Housing Market Dynamics and the White-Black Wealth Gap

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Abstract

I document the importance of housing market dynamics for understanding changes in White-Black wealth inequality in the United States. Due to White-Black gaps in home equity, White households realize greater absolute wealth gains (losses) from housing market appreciation (depreciation) than do Black households. Using geocoded longitudinal household-level wealth data from the Panel Study of Income Dynamics from 1984-2019 and tract-level house price index data, I estimate how White and Black household wealth would have changed under counterfactual scenarios where housing markets neither appreciated nor depreciated. I show that housing market appreciation between 1984-2019 accounts for nearly all of the increase in the median White-Black wealth gap over this period. However, because housing is a larger component of wealth for Black households, Black households realize greater relative wealth gains (losses) from housing market appreciation (depreciation). I also find that local deviations from national housing market dynamics led to greater increases in median Black wealth than median White wealth in the 2000s and 2010s. These results point towards the importance of cumulative advantage processes in driving wealth inequalities, and demonstrate a pathway through which the legacies of institutional racism contribute to contemporary racial wealth gaps.

Keywords: wealth, racial inequality, housing markets, homeownership, neighborhoods

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Housing is, on one hand, a fundamental right of all persons, and on the other hand, an asset whose unequal distribution across populations generates social, political, and economic inequalities (Pattillo 2013). In the United States in particular, homeownership has been viewed not just as a status symbol and a realization of the American Dream, but also an investment good through which households can accumulate wealth in the form of home equity (McCabe 2016). Over the past several decades, the primary way through which homeowners have gained home equity is through housing market appreciation that has increased home values (Cororaton 2022). Because home equity is the largest portion of household wealth across most of the wealth distribution (Wolff 2016), housing market appreciation has thus had substantial effects on household wealth holdings.

However, we know less about the effect that housing market appreciation since the 1980s has had on White-Black household wealth gaps. White households are substantially more likely to own homes than Black households, and among homeowners, White homeowners own more expensive homes than Black homeowners (Krivo and Kaufman 2004; U.S. Census Bureau 2022). Thus, housing market appreciation is likely to have widened White-Black wealth gaps, because White households are likely to have received greater wealth benefits from housing market appreciation than Black households. Yet, research has not identified the importance of housing market dynamics to changes in White-Black wealth gaps, relative to changes in the holdings and valuation of other assets. Additionally, it is unclear whether these housing market effects on White-Black wealth gaps have been amplified or dampened by differences in the local housing market dynamics experienced by White and Black homeowners.

In this paper, I fill this gap in the literature using longitudinal nationally-representative data on household wealth from the 1984-2019 Panel Study of Income Dynamics (PSID), alongside tract-level Federal Housing Finance Agency House Price Index (FHFA HPI) data. Using restricted-access geographic data on where PSID households live, I estimate how PSID homeowners' wealth would have changed between survey waves in the absence of housing market appreciation or depreciation in the neighborhoods they live. I then use these counterfactual changes in wealth to estimate the contribution of housing market dynamics towards changes in the White-Black wealth gap.

I find that housing market appreciation explains almost all of the growth in the median White-Black wealth gap between 1984-2019. While the median White-Black wealth gap in the PSID grew by \$31,500 (in 2019 dollars) from 1984-2019—an increase of almost 35%—I estimate that housing

market appreciation accounted for over \$29,500 of this increase, and that median White-Black wealth gap would have only grown by 2% in the absence of this appreciation.

I also examine the effects of housing market dynamics on relative White-Black wealth gaps. Though most research on the effects of wealth focuses on absolute levels of wealth, theories of relative deprivation (Frank 2007; Wilkinson and Pickett 2009) suggest that the magnitude of relative White-Black wealth gaps may also be consequential for racial inequalities in life outcomes. I find that, while housing market appreciation has led to wider absolute median White-Black wealth gaps, it also has generally narrowed relative median White-Black wealth gaps.

Finally, I assess the relative roles of three mechanisms—White-Black gaps in homeownership, house prices, and local deviations from national housing market dynamics—in moderating the relationship between housing market dynamics and changes in the median White-Black wealth gap in the 2000s and 2010s. I find that White-Black gaps in homeownership is the most important of these mechanisms, because of the pronounced homeownership gap between median-wealth White and Black households. I also find that local deviations from national housing market dynamics gave a greater relative boost to median Black wealth than median White wealth across most of this time period, indicating that median-wealth Black homeowners lived in neighborhoods experiencing greater housing market appreciation than median-wealth White homeowners.

In addition to providing new evidence on the centrality of housing market dynamics to White-Black wealth gaps, these findings also highlight the importance of cumulative advantage processes (DiPrete and Eirich 2006) in understanding racial wealth dynamics. Namely, White-Black gaps in home equity, initially caused by historical legacies of institutional racism, have been exacerbated in recent decades by housing market appreciation. These results thus demonstrate a pathway through which historical institutional racism generates contemporary racial wealth inequalities.

Background

Wealth and White-Black Wealth Gaps

Wealth has become an increasingly important dimension of social stratification in the United States (Killewald et al. 2017), where exposure to economic risk has increasingly shifted from governments and businesses to individual households (Hacker 2006). Net of other measures of socioeconomic

status, wealth provides a safeguard against job loss, economic downturns, health crises, and other unexpected expenses. It increases the likelihood of marriage (Schneider 2011) and allows parents to invest more in their children, leading to better cognitive ability (Orr 2003), educational attainment (Conley 2001), and labor market outcomes (Conley 1999) for children. Wealth facilitates the ownership of assets like business equities and real estate (Killewald and Bryan 2016) that themselves generate further wealth, and allows households to live in better-resourced neighborhoods that are increasingly unequally segregated by income (Reardon and Bischoff 2011). Finally, wealth lets workers retire earlier (Conley and Thompson 2013) and enjoy healthier and longer lives (Attanasio and Hoynes 2000; Hurd and Kapteyn 2003).

Researchers studying the consequences of wealth have generally focused on the effects of absolute levels of wealth. Following Evans et al. (2004), these effects may be called mechanical, whereby increases in wealth are associated with increases in the likelihood of experiencing a given outcome. However, the relative amount of wealth held by individuals or groups may also have important consequences. Wealth functions as a cultural marker of status and achievement (Schneider 2011; Killewald et al. 2017), thus providing emotional or psychological benefits to those who are relatively advantaged in their wealth holdings, and conversely feelings of status anxiety or stress to those experiencing relative deprivation in wealth (Frank 2007; Wilkinson and Pickett 2009). Relative wealth inequalities may then have important consequences for between-group inequalities in life outcomes, on top of the mechanical effects of wealth.

Whether considering absolute or relative wealth, there are large and persistent wealth gaps between White and Black households in the United States. In the most recent PSID wave (2019), the median non-Hispanic Black household had 6% as much wealth as the median non-Hispanic White household (\$8,300 vs. \$131,200). Comparable results (Bhutta et al. 2020) from the most recent Survey of Consumer Finances (SCF), often considered to be the gold standard for measuring the wealth of United States households (Pfeffer et al. 2016), indicates wider absolute gaps between median White wealth (\$188,200) and median Black wealth (\$24,100), but larger values of median Black wealth as a percentage of White wealth (12.8%).

The magnitude of the White-Black wealth gap is the consequence of historical discrimination against and persecution of Black families that has hindered their ability to collect and maintain wealth, including (among other factors) the institution of slavery, reduced access to credit and

the plundering of Black property under Jim Crow laws, persistent labor market discrimination, the exclusion of Black workers from Social Security and Black World War II veterans from GI mortgages and education subsidies, the rise of mass incarceration, and legally enforced residential segregation (Oliver and Shapiro 1995; Conley 1999; Rothstein 2017; Lee 2019). Recent research by Derononcourt et al. (2022) highlights that per capita White-Black wealth gaps slowly shrunk from the end of the Civil War to the 1980s, but that this convergence has stalled and even reversed since. This is consistent with trends in the absolute and relative median White-Black wealth gaps as measured in the PSID from 1984-2019, as seen in Figure 1.

The Role of Housing

The renewed divergence in White-Black wealth gaps has occurred alongside a marked appreciation in the national housing market. Figure 2 shows the trend in the inflation-adjusted FHFA HPI from 1980 to 2021, indexed to equal 100 in 1984. Even after adjusting for inflation, house prices have risen over 55% since 1984, though this growth has certainly not been even over time. Notably, the housing market crash that precipitated the Great Recession erased much of the housing market appreciation from 1984 to 2006, but from 2012-2021 house prices recovered to pre-Recession heights.

Housing market dynamics have sizable effects on household wealth holdings because home equity is the largest portion of household wealth across most of the U.S. wealth distribution (Wolff 2016). However, there is good reason to expect that housing market dynamics have differential effects on the wealth of White and Black households, and thus affect White-Black wealth gaps. In absolute terms, White households are likely to receive greater wealth gains (losses) from housing market appreciation (depreciation) than Black households. For one, White-Black gaps in homeownership mean that a greater percentage of White households than Black households hold home equity, and thus have their household wealth affected by housing market dynamics. Since 1940, there has always been at least a 20 percentage point difference between White and Black homeownership rates; at the end of 2019, this gap was about 30 percentage points, with 74% of non-Hispanic White households owning their home compared to 44% of Black households (U.S. Census Bureau 2022). White-Black disparities in homeownership are proximately caused by White households' greater likelihood of transitioning from renting to owning, and also by Black homeowners' greater likelihood of transitioning out of homeownership (Boehm and Schlottmann 2004; Herbert et al.

2013; Sharp and Hall 2014). These disparities in transitioning in and out of homeownership are in turn rooted in existing White-Black disparities in wealth, 20th-century government policies that promoted White homeownership (Rothstein 2017), and racial discrimination in mortgage lending (Quillian et al. 2020).

Additionally, among homeowners, White homeowners own higher-priced homes than do Black homeowners. In the 2019 American Community Survey, the median price of the primary home of non-Hispanic White homeowners was \$250,000, as compared to \$185,000 for Black homeowners. Racial disparities in house prices reflect socioeconomic disparities in resources that allow White households to buy higher-priced homes (Krivo and Kaufman 2004). Further, net of observable house and neighborhood-level controls, homes in Black neighborhoods are systematically undervalued relative to homes in White neighborhoods (Perry et al. 2018; Rothwell and Perry 2021), possibly due to the devaluation of Black homes during the appraisal process (Kamin 2020; Howell and Korver-Glenn 2021). As a consequence of White-Black gaps in house values, White homeowners experience a greater absolute gain (loss) in wealth from the same percentage increase (decrease) in the housing market.

White-Black gaps in homeownership and house values thus imply that White households should have reaped absolute greater wealth benefits from housing market appreciation over the past several decades. More generally, these mechanisms are examples of cumulative advantage processes in generating inequality, whereby advantaged initial positions become a resource in the production of future advantages (DiPrete and Eirich 2006). Here, White-Black gaps in holdings of home equity, combined with positive rates of return to home equity, lead to widening absolute White-Black differences in home equity. However, the converse may be true when considering relative wealth benefits (that is, as a percentage of existing wealth holdings), because home equity constitutes a greater portion of total wealth for Black households than for White households. In the 2019 PSID, 48% of Black household wealth took the form of home equity, as compared to 28% of White household wealth. This implies that, in percentage terms, Black wealth should be more strongly affected by housing market dynamics than is White wealth. It follows that housing market appreciation should narrow relative White-Black wealth gaps, and vice versa.

Finally, the relationship between housing market dynamics and changes in White-Black wealth gaps may be complicated by White-Black differences in local housing market deviations from na-

tional housing market dynamics. At least two countervailing forces may have contributed to these White-Black differences. First was disproportionate housing market appreciation in metropolitan areas where high-wage job growth outstripped the supply of newly built housing (Gyourko, Mayer, and Sinai 2013). To the extent that the homeowners in these affluent, high-income areas are disproportionately White, then this process would further widen White-Black wealth inequalities.

The second, potentially countervailing, force is that of residential gentrification, or an increase in the socioeconomic position of an area's residents (Zuk et al. 2018:35). Potential homebuyers may respond to rising metropolitan-area house prices by looking to buy in less expensive (and affluent) neighborhoods, which then can cause disproportionately large house price increases in these neighborhoods. Black homeowners are more likely to live in less affluent neighborhoods, and so may have realized greater wealth benefits from house price increases associated with gentrification. Though historically gentrification has been most common in less-affluent White neighborhoods (Owens 2012), Black neighborhoods have experienced greater gentrification in recent decades (Freeman and Cai 2015).

Recent research from Howell and Korver-Glenn (2021) finds that, in large metropolitan areas, the average home value in predominantly White neighborhoods has grown more rapidly than the average home value in communities of color between 1980 and 2015. However, changes in average neighborhood home values may not necessarily track within-home price changes in neighborhoods in the presence of new housing construction, since new homes are generally more expensive than existing homes. Additionally, differences in neighborhood home value changes by the racial composition of neighborhood residents may not necessarily track onto differences in individual home value changes by the race of the homeowner.

Open Questions

Prior work has examined how housing has shaped the wealth of White and Black households. Killewald and Bryan (2016) estimate that the median White household in the NLSY79 cohort gained over \$111,000 more wealth from homeownership between 1986 and 2008 than the median Black household. These authors estimate that equalizing the race gap in homeownership would reduce this difference by around a third to to about \$67,000, which, in turn, would increase Black households' midlife wealth from 12% of White household midlife wealth to 33%. Killewald and

Bryan (2016) also calculate that equalizing the returns to homeownership between Black and White homeowners in the NLSY79 cohort would also narrow the median midlife White-Black wealth gap, though by less than equalizing homeownership rates. Shapiro et al. (2013) similarly track a PSID cohort between 1984 and 2009 and find that the number of years of homeownership accounted for a quarter of the increase in the median White-Black wealth gap among this cohort.

I build on this important work in several ways. First, while these studies estimate how differential returns to homeownership affect racial gaps in wealth accumulation, returns to homeownership may reflect both external housing market dynamics and internal investment in one's home that leads to higher house values. Because Black homeowners are more likely than White homeowners to be denied home equity loans commonly used to undertake home renovations (Conklin et al. 2022), White homeowners may be disproportionately likely to realize home value gains through re-investment. Here, I more directly focus on the role of housing market dynamics on the White-Black wealth gap, and the mechanisms through which housing market dynamics may affect this wealth gap. Second, instead of relying on a single cohort of households, I examine how house price changes affect White-Black wealth gaps among all households. Finally, to my knowledge, no previous studies have examined how local deviations from national housing market dynamics have affected racial wealth gaps.

Data and Methods

Panel Study of Income Dynamics

I track White and Black wealth over time using the the Panel Study of Income Dynamics (PSID), a nationally-representative longitudinal panel survey of United States individuals and families. The PSID contains information on respondents' homeownership status and house values in all waves, and on household wealth in survey waves conducted in 1984, 1989, 1994, and every other year since 1999. Household wealth is calculated as the summed values of eight asset categories, including the primary residence, minus the summed values of eight debt categories. I inflation-adjust all wealth values to 2019 dollars.

The PSID includes information on the race of individual household members, but users must choose how to assign races to households. I define non-Hispanic White households as households

for whom at least one of the survey reference person or their spouse / partner is White, and for whom neither household member is Hispanic. I define non-Hispanic Black households similarly.¹ The PSID oversamples Black individuals relative to their national population share, which allows for more accurate comparison of White-Black wealth gaps; in contrast, small sample sizes for Hispanic or other-race households make it difficult to accurately estimate gaps between these households and White households.

Though measurement error is a concern with any survey data that relies on self-reported wealth (Killewald et al. 2017), it is unlikely to bias the estimation of the effect of housing market dynamics on White-Black wealth gaps in the PSID. Any such bias would stem from differences in measurement error of house values between White and Black PSID households. However, researchers have found no evidence of racial differences in the accuracy of homeowners' estimates of their house values (Goodman and Ittner 1992:353), or in the likelihood of PSID households to experience large wealth fluctuations between survey waves that might indicate measurement error in components of wealth (Pfeffer and Griffin 2017).

I focus on the effects of housing market dynamics on the median White-Black wealth gap, following much of the literature on racial wealth inequality. Because the PSID does not accurately reflect the wealth held by those at the very top of the wealth distribution (Pfeffer et al. 2016), median wealth dynamics in the PSID are captured more accurately than mean wealth dynamics, which are especially sensitive to the measurement of high-wealth households. However, the focus on median White-Black wealth gaps also accentuates White-Black gaps in homeownership. Across the study period, over half of White households, and less than half of Black households, were homeowners (U.S. Census Bureau 2022). Because homeowners tend to be wealthier than non-homeowners, households near the median of the White wealth distribution are then much more likely to own their homes than households near the median of the Black wealth distribution. As such, I also briefly compare the effects of housing market dynamics on median and mean White-Black wealth gaps, and present effects on mean White-Black wealth gaps in the Appendix.

As discussed above, most of the literature on the effects of wealth focuses on absolute wealth, but relative wealth inequalities may themselves have important effects on between-group outcomes

¹While these definitions of household race allows a small percentage of households to contribute to both the White and Black wealth distributions, I find similar results when only considering households that are defined as either White or Black, but not both.

through fostering perceptions of relative deprivation. Thus, while I primarily focus on absolute median White-Black wealth gaps (measured as median White wealth minus median Black wealth), I also present estimates of how housing market dynamics affect relative median White-Black wealth gaps (measured as median Black wealth as a percentage of median White wealth).

I track PSID households over time by linking PSID households with the same reference person (known as the household head in pre-2017 surveys) between consecutive waves. For PSID survey years 1984-2001, I use geocoded information in the PSID Address files, which identify where households receive PSID communications, to link respondent residences to Census tracts. For PSID survey years 2003-2019, I instead identify the Census tracts where respondents live from the PSID Between-Wave Moves file, which contains geographic information on each residence where PSID reference persons report having lived since the previous survey wave, as well as their dates of residence.

Housing Market Dynamics

I use the Federal Housing Finance Agency’s Census tract-level Housing Price Index (Bogin, Doerner, and Larson 2016; FHFA 2023) to measure inflation-adjusted local housing market dynamics between PSID survey waves. The FHFA HPI is calculated from mortgages on single-family homes that are underwritten or guaranteed by Fannie Mae or Freddie Mac, and uses a repeat-sales methodology that accounts for time-invariant unobservable characteristics of homes. Importantly, repeat-sales indices are not affected by new construction that may lead to increases in local house prices in the absence of the appreciation of existing houses, making the FHFA HPI an appropriate index to measure the effect of housing market dynamics on the home equity held by existing homeowners. Additionally, the FHFA HPI filters out repeat sales where home renovations are likely to be responsible for between-sale price increases. I further test the robustness of using the FHFA HPI to instead using Zillow’s mid-tier House Value Index (see Appendix A).

Tract-level HPIs cannot be used to measure local housing market dynamics for some PSID homeowners, both because the tract-level HPI data is more sparse in more distant years, and because some PSID homeowners have insufficiently accurate geocoded information. When tract-level HPI data is missing, I proxy for local housing market dynamics using county-level HPI data, or state-level HPI data when county-level matches are not possible.

For PSID survey years 1984-2001, I estimate the effect of housing market dynamics on household wealth (via changes in home equity) across consecutive survey waves for linked households who own their house in both waves and do not move between waves. From 2003-2019, I additionally use the Between-Wave Moves file to estimate the effect of housing market dynamics on household wealth for households who transition in or out of homeownership, or who move between homes they own, between survey waves. For households who move out of a home they own between survey waves, I calculate housing market dynamics between the date of their previous interview and the date the reference person stopped living in the residence; for households who move into a home they own between survey waves, I calculate housing market dynamics between the date the reference person moved into the residence and the date of the latter survey wave. In all cases, I prorate yearly house price changes across fractions of years.

Effect of Housing Market Changes on Household Wealth

I employ a counterfactual model to estimate how between-wave housing market dynamics directly affected PSID homeowners' home equity (and, thus, household wealth), and then use the results of this model to estimate the effects of between-wave housing market dynamics on White-Black wealth gaps. Below, I provide a succinct description of this model, alongside examples from hypothetical PSID households. I provide a more detailed exposition of this model in a methodological supplement in Appendix B.

I first consider the cases of PSID homeowners i who do not move between survey waves. Let $W_{i,t}$ and $H_{i,t}$ be the wealth and house price, respectively, of PSID household i at survey wave t . Additionally, let $h_{i,t-1,t}$ be the growth rate in the house price of PSID household i between survey waves $t-1$ and t , and $h_{l,t-1,t}$ be the growth rate of the local housing market of household i between survey waves $t-1$ and t . Then, I calculate $\Delta W_{i,t-1,t}^c$, the counterfactual difference in wealth of household i due to local housing market dynamics between survey waves $t-1$ and t , as follows:

$$\Delta W_{i,t-1,t}^c = H_{i,t-1}(1 + h_{i,t-1,t} - h_{l,t-1,t}) - H_{i,t}. \quad (1)$$

The expression $H_{i,t-1}(1 + h_{i,t-1,t} - h_{l,t-1,t})$ represents the counterfactual house price of household i at time t with no local housing market changes between $t-1$ and t . If $h_{l,t-1,t}$ is equal to 0, then

the counterfactual house price is simply equal to the actual house price, and $\Delta W_{i,t}^c$ equals 0. If the growth rate of the local housing market is positive, the counterfactual house price will be lower than the actual house price, and counterfactual wealth will be lower than actual wealth (and vice versa).

I next consider the cases of PSID households j who move from a home they own at survey wave $t - 1$ in location l to a different home they own at survey wave t in location l^* . Let t' be the time household j moves out of their home at location l and t^* be the time household j moves into their home in location l^* . Then, I calculate $\Delta W_{j,t}^c$ as follows:

$$\Delta W_{j,t-1,t}^c = -\left(H_{j,t-1}h_{l,t-1,t'} + \frac{H_{j,t}h_{l^*,t^*,t}}{1 + h_{l^*,t^*,t}}\right). \quad (2)$$

In other words, the counterfactual difference in wealth for household j due to local housing market dynamics between waves $t - 1$ and t is equal in magnitude to 1) their change in home equity at their first house due to housing market dynamics at location l between times $t - 1$ and t' ($H_{j,t-1}h_{l,t-1,t'}$), plus 2) the change in home equity at their second house due to housing market dynamics at location l^* between times t^* and t ($\frac{H_{j,t}h_{l^*,t^*,t}}{1+h_{l^*,t^*,t}}$). As in the case of homeowners who do not move between survey waves, positive growth rates in the local housing market imply that counterfactual wealth will be less than actual wealth, since in the counterfactual model households do not realize changes in home equity from local housing market dynamics. Because the Between-Wave moves file is only available starting in 2003, I only calculate counterfactual wealth for PSID homeowners who move between survey years from 2003-2019.

I calculate counterfactual wealth for PSID households who only either transition into or out of homeownership between survey waves analogously, adjusting these households' wealth for between-wave changes in the equity of the home they moved into, or out of, due to housing market dynamics. I do not adjust household wealth for PSID households who do not own their residence in either the previous or current survey wave.

Table 1 illustrates an example of how counterfactual changes in household wealth would be calculated for two hypothetical PSID homeowners between 2017-19. Household 1 did not move between 2017 and 2019 and saw a 10% increase in their home value between these waves. Because their local housing market appreciated by 8% over this period, I assume their home value would have only increased by 2% between 2017-19 in the absence of housing market appreciation. Their

counterfactual home value in 2019 is thus \$204,000 ($\$200,000 \times 1.02$), \$16,000 less than their reported home value of \$220,000. This counterfactual change in home value then causes an equal counterfactual change in home equity, and in household wealth, over this period.

Meanwhile, Household 2 moved between 2017 and 2019 and reported owning their home in both survey waves. The local housing market around their 2017 home appreciated by 2% between their 2017 PSID interview date and the date the reference person moved out of that home, while the local housing market around their 2019 home appreciated by 4% between the date the reference person moved into that home and the 2019 PSID interview date. In the counterfactual scenario without housing market appreciation, I estimate Household 2 would have lost \$6,000 in home equity from their 2017 home ($\$300,000 \times 2\%$) and \$15,000 in home equity from their 2019 home ($\$390,000 / 1.04$), for a total counterfactual change in home equity (and household wealth) of \$21,000 between 2017-19.

Though this counterfactual model does not capture all plausible pathways through which housing market dynamics may affect household wealth (and through this, White-Black wealth gaps), this model provides a reasonable first-order approximation to the causal effects of housing market dynamics on housing wealth. While research has found that exogenous changes in housing wealth do facilitate desired life course transitions (e.g., Lovenheim 2011), research has found small effects of changes in housing wealth on household consumption (Carroll et al. 2011), suggesting that any indirect effects of changes in house prices on wealth are likely negligible in relation to the direct wealth effects. Though this is not a causal model, trade-offs between population description and causal analysis are often necessary (Western and Rosenfeld 2011:521), and this model helps us understand the pathways through which housing market dynamics have affected the distributions of White and Black wealth over time.

Because the PSID has wealth information in all survey years after 1999, in these years I focus on how between-wave housing market dynamics affect between-wave changes in household wealth. However, household wealth is only available in the PSID every five years from 1984 to 1999. To estimate how housing market dynamics affect changes in household wealth between these five-year spans, I account for the cumulative effect of housing market dynamics on households' home equity over time until the next PSID wave with wealth data. For example, after estimating a household's counterfactual house value in 1985 in the absence of housing market dynamics between 1984-85,

I then use this 1985 counterfactual house value as the starting point to estimate the household’s counterfactual house value in 1986 in the absence of housing market dynamics between 1985-86. If this household instead moved between 1985 and 1986, the counterfactual change in household home equity from 1984-85 is still accounted for when calculating counterfactual wealth in 1989. While this method does account for the compounding effects of housing market dynamics on house values over time, the assumption that constant housing markets would not strongly affect household financial decision-making may be less credible over a longer period of time.

Counterfactual Effects on White-Black Wealth Gap and Underlying Mechanisms

After calculating counterfactual changes in household wealth between PSID wealth surveys from 1984-2019, I calculate how these counterfactual changes would have affected changes in the distributions of White and Black wealth. I then compare the actual and counterfactual yearly changes in median White and Black wealth—and in the median White-Black wealth gap—between PSID wealth surveys from 1984-2019. Next, I extrapolate from the counterfactual between-wave percentage changes in White and Black wealth from 1984-2019 to estimate the cumulative effects of housing market changes on median White and Black wealth, and in the median White-Black wealth gap. In addition to examining how between-wave housing market dynamics affect changes in absolute median White-Black wealth gaps, I also examine effects on relative median White-Black wealth gaps.

Finally, I explore three mechanisms that may underlie the relationship between housing market dynamics and absolute change in the White-Black wealth gap: White-Black gaps in homeownership, White-Black gaps in house prices, and White-Black gaps in local deviations from national housing market changes. Because the relative sparseness of tract-level HPI data before 1999 makes it difficult to identify the relative role of White-Black gaps in local deviations from national housing market changes, I focus in this analysis on exploring the relative role of these mechanisms between 1999-2019.

White-Black gaps in homeownership: Let WG_y be the absolute change in the median White-Black wealth gap between years $y - 1$ and y , and WG_y^c be the analogous measure under the counterfactual of no housing market changes. To estimate how White-Black gaps in homeownership affect the relationship between housing market dynamics and changes in the White-Black wealth

gap, I reweight the sample of Black households in waves $y - 1$ and y to share the homeownership rate of White households.² Using this reweighted sample, I then calculate the actual change in the White-Black wealth gap between $y - 1$ and y , WG_y^{ho} , as well as under the counterfactual of no housing market changes, $WG_y^{c,ho}$. I use these values to define a measure of the contribution of White-Black gaps in homeownership to the relationship between housing market dynamics and the White-Black wealth gap between $y - 1$ and y , hWG_y , as follows:

$$hWG_y = 1 - \frac{WG_y^{ho} - WG_y^{c,ho}}{WG_y - WG_y^c}. \quad (3)$$

In words, this expression reflects the contribution of housing market dynamics (under equal rates of homeownership) towards change in the White-Black wealth gap, as a percentage of the contribution of housing market dynamics (under existing rates of homeownership) towards change in the White-Black wealth gap.

White-Black gaps in house prices: Second, to estimate how White-Black gaps in house prices affect the relationship between housing market dynamics and changes the White-Black wealth gap, I reweight the sample of Black homeowners to share the same distribution of house prices as the sample of White homeowners. As above, for all consecutive survey waves $y - 1$ and y , I calculate change in the White-Black wealth gap using this reweighted sample, both based on actual housing market dynamics (WG_y^{hv}) and on the counterfactual of no housing market changes, $WG_y^{c,hv}$. I then use these values, alongside WG_y and WG_y^c , to define the contribution of White-Black gaps in house prices to the relationship between housing market dynamics and changes in the White-Black wealth gap, vWG_y , as follows:

$$vWG_y = 1 - \frac{WG_y^{hv} - WG_y^{c,hv}}{WG_y - WG_y^c}. \quad (4)$$

White-Black gaps in local deviations from national housing market dynamics: Finally, to calculate how White-Black gaps in local deviations from national housing market dynamics affect the relationship between housing market dynamics and changes in the White-Black wealth gap, I calculate how household wealth would have changed under the counterfactual of no local deviations from

²In Appendix B, I provide greater detail on the reweighting procedures used to estimate the explanatory power of White-Black gaps in homeownership and White-Black gaps in house prices towards the relationship between housing market dynamics and changes in the White-Black wealth gap.

national housing market dynamics. Here, instead of adjusting house price changes by tract-level FHFA HPI in calculating the counterfactual model presented above, I adjust house price changes by the difference between the tract- and national-level changes in the FHFA HPI. Let WG_y^n be the change in the White-Black wealth gap between years $y - 1$ and y under this counterfactual. Then, I define the contribution of local deviations from national house price dynamics towards changes in the White-Black wealth gap, nWG_y , as follows:

$$nWG_y = 1 - \frac{WG_y^n - WG_y^c}{WG_y - WG_y^c}. \quad (5)$$

Findings

Housing Market Dynamics and White and Black Wealth

The top panel of Figure 3 shows the average yearly percentage change in the real FHFA HPI between PSID wealth waves, while the bottom panel shows both the actual absolute changes in the median White-Black wealth gap between PSID wealth waves (solid line) and the counterfactual absolute changes that result from PSID households not realizing wealth effects from housing market dynamics between survey waves (dashed line). As can be seen on the top panel, the national housing market appreciated between most PSID wealth waves over the study period, with the exception of the 1989-1994 and 2007-2013 periods. Turning to the bottom panel, we see that median White-Black wealth gaps grew across the 1990s and most of the 2000s, declined rapidly during the Great Recession, and subsequently widened again throughout the rest of the 2010s.

Comparing the actual and counterfactual changes in the median White-Black wealth gaps in the bottom panel of Figure 3, we see that the solid line measuring actual changes in the median White-Black wealth gap is above the dashed line measuring counterfactual changes in the median White-Black wealth gap for most of the study period. This indicates that, for most of the period, median White-Black wealth gaps would have grown by less (and, in some cases, would have shrank by more) in the absence of the effects of housing market dynamics on homeowners' home equity. In fact, the only between-wave periods where the dashed line is above the solid line—indicating that median White-Black wealth gaps would have grown by more (or shrank by less) in the absence of housing market dynamics—are 1989-1994 and 2007-2013, which are also only between-wave periods

where the national housing market depreciated (as seen in the top panel). This result indicates that housing market appreciation widens absolute gaps in the amount of wealth held by the median White and median Black household, while housing market depreciation reduces these absolute gaps. While median White and Black wealth both rise (fall) as a result of housing market appreciation (depreciation), median White wealth levels are more sensitive to housing market dynamics than are median Black wealth levels (see Appendix Figure 1).

How sizable is the effect of housing market dynamics between 1984-2019 on the median White-Black wealth gap? Figure 4 presents the actual absolute median White-Black wealth gap as measured in PSID wealth waves from 1984-2019 (solid line), alongside the corresponding accumulated counterfactual wealth gap that would have resulted had median White and Black household both experienced the between-wave percentage changes in household wealth as calculated under the counterfactual of no housing market appreciation.^{3 4} Most strikingly, Figure 4 shows that housing market dynamics explain almost all of the growth in the median White-Black wealth gap between 1984-2019. While the median White-Black wealth gap in the PSID widened by over \$31,500 from 1984-2019, a 35% increase from the 1984 gap, I estimate that, in the absence of housing market appreciation over this period, this gap would have only widened by around \$2,000, or a 2% increase from 1984.

It is notable how housing market appreciation widened the absolute median White-Black wealth gap during the periods of housing market appreciation between 1994-2007 and 2013-2019. Whereas the actual median White-Black wealth gap grew by 40% from 1994 to 2007, I estimate that in the absence of housing market appreciation, the median White-Black would have actually shrank by .5%. Similarly, while the actual median White-Black wealth gap grew by 24% from 2013 to 2019, I estimate that the median White-Black wealth gap would have actually narrowed by 4% in the absence of housing market appreciation. In contrast, while the median White-Black wealth gap shrank by 27% between 2007 and 2013, I estimate that the median White-Black wealth gap would have actually grown by 6% over this period in the absence of housing market depreciation.

Next, Figure 5 shows the relationship between housing market dynamics and the (counterf)actual

³Calculating the accumulated counterfactual wealth gap based on between-wave absolute changes in percentage wealth generates virtually identical results.

⁴Appendix Figure 2 decomposes Figure 4 into trends in the counterf(actual) median White and Black wealth from 1984-2019.

annual changes in median Black wealth as a percentage of median White wealth, expressed in percentage point changes per year. During time periods where the dashed (counterfactual) line is above the solid (actual) line, relative median Black wealth would have grown by more in the absence of housing market dynamics, and vice versa. By comparing the top and bottom panel, we see less of a direct relationship between housing market dynamics and changes in relative median White-Black wealth gaps than was seen with changes in absolute White-Black wealth gaps. Housing market appreciation narrowed relative median White-Black wealth gaps between 1999-2001 and 2013-2019, but widened relative median White-Black wealth gaps between 1984-1989, 1994-1999, and 2001-2007. On the other hand, housing market depreciation was associated with widening relative median White-Black wealth gaps in all periods.

Explanatory Mechanisms

What factors explain the relationship between housing market dynamics and changes in the median White-Black wealth gap? Figure 6 displays the percentage contributions of White-Black gaps in homeownership, house values, and local deviations from national housing market changes (colored in green, orange, and blue, respectively) towards explaining the between-wave relationships between housing market dynamics and changes in the median White-Black wealth gap. Because the relative sparseness of tract- and county-level FHFA HPI data before 1999 makes it difficult to accurately estimate local deviations from national housing market changes, this figure only spans PSID waves from 1999 to 2019.

Across all between-wave spans, White-Black gaps in homeownership explain the greatest portion of the relationship between housing market dynamics and changes in the median White-Black wealth gap; that is, under equal rates of White and Black homeownership, housing market appreciation (depreciation) would have led to much smaller increases (decreases) in the median White-Black wealth gap. In contrast to White-Black gaps in homeownership, White-Black gaps in home values explain very little of the relationship between housing market dynamics and changes in the median White-Black wealth gap.

Finally, for most between-wave spans, local deviations from national housing market changes actually explain a negative portion of the relationship between housing market dynamics and changes in the median White-Black wealth gap. This indicates that, during the housing market booms

from 1999-2007 and 2013-2019, median-wealth Black homeowners lived in neighborhoods that experienced greater housing market appreciation than the neighborhoods median-wealth White PSID homeowners lived in, and so experienced greater percentage increases in home equity from housing market appreciation. In the absence of White-Black differences in local housing market appreciation during these periods, then, median White-Black wealth gaps would have grown by even more. In contrast, during the housing market crash of 2007-2013, median-wealth Black PSID homeowners lived in neighborhoods that experienced greater housing market depreciation than the neighborhoods median-wealth White PSID homeowners lived in, which counteracted the broader effect of housing market depreciation on narrowing median White-Black wealth gaps.

Mean vs. Median White-Black Wealth Gaps

Appendix Figures 3-6 contain analogous figures to Figures 3-6, instead examining the effects of housing market dynamics on mean instead of median White-Black wealth gaps. Though the findings are qualitatively similar whether considering mean or median White-Black wealth gaps, three differences are of note.

First, housing market dynamics explain a substantial amount of growth in the mean White-Black wealth gap from 1984-2019, but a smaller percentage than of the growth in median White-Black gaps (Appendix Figure 4). Much of the growth in mean White-Black wealth gaps likely came from corporate equity appreciation over this period (Yahoo! Finance 2023), as higher-wealth households hold relatively more of their wealth in businesses and equities, and White households own almost all corporate equity held by households in the United States (Palladino 2022).

Second, there is more of a direct relationship between housing market dynamics and relative mean White-Black gaps than for relative median White-Black wealth gaps (Appendix Figure 5): in all but one between-wave period, housing market appreciation (depreciation) increased (decreased) mean Black wealth as a percentage of mean White wealth. This difference likely stems from there being relatively fewer median-wealth Black households who own their home. As such, housing market dynamics may have not affected median Black wealth as strongly as mean Black wealth, in spite of the greater importance of home equity to Black wealth than White wealth overall.

Third, while White-Black gaps in homeownership are relatively less important in explaining the relationship between housing market dynamics and mean White-Black wealth gaps (Appendix

Figure 6), because White-Black gaps in homeownership among all households are smaller than gaps in homeownership between median-wealth White and median-wealth Black households. In contrast, White-Black gaps in home values are more important in explaining the relationship between housing market dynamics and mean White-Black wealth gaps, because mean wealth better accounts for homeowners with particularly high home values whose home equity is more strongly affected by housing market changes.

Discussion

In the last several decades, the gap in the amount of wealth held by White households and Black households has widened. This is concerning not just because wealth is an important predictor of life outcomes, but also because wealth inequalities persist across generations (Pfeffer and Killewald 2019). Widening White-Black wealth gaps, then, have the potential not just to increase inequality in life outcomes in the present, but also to decrease equality of opportunity in future generations.

In this paper, I merge nationally representative household wealth data to tract-level house price index data, in order to simulate how household wealth holdings would have changed over time under a counterfactual where housing markets neither appreciated nor depreciated between 1984-2019. I find that housing market dynamics account for almost all of the growth in the median White-Black wealth gap over this period. This finding points to the importance of cumulative advantage processes in fostering White-Black wealth inequality, as initial White-Black gaps in home equity mean that White households received greater absolute wealth benefits from housing market appreciation over the past several decades. Given the role that institutional racism played in creating these White-Black gaps in home equity, this finding highlights how the legacies of institutional racism may still contribute to present-day racial inequalities.

I also find that, while White households experience greater absolute wealth gains from housing market appreciation, Black households generally experience greater relative gains in wealth from housing market appreciation, as a result of having a greater share of wealth in home equity. This somewhat paradoxical finding echoes the work of scholars who have highlighted that policies or social processes that reduce relative racial wealth gaps may at the same time make it more difficult to achieve absolute racial equity (e.g., Seamster 2019). To the extent that absolute levels of wealth

have positive effects on life outcomes, housing market appreciation may have widened White-Black disparities in other social domains. But, housing market appreciation may have somewhat White-Black inequalities in life outcomes that stem from relative deprivation pathways.

I then test for mechanisms that might underlie the relationship between housing market dynamics and White-Black gaps in wealth. I find that White-Black gaps in homeownership account for the greatest portion of the relationship between housing market dynamics and changes in the absolute median White-Black wealth gap. In contrast, I find little role of White-Black gaps in house prices on the relationship between housing market dynamics and changes in median White-Black wealth gaps, though I do find this mechanism has a greater effect when considering mean White-Black wealth gaps. Finally, I find that local deviations from national housing market dynamics generally negatively moderate the relationship between housing market dynamics and changes in the White-Black wealth gaps, indicating that median-wealth Black homeowners experienced greater housing market appreciation in the neighborhoods they lived than did median-wealth White homeowners. Though I do not directly examine gentrification in this study, it is plausible that gentrification in the 2000s and 2010s of predominantly-Black neighborhoods drove disproportionate wealth benefits to Black homeowners. While the relative benefits and harms of gentrification to existing residents continue to be fiercely debated (e.g., Brown-Saracino 2017), one under-theorized benefit of gentrification may be the wealth benefits gentrification can deliver to existing homeowners.

There are some limitations to this study. As discussed earlier, this counterfactual exercise does not necessarily capture a causal estimate of the effect of housing market dynamics on the White-Black wealth gap. For one, this analysis does not account for indirect mechanisms through which housing market dynamics may have affected household wealth, like increases in home equity leading to increases in consumption, or households who are renting finding it more difficult to transition to homeownership. Additionally, this analysis only captures effects through changes in the value of a household's primary residence. Under the expectation that the 5% of U.S. households who own multiple homes (Statista 2018) are higher-wealth and thus disproportionately White, the effect of housing market appreciation on widening White-Black wealth gaps may be even larger than estimated here. Finally, because the final data for the 2021 PSID have not yet been released, this study does not examine the effect of the rapid housing market appreciation during the COVID-19 pandemic on White-Black wealth gaps.

This results of this paper have implications for contemporary policy debates. In the wake of the Great Recession, which saw wide racial gaps in homeownership exit, scholars have debated whether homeownership is actually beneficial to minority wealth accumulation (e.g., Herbert et al. 2013). I find that homeowners received substantial wealth gains from homeownership over the past several decades, consistent with previous research that analyzed this relationship in the decades before the Great Recession (Shapiro et al. 2013; Killewald and Bryan 2016). To be sure, housing has historically been a volatile asset, and there are no guarantees that households who transition to homeownership at any given point in time will experience these same wealth gains. However, programs that help to boost minority homeownership and/or prevent minority homeownership exits could give Black households greater opportunity to experience wealth benefits of homeownership.

Additionally, these results speak towards current policy debates over whether or how to address rising housing prices, which not only widen White-Black wealth gaps but also make it more difficult for lower-wealth households to transition to homeownership. Indeed, several factors—including a growing cohort of young adults looking to buy homes (Peterson 2021), low rates of housing production (Parrott and Zandi 2021), and a shift towards remote working (Mondragon and Wieland 2022)—indicate that recent housing market appreciation could be more durable. In considering policies to address housing affordability—whether reforming land use regulations to allow for more housing, instituting land value taxes to encourage residential development on valuable land, and/or providing homeownership subsidies for low-income households—policymakers should consider which families will disproportionately benefit from rising housing costs, and which families will fall farther behind.

References

- Attanasio, Orazio and Hilary Hoynes. 2000. "Differential Mortality and Wealth Accumulation." *Journal of Human Resources* 35(1):1-29.
- Bhutta, Neil, Andrew C. Chang, Lisa J. Dettline, and Joanne W. Hsu. 2020. "Disparities in Wealth by Race and Ethnicity in the 2019 Survey of Consumer Finances." Board of Governors of the Federal Reserve System FEDS Notes. September 28. [Link](#).
- Boehm, Thomas P. and Alan M. Schlottman. 2004. "The dynamics of race, income, and homeownership." *Journal of Urban Economics* 55:113-130.
- Bogin, Alexander N., William M. Doerner, and William D. Larson. 2016. "Local House Price Dynamics: New Indices and Stylized Facts." FHFA Staff Working Paper 16-01.
- Brown-Saracino, Japonica. 2017. "Explicating Divided Approaches to Gentrification and Growing Income Inequality." *Annual Review of Sociology* 43:515-39.
- Carroll, Christopher D., Misuzu Otsuka, and Jiri Slacalek. 2011. "How Large Are Housing and Financial Wealth Effects? A New Approach." *Journal of Money, Credit and Banking* 43(1):55-79.
- Conklin, James N., Kristopher Gerardi, and Lauren Lambie-Hanson. 2022. "Can Everyone Tap Into the Housing Piggy Bank? Racial Disparities in Access to Home Equity." Federal Reserve Bank of Atlanta Working Paper Series. Working Paper 2022-17. [Link](#).
- Conley, Dalton. 1999. *Being Black, Living in the Red: Race, Wealth, and Social Policy in America*. Berkeley, CA: University of California Press.
- Conley, Dalton. 2001. "Capital for College: Parental Assets and Educational Attainment." *Sociology of Education* 74(1):59-73.
- Conley, Dalton and Jason Thompson. 2013. "The Effects of Health and Wealth Shocks on Retirement Decisions." *Federal Reserve Bank of St. Louis Review* 95(5):389-404.
- Cororaton, Scholastica. 2022. "Single-family Homeowners Typically Accumulated \$225,000 in Housing Wealth Over 10 Years." National Association of Realtors Blog. [Link](#).
- Derenoncourt, Ellora, Chi Hyun Kim, Moritz Kuhn, and Moritz Schularick. 2022. "Wealth of two nations: The U.S. racial wealth gap, 1860-2020." NBER working paper 30101. [Link](#).
- DiPrete, Thomas A. and Gregory M. Eirich. 2006. "Cumulative Advantage as a Mechanism for Inequality: A Review of Theoretical and Empirical Developments." *Annual Review of Sociology* 32:271-96.
- Evans, William N., Michael Hout, and Susan E. Mayer. 2004. "Assessing the effect of economic inequality." Pp. 933-968 in *Social Inequality*. Russell Sage Foundation.
- Federal Housing Finance Agency. 2023. "House Price Index Datasets." Accessed January 9. [Link](#).
- Frank, Robert. 2007. *Falling Behind: How Rising Inequality Harms the Middle Class*. University of California Press.
- Freeman, Lance and Tiancheng Cai. 2015. "White Entry into Black Neighborhoods: Advent of a New Era?" *The ANNALS of the American Academy of Political and Social Science*. 660(1):302-18.

- Goodman, John and John B. Ittner. 1992. "The accuracy of home owners' estimates of house value." *Journal of Housing Economics* 2(4):339-357.
- Gyourko, Joseph, Christopher Mayer, and Todd Sinai. 2013. "Superstar Cities." *American Economic Journal: Economic Policy* 5(4):167-199.
- Hacker, Jacob S. 2006. *The Great Risk Shift: The New Economic Insecurity and the Decline of the American Dream*. Oxford: Oxford University Press.
- Herbert, Christopher, Daniel McCue, and Rocio Sanchez-Moyano. 2013. "Is Homeownership Still an Effective Means of Building Wealth for Low-Income and Minority Households? (Was It Ever?)." Harvard Joint Center for Housing Studies Working Paper. HBTL-06.
- Hurd, Michael and Arie Kapteyn. 2003. "Health, Wealth, and the Role of Institutions." *Journal of Human Resources* 33(2):386-415.
- Kamin, Debra. 2020. "Black Homeowners Face Discrimination in Appraisals." New York Times. August 25. [Link](#).
- Killewald, Alexandra and Brielle Bryan. 2016. "Does Your Home Make You Wealthy?" *RSF: The Russell Sage Foundation Journal of the Social Sciences* 2(6):110-128.
- Killewald, Alexandra, Fabian T. Pfeffer, and Jared N. Schnachner. 2017. "Wealth Inequality and Accumulation." *Annual Review of Sociology* 43:379-404.
- Krivo, Lauren J. and Robert L. Kaufman. 2004. "Housing and wealth inequality: Racial-ethnic differences in home equity in the United States." *Demography* 41:585-605.
- Lee, Trymaine. 2019. "How America's Vast Racial Wealth Gap Grew: By Plunder." New York Times. [Link](#). August 14.
- Lovenheim, Michael F. 2011. "The Effect of Liquid Housing Wealth on College Enrollment." *Journal of Labor Economics* 29(4):741-71.
- McCabe, Brian. 2016. *No Place Like Home: Wealth, Community, and the Politics of Homeownership*. Oxford University Press.
- Mondragon, John A. and Johannes Wieland. 2022. "Housing Demand and Remote Work." NBER Working Paper No. 30041. [Link](#).
- Oliver, Melvin and Thomas M. Shapiro. 1995. *Black Wealth / White Wealth: A New Perspective on Racial Inequality*. New York, NY: Routledge Press.
- Orr, Amy J. 2003. "Black-White Differences in Achievement: The Importance of Wealth." *Sociology of Education* 76(4):281-304.
- Owens, Ann. 2012. "Neighborhoods on the Rise: A Typology of Neighborhoods Experiencing Socioeconomic Ascent." *City & Community* 11(4):345-369.
- Palladino, Lenore M. 2022. "The Contribution of Shareholder Primacy to the Racial Wealth Gap." *The Review of Black Political Economy*. Online first.
- Parrott, Jim and Mark Zandi. 2021. "Overcoming the Nation's Daunting Housing Supply Shortage." Urban Institute report. [Link](#).
- Pattillo, Mary. 2013 "Housing: Commodity versus Right." *Annual Review of Sociology* 39:509-31.
- Perry, Andre, Jonathan Rothwell, and David Harshbarger. 2018. "The Devaluation of Assets in Black Neighborhoods: The case of residential property." Brookings Metropolitan Policy Program report.

- Peterson, Dana M. 2021. "Millenials Will Drive Up Home Prices for Years to Come." Barron's. [Link](#).
- Pfeffer, Fabian T., Robert F. Schoeni, Arthur Kennickell, and Patricia Andreski. 2016. "Measuring Wealth and Wealth Inequality." *Journal of Economic and Social Measurement*. 41(2):103-120.
- Pfeffer, Fabian T. and Jamie Griffin. 2017. "Determinants of Wealth Fluctuations: Changes in Hard-To-Measure Economic Variables in a Panel Study." *methods, data, analyses*. 11(1):87-108.
- Pfeffer, Fabian T. and Alexandra Killewald. 2019. "Intergenerational Wealth Mobility and Racial Inequality." *Socius* 5:1-2.
- Quillian, Lincoln, John J. Lee, and Brandon Honoré. 2020. "Racial Discrimination in the U.S. Housing and Mortgage Lending Markets: A Quantitative Review of Trends, 1976-2016." *Race and Social Problems* 12(1):13-28.
- Reardon, Sean F. and Kendra Bischoff. 2011. "Income Inequality and Income Segregation." *American Journal of Sociology* 116(4):1092-1153.
- Rothstein, Richard. 2017. *The Color of Law: A Forgotten History of How Our Government Segregated America*. W.W. Norton & Company.
- Rothwell, Jonathan and Andre M. Perry. 2021. "Biased appraisals and the devaluation of housing in Black neighborhoods." Brookings Institute blog post. [Link](#).
- Schneider, Daniel. 2011. "Wealth and the Marital Divide." *American Journal of Sociology* 117(2):627-667.
- Seamster, Louise. 2019. "how should we measure the racial wealth gap? relative vs. absolute gaps in the student debt forgiveness debate." Scatterplot blog. July 27. [Link](#).
- Shapiro, Thomas, Tatjana Meschede, and Sam Osoro. 2013. "The Roots of the Widening Racial Wealth Gap: Explaining the Black-White Economic Divide." [Link](#).
- Sharp, Gregory and Matthew Hall. 2014. "Emerging Forms of Racial Inequality in Homeownership Exit, 1968-2009." *Social Problems* 61(3):427-447.
- Statista. 2018. "Share of Americans who own a second home in 2018, by age." [Link](#).
- U.S. Bureau of Labor Statistics. 2021. Consumer Price Index for All Urban Consumers: All Items Less Shelter in U.S. City Average [CUUR0000SA0L2], retrieved from FRED, Federal Reserve Bank of St. Louis. Accessed April 26, 2021. [Link](#).
- U.S. Census Bureau. 2022. *Table 16: Homeownership rates by race and ethnicity of householder: 1994 to present*. Current Population Survey / Housing Vacancy Survey. [Link](#).
- Western, Bruce and Jake Rosenfeld. 2011. "Unions, Norms, and the Rise in US Wage Inequality." *American Sociological Review* 76(4):513-537.
- Wilkinson, Richard and Kate Pickett. 2009. "Income Inequality and Social Dysfunction." *Annual Review of Sociology* 35:493-511.
- Wolff, Edward N. 2016. "Household Wealth Trends in the United States, 1962 to 2013: What Happened over the Great Recession?" *RSF: The Russell Sage Foundation Journal of the Social Sciences* 2(6):24-43.
- Yahoo! Finance. 2023. S&P 500 Historical Data. [Link](#).

Zuk, Miriam, Ariel H. Bierbaum, Karen Chapple, Karolina Gorska, and Anastasia Loukaitou-Sideris. 2018. "Gentrification, Displacement, and the Role of Public Investment." *Journal of Planning Literature* 33(1):31-44.

Tables and Figures

Table 1. Example Household Wealth Trajectory, No Housing Market Appreciation

Hypothetical PSID household Year	(1)		(2)	
	2017	2019	2017	2019
Reported home value	\$200,000	\$220,000	\$300,000	\$390,000
Moved between 2017-2019?	—	No	—	Yes
Condition: no move between waves				
2017-19 growth rate, home value	—	10%	—	—
2017-19 growth rate, FHFA HPI	—	8%	—	—
Counterfactual growth rate, home value	—	2%	—	—
Counterfactual home value	—	\$204,000	—	—
Counterfactual change in home equity	—	-\$16,000	—	—
Condition: move between waves				
Growth rate, FHFA HPI, while at 1st residence	—	—	—	2%
Counterfactual change in home equity, 1st res.	—	—	—	-\$6,000
Growth rate, FHFA HPI, while at current residence	—	—	—	4%
Counterfactual change in home equity, cur. res.	—	—	—	-\$15,000
Total counterfactual change in home equity	—	—	—	-\$21,000

Figure 1: Absolute and Relative Median White-Black Wealth Gaps, 1984-2019

Source: Panel Study of Income Dynamics. Here, White households are households for whom the head / reference person and/or the spouse / partner are non-Hispanic White, and Black households households for whom the head / reference person and/or the spouse / partner are non-Hispanic Black. Dollar amounts have been adjusted for inflation to 2019 levels.

Figure 2: FHFA House Price Index, 1980-2021

Source: Federal Housing Finance Agency House Price Index, adjusted for inflation using the Consumer Price Index for All Urban Consumers: All Items Less Shelter (U.S. Bureau of Labor Statistics 2021).

Figure 3: Changes in Absolute Median White-Black Wealth Gaps, 1984-2019

Source, top panel: Federal Housing Finance Agency House Price Index, adjusted for inflation using the Consumer Price Index for All Urban Consumers: All Items Less Shelter (U.S. Bureau of Labor Statistics 2021).

Source, bottom panel: Panel Study of Income Dynamics and author's calculations.

Figure 4: Accumulated Effect of Housing Market Changes on Median White-Black Wealth Gap, 1984-2019

Source: Panel Study of Income Dynamics and author's calculations.

Figure 5: Changes in Relative Median White-Black Wealth Gaps, 1984-2019

Source, top panel: Federal Housing Finance Agency House Price Index, adjusted for inflation using the Consumer Price Index for All Urban Consumers: All Items Less Shelter (U.S. Bureau of Labor Statistics 2021).

Source, bottom panel: Panel Study of Income Dynamics and author's calculations.

Figure 6: Mechanisms Underlying Effect of Housing Market Changes on Absolute Median White-Black Wealth Gaps, 1999-2019

Source: Panel Study of Income Dynamics and author's calculations.

Appendix A: Robustness of Results to Using Zillow House Value Index

I test the robustness of using the tract-level FHFA HPI to measure the effect of housing market dynamics on White-Black wealth gaps to using zip-code data from Zillow’s mid-tier House Value Index (ZHVI, Hryniw 2019), which is designed to capture housing market dynamics among all homes between the 35th and 65th percentile of house value in a given area. There are several differences between the ZHVI and FHFA HPI that are worth highlighting.

First, unlike the FHFA HPI, the ZHVI accounts for price changes among a broader range of houses, since the FHFA HPI does not use data from homes that are not underwritten or guaranteed by Fannie Mae or Freddie Mac, or from homes that have not been sold and/or refinanced at least twice. In particular, Fannie Mae and Freddie Mac loans can only be originated on properties below certain limits, which means that the FHFA HPI is less representative of house price appreciation at the top of the market. However, this is also an issue with the ZHVI, which is only available by housing market tier (lower, middle, and higher).

Second, the ZHVI is better able to account for the introduction of new homes, and the demolition of old homes, when calculating housing market dynamics. However, this feature means that the ZHVI is not a price index in the same way that the FHFA HPI is, since the ZHVI captures both price and quantity changes (Bogin et al. 2016). Thus, the ZHVI for an area could increase where the FHFA HPI does not if existing homes do not appreciate but newly-built homes do appreciate.

Third, the mid-tier ZHVI is based on co-operative homes and condominiums as well as single-family homes, whereas the FHFA is just based on single-family homes.

Fourth, the most granular geographic level the ZHVI is offered at across the nation is the five-digit ZIP code, which is larger than the Census tract-level data available in the FHFA. While Census tracts are not necessarily neighborhoods, Census tracts are sometimes defined to match community boundaries (e.g., U.S. Census Bureau 2013) and the use of Census tracts to proxy for neighborhoods is common in quantitative research. In contrast, ZIP codes are based on US Postal Service delivery routes, which do not neatly correspond to socioeconomically homogenous areas (e.g., Forrest 2019). As such, ZIP code-level housing market dynamics likely corresponds less well to the neighborhood-level housing market dynamics than does tract-level housing market dynamics.⁵

Finally, the mid-tier ZHVI is only available dating back to 2000. Thus, in the below figures, I only estimate the effects of housing market dynamics (as measured by the ZHVI) on White-Black wealth gaps from 2001-2019.

Appendix Figures 7-10 replicate Figures 3-6, with the mid-tier ZHVI used to estimate housing market dynamics instead of the FHFA HPI. The effects of housing market dynamics on median White-Black wealth gaps, as measured in the PSID, are qualitatively similar whether the FHFA HPI or ZHVI is used.

References

- Bogin, Alexander N., William M. Doerner, and William D. Larson. 2016. “Local House Price Dynamics: New Indices and Stylized Facts.” FHFA Staff Working Paper 16-01.
- Forrest, Matt. 2019. “Stop Using Zip Codes for Geospatial Analysis.” [Online link](#).

⁵While Zillow offers a neighborhood ZHVI, it does not cover all land in the US, and Zillow does not provide a crosswalk to link neighborhoods to Census or USPS geographies.

Hryniw, Natalia. 2019. "Zillow Home Value Index Methodology, 2019 Revision: Getting Under the Hood." December 18. Accessed on April 21, 2020. [Online link](#).

U.S. Census Bureau. 2013. "Finding Data for My Community." June. [Online link](#).

Appendix B: Detailed Description of Counterfactual Model and Reweighting

Below, I describe how I adjust household wealth for PSID households to account for the effect of local housing market changes between survey waves on changes in homeowners' home equity. I consider five scenarios that cover all PSID households that appear in consecutive survey waves, based on their homeownership status in each survey wave and whether or not the household moved between survey waves. I then discuss how I account for the effect of local housing market changes on homeowners' house prices across multiple survey waves when calculating counterfactual wealth. Finally, I elaborate more fully on the reweighting procedure I employ to estimate the contribution of White-Black gaps in homeownership and house prices towards the relationship between changes in house prices and changes in the White-Black wealth gap.

Adjusting Household Wealth for Local Housing Market Changes

Case 1: Homeowners, No Moving Between Survey Waves

I first consider PSID homeowners i who do not move between survey waves. Let $W_{i,t}$ and $H_{i,t}$ be the wealth and house price, respectively, of PSID household i at survey wave t . Additionally, let $h_{i,t-1,t}$ be the growth rate between survey waves $t-1$ and t in the house value of PSID household i , and $h_{n,t-1,t}$ be the growth rate between survey waves $t-1$ and t in house prices in household i 's neighborhood n . From the definition of $h_{i,t-1,t}$, we have:

$$H_{i,t} = H_{i,t-1}(1 + h_{i,t-1,t}). \quad (6)$$

The counterfactual model used in this paper is based on a decomposition of changes in PSID households' house prices into 1) local housing market changes and 2) a residual term capturing household-specific deviations from the local housing market trend:

$$h_{i,t-1,t} = h_{n,t-1,t} + \epsilon_{i,t}. \quad (7)$$

Let $h_{i,t-1,t}^c$ be the increase in household i 's house price between survey waves $t-1$ and t under the counterfactual where the local housing market doesn't change, but all other factors that affect house prices remain the same (so $h_{n,t-1,t}^c = 0$ and $\epsilon_{i,t}^c = \epsilon_{i,t}$). Thus, we can express the counterfactual house price change as the difference between the actual house price change and the local housing market change:

$$h_{i,t-1,t}^c = h_{n,t-1,t}^c + \epsilon_{i,t}^c \quad (8)$$

$$h_{i,t-1,t}^c = \epsilon_{i,t} \quad (9)$$

$$h_{i,t-1,t}^c = h_{i,t-1,t} - h_{n,t-1,t}. \quad (10)$$

$$(11)$$

The counterfactual house price at time t , $H_{i,t}^c$, then is:

$$H_{i,t}^c = H_{i,t-1}(1 + h_{i,t-1,t}^c) \quad (12)$$

$$H_{i,t}^c = H_{i,t-1}(1 + h_{i,t-1,t} - h_{n,t-1,t}). \quad (13)$$

Next, I calculate how this counterfactual change in house prices would have directly affected household wealth, only assuming a simple direct effect of changes in house values on changes in wealth:

$$W_{i,t}^c = W_{i,t} + H_{i,t}^c - H_{i,t} \quad (14)$$

$$W_{i,t}^c = W_{i,t} + H_{i,t-1}(1 + h_{i,t-1,t} - h_{n,t-1,t}) - H_{i,t}. \quad (15)$$

Finally, I calculate $\Delta W_{i,t-1,t}^c$, the counterfactual difference in wealth of household i at survey wave t due to local housing market changes since the previous survey wave, as follows:

$$\Delta W_{i,t-1,t}^c = W_{i,t}^c - W_{i,t} \quad (16)$$

$$\Delta W_{i,t-1,t}^c = H_{i,t-1}(1 + h_{i,t-1,t} - h_{n,t-1,t}) - H_{i,t}, \quad (17)$$

giving Equation 1 in the main paper.

Case 2: Homeowners, Moving Between Survey Waves

I next consider the case of PSID households who move from a home they own at survey wave $t-1$ in location l to a different home they own at survey wave t in location l^* . Let t' be the time household i moves out of their home in location l , and $H_{i,t'}$ be the house price of this home at the time of moving out (not observable in the PSID). Additionally, let t^* be the time household j moves into their home in location l^* , and H_{i,t^*} be the house price of this home at the time of moving in (also not observable in the PSID). Thus, we have:

$$H_{i,t'} = H_{i,t-1}(1 + h_{i,t-1,t'}) \quad (18)$$

$$H_{i,t} = H_{i,t^*}(1 + h_{i,t^*,t}). \quad (19)$$

Under the counterfactual of no local housing market changes, we calculate the counterfactual house prices as above:

$$H_{i,t'}^c = H_{i,t-1}(1 + h_{i,t-1,t'} - h_{l,t-1,t'}) \quad (20)$$

$$H_{i,t}^c = H_{i,t^*}(1 + h_{i,t^*,t} - h_{l^*,t^*,t}). \quad (21)$$

Here, I assume that household i sold their house in location l at time t' and bought their house in location l^* at time t^* . I then calculate how these counterfactual changes in house prices affect household i 's wealth at time t , accounting for both the differences in a) changes in the price of the house in location l between $t-1$ and t' , and b) changes in the price of the house in location l^* between t^* and t .

$$W_{i,t}^c = W_{i,t} + (H_{i,t'}^c - H_{i,t'}) + (H_{i,t}^c - H_{i,t}) \quad (22)$$

$$W_{i,t}^c = W_{i,t} + (H_{i,t-1}(1 + h_{i,t-1,t'} - h_{n,t-1,t'}) - H_{i,t-1}(1 + h_{i,t-1,t'})) \quad (23)$$

$$+ (H_{i,t^*}(1 + h_{i,t^*,t} - h_{n^*,t^*,t}) - H_{i,t^*}(1 + h_{i,t^*,t})) \quad (24)$$

$$W_{i,t}^c = W_{i,t} - H_{i,t-1}h_{n,t-1,t'} - H_{i,t^*}h_{n^*,t^*,t} \quad (25)$$

$$W_{i,t}^c = W_{i,t} - H_{i,t-1}h_{n,t-1,t'} - \frac{H_{i,t}h_{n^*,t^*,t}}{1 + h_{i,t^*,t}}. \quad (26)$$

The change between t^* and t in the price of household i 's home at survey wave t ($h_{i,t^*,t}$) is

not directly observable in the data, so I assume that this change is equal to $h_{l^*,t^*,t}$, the change in location l^* 's housing market over this time. This gives:

$$W_{i,t}^c = W_{i,t} - H_{i,t-1}h_{l,t-1,t'} - \frac{H_{i,t}h_{l^*,t^*,t}}{1 + h_{l^*,t^*,t}}. \quad (27)$$

Then, $\Delta W_{i,t-1,t}^c$, the counterfactual difference in wealth of household i at survey wave t due to local housing market changes since the previous survey wave, can be calculated as:

$$\Delta W_{i,t-1,t}^c = W_{i,t}^c - W_{i,t} \quad (28)$$

$$\Delta W_{i,t-1,t}^c = -\left(H_{i,t-1}h_{l,t-1,t'} + \frac{H_{i,t}h_{l^*,t^*,t}}{1 + h_{l^*,t^*,t}}\right), \quad (29)$$

giving Equation 2 in the main paper.

Case 3: Transitioning to Homeownership

The case where a PSID household transitions from renting in survey wave $t-1$ to owning their home in survey wave t is similar to Case 2, with the exception that they experience no counterfactual change in wealth from their time in their residence they were living in at time $t-1$. Let t^* be the time household i moves into this home and l^* be its location, and H_{i,t^*} be the house price of this home at the time of moving in (not observable in the PSID). Then, following the above, we can calculate:

$$H_{i,t} = H_{i,t^*}(1 + h_{i,t^*,t}) \quad (30)$$

$$H_{i,t}^c = H_{i,t^*}(1 + h_{i,t^*,t} - h_{n^*,t^*,t}) \quad (31)$$

$$W_{i,t}^c = W_{i,t} + H_{i,t}^c - H_{i,t} \quad (32)$$

$$W_{i,t}^c = W_{i,t} - \frac{H_{i,t}h_{n^*,t-1,t}}{1 + h_{n^*,t^*,t}} \quad (33)$$

$$\Delta W_{i,t-1,t}^c = -\frac{H_{i,t}h_{n^*,t-1,t}}{1 + h_{n^*,t^*,t}}. \quad (34)$$

Case 4: Transitioning Out of Homeownership

The case where a PSID household transitions from owning their home in $t-1$ to renting in survey wave t is also similar to Case 2, with the exception that they experience no counterfactual change in wealth from their time in the residence they were living in at time t . Let t' be the time household i moves out of this home in location l , and $H_{i,t'}$ be the house price of this home at the time of moving out (also not observable in the PSID). Then, following the above, we can calculate:

$$H_{i,t'} = H_{i,t-1}(1 + h_{i,t-1,t'}) \quad (35)$$

$$H_{i,t'}^c = H_{i,t-1}(1 + h_{i,t-1,t'} - h_{n,t-1,t'}) \quad (36)$$

$$W_{i,t}^c = W_{i,t} + (H_{i,t'}^c - H_{i,t'}) \quad (37)$$

$$W_{i,t}^c = W_{i,t} - H_{i,t-1}h_{n,t-1,t'} \quad (38)$$

$$\Delta W_{i,t-1,t}^c = -H_{i,t-1}h_{n,t-1,t'}. \quad (39)$$

Case 5: No Homeownership

In the case where a PSID household i does not own their home at survey waves $t - 1$ and t , their wealth is not adjusted for neighborhood house price changes between these waves; that is, $\Delta W_{i,t-1,t}^c = 0$.

Cumulative Effects of Housing Market Changes Between PSID Wealth Waves

Because the PSID has wealth information in all survey years after 1999, in these years I focus on how between-wave changes in the local housing market affect between-wave changes in household wealth. However, household wealth is only available in the PSID every five years from 1984 to 1999. To estimate how changes in the local housing market affect changes in household wealth between these five-year spans, I account for the cumulative effect of local housing market changes on households' home equity over time until the next PSID wave with wealth data. In waves between PSID wealth waves, I adjust homeowners' house prices for the counterfactual of no local housing market appreciation since the last PSID wealth wave.

Let t and $t + 5$ be years with PSID wealth waves such that there are no PSID wealth waves in between (that is, t is equal to 1984, 1989, or 1994). Further, let $H_{i,t+1}^c$ be the counterfactual house price of household i at time $t + 1$ in the absence of local housing market changes between t and $t + 1$. If household i owns the same house at time $t + 2$, I then calculate adjusted house prices at these times as follows:

$$H_{i,t+2}^{c,t} = H_{i,t+1}^c(1 + h_{i,t+1,t+2}). \quad (40)$$

$H_{i,t+2}^{c,t}$ is then the house price of household i at time $t + 2$, adjusted for neighborhood house price changes between t and $t + 1$ and assuming the same growth rate in household i 's house price between waves $t + 1$ and $t + 2$ as observed in the PSID.

I then use these adjusted house prices when calculating the effect of local housing market changes in future waves on future changes in house prices and household wealth. Specifically, for households who own their home in location l between waves $t + 1$ and $t + 2$ (Case 1 above), I calculate:

$$H_{i,t+2}^c = H_{i,t+1}^c(1 + h_{i,t+1,t+2} - h_{l,t+1,t+2}) \quad (41)$$

$$\Delta W_{i,t+1,t+2}^c = H_{i,t+1}^c(1 + h_{i,t+1,t+2} - h_{l,t+1,t+2}) - H_{i,t+2}^{c,t}. \quad (42)$$

For households who move out of the home they own between waves $t + 1$ and $t + 2$ at time t' , and move into a new home they own at time t^* (Case 2 above), I calculate:

$$H_{i,t'}^c = H_{i,t+1}^c(1 + h_{i,t+1,t'} - h_{l,t+1,t'}) \quad (43)$$

$$\Delta W_{i,t+1,t+2}^c = -\left(H_{i,t+1}^c h_{n,t+1,t'} + \frac{H_{i,t+2} h_{l^*,t^*,t+1}}{1 + h_{n^*,t^*,t+1}}\right). \quad (44)$$

Finally, for households who move out of their home between waves $t + 1$ and $t + 2$ at time t' , and are renting in wave $t + 2$ (Case 4 above), I calculate:

$$H_{i,t'}^c = H_{i,t+1}^c(1 + h_{i,t+1,t'} - h_{n,t+1,t'}) \quad (45)$$

$$\Delta W_{i,t+1,t+2}^c = -H_{i,t+1}^c h_{n,t+1,t'}. \quad (46)$$

Cases 3 and 5—which encompass the cases where the household does not own their house at time

t -do not have house prices after time t adjusted for local housing market changes between waves t and $t + 1$.

In future years, I use the same procedure to adjust house prices based on the counterfactual of no local housing market changes in previous waves.

Reweighting Procedures

Equalizing White and Black Homeownership Rates

To estimate the contribution of White-Black gaps in homeownership to the relationship between local housing market and changes in the White-Black wealth gap, I estimate how local housing market changes would have affected the White-Black wealth gap if Black households had the same rates of homeownership as White households. Let $w_{i,t}$ be the weight provided by the PSID for household i at survey wave t . Additionally, let $W_{i,t}$ and $B_{i,t}$ indicate whether household i is non-Hispanic White or non-Hispanic Black, respectively, and $homeown_{i,t}$ indicate whether household i owns their house at survey wave t . Finally, let $hr_{W,t}$ and $hr_{B,t}$ be the respective non-Hispanic White and non-Hispanic Black homeownership rates, calculated from PSID survey wave t using weights $w_{i,t}$. I then create the weight $w_{i,t}^{ho}$ as follows:

$$w_{i,t}^{ho} = \begin{cases} \frac{w_{i,t}hr_{W,t}}{hr_{B,t}} & \text{if } B_{i,t} = 1 \text{ \& } homeown_{i,t} = 1 \\ \frac{w_{i,t}(1-hr_{W,t})}{(1-hr_{B,t})} & \text{if } B_{i,t} = 1 \text{ \& } homeown_{i,t} = 0 \\ w_{i,t} & \text{otherwise.} \end{cases} \quad (47)$$

Relative to the original PSID weights, $w_{i,t}^{ho}$ upweights non-Hispanic Black households who own their homes by the factor $hr_{W,t}/hr_{B,t}$, and downweights non-Hispanic Black households who do not own their homes by the factor $(1 - hr_{W,t})/(1 - hr_{B,t})$. Under $w_{i,t}^{ho}$, non-Hispanic Black households have the same homeownership rate as do non-Hispanic White households.

Let WG_y be the absolute change in the White-Black wealth gap between years $y - 1$ and y , calculated using PSID weights w in each year, and WG_y^c be the analogous measure under the counterfactual of no local housing market changes. Then, let WG_y^{ho} be the absolute change in the White-Black wealth gap between $y - 1$ and y , calculated using weights w^{ho} in each year, and $WG_y^{c,ho}$ be the analogous measure under the counterfactual of no housing market appreciation. I use these values to define the contribution of White-Black gaps in homeownership to the relationship between local housing market changes and the White-Black wealth gap between years $y - 1$ and y , hWG_y , as follows:

$$hWG_y = 1 - \frac{WG_y^{ho} - WG_y^{c,ho}}{WG_y - WG_y^c}. \quad (48)$$

In words, this expression reflects the contribution of local housing market changes (under equal rates of homeownership) towards growth in the White-Black wealth gap, as a percentage of the contribution of local housing market changes (under existing rates of homeownership) towards growth in the White-Black wealth gap.

Equalizing White and Black House Values

To estimate the contribution of White-Black gaps in house values among homeowners to the relationship between local housing market changes and changes in the White-Black wealth gap, I estimate how local housing market changes would have affected the White-Black wealth gap if Black homeowners had the same distribution of house values as White homeowners. I first calculate the 10th, 25th, 50th, 75th, and 90th percentile values of house prices among non-Hispanic White households at survey wave t . Then, let $hv_{i,t}^{p1-p2}$ as a variable indicating whether the house price of household i at survey wave t is between percentile values $p1$ and $p2$ calculated above, and $hv_{W,t}^{p1-p2}$ and $hv_{B,t}^{p1-p2}$ as the percentage of non-Hispanic White and non-Hispanic Black homeowners, respectively, at survey wave t whose house prices are between percentile values $p1$ and $p2$ calculated above.

Here, I create an intermediate household-level weight, $w_{i,t}^{hv'}$, that adjusts the weights for non-Hispanic Black homeowners so that their distribution of house values is equal to the distribution of house values for non-Hispanic White households:

$$w_{i,t}^{hv'} = \begin{cases} \frac{w_{i,t} hv_{W,t}^{0-10}}{hv_{B,t}^{0-10}} & \text{if } B_{i,t} = 1 \ \& \ homeown_{i,t} = 1 \ \& \ hv_{i,t}^{0-10} = 1 \\ \frac{w_{i,t} hv_{W,t}^{10-25}}{hv_{B,t}^{10-25}} & \text{if } B_{i,t} = 1 \ \& \ homeown_{i,t} = 1 \ \& \ hv_{i,t}^{10-25} = 1 \\ \frac{w_{i,t} hv_{W,t}^{25-50}}{hv_{B,t}^{25-50}} & \text{if } B_{i,t} = 1 \ \& \ homeown_{i,t} = 1 \ \& \ hv_{i,t}^{25-50} = 1 \\ \frac{w_{i,t} hv_{W,t}^{50-75}}{hv_{B,t}^{50-75}} & \text{if } B_{i,t} = 1 \ \& \ homeown_{i,t} = 1 \ \& \ hv_{i,t}^{50-75} = 1 \\ \frac{w_{i,t} hv_{W,t}^{75-90}}{hv_{B,t}^{75-90}} & \text{if } B_{i,t} = 1 \ \& \ homeown_{i,t} = 1 \ \& \ hv_{i,t}^{75-90} = 1 \\ \frac{w_{i,t} hv_{W,t}^{90-100}}{hv_{B,t}^{90-100}} & \text{if } B_{i,t} = 1 \ \& \ homeown_{i,t} = 1 \ \& \ hv_{i,t}^{90-100} = 1 \\ w_{i,t} & \text{otherwise.} \end{cases} \quad (49)$$

While $w_{i,t}^{hv'}$ roughly equalizes the distribution of house values between non-Hispanic White and non-Hispanic Black homeowners, it does not necessarily preserve non-Hispanic Black homeownership rates. In order to use this weight to isolate the effect of White-Black gaps in house prices on the relationship between changes in house prices and changes in the White-Black wealth gap, it must be adjusted so that non-Hispanic Black homeownership rates are the same as when the original PSID weights $w_{i,t}$ are used. Let $hr_{B,t}^{hv'}$ be the non-Hispanic Black homeownership rate at time t under household-level weights $w_{i,t}^{hv'}$. I then use this value to create a final household-level weight, $w_{i,t}^{hv}$, that preserves White-Black homeownership gaps but equalizes White-Black house values among homeowners:

$$w_{i,t}^{hv} = \begin{cases} \frac{w_{i,t}^{hv'} hr_{B,t}}{hr_{B,t}^{hv'}} & \text{if } B_{i,t} = 1 \text{ \& } homeown_{i,t} = 1 \\ \frac{w_{i,t}^{hv'} hr_{B,t}^{hv'}}{hr_{B,t}} & \text{if } B_{i,t} = 1 \text{ \& } homeown_{i,t} = 0 \\ w_{i,t} & \text{otherwise.} \end{cases} \quad (50)$$

I then use $w_{i,t}^{hv}$ to calculate WG_y^{hv} , the absolute change in the White-Black wealth gap between $y - 1$ and y under weights w^{hv} in each year, and $WG_y^{c,hv}$, an analogous measure of change in the White-Black wealth gap under the counterfactual of no local housing market changes. I use these values to define the contribution of White-Black gaps in house values to the relationship between local housing market changes and the White-Black wealth gap at percentile y , vWG_y , as follows:

$$vWG_y = 1 - \frac{WG_y^{hv} - WG_y^{c,hv}}{WG_y - WG_y^c}. \quad (51)$$

In words, this expression reflects the contribution of local housing market changes (under equal distributions of house values among non-Hispanic White and Black homeowners) towards growth in the White-Black wealth gap, as a percentage of the contribution of local housing market changes (under existing distributions of house values) towards growth in the White-Black wealth gap.

Appendix Figures

Appendix Figure 1: Changes in Median White and Black Wealth, 1984-2019

Source: Panel Study of Income Dynamics and author's calculations.

Appendix Figure 2: Accumulated Effect of Housing Market Changes on Median White and Black Wealth, 1984-2019

Source: Panel Study of Income Dynamics and author's calculations.

Appendix Figure 3: Changes in Absolute Mean White-Black Wealth Gaps, 1984-2019

Source, top panel: Federal Housing Finance Agency House Price Index, adjusted for inflation using the Consumer Price Index for All Urban Consumers: All Items Less Shelter (U.S. Bureau of Labor Statistics 2021).

Source, bottom panel: Panel Study of Income Dynamics and author's calculations.

Appendix Figure 4: Accumulated Effect of Housing Market Changes on Mean White-Black Wealth Gap, 1984-2019

Source: Panel Study of Income Dynamics and author's calculations.

Appendix Figure 5: Changes in Relative Mean White-Black Wealth Gaps, 1984-2019

Source, top panel: Federal Housing Finance Agency House Price Index, adjusted for inflation using the Consumer Price Index for All Urban Consumers: All Items Less Shelter (U.S. Bureau of Labor Statistics 2021).

Source, bottom panel: Panel Study of Income Dynamics and author's calculations.

Appendix Figure 6: Mechanisms Underlying Effect of Housing Market Changes on Absolute Mean White-Black Wealth Gaps, 1999-2019

Source: Panel Study of Income Dynamics and author's calculations.

Appendix Figure 7: Changes in Absolute Median White-Black Wealth Gaps, 2001-2019

Source, top panel: Mid-tier Zillow House Value Index, adjusted for inflation using the Consumer Price Index for All Urban Consumers: All Items Less Shelter (U.S. Bureau of Labor Statistics 2021).

Source, bottom panel: Panel Study of Income Dynamics and author's calculations, based on the mid-tier Zillow House Value Index.

Appendix Figure 8: Accumulated Effect of Housing Market Changes on Median White-Black Wealth Gap, 2001-2019

Source: Panel Study of Income Dynamics and author's calculations, based on the mid-tier Zillow House Value Index.

Appendix Figure 9: Changes in Relative Median White-Black Wealth Gaps, 2001-2019

Source, top panel: Mid-tier Zillow House Value Index, adjusted for inflation using the Consumer Price Index for All Urban Consumers: All Items Less Shelter (U.S. Bureau of Labor Statistics 2021).

Source, bottom panel: Panel Study of Income Dynamics and author's calculations, based on the mid-tier Zillow House Value Index.

Appendix Figure 10: Mechanisms Underlying Effect of Housing Market Changes on Absolute Median White-Black Wealth Gaps, 2001-2019

Source: Panel Study of Income Dynamics and author's calculations, based on the mid-tier Zillow House Value Index.