

Know Your Price: The Devaluation of Residential Property in Black Neighborhoods

Testimony Submitted to U.S. House of Representatives Committee on Financial Services
Subcommittee on Housing, Community Development and Insurance

“What’s Your Home Worth? A Review of the Appraisal Industry”

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June 20, 2019

Chairman Clay, Ranking Member Duffy, and Ranking Member Gooden,

Thank you for inviting me to testify today *on this extremely important issue that affects millions of people across this country.*

Homeownership lies at the heart of the American Dream, representing success, opportunity, and wealth. However, for many of its citizens, America deferred that dream. For much of the 20th century, the devaluing of black lives led to segregation and racist federal housing policy through redlining that shut out chances for black people to purchase homes and build wealth, making it more difficult to start and invest in businesses and afford college tuition. Still, homeownership remains a beacon of hope for all people to gain access to the middle class.

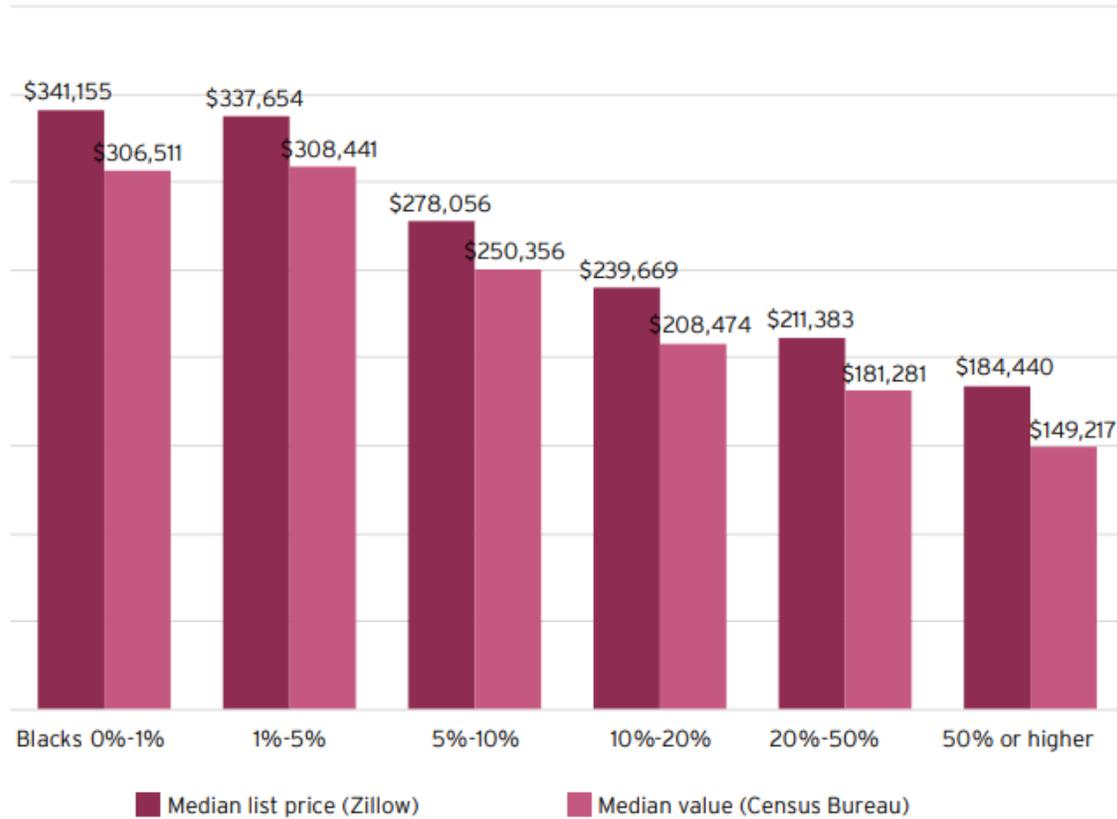
Compared to investing in the stock market and other ways to grow a nest egg, homeownership is still the most consistent and accessible way to build wealth over time. And while homeownership rates vary considerably between whites and people of color, it’s typically the largest asset among all people who hold it, regardless of race. If we can detect how much racism depletes wealth from black homeowners, we can begin to address bigotry principally by giving black homeowners and policymakers a target price for redress. Laws have changed, but the value of assets—buildings, schools, leadership, and land itself—are inextricably linked to the perceptions of black people. And those negative perceptions persist.

Through the prism of the real estate market and homeownership in black neighborhoods, the research of myself and my colleagues Jonathan Rothwell at Gallup, and David Harshbarger at Brookings, addressed the question: What is the cost of racial bias? We sought to understand how much money majority-black communities are losing in the housing market stemming from racial bias, **finding that owner-occupied**

homes in black neighborhoods are undervalued by \$48,000 per home on average, amounting to \$156 billion in cumulative losses.

FIGURE 1

Neighborhood median home value by black population share
U.S. metropolitan areas, 2012-2016



Source: Authors' analysis of Zillow and 2016 American Community Survey 5-year estimates

We've known for some time that racism limited blacks' housing options in ways that lowered the value of homes. De jure and de facto segregation — racially restrictive housing covenants that prohibited blacks from buying in certain areas throughout the 20th century — and racially biased redlining from the 1930s beyond the passage of the Fair Housing Act of 1968 — which deemed majority-black neighborhoods too risky for mortgage lenders — isolated blacks in areas that realized lower levels of investment than their white counterparts.

There is strong evidence that bias has tangible effects on real estate markets, both historically and today. During the 20th century, both explicit government institutions and decentralized political actions created and sustained racially segregated housing conditions in the United States.ⁱ This has created what has been dubbed a "segregation tax," resulting in lower property valuations for blacks compared to whites per dollar of income.ⁱⁱ

Contemporary work from social scientists has aimed to sort out whether these lower valuations are caused by differences in socio-economic status, neighborhood qualities, or discrimination.ⁱⁱⁱ The results tend to show compelling evidence for discrimination.^{iv} In one study, Valerie Lewis, Michael Emerson, and Stephen Klineberg collected detailed survey data on neighborhood racial preferences in Houston, Texas. They asked people to imagine that they were looking for a new house, found one within their price range and close to their job; they then say to respondents, “checking the neighborhood . . .” and then present difference scenarios based on racial composition, school quality, crime, and property value changes for the hypothetical neighborhood.” Consistent with previous research, they find that these neighborhood features strongly predict whether someone says they would buy the house. Racial composition strongly predicted the preferences of whites in neighborhoods that were otherwise identical.

Researchers Jacob Fabera and Ingrid Gould Ellen examined the variation of rising housing prices among people of different racial categories who purchased their homes before the boom from 2000 to 2007 and kept them through the bust of 2008.^v They found that blacks and Hispanics gained less equity than whites during that period and were more likely to owe more than their home was worth. The researchers found that “[b]lack–white gaps were driven in part by racial disparities in income and education and differences in types of homes purchased.” They hypothesized that racial segregation and the corollary economic and education stratification between neighborhoods exacerbated existing equity disparities within neighborhoods with high concentrations of poverty. Consequently, the recession hit those neighborhoods disproportionately harder, creating intense volatility in those particular markets. Declining incomes reduced people’s ability to purchase homes, thus deflating prices in those neighborhoods. The findings around education and income may result from the disparities in wealth as it is “a powerful predictor of individual educational and economic outcomes, and despite their significantly lower homeownership ... the long-run consequences of these gaps are substantively important and difficult to overcome.”^{vi}

But how does the concentration of blackness impact demand among all buyers – whether from the community or not? Income and education certainly matter, but how much of the demand that impacts housing price is affected by how people around it are perceived? In other words, what is the cost of racial bias?

Real estate agents have been shown to direct black and white home buyers differently based on racial stereotypes, reinforcing patterns of racial segregation. Researcher Sun Jung Oh and John Yinger reviewed four different national studies on the topic in a 2015 article and found a common thread: There is “evidence of statistically significant discrimination against home seekers who belong to a historically disadvantaged racial or ethnic group.”^{vii}

Some of this research is not about devaluation, per se, but about steering and price discrimination. It indicates that blacks actually pay more than whites for equivalent housing. The focus of our research and my submitted testimony today is on how lower prices in majority-black neighborhoods convey lower value.

In U.S. metropolitan areas, 10 percent of neighborhoods are majority black, and they are home to 41 percent of the black population living in metropolitan areas and 37 percent of the U.S. black population.

Black Americans are highly urbanized. 90 percent live in metropolitan areas, compared to 86 percent of all U.S. residents. And decades after the Civil Rights movement, blacks remain highly segregated. Though blacks comprise just 12 percent of the U.S. population, 70 percent live in neighborhoods that are over 20

percent black, and 41 percent live in majority black neighborhoods. These majority black neighborhoods may be overlooked as sites for economic development, but they contain important assets, in terms of people, public infrastructure, and wealth.

Majority black neighborhoods in metropolitan areas are also home to 14.4 million non-Hispanic black residents and 5 million residents from other racial and ethnic groups. They also house a large portion of the nation's human capital, in that 2.3 million adults 25 and older call majority black neighborhoods their home, representing 5 percent of the nation's metropolitan population with a bachelor's degree, and 10 percent of its public schools and 6 percent of its libraries.

There is also wealth in these neighborhoods. In metropolitan America, there are 3.2 million owner-occupied homes in majority black neighborhoods, 5 percent of the total, and they are collectively worth \$609 billion.^{viii} Likewise, over 3 million business establishments are located in majority black metropolitan neighborhoods, 7 percent of all metropolitan businesses.

In the average U.S. metropolitan area, homes in neighborhoods where the share of the population is 50 percent black are valued at roughly half the price as homes in neighborhoods with no black residents.

Across metropolitan America, housing prices are systematically lower where neighborhood black population share is higher. In neighborhoods where less than 1 percent of the population is black (which we refer to as "non-black neighborhoods"), median listing prices on Zillow are \$341,000 compared to \$184,000 in majority black neighborhoods. Using Census Bureau estimates from homeowners yield similar discrepancies. Comparing only homes within the same metropolitan area, both data sources suggest that home values are just over 50 percent lower in neighborhoods where the black population is 50 percent compared to neighborhoods with no black residents.

The devaluation of black neighborhoods is widespread across the country. There are 119 metropolitan areas with at least one majority black census tract and one census tract that is less than 1 percent black. In 117 of these 119 metro areas, homes in majority black neighborhoods are valued lower than homes in neighborhoods where blacks are less than 1 percent of the population. Gainesville, Fla. and Sebring, Fla. are the only exceptions.

TABLE 2

The 10 metropolitan areas with the largest and smallest differences in the value of homes

Black neighborhoods in U.S. metropolitan areas, 2012-2016

	Median value of homes in majority black neighborhoods	Median value of homes in neighborhoods with less than 1% black population	Relative valuation of black neighborhoods in percentage points
<i>Areas with the largest difference in home value</i>			
Bridgeport-Stamford-Norwalk, CT	\$131,011	\$783,887	17%
Charleston-North Charleston, SC	\$130,854	\$717,711	18%
Savannah, GA	\$112,539	\$562,500	20%
Hilton Head Island-Bluffton-Beaufort, SC	\$93,262	\$460,712	20%
Youngstown-Warren-Boardman, OH-PA	\$33,045	\$131,484	25%
Port St. Lucie, FL	\$65,880	\$259,926	25%
Palm Bay-Melbourne-Titusville, FL	\$61,662	\$241,853	25%
Lexington-Fayette, KY	\$77,270	\$301,526	26%
Cape Coral-Fort Myers, FL	\$67,192	\$259,118	26%
Ann Arbor, MI	\$68,320	\$259,985	26%
Mean of group	\$84,104	\$397,870	21%
<i>Areas with the smallest difference in home value</i>			
Greenville-Anderson-Mauldin, SC	\$82,680	\$114,743	72%
New York-Newark-Jersey City, NY-NJ-PA	\$403,314	\$559,706	72%
Baton Rouge, LA	\$109,951	\$152,543	72%
Boston-Cambridge-Newton, MA-NH	\$313,353	\$430,997	73%
Naples-Immokalee-Marco Island, FL	\$390,200	\$459,728	85%
Asheville, NC	\$178,200	\$195,882	91%
Lakeland-Winter Haven, FL	\$82,559	\$89,334	92%
Anniston-Oxford-Jacksonville, AL	\$59,371	\$61,200	97%
Gainesville, FL	\$95,591	\$95,237	100%
Sebring, FL	\$134,600	\$69,644	193%
Mean of group	\$184,982	\$222,901	83%

Note: Sample limited to metropolitan areas with at least one census tract that is majority black and at least one census tract that is less than one percent black.

Source: Authors' analysis of 2016 American Community Survey 5-year estimates

The valuation gaps are extreme in a number of areas. The largest gap is in the Bridgeport-Stamford-Norwalk, Conn. metropolitan area. In neighborhoods where blacks are less than 1 percent of the population, the median home value is \$784,000, compared to just \$131,000 in majority black neighborhoods, a six-fold difference. Home values in majority black neighborhoods are just 17 percent of those in non-black neighborhoods. Likewise, very large differences are found throughout the South and Midwest—in Charleston, S.C., Cape Coral, Fla., Youngtown, Ohio, and Ann Arbor, Mich.

There is nonetheless an extremely wide range of estimates across metropolitan areas for the housing market penalty for homes in black neighborhoods. In the New York City metropolitan area, median home values in majority black neighborhoods are over \$400,000, reflecting the extraordinarily high overall cost of living and value of real estate. That is much less than the value for neighborhoods with fewer than 1 percent black population shares (\$560,000), but the percentage point gap is much lower than other parts of the country. Greenville, S.C., Boston, Mass., and Baton Rouge, La. are other examples of metro areas with relatively narrow gaps in valuations between majority black neighborhoods and those with few black residents.

Neighborhood quality is only part of the explanation for the devaluation of homes in black neighborhoods.

During the 20th century, segregation and Jim Crow forcibly lowered the quality of neighborhood conditions for blacks and impeded their financial ability to move to better opportunities. This occurred through deed restrictions, redlining, and zoning, as well as other mechanisms. As a result of that dynamic and the continuation of housing policies that exclude working-class housing from non-black neighborhoods, majority black neighborhoods suffer from lower quality housing and limited access to good schools and neighborhood amenities.

TABLE 4

Neighborhood characteristics by black population share

U.S. metropolitan areas, 2012-2016

Black population share	School test scores (Standardized)	EPA Walkability Index	Number of restaurants	Number of gas stations	Percent who use public transportation	Average commute time (minutes)
0%-1%	0.29	-0.31	53.2	6.9	3.6	26.7
1%-5%	0.28	-0.03	69.3	8.1	5.1	26.5
5%-10%	0.17	-0.01	69.7	9.2	4.7	26.6
10%-20%	-0.01	-0.01	67.5	10.0	5.4	26.5
20%-50%	-0.27	0.01	61.9	10.6	7.7	27.1
50% or higher	-0.85	0.23	50.0	10.8	15.0	29.2

Source: Authors' analysis data from 2016 American Community Survey 5-year estimates, Department of Education, Environmental Protection Agency, and County Business Patterns

The quality of housing in majority black neighborhoods differs from less black neighborhoods in terms of age, size, and structure. The median home in majority black neighborhoods is 12 years older than homes in neighborhoods where blacks are less than 1 percent of the population. These older homes are also smaller, by nearly half a room, and are much less likely to be detached single-family homes. Majority black neighborhoods are much more likely to have denser housing structures, such as attached single-family units, which also reflects the concentration of blacks in America's cities.

Not only is the housing stock of lower quality, so is the surrounding neighborhood in several important dimensions. School performance is weaker, commute times are longer, and access to business amenities is more limited. There is also evidence that exposure to environmental pollution is greater, through, for example, proximity to a greater number of gas stations.^{ix}

The school test score gaps between neighborhoods are particularly extreme. The gap in test scores between majority black neighborhoods and those that have black population shares that are 5 percent or lower is approximately 1.1 standard deviations. More concretely, the proficiency rate on state exams in majority black neighborhoods is only 15 percent, compared to 60 percent in neighborhoods with less than 1 percent black population shares.

Likewise, residents of majority black neighborhoods confront longer commute times by several minutes compared to those in other neighborhoods, suggesting constrained access to jobs. Yet this interpretation requires caution because residents of majority black neighborhoods are far more likely to commute via public transportation, which can be slower, especially via bus.

Still, the apparent weaknesses of black neighborhoods can also be strengths. With homes more densely situated, residents of black neighborhoods live in more "walkable" communities, with a greater diversity of business types and more frequent intersections. These qualities are associated with higher home values.^x There is a striking difference, on this score, between majority black neighborhoods and neighborhoods that are less than 1 percent black; they differ by over half a standard deviation.

Given the above discussion of housing and neighborhood attributes, the central question of this study remains: Do the differences in housing and neighborhood quality fully account for the differences in housing values?

Our analysis suggests not. My colleagues and I used a regression analysis to predict home values as a function of the black population share, the qualities of homes in the neighborhood, and the qualities of the neighborhoods within each metropolitan area.

First, there is clear evidence that adjusting for the size of the home lowers the devaluation estimate for black neighborhoods by a meaningful fraction—from -51 percent to -35 percent when we use the two Zillow-based measures for median list price overall and by square foot. Since, black homes are smaller, they have less market value, but that still leaves a very large gap unexplained.

The value metrics that do not include square footage are sensitive to the structural features of homes in the neighborhood—such as age, number of rooms, percentage detached, but adjusting these things did not greatly reduce the devaluation estimate. The Zillow median list price estimates for devaluation in neighborhoods that are 50 percent black range from -40 percent to -44 percent, with census-based estimates from owner self-appraisals in the middle at -41 percent.

The next set of regression estimates included neighborhood control variables, and these variables go further in explaining the devaluation of majority black neighborhoods. The devaluation estimates are -22 percent for median list price and -23 percent for the list price per square foot and self-appraisals of all owner-occupied properties.

In the model that predicts value per square foot, three variables measured at the neighborhood level stand out as strong predictors: school quality—measured by state test scores (strongly positive); the number of gas stations (strongly negative) and access to public transportation (strongly positive). Majority black neighborhoods are at a disadvantage on school quality and exposure to gas stations but have greater access to public transportation. Walkability predicts modestly higher home values, and black neighborhoods have an advantage on that score as well.

While our analysis explains roughly half of the devaluation effect, we are left with the fact that a square foot of residential real-estate is worth 23 percent less in neighborhoods where half the population is black compared to neighborhood with few or no black residents, even after adjusting for housing quality and neighborhood quality.

To put this devaluation value in perspective, we estimate that home values in majority black neighborhoods should be worth an additional \$48,000 per home, which amounts to a cumulative sum of \$156 billion in aggregate value.^{xi}

With more effort or with local knowledge, sophisticated shoppers can also find out information about school quality, using the same data included in our models, test proficiency rates. There are no publicly available metrics on school quality available to consumers beyond what was included in our model. With further effort or by exploring the neighborhood, potential buyers can also get a sense of access to restaurants, libraries, and other business amenities. Our model used measures for these amenities that best explain variation in housing, without regard to how inclusion of these variables affected the estimate for devaluation associated with black population shares. We also adjusted for the length of commute and the mode of commute and several variables that capture neighborhood household age and family relationships.

Metropolitan areas with greater devaluation of black neighborhoods are more segregated and produce less upward mobility for the black children who grow up in those communities.

Black males earn lower incomes as adults than white males, even when born to parents with similar incomes. In this sense, blacks have lower intergenerational mobility than whites—as well as Hispanics and Asians. Intriguingly, this is not true for black females, who have similar incomes as white females born to parents at the same income scale. These finding comes from recent research by Harvard economists Raj Chetty and Nathaniel Hendren—along with Census Bureau economists—which linked records from the Internal Revenue Service to the Census Bureau to understand intergenerational income mobility for people aged 31 to 37 who were born between 1978 and 1983.^{xii}

We used these data to investigate whether or not black children raised in areas with greater devaluation of black assets experience less mobility. There are several reasons why this might be so. There are large gaps in wealth between races and residential real estate wealth is a major reason for this gap.^{xiii} If properties in black neighborhoods were priced equally as those in white neighborhoods, black children coming of age in the 1990s and 2000s would have had much more wealth to draw upon to pay for things like private schooling, tutoring, travel, and educational experiences, as well as higher education and

greater access to higher scoring schools in the suburbs. Greater property wealth may have also facilitated higher rates of entrepreneurship among black parents, which may have positively affected children.

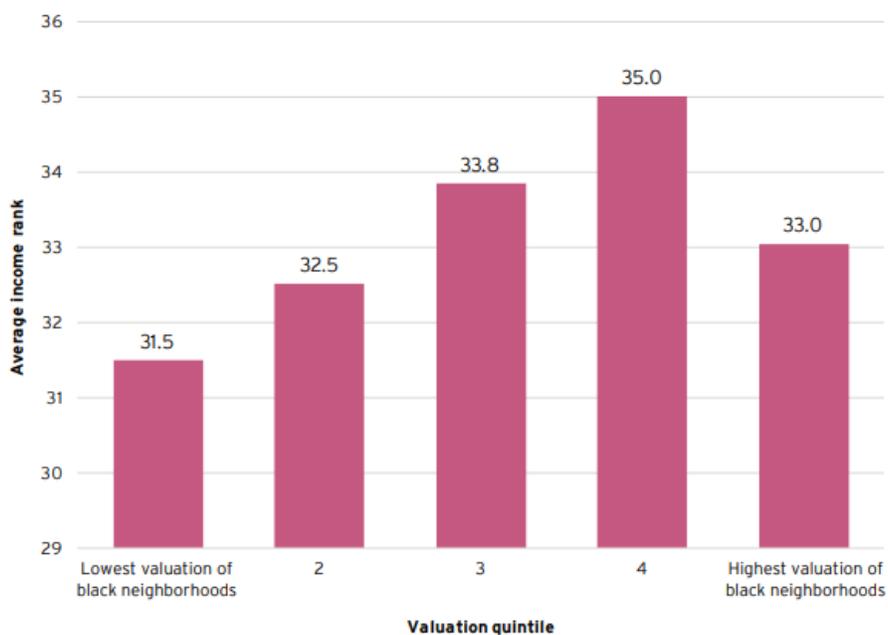
In fact, there is a positive correlation between the valuation of properties in black neighborhoods and upward mobility of black children whose parents had incomes at the 25th percent of the national income distribution. In other words, black children born to low-income families had higher income as adults if they grew up in a metro area that valued black property closer to its observable market characteristics. We restrict this analysis to the 113 metropolitan areas with at least one majority black neighborhood. We also gave extra weight in the analysis to metro areas with larger black populations to reduce the influence of measurement error; as such, the estimates should be thought of as characterizing the experience of the average black person living in different types of metropolitan areas.^{xiv}

As shown in the figure below, metropolitan areas in the lowest quintile of valuation for majority black neighborhoods compared to white neighborhoods generate very low upward mobility for black children born near 1980. The average black child born in these areas to families at the 25th percentile of the national income distribution advances only to the 31st percentile. In areas with greater valuation for black neighborhoods, in the fourth quintile in particular, children end up in the 35th percentile. The positive relationship is more muted for the areas with the highest valuations of black neighborhoods.

FIGURE 2

Effect of housing valuation on upward income mobility of black children

Majority-black neighborhoods in U.S. metro areas, 2012-2016



Note: Income rank calculated for black children born to parents at 25th percentile of national income. Devaluation measure is based on median list price per square foot after adjusting for home and neighborhood quality. Analysis is of 113 metropolitan areas with at least one majority black census tract and one tract with black population shares under 1 percent. Means are weighted by the number of black residents in metro area.

Source: Authors' analysis of data from Zillow, the 5-year 2016 American Community Survey and Equality of Opportunity Project. Devaluation measure is based on median list price per square foot after adjusting for home and neighborhood quality. Analysis is of 113 metropolitan areas with at least one majority black census tract and one tract with black population shares under 1 percent. Means are weighted by the number of black residents in metro area

The devaluation of majority-black neighborhoods is penalizing home owners in black neighborhoods by an average of \$48,000 per home, amounting to \$156 billion in cumulative losses. Over the years, segregation has negatively affected neighborhood conditions—fewer quality schools, in particular—and reduced the quality of homes by limiting access to finance. However, differences in home and neighborhood quality do not fully explain the lower prices. In addition, there are positive but overlooked assets in black communities like walkability of black neighborhoods and access to public transportation.

The finding that black children born into low-income families achieve higher incomes as adults if they grew up in metro areas where homes were less devalued is noteworthy and could be strengthened with further work that more directly links discrimination to barriers to mobility and explores the potential for neighborhood devaluation to serve as an active agent that worsens outcomes for blacks and their children.

The undervaluation of black assets in housing markets has other important social implications. Black homeowners realize lower wealth accumulation, which, among other effects, makes it more difficult to start and invest in business enterprises and afford college tuition for their children.

We hope to better identify some of the causes for this devaluation—including potential psychological mechanisms—in subsequent research. Some of the most enduring and pernicious effects of the more than 350 years of slavery, Jim Crow racism, as well as de jure and de facto segregation in the U.S., have been the internalization of stereotypes, insults, and dehumanizing innuendos about black people, stemming from the malevolent use of such tropes by the (white) people in power to justify discrimination—what researchers describe as unconscious bias. Our findings were generally consistent with the widespread presence of anti-black bias—whether unconscious or not, ingrained stereotypes and automatic associations of a particular group, and even outright discrimination and racism.

By controlling for commonly held causes of price differences including education, lower home quality, and crime, the work of myself and my colleagues suggests that bias is likely to be a large part of the unexplained devaluation of black neighborhoods and some perspective on how anti-black beliefs distort the value of assets. In the absence of representative survey data on racist beliefs at the metropolitan scale, we can't see the degree and nature of devaluation in the context of cities. Our future work aims to collect and analyze subjective survey data to see how people from different races view each other and their neighborhoods.

Chairwoman Clay, Ranking Member Duffy, Ranking Member Gooden,

Thank you again for inviting me to be here with you today. I look forward to addressing your questions and hope to work with you in the future.

The author would like to thank Jonathan Rothwell, David Harshbarger, and Anthony Fiano for their help in compiling this testimony.

The views expressed in these written remarks are those of the author alone and do not necessarily represent those of the staff, officers, or trustees of the Brookings Institution.

Homeownership while black

The devaluation of assets in black neighborhoods



In U.S. metropolitan areas, **10 percent** of neighborhoods are majority black

50% LESS

homes in **majority-black neighborhoods** are **undervalued** compared to homes in neighborhoods with **no black residents**



Majority-black neighborhoods at a glance:

- **37% of the U.S. black population** live in these communities
- **\$609 billion** in owner-occupied housing assets
- **10,000** public schools
- **3 million** businesses

Differences in **home** and **neighborhood quality** do **not** fully explain the devaluation of homes in majority-black neighborhoods



\$48,000 average loss in home market value



Amounting to **\$156 billion** in cumulative losses

Homes of similar quality in neighborhoods with similar amenities are worth **23% less** in majority-black neighborhoods

Metropolitan areas with **greater devaluation** of black neighborhoods are **more segregated**



Black children who grow up in those communities have **less upward mobility**

Source: "The devaluation of assets in black neighborhoods: The case of residential property." The Brookings Institution, November of 2018

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- ⁱ Richard Rothstein, *The color of law: A forgotten history of how our government segregated America*. Liveright Publishing, 2017; Douglas S. Massey, and Nancy A. Denton, *American apartheid: Segregation and the making of the underclass*. Harvard University Press, 1993.
- ⁱⁱ David Rusk, "The "Segregation Tax": *The Cost of Racial Segregation to Black Homeowners* (2001).
- ⁱⁱⁱ David R. Harris, "Property values drop when blacks move in because...': Racial and socioeconomic determinants of neighborhood desirability." *American Sociological Review* 64(3)(1999): 461-79.
- ^{iv} Caitlin Knowles Myers, "Discrimination and neighborhood effects: Understanding racial differentials in US housing prices." *Journal of Urban Economics* 56.2 (2004): 279-302.
- ^v "Faber_Ellen_2016_Race_and_the_Housing_Cycle.Pdf," accessed October 3, 2018, https://wagner.nyu.edu/files/faculty/publications/Faber_Ellen_2016_Race_and_the_Housing_Cycle.pdf.
- ^{vi} "Faber_Ellen_2016_Race_and_the_Housing_Cycle.Pdf," accessed October 3, 2018, https://wagner.nyu.edu/files/faculty/publications/Faber_Ellen_2016_Race_and_the_Housing_Cycle.pdf.
- ^{vii} Sun Jung Oh and John Yinger, "What Have We Learned From Paired Testing in Housing Markets?," *Cityscape* 17, no. 3 (2015): 15–60.
- ^{viii} This figure multiplies the median value of homes listed in black neighborhoods by the number of units. It likely understates the true aggregated value since the median excludes outliers.
- ^{ix} Jean D. Brender, Juliana A. Maantay, and Jayajit Chakraborty, "Residential proximity to environmental hazards and adverse health outcomes." *American Journal of Public Health* 101.S1 (2011): S37-S52.
- ^x Joe Cortright, "How Walkability Raises Home Values in U.S. Cities," CEOs for Cities (2009).
- ^{xi} These figures rely on the Zillow listing price estimates. For Census-based estimates, we calculate a loss of \$39,000 per home and \$126 billion in aggregate. The calculation is done as follows: We take the log of median list price in majority black neighborhoods (the ln of \$184,000 is .123) and add .23 (the devaluation estimate) and apply the exponential function, making make the value \$232,000. The difference is our estimate of loss per home. We then multiply that by the number of homes in majority black metropolitan neighborhoods.
- ^{xii} Raj Chetty, Nathaniel Hendren, Maggie R. Jones, and Sonya R. Porter. *Race and economic opportunity in the United States: An intergenerational perspective*. No. w24441. National Bureau of Economic Research, 2018.
- ^{xiii} Thomas Shapiro Tatjana Meschede Sam Osoro, "The Roots of the Widening Racial Wealth Gap: Explaining the Black-White Economic Divide" (Institute on Assets and Social Policy, 2013), available at http://iasp.brandeis.edu/pdfs/2013/Roots_of_Widening_RWG.pdf
- ^{xiv} A regression of our home and neighborhood quality adjusted devaluation measure (using Zillow list price per square foot) on upward mobility shows a coefficient of 0.02 and a t-statistic of 3.9, explaining .12 percent of the variation in a sample of the 113 metro areas with at least one majority black census tract and at least one non-black census tract (<1% black population). Limiting the analysis further to the 65 metro areas that are also among the 100 largest metropolitan areas by 2012–2016 ACS population, results in a t-stat of 4.1 and a r-squared of .20. Results are similar using the Census-based devaluation metric—again adjusted by quality.