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THE DEVALUATION OF ASSETS IN BLACK NEIGHBORHOODS: THE CASE OF COMMERCIAL PROPERTY

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Image credit: Will Parsons

CONTENT

Image: Ensley, Alabama

Summary

Commercial real estate wealth is highly unequal across households, racial groups, and neighborhoods. This paper investigates how local characteristics—measured at the ZIP code level—predict commercial real estate rents, with a focus on the racial composition of neighborhoods as a potential source of market inefficiency, which has not previously been studied. Prior work finds that residential housing is undervalued in majority-Black neighborhoods, and businesses in majority-Black neighborhoods experience lower revenue growth than expected given their ratings by consumers.

Using data purchased from CoStar, a leading commercial real estate data provider, we test whether commercial rents are lower in majority-Black neighborhoods, conditional on the quality of the building, access to consumers and other businesses, the revenue per worker of neighboring businesses, and other factors identified in the real estate literature. To compare to residential real estate markets at the ZIP code level, we use data from Redfin, a nation real estate brokerage.

In our preferred model, we find that retail space is undervalued by 7% in majority-Black neighborhoods, but that office space is undervalued by less than 1%—an effect which is not statistically significant. This compares to a 26% undervaluation for owner-occupied housing. These estimates are robust to the inclusion of centrality, environmental conditions, and the values of neighboring ZIP codes. Aggregating these estimates, we find that majority-Black neighborhoods have $235 billion in lost wealth from owner-occupied homes and $171 billion in lost wealth from retail space. Office space valuations, however, do not appear to be affected by the racial composition of neighborhoods once other factors are considered.

We believe further research is needed to understand the mechanisms that generate these results. Discrimination against owners at the time of appraisal, contracting, or purchase is an unlikely mechanism, since most commercial real estate owners are not Black. More likely, commercial revenue is depressed in majority-Black neighborhoods because of factors such as ignorance about transaction opportunities, social frictions, stereotype bias, and racial prejudice that operates at the neighborhood level. The difference between office and retail space is instructive. Retail renters require customers to physically visit their site, whereas office renters do not. These findings suggest that customer demand is affected by the racial composition of a neighborhood, consistent with related research. Regardless of the cause, the lost real estate wealth for Black neighborhoods depresses economic development and hinders economic opportunity.

Introduction

Ownership of commercial real estate (CRE) is held in relatively few hands. Our analysis finds that 1% of households own 81% of nonresidential real estate wealth within that asset class. By contrast, 1% of households own just 49% of rental housing and 16% of owner-occupied housing wealth.

Not surprisingly, the CRE market is also heavily skewed geographically. If one ranks ZIP codes by the aggregate value of each real estate product type, the top 1% are home to 43% of office value, 15% of retail value, and 9% of the value of owner-occupied homes. Clearly, location characteristics play a huge role in determining CRE value, as rental income drives property values, and rental income depends on the local economy's capacity to generate income for the businesses occupying the commercial space.

The racial composition of a local real estate market is relevant to the local economy in several important ways. Researchers repeatedly find tight interconnections between race, class and overall socioeconomic status, often determining how and where a person lives. Commercial activity, including business and property ownership, is a significant driver of individual and community wealth. In this paper, we explore the racial structure of commercial real estate ownership and the role of race and place in CRE value, focusing on the office and retail CRE subsectors.

After accounting for predictors of commercial real estate value, we estimate that retail space is undervalued by 7% in majority-Black ZIP codes, resulting in significant revenue loss for individuals and neighborhoods in those places. This estimate is statistically significant and robust to various models. In contrast, we find no evidence that office space is devalued in majority-Black ZIP codes. We also update previously published residential estimates, which used 2012-16 data, with data from 2015-19. Despite moving from census tracts to ZIP codes, we find very similar results (26% in our preferred specification), suggesting that majority-Black neighborhoods remained highly undervalued leading up to the COVID-19 pandemic.

Our final empirical section estimates aggregate lost value across these real estate sectors. We estimate that the undervaluation of majority-Black ZIP codes results in aggregate wealth losses of $171 billion in retail space for the owners of these properties. By comparison, owner-occupiers of housing lose an estimated $235 billion in majority-Black ZIP codes. We conclude with a discussion and implications for further work.

As far as we know, this is the first research to offer a detailed analysis of how the racial composition of local areas relates to commercial real estate values.

Image Credit: Lyneir Richardson

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Literature review

There is a large body of research literature linking local characteristics to commercial real estate value. Population density and business density are especially valuable in retail markets, according to literature (Loh et. al. 2019, Koster et. al. 2014). The value of businesses being in close proximity ("agglomeration") is a reason for the modern emergence of shopping centers and malls (Eppli and Benjamin 1994). Proximity to other businesses is an important factor determining how much rent landlords charge. Other variables besides agglomeration that significantly affect rents include building characteristics (age, size, architectural design/ appeal, parking supply) and location characteristics (proximity to highways, open space, and water; vehicle or foot traffic volumes; proximity to population and income; as well as local fixed effects—a proxy for policies such as property taxes) (Sirmans and Guidry 1993; Koster et. al. 2014). There is mixed evidence on the value of transit access (Nelson 2017), depending on proximity.

A number of papers find that rents are positively correlated with high levels of population density and walkable or connected streets (Tu and Eppli 1999 and 2001; Loh, Leinberger, and Chafetz 2019). Other research finds that higher wages, proximity to residential housing, and proximity to administrative service businesses predict higher rents (Bollinger, Ihlanfeldt, and Bowes, 1998). This is consistent with the view that walkable, mixed-use neighborhoods command a premium.

Vacancy rates are often included in pricing models for commercial real estate (Hysom and Crawford 1997; Farooq, Miller and Haider 2010). In the residential case, including the vacancy rate would be a methodological error, because owners lower prices to avoid vacancies. While this does also happen in the CRE market, commercial markets are somewhat different. Commercial contracts have much longer terms than residential contracts, which changes incentives with respect to the management of vacancies (Titman and Twite 2013). The value of a commercial building to an owner is also represented not just by its rental income cash flow, but by its total valuation as a source of debt collateral—and valuations are largely a function of rents. It is therefore financially logical for owners to hold vacancies—sometimes keeping a building vacant for long periods of time—to wait for a higher rent.

While much has been written about racial disparities in residential real estate, there is almost no academic research on commercial real estate and race. We searched EconLit—the premier source for economic literature in scholarly journals—and found zero articles that included "commercial real estate" in the abstract or subject term and "race" or "Black" in the abstract. By contrast, there are hundreds of articles on "commercial real estate" and hundreds on "real estate" and "race" or "Black."

We believe this hole in the literature reflects the relative difficulty of obtaining data on commercial real estate markets, which contributes to an underappreciation of how they impact Black neighborhoods and their residents. The abundance of research on housing

discrimination related to mortgages, appraisals, and real estate agent behavior warrants an investigation into commercial markets. Our recent analysis of owner-occupied homes found that houses in majority-Black neighborhoods were undervalued by 23% relative to homes in neighborhoods with little to no Black residents, after extensively controlling for building and neighborhood quality. Likewise, in related work, Perry, Rothwell, Harshbarger (2020) found that businesses in majority-Black neighborhoods generate less revenue than businesses with the same Yelp rating in neighboring white neighborhoods, even after adjusting for local purchasing power and other local determinants. These findings point to the possibility that discrimination or other market inefficiencies at the neighborhood level may be distorting local markets beyond housing and restaurants. If local business revenue is depressed in majority-Black neighborhoods, this could also lead directly to the depression of commercial rents.

When race has been examined in commercial real estate, it is often through the lens of "retail redlining," which is defined as retail business owners (largely tenants) choosing not to operate based on the racial or ethnic composition of neighborhoods rather than their financial potential (D'Rozario and Williams 2005; Kwate et. al. 2013). In particular, an expansive body of literature has highlighted the uneven retail geography of food (e.g., Morland et. al. 2002, George and Tomer 2021). This work does not engage with the value of retail or office real estate per se, nor does it view the racial composition of neighborhoods as a factor that may lower value. Nonetheless, this work is relevant in seeing the racial characteristics of neighborhoods as factors that affect commercial real estate markets.

Our work is more closely related to efforts to study how racial discrimination, prejudice, or bias affect the operation of markets. As our review recently discussed, many papers in the scholarly literature have tested for racial discrimination in the behavior of home lenders and real estate agents, with many finding meaningful evidence of discrimination that has sometimes changed over time (Rothwell and Perry 2021). Less work has been done on appraisals, but recent evidence from Freddie Mac (2021) suggests that homes in Black neighborhoods are at greater risk of under-appraisal. Few papers have examined how neighborhood-level discrimination may operate through markets. Outside of real estate, other evidence suggests that overt anti-Black prejudice has faded since the Jim Crow era, but in various domains—such as policing and hiring—careful studies still identify significant racial bias (Rothwell and Perry 2021; Rothwell 2019).

The study of how social characteristics such as a neighborhood's racial composition may distort markets is also related to broader theoretical literature on barriers to market efficiency. Most pertinently, Galster (2001) defined a neighborhood as "the bundle of spatially based attributes associated with clusters of residences, sometimes in conjunction with other land uses." The attributes include physical objects and structures, environmental features, proximity to other places, local policies, and of course, the people and social relationships contained therein. Galster's discussion elucidates how market inefficiencies can easily arise because of the multiplicity of attributes that neighborhoods bundle together. It is unlikely, for example, that buyers and sellers have the same information about quality for each relevant attribute. Krysan and Crowder (2017) have made similar points in explaining the durability of residential racial segregation, finding evidence that when deciding where to live, people rely heavily on biased information sources such as their social networks, which are also segregated.

In related empirical work, Davis et al. (2019) measure the segregation of restaurant consumption and find that it is roughly half as large as residential segregation. The implication is that consumers show a preference for restaurants located in neighborhoods that match their racial demographics—even accounting for proximity. Though smaller than residential segregation, these "social frictions" almost certainly generate downstream inefficiencies in commercial real estate markets and generate lower prices in neighborhoods with predominately nonwhite populations, regardless of the inherent quality of the services. In thematically similar work, Zukin, Lindeman, and Hurson (2017) analyzed the 10 most-reviewed restaurants in a Black neighborhood and a majority-white neighborhood in New York City. They found that reviews were three times more likely to reference the neighborhood if the restaurant was located in the Black neighborhood (24% versus 8%). The authors reproduced quotes suggesting that some consumers believed the Black neighborhood was scary or dangerous.

Image: Toledo, Ohio

Theory

The economic analysis of racial disparities in markets often assumes that biased economic agents—whether they are consumers, hiring managers, or public officials—have a preference for discrimination, as they might have for other nonmonetary values, and are willing to "pay" for it by hindering other objectives. For example, a consumer who refuses to shop at a Black-owned or operated store may be forced to pay more in travel costs or purchasing costs by shopping elsewhere. Or, this could happen in real estate markets if agents "steer" potential Black homebuyers to only look at homes in Black neighborhoods, which may deprive the agent of a higher commission if homes in white neighborhoods are more expensive. This type of discrimination was rampant in the Jim Crow era, but appears to have faded considerably in recent decades, according to evidence from audit studies in real estate markets (see discussion of literature in Rothwell and Perry 2021). In any case, direct racial discrimination by economic agents is unlikely in most commercial real estate transactions, because the transactions are largely between businesses rather than individuals, and the owners are rarely Black.

We consider a broader set of causes for racial disparity. We first define racial disparity as the undervaluation of an asset conditional on its racial characteristics. For example, if a Black worker with the same experience and productivity as a white worker is paid less, his or her human capital is undervalued, resulting in a disparity in the market that is also inefficient in that race creates a wedge in the relationship between price and quality. With respect to real estate assets, a home may be undervalued if owned by a Black family, but since most real estate transactions can readily occur without knowledge of the race of the participants, it is unlikely that this explains the undervaluation of homes in Black neighborhoods that we previously found.

An asset may be undervalued because of an indirect connection to race. The most obvious is location in a majority-Black neighborhood. Jim Crow era practices created economic, social, and political boundaries that were defined based on the racial composition of neighborhoods. Black people were often allowed greater freedom to start businesses and engage in commerce in Black neighborhoods than they were allowed in white neighborhoods. White people had the freedom to visit and transact in Black neighborhoods, but social prejudices and frictions deterred many from doing so. As a result, Black neighborhoods in the middle of the 20th century could almost be thought of as foreign countries, in that the border acted as a barrier to market transactions, akin to a tariff. The

"tariff" was enforced by Jim Crow era restrictions—which were sometimes formalized into law but often consisted of informal social norms.

In this framework, one could view the civil rights movement as a free trade movement that liberalized transactions across racial borders, resulting in greater economic and racial integration. Peak Black-white residential segregation was in the 1970s and has declined since. But segregation remains high today, and not surprisingly, consumers still act as though these borders exist, as shown in Rothwell, Perry, and Harshbarger (2020) and Davis et al. (2019). Davis et al. (2019) show that consumers will often go out of their way to eat at restaurants in neighborhoods that better match their own race. In this way, racial disparities and asset undervaluation can arise through neighborhoods.

There are several mechanisms that could explain the lingering effect of neighborhood boundaries on economic transactions. First, ignorance is likely to play a role. As Galster (2001) discusses, neighborhoods contain a complex array of assets that affect consumer decisions. When considering a restaurant, several factors are likely to be considered: the location's convenience, the quality and price of the food, the quality of the surrounding area, and, for some people, the possibility of meeting and interacting with peers. Economic and racial segregation create barriers to knowledge about all of these factors, and so consumers will be encouraged to visit more familiar areas even in the absence of racial prejudice.

When combined with racial prejudice and stereotypes, ignorant consumers may be strongly biased against dining in a Black neighborhood. This could occur if they hold an exaggerated sense of threat from crime, for example, or doubt the restaurant will be clean or the food of high enough quality. They may even dismiss a high consumer rating if they think it came from patrons who do not share their taste, in the same way that consumers of independent films or music may dismiss popular movies or artists.

These considerations could apply to real estate markets, whether they are residential or commercial. The work of the Urban Markets Initiative at Brookings articulated in detail sources of market information gaps and mechanisms linking these gaps to barriers to and distortions of market activity such as consumption, site location decisions, and lending (Sabety and Carlson 2004). For example, retail stores will see depressed revenue if non-Black people are discouraged from going there because of its location in a Black neighborhood, and owners of professional businesses may prefer to locate their office in non-Black neighborhoods as a signal to potential employees, who suffer from the same ignorance and bias as restaurant consumers. For these reasons, we hypothesize that commercial real estate will be undervalued in majority-Black neighborhoods.

Image Credit: USDA

Methods

This paper follows directly from our previous research. Perry, Rothwell, Harshbarger (2018) found that owner-occupied homes in majority-Black U.S. neighborhoods were undervalued by 23%, amounting to an estimated $156 billion in lost wealth per year. This estimate accounted for observable differences in the structural characteristics of homes (e.g., size, age) and neighborhoods (e.g., school quality, walkability, transportation, and retail access). This paper attempts to calculate comparable measures of how the racial composition of neighborhoods affects the value of commercial real estate, after accounting for property characteristics and other neighborhood factors.

Image Credit: Mike Kalasnik. Northlake Mall, Charlotte, NC

Data and model

To study the commercial market, we purchased a special database from the CoStar Group, which advertises itself as having the most comprehensive commercial real estate database in the U.S. This study looks at only office space and retail space. The data contains the weighted average gross asking rental price per square foot by product over 2019 for each ZIP code[1] in the country broken out by one of three quality tiers. CoStar currently lists approximately half a million commercial retail and office properties for rent, and that is roughly the composition of our sample, though we observe only the aggregated asking prices by ZIP code by quality tier and product.

Our benchmark models take the following form:

1. $V_i = \alpha + \beta_1 B_i + \beta_2 P_i + \beta_3 N_i + m + \epsilon_i$

Our outcome of interest is the log of monthly rent per square foot V for ZIP code *i*. Our primary objective is to estimate the effect of locating in a majority-Black neighborhood compared to a ZIP code *i* where the Black share of population is less than 1% Black. β_1 captures the effect of moving from 0% Black to 100% Black. Our preferred summary estimate multiplies this value by 50% to capture value at the cut point between non-majority and majority-Black. Robustness checks confirm that nonlinear estimation techniques produce similar results. The *m* value indicates metropolitan area fixed effects. Given the importance of metropolitan

markets to real estate, we limit our analysis to ZIP codes located inside of metropolitan areas. Since we are interested in majority-Black areas, we further limit our sample to metropolitan areas with at least one majority-Black ZIP code to limit projections that go beyond the range of our data. Error terms are clustered at the metropolitan scale to account for correlation between model error and metropolitan-specific property values.

Over five models, we dial up the complexity of our models sequentially to observe how controlling for physical structures (P) and neighborhood characteristics (N) affect estimates of β_2. Table 1 lists the constructs and sources used for this analysis.

Residential markets differ from commercial markets in several important ways, but the most obvious is that people do not live in retail or office space. Thus, for example, school attendance boundaries are relevant for parents in residential settings, but the same zones are not as pertinent for consumers when it comes to acquiring commercial goods and services. For instance, proximity certainly helps influence the desirability of a grocery store since food preparation takes place at home, but deciding to frequent it has less to do with whether or not it sits in one's school attendance zone. And while attributes that make an area attractive for people to reside may in turn be appealing to CRE investors, the commercial model can capture this by directly modeling residential population. To generate comparable estimates for residential real estate to compare to CRE, we largely adhere to the methods used in Perry, Rothwell, and Harshbarger (2018), but attempt to harmonize constructs that are relevant to both models. We also replace our "walkability index" measure with "connectivity," which we think has greater conceptual validity and allows us to separately consider commuting variables and business locations.

Our for-sale residential data is taken from Redfin, a national real estate brokerage that made their data publicly available. We focus on the median price per square foot of all sales in the ZIP code that occurred between 2015 and 2019. We adjust these values by the composition of for-sale property types (e.g., condos, multifamily units, single-family detached, and townhouses, or single-family attached). A primary advantage of these data over census data is that it adjusts for the square feet of the home and uses actual sales data, whereas census values are self-estimated by respondents.

Our data on "connectivity" are from Ailshire et al. (2010) using concepts published in Berrigan et al. (2010), who found that connectivity predicts active transportation, such as outdoor walking and biking. Readers can view the documentation associated with those studies. At a high level, Ailshire et al. (2010) describe connectivity this way: "Areas with high levels of street connectivity are characterized by high link/node ratios, intersection density, street network density, connected node ratios, and block density; by low average and median block length; and by high gamma and alpha values." We convert all variables to standardized values and multiply block length by -1. We then take the ZIP code mean of each standardized variable to construct a measure of "connectivity." We surmise that access to green space, forests, and trees will enhance the value of residential space but will be negative for commercial space because it lowers proximity to other businesses or customers. To measure the share of land covered by parks, we use data from Li et al. (2018). This could include concrete parks like basketball and tennis courts or playgrounds. For green space specifically, we use data from Melendez et al. (2010) and combine tree coverage with other vegetation.

We also include a measure of crime at the ZIP code level. Our hypothesis is that higher crime will lower residential and commercial values. There is no national public database that collects and reports crime below the county level, so we purchased data from Applied Geographic Solutions. They use a combination of location-specific crime reporting by certain large cities, county-level FBI data, and other sources to model and impute small area estimates of crime based on higher-level geographic reporting. The final index summarizes seven major crimes (including violent and property crime, but not drug crimes) and is reported as an index where 100 is the national average.

TABLE 1

Description of data and sources used in the analysis

Dependent variables	Source	Used in commercial, residential, or both models
Asking retail rent per square foot	CoStar	Commercial
Asking office rent per square foot	CoStar	Commercial
Sale price of owner occupied housing per square foot	RedFin	Residential
Independent variables	**Source**	**Used in commercial, residential, or both models**
Black share of zip code population	U.S. Census Bureau, American Community Survey, 2015-2019	Both
CoStar quality rating	CoStar	Commercial
Parking space as a share of total space	CoStar	Commercial
Share of inventory filled (1-vacancy rate)	CoStar	Commercial
Log of revenue per establishment	County Business Patterns	Commercial
Ln of number of businesses in zip code	County Business Patterns	Commercial
Share of businesses in retail/professional services	County Business Patterns	Commercial
Bachelor's degree attainment rate	U.S. Census Bureau, American Community Survey, 2015-2019	Commercial
Ln of median household income	U.S. Census Bureau, American Community Survey, 2015-2019	Commercial
Ln of population per sq acre of land	Missouri Data Center, Geocorr 2018	Both
Mean travel time to work	U.S. Census Bureau, American Community Survey, 2015-2019	Both
Percent of workers who walk or bike to work	U.S. Census Bureau, American Community Survey, 2015-2019	Both
Percent of workers who use public transit	U.S. Census Bureau, American Community Survey, 2015-2019	Both
Street connectivity or walkability	Ailshire et al. 2010. National Neighborhood Data Archive.	Both
Share of space for parks	Li et al. 2018. National Neighborhood Data Archive.	Both
Plant-coverage as share of land	Melendez. 2010-2016. National Neighborhood Data Archive.	Both
Total crime indexed to national average	Applied Geographic Solutions, CrimeRisk	Both

TABLE 1 CONTINUED

Description of data and sources used in the analysis

Variables used in residential analysis	Source	Used in commercial, residential, or both models
Condo share of units	RedFin	Residential
Multifamily share of owner-occupied units	RedFin	Residential
Single-family share of owner-occupied units	RedFin	Residential
Townhouse share of units	RedFin	Residential
Median year built	U.S. Census Bureau, American Community Survey, 2015-2019	Residential
Percent mobile home	U.S. Census Bureau, American Community Survey, 2015-2019	Residential
Percent single-family detached	U.S. Census Bureau, American Community Survey, 2015-2019	Residential
Percent single-family attached	U.S. Census Bureau, American Community Survey, 2015-2019	Residential
Median number of rooms	U.S. Census Bureau, American Community Survey, 2015-2019	Residential
Percent with no kitchen	U.S. Census Bureau, American Community Survey, 2015-2019	Residential
Percent with gas or electric	U.S. Census Bureau, American Community Survey, 2015-2019	Residential
Percent owner occupied	U.S. Census Bureau, American Community Survey, 2015-2019	Residential
Percent with no parking	U.S. Census Bureau, American Community Survey, 2015-2019	Residential
Public elementary and middle-school proficiency rates	U.S. Department of Education	Residential
Log of professional service establishments	County Business Patterns	Residential
Log of information service establishments	County Business Patterns	Residential
Log of arts and entertainment establishments	County Business Patterns	Residential
Log of accommodation and food establishments	County Business Patterns	Residential
Log of retail establishments	County Business Patterns	Residential
Median loan to income ratio	Consumer Financial Protection Bureau, HMDA	Residential

Source: Brookings authors' analysis

Image Credit: BeyondDC. Anacostia, Washington, DC

Findings

THE INEQUALITY OF COMMERCIAL REAL ESTATE

The commercial real estate market is lucrative but highly unequal. Nonresidential commercial real estate generated $512 billion in revenue in 2020.[2] This is about one-quarter of the size of the residential real estate market, but unlike that market, the nonresidential commercial real estate market is heavily skewed toward the rich. Our analysis of data from the 2019 Survey of Consumer Finances (SCF) shows that 81% of the value of nonresidential real estate is owned by the top 1% of households in that category. By contrast, 49% of the value of nonprimary residential property is owned by the top 1% of households. Owner-occupied housing wealth is the most equal, with 16% of value owned by the top 1%.[3]

The generally unequal structure of commercial real estate is also seen in wide racial disparities in asset ownership. According to 2019 SCF data, only 3% of Black households own nonresidential commercial real estate, compared to 8% of white households. Of those households who do own CRE, the average white household owns $34,000 in commercial real estate, compared to just $3,600 for the average Black household. Racial disparities are large in residential real estate but not nearly as disproportionate (see Table 2). The share of national wealth owned by Black people is three times higher for owner-occupied real estate as it is for nonresidential commercial real estate (6% of the U.S. total compared to 2%).

It should be noted that a substantial portion of U.S. commercial real estate is not owned by individuals, but rather by corporations, and that even individuals who do not personally own commercial real estate may have a retirement savings account, pension, or personal brokerage account that holds stock in these corporations—thus making those individuals indirect owners of commercial real estate. While this is not traced in this particular variable of the SCF, analysis of other variables in the SCF has already found that Black and Latino or Hispanic families are far less likely than other families have such accounts (Bhutta et. al. 2020).

TABLE 2

Asset ownership and wealth by race and ethnicity for U.S. real estate market in 2019

	Owner-occupied housing	Non-primary residential real estate	Commercial real estate
Percentage of households with ownership stake by asset type			
White	74%	15%	8%
Black	45%	8%	3%
Hispanic	48%	8%	4%
Other	54%	12%	8%
Share of U.S. wealth by asset type			
White	76%	80%	86%
Black	6%	4%	2%
Hispanic	5%	4%	2%
Other	13%	12%	9%
Mean value of wealth by asset type			
White	$261,476	$65,607	$33,594
Black	$89,656	$14,179	$3,619
Hispanic	$123,562	$19,618	$6,176
Other	$256,831	$57,797	$20,469

Source: Board of Governors of the Federal Reserve System, 2019 Survey of Consumer Finances, Summary Extract of Public Data.

Note: These data show that Black Americans earn 8.2% of income and own 2.7% of wealth and comprise 14.1% of the surveyed population. These data use the survey weights.

Commercial values are also more unequal across space than residential values. To construct a measure of total value by ZIP code, we calculated gross asking rent minus operating expenses multiplied by filled space and divided by the capitalization rate. The analogous metric for owner-occupied values multiplies median home values by the number of units in each ZIP code. We ranked each ZIP code for each construct and calculated the share of value held in the top 1% of ZIP codes separately (Table 3).

The results show that 36% of office space value resides in the top 1% of ZIP codes ranked by office space value. By contrast, 11% of retail value and 9% of owner-occupied value resides in the top 1% of those ZIP codes. Thus, the value of office space is the most unevenly distributed, followed by retail and residential space. This finding is not surprising and is another way of demonstrating the basic agglomeration dynamic of metropolitan areas.

TABLE 3

Geographic inequality in real estate value by zip code

	Share of national asset value located in the top 1% of zip codes, ranking by value of asset class
Owner occupied housing units	5%
Retail space	7%
Owner occupied housing value	9%
Retail value	11%
Office space	22%
Office value	36%

Source: Brookings authors' analysis

Note: Each of the variables is separately ranked, such that the top 1% of zip codes in office value are not the same as the top 1% in retail value. Commercial value is calculated as gross asking rent minus operating expenses multiplied by filled space and divided by the capitalization rate. See text for details.

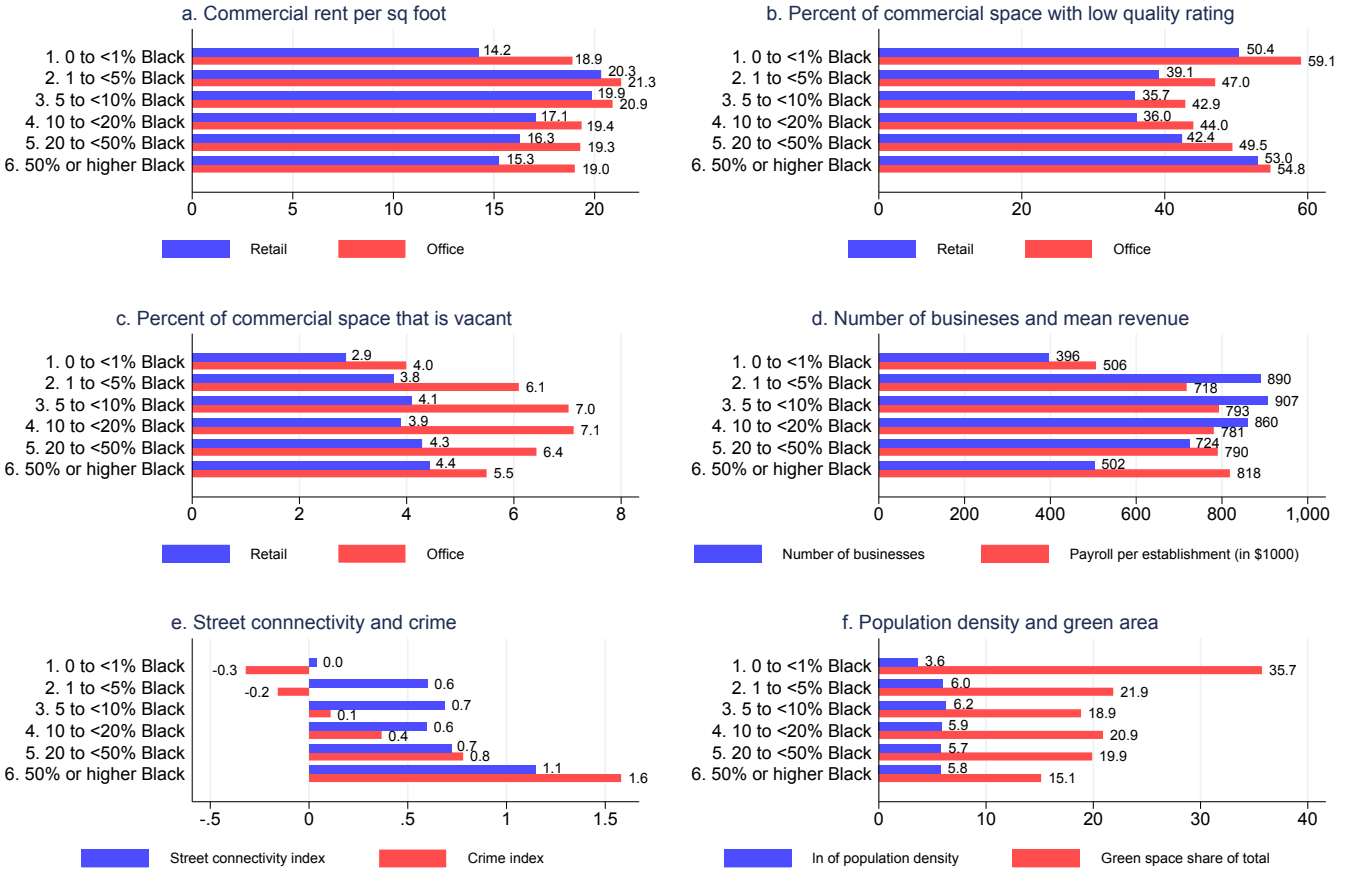
HOW THE RACIAL COMPOSITION OF ZIP CODES RELATE TO COMMERCIAL AND RESIDENTIAL VALUE

Over most of the distribution, the summary data shows a negative relationship between Black population shares and commercial real estate value (Figure 1), but commercial space in majority-Black ZIP codes is valued roughly the same as commercial space in ZIP codes with less than 1% Black population shares. Areas with very few Black residents have low population density and large amounts of undeveloped forest and grassland space (Figure 1, panel f). They also have few businesses and low revenue per business, proxied by payroll per establishment (Figure 1, panel d). Roughly speaking, commercial real estate in low-density white areas is valued the same as commercial real estate in high-density majority-Black neighborhoods.

A more relevant comparison to majority-Black ZIP codes are ZIP codes with Black population shares between 1% and 5%. Relative to these ZIP codes, commercial rent in majority-Black ZIP codes is 33% and 12% less for retail and office space, respectively. After moving past the ZIP codes with less than 1% Black population shares, rent generally falls with rising Black population shares. The summary data provides some clues as to why. The quality of the buildings tends to be lower in majority-Black ZIP codes than in other areas, crime is high, retail vacancy rates are high, and the number of businesses is low. On the other hand, street connectivity is high in majority-Black ZIP codes, business revenue per establishment is high, and office vacancy rates are low.

FIGURE 1

Summary statistics of commercial real estate data and neighborhood conditions by Black population share of zip code



Source: Brookings authors' analysis

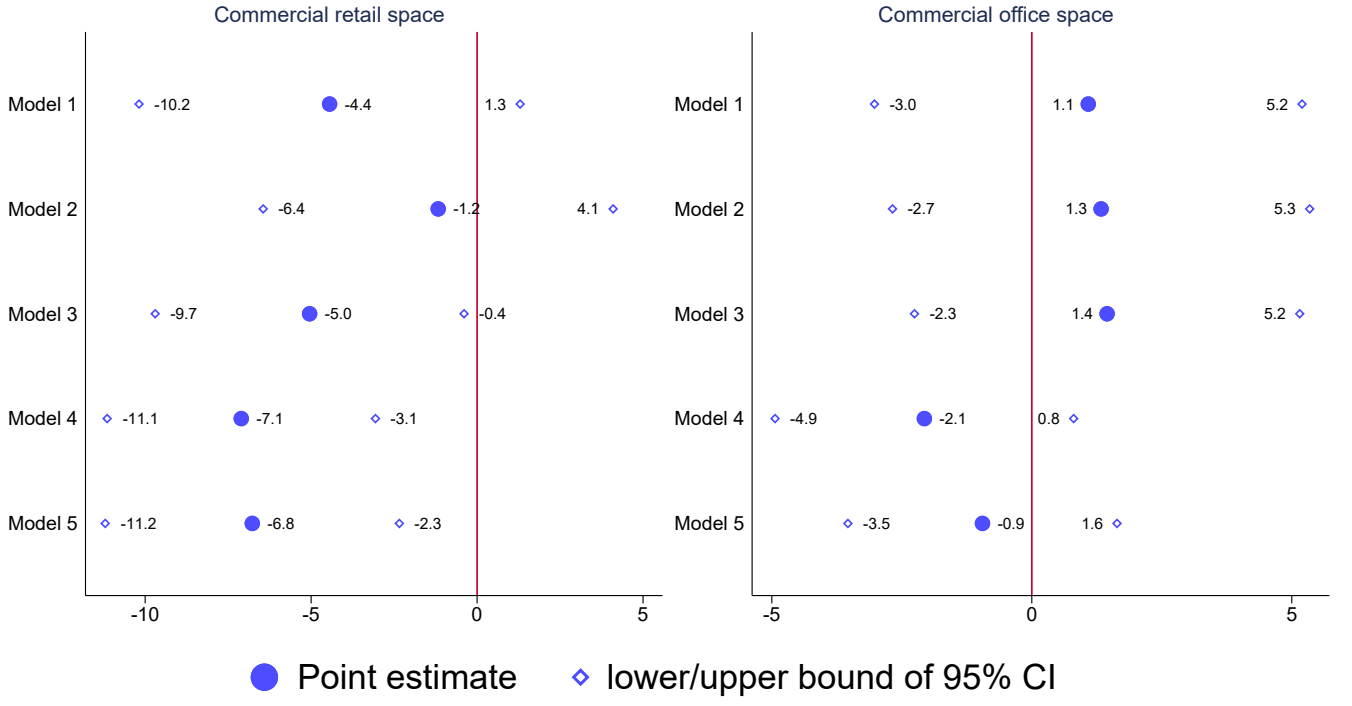
Moving to our primary analysis, we attempt to adjust for these and other differences across ZIP codes in an effort to isolate the effect of race. We realize our results cannot be interpreted as causal estimates, as there are likely other factors that are correlated with Black population shares and property values besides the ones accounted for here. Nonetheless, our models include the main factors described in the research literature and capture the main attributes advertised by commercial agents, such as space, renovation quality, parking, proximity to residential areas, proximity to high-income households, transportation access, street connectivity, and population density.

Starting with our unadjusted models (Figure 2, Model 1), we find that commercial retail space is 4.4% less in a ZIP code with 50% Black residency compared to a hypothetical set of ZIP codes with 0% Black residents. By contrast, office space is slightly overvalued in Black areas. These models include only metropolitan area fixed effects, effectively adjusting results by the average valuation in each metro area. Model 2 includes characteristics of the properties, including the quality of renovation work, parking space, and the inventory fill rate (1 minus the vacancy rate). This cuts the devaluation of retail space to -1.2%, and again there is a positive effect on office space. Model 3 adds controls for local business characteristics, which the literature

deems to be important to commercial markets. Proximity to other businesses, mean revenue per business, and the share of businesses in the relevant sector (retail or professional services) are included. Including these variables enlarges the (absolute value) effect of majority-Black residency (-5.0% for retail and +1.4% for office). Model 4 adds controls related to the environmental structure (including connectivity and population density) and characteristics of local residents (including education and income). It also includes estimates of the mean commute time to work to capture the convenience of the space to other work locations and the percent of commuters living in the area who can walk or bike to work. The devaluation estimates become -7.1 for retail and -2.1 for office space, but Black population share is statistically significant only in the retail model, and the confidence interval of the office parameter includes zero. The final model adds crime, changing the parameters to -6.8 and -0.9, respectively. Once again, Black population share is not significant in the office model and the confidence interval of the parameter estimate includes zero. This is our preferred model, as it includes all the relevant characteristics identified in our review.

FIGURE 2

Estimated devaluation of commercial property in majority-Black neighborhoods, across various models



Source: Brookings authors' analysis

Note 1: Plots coefficient and 95% confidence interval of Black population share at 50%

Note 2: All models have metro area fixed effects. Model 1 has no other controls. Model 2 controls for quality rating, parking space, and vacancy rate. Model 3 adds controls for local business characteristics. Model 4 adds zip code level characteristics, and Model 5 adds crime index.

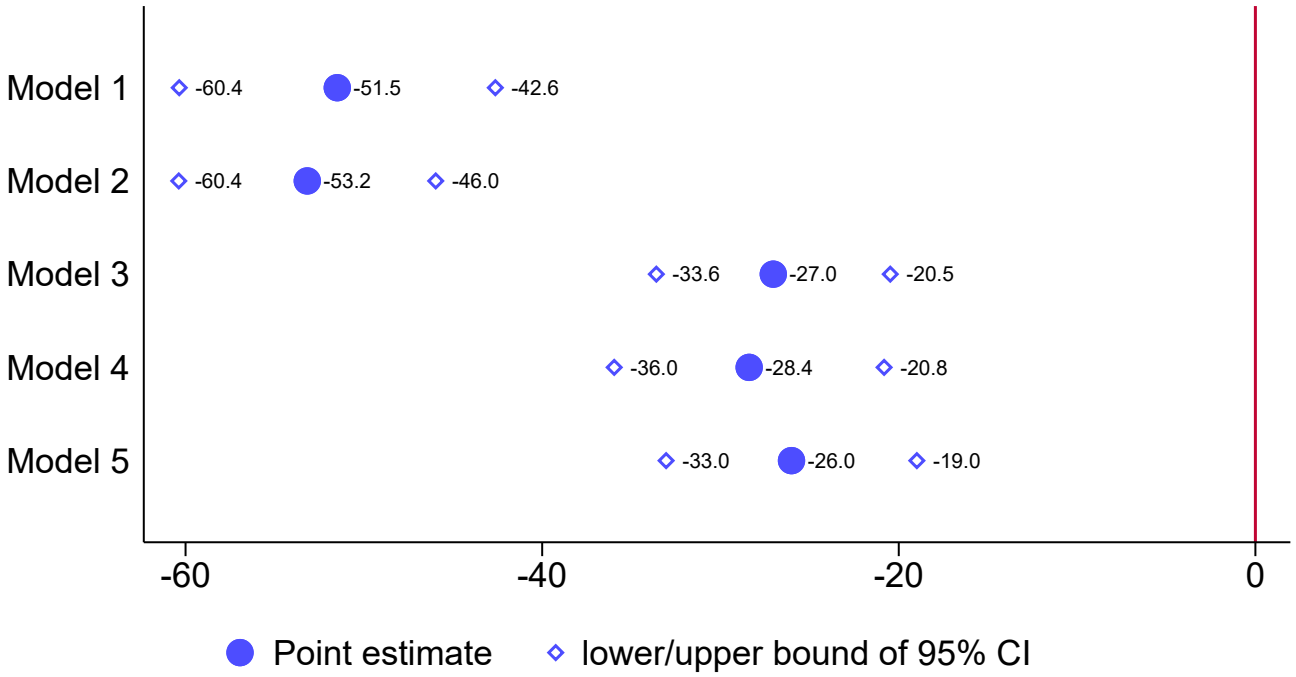
The complete results of our modelling are available in Supplemental Tables (1-3), which are available for download on the report's website. To simplify the discussion and data presentation, we present only the adjusted coefficients on the Black population share.

We ran similar models using our residential database. The results suggest that residential properties in Black neighborhoods face more severe devaluation—much more than commercial properties.

Model 1's estimates show that owner-occupied home sale prices are 51% lower in majority-Black ZIP codes compared to ZIP codes with zero Black residents (Figure 3). This model adjusts for square footage, property type, and metro area effects. Model 2 includes other controls for the structural characteristics of homes in the ZIP code, including median year of construction, parking, median rooms, and other amenities. Model 3 adds control variables for neighborhood characteristics, including population density and proficiency rates on math and English for public schools in the ZIP code. Model 4 adds the crime index and Model 5 adds a control for the median loan to income ratio. The median loan to income ratio captures the likelihood of mortgage default or other financial difficulty in meeting the terms of the loan. Areas with high values may have lower capacity to renovate homes for resale. The devaluation estimate falls (in absolute terms) to -28.4% from -26.0%. These results are remarkably consistent with what we reported in Perry, Rothwell, and Harshbarger (2018) using data from Zillow and the Census Bureau at the tract level for the period of 2012 to 2016 (instead of 2015 to 2019).

FIGURE 3

Estimated devaluation of owner-occupied in majority-Black neighborhoods, across various models



Source: Brookings authors' analysis

Note 1: Plots coefficient and 95% confidence interval of Black population share at 50%

Note 2: All models have metro area fixed effects. Model 1 has no other controls. Model 2 controls for structure of homes. Model 3 adds neighborhood characteristics. Model 4 adds crime index, and Model 5 adds median loan to income ratio.

ROBUSTNESS CHECKS

While the above discussion presents our preferred models, we considered several variations that are worth further discussion.

In the introduction, we discussed the importance of controlling for vacancy rates—or filled space rates—in commercial markets, but vacancies may also be a measure of weak demand, and thus capture some of the same channels that result in devaluation. For that reason, we re-run our preferred models while omitting the share of space that is filled. Doing so in our preferred model (number 5), results in slightly larger devaluation estimates. Retail goes from -6.8% to -8.2%. Office goes from -1.0% to -1.2%. We also consider whether the filled space rate has meaningful interactions with the Black population share. In Model 5, we find that an interaction term—defined as the fill rate multiplied by the Black population share—is insignificant in both retail and office models. Our interpretation of these exercises is that they do not meaningfully change our core findings.

ENVIRONMENTAL ISSUES

While we have included many variables in our model, we consider the possibility that majority-Black neighborhoods may be more likely to contain other less desirable attributes that drive down prices. One that we have not considered above is environmental pollution. There is evidence from the literature that proximity to environmental contamination depresses residential real estate values (Simons and Saginor 2006), though there is less evidence about the implications for commercial real estate.

To test this, we downloaded data from the U.S. Environmental Protection Agency's (EPA) comprehensive list of sites and facilities subject to environmental regulation.[4] These sites are not all sources of pollution and include many facilities that are monitored for their own protection, such as schools. We restrict the sites to those that the EPA classifies as being contaminated or potentially contaminated and count the number of such facilities in each ZIP code. There are 12,141 total sites. Most ZIP codes do not have any; we code ZIP codes with no listed site as zero.

There is almost no bivariate correlation between the presence of contaminated or potentially contaminated sites and real estate values. However, EPA sites are somewhat more likely to be found in majority-Black neighborhoods, especially those deemed potentially contaminated. The correlation is 0.13 between Black population share and natural log for the number of sites.

We take the log of the number of contaminated or potentially contaminated EPA sites plus one as our primary variable of analysis for this exercise. This allows for nonlinear relationships between the number of sites and real estate value, without throwing out the many ZIP codes with zero sites (the median is 0 and the mean is 0.39). When we include this variable in our final model, it is far from significant when predicting commercial values but reaches significance thresholds for residential values, suggesting a 2% drop in home prices for each contaminated or potentially contaminated site. Nonetheless, adding this variable to our model has no effect on the relationship between majority-Black neighborhoods and real estate.

We also tested whether the presence of one of the 1,232 sites that are on the EPA's national priority list affects these results. We find that it does not. Controlling for the other variables in our final model, the presence of an EPA site does not add additional explanatory value.

It is possible that other environmental variables could explain some of the variation in real estate values and be correlated with Black residence, but it is unlikely that metropolitan area real estate markets would be able to incorporate this information, given the lack of salience of neighborhood variation in air pollution, for example.

SPATIAL AUTOCORRELATION

We also consider spatial autocorrelation. To test for this, we calculate a spatial lag for commercial and residential values using the Moran's I statistic and the Stata ado program "moransi" with a distance threshold of 50 km (Kondo 2021). The spatial lags are highly correlated with values and have a positive coefficient. This means that neighboring real estate

values predict local values. In other words, ZIP codes with high rents are more likely to be near other ZIP codes with high rents. We account for this in our modelling work by adjusting for metropolitan area fixed effects and clustering errors within metropolitan areas. Our commuting and other variables should also mitigate some of the bias connected to inter-ZIP-code dynamics. To test this, we add the spatial lags to our final model. The spatial lags are not significant in our residential model, but they are significant and positive in predicting both retail and office rents. Including these lags slightly increases our estimate of devaluation effects (from -6.8 to -7.2 in retail and from -1.0 to -1.1 in office), but since adjacent neighborhoods and ZIP codes may be alike in characteristics besides pricing, we prefer our estimate without spatial lags because the interpretation is more straightforward. In any case, including spatial lags has little effect on the primary results.

CENTRALITY

A third issue is centrality. We have included several variables in the model that indirectly measure the centrality of the ZIP code market: population density, street connectivity, average commute times, and the percentage of workers who commute via public transit, walking, or biking. Nonetheless, real estate theory suggests a more direct measure of centrality may also be important, so we calculate the distance between each ZIP code and the central location (or centroid) of the metropolitan area. The geographic coordinates were provided by the Census Bureau's Gazetteer files for 2021, and distance was calculated using the Stata program geodist. To test whether distance from metropolitan area centroid belonged in our model, we included it in our full model (Model 5) for each outcome variable. In no case did we find that it was close to significance thresholds. Upon further analysis, we found that distance from center was positively and significantly correlated with value for all three markets in a simple model with only property-level characteristics, but this value became insignificant after adjusting for population density and commuting variables—some of which remain significant, with commuting variables being especially important. Thus, we conclude that population density, connectivity, and commuting variables do a better job of explaining economic value than a more direct measure of location centrality and omit the latter from our preferred models.

ESTIMATING LOST WEALTH

These valuations can be used to estimate aggregate losses to majority-Black neighborhoods. Following Perry, Rothwell, and Harshbarger (2018), we distinguish between the observed price (P) and the "real" price (R), which is a counterfactual estimate that assumes properties in Black neighborhoods are valued based only on observable nonracial characteristics. The observed price relates to the real price through our devaluation parameter ("g"), which is akin to a growth rate in economic or financial modelling and is equal to the beta parameter estimated in equation 1 in the methods section.

$$2. \quad P = R*(1+g)$$

Since the ln of 1+g is approximately equal to g, taking the log of both sides, we get

$$3. \quad \ln(P) = \ln(R) + g$$

Simple manipulation yields:

$$4. \quad \ln(R) = \ln(P) - g$$

We calculate aggregate retail space and owner-occupied units in majority-Black ZIP codes and use the commercial values from our summary data (Figure 1). The median home in a majority-Black ZIP code sold for $236,508 in 2022—far less than homes in ZIP codes with less than 1% Black population shares ($422,637). Since our commercial property values are reported and analyzed as asking rents, not market value, we must convert rents to value—or wealth—to make them comparable to homes. We adopt a common technique used in commercial real estate (Etter 1994). Specifically, we divide net operating income by the capitalization rate ("cap rate"). The capitalization rate is the ratio of net operating income to the sale price of a commercial property. It signals how much

reassurance—in the form of recent revenue—an investor needs. For less desirable properties (with lower quality ratings, for example), the cap rate is higher, all else being equal, which means that investors seeking to buy low-quality properties require evidence of relatively strong cash flow in the form of rental payments.

To calculate net operating income, we attempt to deduct operating expenses from gross rent. To do this, we calculate the difference between CoStar's estimated gross rents—which include all expenses—and net rents, which exclude operating expenses. We find that operating expenses are roughly $1.53 per square foot in majority-Black neighborhoods for office space, but there is essentially no difference between gross rent and net rent for retail in the CoStar database, which makes sense given that most retail leases are triple net (i.e., the tenant pays utilities, etc).

As a further guard against inflating values, we multiplied the space for office and retail property by the fill rate (the percentage currently rented) to account for the fact that unrented space will not generate revenue.

To calculate the cap rate, we downloaded CoStar cap rates for retail and office space for every metropolitan area in the United States and calculated the filled-space-weighted average cap rate for the entire United States for 2019, the year of our rent data. This yields a cap rate of 7.6% for office space and 7% for retail. This calculation is not sensitive to using all inventory space, regardless of vacancy.

Plugging in these values, we estimate that owners of retail space hold properties that are undervalued by $171 billion, which amounts to $1.7 million per building. These estimates compare to $235 billion in lost wealth for owner-occupiers of housing, or $69,000 per home. As mentioned, we do not find that office space is undervalued in Black neighborhoods. The point estimate is just under $600,000 per building, but includes potential overvaluation estimates.

TABLE 4

Lost wealth to majority Black zip codes from real estate in various sectors

	Lower bound of 95% confidence interval	Mean	Upper bound of 95% confidence interval
Lost value per unit/building			
Owner-occupied homes	$42,449	$69,349	$83,608
Office space	-$1,042,129	$586,198	$2,279,657
Retail space	$582,449	$1,722,024	$2,836,274
Aggregate loss of wealth in Billions			
Owner-occupied homes	$144	$235	$283
Office space	-$27	$15	$61
Retail space	$57	$171	$288

Source: Brookings authors' analysis

Note: Estimated home values in majority Black zip codes are provided by Redfin and use sales in 2022. Commercial real estate values are from CoStar using 2022 prices. See text for methodological details. Monthly commercial rents are converted to net operating income, annualized, and divided by a cap rate of 7% for retail and 7.6% for office space. Commercial units are estimated in majority Black neighborhoods by mulitplying their share of commercial space in the relevant sector by the number of U.S. buildings in that sector.

METROPOLITAN AREA ESTIMATES

The findings above are based on an analysis of 154 metropolitan areas with at least one majority-Black ZIP code. In the Western United States, only Los Angeles qualifies. Southern states house 116 of these metropolitan areas.

To better understand how these dynamics play out across areas, we ran our preferred models (Model 5 with the full list of controls) within each of the 154 metropolitan areas with available data. The results are summarized below (Table 5). We limit the discussion to retail and residential, given the insignificant national effects of Black residency on office space. We also limit the presentation to the 20 largest metropolitan areas, because the statistical power is greatly reduced at the metropolitan scale, given the large reduction in ZIP codes (our unit of analysis). Reducing the sample mechanically increases standard errors and makes it difficult to detect significant results, particularly if there are few disproportionately Black ZIP codes.

In nine of the 20 largest metropolitan areas, we find a negative relationship between Black residency and retail values. The effect is only significant in Chicago, where there is a 20% drop in retail rent per square foot in majority-Black ZIP codes compared to those with less than 1% Black population.

By contrast, in 18 out of 20 largest metropolitan areas, there is a negative relationship between Black residency and residential valuations. These gaps are statistically significant, at 95% confidence intervals in 12 of 20 cases. The gaps in Chicago, Philadelphia, Orlando, Fla., and Miami are especially large.

Image: Camden, NJ

TABLE 5

Estimates of real estate devaluation in majority Black zip codes relative to zip codes with less than one percent Black population shares, in large metropolitan areas for retail and residential space

	Retail			Residential		
	Lower bound	Point estimate	Upper bound	Lower bound	Point estimate	Upper bound
New York-Newark-Jersey City, NY-NJ-PA	-0.05	0.07	0.19	-0.20	-0.13	-0.06
Los Angeles-Long Beach-Anaheim, CA	-0.27	-0.07	0.14	-0.17	-0.04	0.08
Chicago-Naperville-Elgin, IL-IN-WI	-0.34	-0.20	-0.07	-0.46	-0.37	-0.28
Dallas-Fort Worth-Arlington, TX	-0.21	-0.03	0.16	-0.41	-0.26	-0.11
Houston-The Woodlands-Sugar Land, TX	-0.24	-0.06	0.12	-0.46	-0.26	-0.06
Washington-Arlington-Alexandria, DC-VA-MD-WV	-0.04	0.16	0.36	-0.15	-0.08	0.00
Philadelphia-Camden-Wilmington, PA-NJ-DE-MD	-0.10	0.04	0.19	-0.54	-0.43	-0.32
Miami-Fort Lauderdale-Pompano Beach, FL	-0.33	-0.14	0.05	-0.43	-0.30	-0.18
Atlanta-Sandy Springs-Alpharetta, GA	-0.12	0.03	0.18	-0.38	-0.28	-0.19
Boston-Cambridge-Newton, MA-NH	-0.07	0.21	0.49	-0.18	-0.05	0.08
Detroit-Warren-Dearborn, MI	-0.16	0.06	0.27	-0.43	-0.28	-0.14
Minneapolis-St. Paul-Bloomington, MN-WI	-0.45	0.20	0.85	-0.23	-0.04	0.16
Tampa-St. Petersburg-Clearwater, FL	-0.13	0.16	0.46	-0.15	0.04	0.23
Baltimore-Columbia-Towson, MD	-0.41	-0.05	0.32	-0.36	-0.21	-0.05
St. Louis, MO-IL	-0.40	0.00	0.40	-0.47	-0.29	-0.11
Orlando-Kissimmee-Sanford, FL	-0.24	0.23	0.71	-0.62	-0.41	-0.20
Charlotte-Concord-Gastonia, NC-SC	-0.60	-0.25	0.10	-0.26	0.01	0.28
Pittsburgh, PA	-0.43	0.05	0.53	-0.38	-0.11	0.16
Cincinnati, OH-KY-IN	-0.46	0.00	0.45	-0.40	-0.11	0.18
Kansas City, MO-KS	-0.14	0.24	0.62	-0.35	-0.02	0.32

Source: Brookings authors' analysis

Image: Jacksonville, FL

Discussion

This paper introduces a novel empirical effort to understand how the racial composition of local areas affects the value of commercial real estate. When comparing property in majority-Black ZIP codes to those in ZIP codes with no Black residents, we find that commercial retail rents are 7% lower after controlling for other drivers of value. This compares to our preferred estimate of owner-occupied housing devaluation of -26%. In contrast with both residential and retail real estate, we find no evidence that office space is devalued in majority-Black ZIP codes. The point estimate suggests that office rents are 1% undervalued and the average building is sold at roughly half a million dollars less, but our confidence intervals also include the possibility that office space is slightly overvalued in Black neighborhoods.

As we documented, commercial real estate markets differ from residential markets in several important ways, including the degree of inequality in value ownership across households and dispersion across geographic areas. Importantly, given the sophistication of commercial buyers, many of the issues addressed in civil rights law are applicable to residential transactions much more so than commercial transactions, such as real estate agent steering, lending term bias, and appraisal bias.

We believe the devaluation of commercial real estate in Black neighborhoods is consistent with a general pattern of devaluation of Black people living in these neighborhoods, which has deep roots in U.S. history. In a series of papers, we have documented that residential housing, small business performance, and commercial properties realize lower market potential than similar properties or businesses located in non-Black areas (Perry, Rothwell, Harshbarger, 2020). The devaluation may operate through private decisions, such as discrimination against individual Black owners, but it may also operate at the neighborhood level, which is not relevant to traditional civil rights legislation.

Neighborhood-level devaluation hurts consumers of all races, even when it occurs through race-neutral channels. For example, at least some part of the observed devaluation may be due to asymmetries in information, leading to market inefficiency. In other words, many potential buyers may be unaware that a home or commercial property in a Black neighborhood offers the space they need at a competitive price because they do not live in majority-Black neighborhoods, rarely visit such neighborhoods, and are not socially connected to residents or visitors there. For similar reasons, they may be unaware that a valuable meal (even "the best steak in town") could be had at a Black-owned restaurant in a Black neighborhood. As a result, these potential buyers may pay an artificial premium for space, or great steak, in a majority-white neighborhood. As Sheryll Cashin (2004) has argued, "Separation is pricey."

Another theory is that devaluation could operate through anti-Black stereotypes or other psychological mechanisms consistent with racial discrimination but not necessarily identical to discrimination directed against individuals. Potential buyers of any race may hold exaggerated fears or anxiety associated with Black neighborhoods or disregard those spaces as culturally distant.

Any amount of devaluation has real consequences for Black neighborhoods. In addition to the direct loss of access to the billions of dollars in residential capital estimated in this analysis, a systematic negative differential in valuation of Black neighborhood real estate renders these communities vulnerable to speculation. For example, devaluation reduces the carrying costs of real estate, and can thus be exploited by investors with greater access to capital who can afford to acquire properties and hold them, perhaps anticipating future racial demographic change in the neighborhood area.

We would like to see further research on this topic estimate how information and other forms of bias—including prejudice and stereotype adherence—relate to the devaluation of assets in majority-Black neighborhoods. An elegant test of our theory about ignorance would involve randomly assigning people to see advertisements highlighting the quality of businesses or real estate in Black neighborhoods and white neighborhoods and observing subsequent intentions to transact or actual consumer behavior. If the effects from such advertisements were larger in Black neighborhoods than white neighborhoods, it would confirm our view hypothesis that ignorance explained some of the gap in valuations. To test the importance of prejudice, the randomly assigned treatment would be to be exposed to countervailing information about Black neighborhoods or people that would be designed to lower prejudice. If people exposed to such information were subsequently more likely to transact in Black neighborhoods, it would demonstrate that prejudice explains at least some of the observed devaluation. We hope to implement this in future work.

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Details of our analysis, including the regression output and summary data for large metropolitan areas, are included in an online supplement.

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END NOTES

1 While ZIP codes are generally spatially larger than the construct of "neighborhood," they are commonly used in research as a neighborhood proxy. For studying commercial real estate, ZIP codes have a distinct advantage over census geographies such as tracts. Tracts tend to have major streets as their boundaries, resulting in commercial corridors being split into different tracts. Additionally, ZIP codes provide greater geographic precision than CoStar's internal submarket definitions; in our sample, the median ZIP code is 36 square miles, while the median CoStar submarket is 51 square miles.

2 U.S. Bureau of Economic Analysis, Value Added by Industry. Last Revised December 22, 2021.

3 To make these calculations, we rank households by centile according to the value of their asset (e.g., nonresidential real estate). We then calculate the total value owned by each centile, using the probability weight in STATA, and calculate the share of the national total. We perform this exercise separately for each asset class.

4 Data is available here: U.S. Environmental Protection Agency, "EPA FRS Facilities State Single File CSV Download, Geospatial Data," https://www.epa.gov/frs/epa-frs-facilities-state-single-file-csv-download (Accessed April 4, 2022).

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