistance for Unemployed Homeowners Reduce Longer-Term Mortgage Default? An Analysis of the Hardest Hit Fund Program," *Journal of Policy Analysis and Management*, October 30.

Orr, James, John Sporn, Joseph S. Tracy, and Joe Huang. 2011. "Help for Unemployed Homeowners: Lessons from the Pennsylvania Homeowners' Emergency Mortgage Assistance Program," *Current Issues in Economics and Finance* 17: 1–11.

Peck, Laura, Shawn Moulton, Debbie Gruenstein Bocian, Donna Demarco, and Nichole Fiore. 2019. *Short-Term Impact Report: The HUD First-Time Homebuyer Education and Counseling Demonstration, Preliminary Findings.* The U.S. Department of Housing and Urban Development. https://www.huduser.gov/portal/publications/Short-Term-Impact-Report.html.

Reid, Carolina. 2013. To Buy or Not to Buy? Understanding Tenure Preferences and the Decision-Making Processes of Lower-Income Households. Cambridge, MA: Joint Center for Housing Studies of Harvard University.

Rothstein, Richard. 2017. *The Color of Law: A Forgotten History of How Our Government Segregated America*. New York: Liveright Publishing.

Stacy, Christina Plerhoples, Brett Theodos, and Bing Bai. 2018. "How to Prevent Mortgage Default Without Skin in the Game: Evidence from an Integrated Homeownership Support Nonprofit," *Journal of Housing Economics* 39: 17–24.

Schneider, Anne Larson, and Helen Ingram. (2003). The Pragmatic Policy Analyst. In *Renascent Pragmatism: Studies in Law and Social Science*, Edited By Alfonso Morales. Routledge: 156–179.

Van Zandt, Shannon, and William M. Rohe. 2011. "The Sustainability of Low-Income Homeownership: The Incidence of Unexpected Costs and Needed Repairs Among Low-Income Home Buyers," *Housing Policy Debate* 21 (2): 317–341.

