Five-star reviews, one-star profits:

The devaluation of businesses in Black communities

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EXECUTIVE SUMMARY

To better understand how consumer-oriented markets work in Black neighborhoods, this report studies the financial performance and customer ratings of private enterprises in 86 metropolitan areas across the country with large Black populations. The analysis yielded the following results:

Black people represent 12.7% of the U.S. population but only 4.3% of the nation's 22.2 million business owners. Because Black and white people show no underlying differences in characteristics that predict entrepreneurial success, this gap represents major untapped entrepreneurial potential across U.S. cities. Along these lines, we find that minority-owned businesses receive customer reviews that are just as high as nonminority-owned businesses.

Businesses with higher consumer ratings on Yelp or a larger number of reviews experience faster revenue growth. We estimate that a one-star increase in Yelp reviews predicts an increase in revenue growth of 1 to 2 percentage points over a three-year period. Moreover, we find that for every 10 reviews a business receives, it experiences an additional 2 percentage points of revenue growth on average, regardless of the quality of the reviews.

Minority-owned businesses (i.e. Black people, Asian Americans, Latinos or Hispanics, and American Indians) in general earn significantly higher ratings than white-owned firms. This effect goes away after controlling for sector, revealing no difference between racial groups in Yelp ratings.

The racial composition of the neighborhood predicts Yelp responsiveness. Businesses—not considering the race of the owner—in Black-majority neighborhoods receive lower Yelp ratings and fewer reviews than other businesses. Businesses located in a Black-majority ZIP code garner consistently lower ratings from consumers (on the order of 0.2 fewer stars). They also receive drastically fewer reviews—50 to 100 fewer than businesses in mostly white neighborhoods. This lack

of attention from consumers is especially damaging for highly rated businesses in Black neighborhoods, which receive fewer reviews than highly rated businesses in white neighborhoods.

Highly rated businesses in Black-majority neighborhoods experience lower revenue growth than poorly rated businesses in neighborhoods that are less than 1% Black. In Black-majority neighborhoods, poorly rated establishments grow at roughly the same low rate as highly rated establishments—and both perform worse than poorly rated businesses in neighborhoods that are less than 1% Black. This suggests that, in contrast to owners in other neighborhoods, owners of high-quality businesses in Black-majority neighborhoods receive little financial advantage for providing superior service.

On average, highly rated businesses in Black-majority neighborhoods experience a gap in revenue growth of 0.2 percentage points when compared with highly rated businesses in other neighborhoods. This amounts to billions lost in unrealized revenue, ranging from $1.3 billion as a low estimate to as high as $3.9 billion annually. This is a conservative estimate, and accounts for the relative wealth, proximity, and growth of the local consumer base. We believe that with more data, the sum of this missed opportunity for revenue growth could be even higher.

The national patterns in Yelp reviews play out differently across metropolitan areas. Businesses in Black-majority neighborhoods often, but not always, receive fewer Yelp reviews and lower Yelp ratings than businesses outside of Black-majority neighborhoods. While there are no obvious explanations for specific differences in Yelp activity between metro areas, we do find that in larger, more affluent metro areas—or ones in which home values in Black-majority neighborhoods are valued in line with their qualities—businesses in Black neighborhoods tend to receive more reviews and higher ratings.

INTRODUCTION

"Look at this steak," implored Dorian Moorefield, owner of Grandma B's Café in Pittsburgh. He held up a piece of raw meat pulled from a refrigerator to show its size and quality. "You tell me where in the city you can get a better breakfast steak."

"Nowhere," one patron proudly responded, as if on cue. The diner's narrow, rectangular shape invites such conversations between customers bellied-up at the counter.

"Today, he's my favorite customer," Moorefield said of the patron. He slapped the steak on the grill behind him.

Located in Pittsburgh's Hill District—a Black-majority neighborhood overlooking downtown and the University of Pittsburgh—Grandma B's posts a 4.5-star rating on Yelp, with more than 40 reviews.

Historically, "the Hill" represented the heartbeat of Black culture and business in Pittsburgh. From before World War I through the 1950s, top jazz performers of the day came to this neighborhood. Moorefield's classic diner could very well have been a set in a play written by another of the Hill's own, Pulitzer Prize winner August Wilson.

Black businesses once lined Wylie Avenue, the street that Grandma B's sits on today. But now the diner is one of just a handful of Black-owned businesses scattered throughout the neighborhood.

As Moorefield's steak heated up on the grill, so did the surrounding conversations. Patrons argued over their beloved Steelers football team and reminisced about the time the late chef Anthony Bourdain had a meal at Grandma B's. Bourdain had discussed gentrification's impact on the rapidly changing neighborhood as part of his award-winning travel show *Parts Unknown*.

In 1970, 99% of the Hill's residents were Black. Until 2010, that number never dipped below 95%. Since then, however, the neighborhood has been shifting dramatically: In 2017, Black people represented 79% of the population.

"Business has always been good since we started ten years ago," said Moorefield. As different racial and ethnic groups moved to the Hill, though, he saw more public investments and greater appreciation for the neighborhood. "Now, we have [city-issued] garbage cans outside—that was unheard of."

Moorefield explained that the new residents have resulted in better perceptions of the Hill, both earned and unearned. In recent years, he's seen less crime, which Moorefield acknowledged as having been a significant barrier to community development and business growth. And he said that it seemed as if the influx was driving investments toward neighborhood improvements, which were not afforded to a previously all-Black area.

"More people are always good for business," said Moorefield, who certainly welcomes the prospect of new customers. "But through all [the] improvements, we've always had a great business. We haven't changed."

At a time of rising wealth inequality by race, this report is part of a larger project to understand how assets are valued (and undervalued) in America's Black neighborhoods.[1] In a previous report, we found that homes located in Black-majority neighborhoods are undervalued by 23% relative to homes of similar quality (measured by size, year built, and other characteristics) in neighborhoods with comparable schools and other amenities. In other words, we found evidence that the assets of Black neighborhoods are devalued, which depletes Black wealth and restricts upward mobility while reflecting larger patterns of discrimination that remain part of the United States.[2]

In the present study, we extend the analysis to businesses, investigating how financial performance relates to racial segregation and location in predominately Black neighborhoods. To conduct this research, it is not enough to compare business performance in Black neighborhoods to performance in white neighborhoods, because the businesses are likely to differ. As with our study on housing, we want to estimate how financial performance varies for a given level of quality. Yelp, an online repository of customer reviews, provides a meaningful and validated measure of quality, so we matched Yelp data at the establishment level to financial performance data from the National Establishment Time-Series (NETS) Database.

In well-functioning local markets for housing and customer services, higher quality should lead to higher consumer demand, which manifests itself as either higher home appreciation or business revenue growth. On the other hand, if racial segregation and discrimination distort markets, the effects of quality on revenue will vary by the racial composition of the market. This is what we set out to test.

THE IMPORTANCE OF BUSINESS LOCATION, RACIAL COMPOSITION, AND QUALITY ON REVENUE

Empirical research on small business outcomes finds that location matters.[3] In the United States, residential segregation patterns by race have created very different neighborhood conditions for businesses to work within. Recently, economists at JPMorgan Chase analyzed business finance data in 25 large metropolitan areas and found that businesses in Black and Latino or Hispanic neighborhoods exhibited substantially lower profit margins.[4] In Black-majority neighborhoods, only 30% of businesses had profit margins at or above 15%, compared to 70% of businesses in white-majority neighborhoods. That study did not consider the quality of business services as a mediating factor, as we do here.

Business scholars have looked at how the reputation of a firm and other general features predict success. Customer satisfaction ratings and the "net promoter score" are examples of how firms collect data from their customers to improve management and performance.[5] The quality of management helps explain variations in firm profitability and growth.[6] Economists Nicholas Bloom, John Van Reenen, and colleagues have developed management quality assessments, and the defining characteristics include structured monitoring and performance targeting, as well as performance-based pay.[7] Evidence suggests that the quality of management influences performance. Firms with higher management scores perform better, with higher revenue, higher profits, and a greater ability to provide high-quality goods and services at low cost.[8]

An examination of customer satisfaction scores offers insights into managerial and reputational aspects of business quality. The website Yelp is a prominent example of an information source for consumer ratings. Academic research finds that a one-star increase in a business's Yelp score leads to a 5% to 9% growth in revenue over a given year, and we estimate that a one-star increase in Yelp score also predicts an increase in that growth rate of 1 to 2 percentage points over a three-year period.[9]

METHODS

This report investigates how the value of businesses and the growth in that value relate to location in Black neighborhoods. To understand the relationship, we need to know the individual characteristics of the business, since businesses differ in value for many reasons unrelated to location. We consider a model in which business revenue and growth depend on the quality of the business, its age, the sector in which it operates, its legal form of organization, and characteristics of the local market.

To satisfy these data requirements, we combined data from two private data sources: Yelp and the NETS Database.

Using the 2013-2017 American Community Survey, we identified the 100 metropolitan areas with the highest number of Black residents. Then, within each of these metropolitan areas, we prioritized ZIP codes with the largest number of Black residents by total population. Our aim was to collect at least 10 businesses from 30 of these ZIP codes within each metropolitan area, so we could have enough samples for comparison across ZIP codes (with a minimum total of 300 businesses per metropolitan area).

A Gallup data scientist assisted in helping us pull Yelp data from the application programming interface (API) using these parameters and varying the type of businesses pulled, so that the list included a range of industries. Accommodation, food services, and retail are heavily represented, as those sectors are common on the Yelp platform, but the final sample also includes firms in construction, manufacturing, and real estate (See Table 1). Upon reviewing the final data, we found that some metropolitan areas either lacked 30 suitable ZIP codes or those ZIP codes had fewer than 10 suitable Yelp businesses. After excluding these areas, we were left with 86 large metropolitan areas, with a minimum Black population of 57,312 (Harrisburg, Pa.) and a minimum total population of 373,362 (Trenton, N.J.).

Our final sample has 53,030 businesses, each with at least two Yelp reviews. The mean number of businesses per metropolitan area is 616, ranging from 337 to 1041. The mean number of reviews per business is 115.

Our final sample appends data business-by-business from Yelp to NETS. The two data sources share identifying information such as the business name, address, latitude and longitude coordinates, and phone number. This information was used to match data on the average Yelp rating and number of Yelp reviews to business characteristics from NETS.

Since 1990, Walls and Associates have assembled and cleaned annual establishment-level data from Dun & Bradstreet and organized it into a longitudinal file for data analytics and research. NETS is the resulting database, which scholars have used for a variety of purposes. Economists at the Federal Reserve Board have recently reviewed previous studies that use NETS and compared it to publicly available sources.[10] They conclude that it is useful for cross-sectional analysis and often tracks government data sources quite well, but it has some limitations for dynamic research.

As part of our data-cleaning process, we drop nonprofits, companies with no operating record in 2019, companies in education services, utilities, government offices, and establishments of the U.S. Postal Service. In robustness checks, we also restrict the data to establishments that are the headquarters of firms, drop sole proprietors, and drop establishments with only one employee. These filters are recommended in the literature if the goal is to match NETS with public records. That is not the goal of this research (and public records have their own limitations). Moreover, the quality of our final database is likely improved by the fact that we match to Yelp, which confirms that at least the company name and location are accurate. For these reasons—and to maximize sample size—we use the full sample for our main analyses.

We rely on NETS to generate our two outcomes measures: business revenue in 2019 (which we measure in logs), and revenue growth from 2016 to 2019 (which we measure as the difference in log values of each year). In practice—and since we are merging NETS data with existing businesses with Yelp reviews—we cannot observe how business survival rates vary across neighborhoods. We leave that for future work, but believe it is worth mentioning that if survival rates are lower in Black neighborhoods even for businesses of similar quality, then our analysis risks understating the disadvantages of location in Black neighborhoods.

We also generate several control variables using NETS to isolate the effect of business location. They include the first year the establishment entered the Dun & Bradstreet database (which is essentially a birth year), whether the entity is a corporation, whether it is the headquarters (or a branch of a larger entity), and the sector in which it operates.

We also control for the source of the revenue data. Employment information mostly comes from the company itself (in 69% of cases), but is often imputed by Dun & Bradstreet or Walls and Associates. For revenue, the vast majority of businesses have imputed data, with only 6% reporting directly. In 80% of cases, these revenue estimates are made by Walls and Associates using time-series imputations, which—theoretically at least—offer an improvement over Dun & Bradstreet's cross-sectional imputations. This is because they allow for establishment-specific effects, or unobserved patterns between performance and the establishment that persist across time.

To capture the business neighborhood, we use ZIP codes. ZIP codes are—arguably—ideally suited for this purpose, because they are created by the U.S. Postal Service to organize delivery routes. As a result, they are influenced by natural boundaries such as rivers and railroad tracks—as well as social borders such as business districts—in ways that political boundaries often are not.

Roughly half of the businesses in our sample are in the food service and accommodation services sector, which is not surprising since Yelp is primarily known for its user-generated restaurant reviews (Table 1). Another high percentage (14%) are in the retail trade, with an additional 8% in miscellaneous "other services," including auto repair and personal

TABLE 1

Roughly half of businesses in the Yelp sample are in accomodation and food services sectors

	All observations		Black-majority ZIP codes	
	Number	Percent of sample	Number	Percent of sample
Accommodation and Food Services	25,881	53%	2,887	55%
Retail Trade	7,015	14%	697	13%
Manufacturing	2,011	4%	213	4%
Administrative and Support and Waste Management and Remediation Services	1,741	4%	143	3%
Construction	1,460	3%	147	3%
Professional, Scientific, and Technical Services	1,349	3%	95	2%
Wholesale Trade	1,187	2%	151	3%
Health Care and Social Assistance	1,094	2%	79	1%
Real Estate and Rental and Leasing	931	2%	101	2%
Finance and Insurance	925	2%	79	1%
Arts, Entertainment, and Recreation	609	1%	88	2%
Transportation and Warehousing	459	1%	84	2%
Information	304	1%	26	0%
Agriculture, Forestry, Fishing and Hunting	77	0%	5	0%
Management of Companies and Enterprises	8	0%	1	0%
Mining, Quarrying, and Oil and Gas Extraction	5	0%	0	0%
Other Services (except Public Administration)	3,882	8%	446	8%
Not classified	250	1%	26	0%
Total	**49,188**		**5,268**	

Note: Some firms were dropped from the original sample of 53,030 businesses to prepare for analysis. Percentage totals do not sum to 100 due to rounding.
Source: Merged data from Yelp and National Establishment Time-Series (NETS) Database.

services (e.g. beauty salons and barber shops). The distribution of businesses with Yelp reviews across sectors is very similar for Black-majority ZIP codes as in non-Black-majority ZIP codes.
Our primary control variables reflect characteristics of the ZIP codes in which businesses in the study are located, capturing the wealth, growth, and proximity of the consumer base as well as the ZIP code's status as primarily residential or for business.

Consumer wealth variables include the total amount of adjusted gross income in the ZIP code (to capture aspects of demand for business and entertainment services) and the percent of tax returns from people who file as married via IRS income statistics (to determine household composition), as well as the log of median home values from the Census Bureau's 2017 5-year American Community Survey (ACS).

Consumer growth variables include the log of population within the ZIP code, the median year that homes were built (which will be higher in more dynamic, growing places), and the share of residents age 25 and older who possess a bachelor's degree.

Consumer proximity variables include the mean commute time of workers within the ZIP code via ACS estimates (to capture distance to work centers), and a walkability score derived from the Environmental Protection Agency. It gives higher scores to neighborhoods with diverse businesses, many housing units, and intersecting streets. These features predict more walk trips.

Finally, we combine census data on the number of residential units with data on the number of business establishments in the ZIP code from the Census Bureau's County Business Patterns. We estimate the share of units that are residential as the ratio of housing units to the sum of housing units and business establishments. This is meant to capture the extent to which the ZIP code is situated in a residential area as opposed to a business district.

In the text below, we report summary statistics and graphs to describe the trends at a high level. In the online appendix, we show the results of modeling exercises that incorporate all of our control variables and take the following form:

$$Y_{e,n,m} = c + \beta_1 E_{e,n,m} + \beta_2 N_{e,n,m} + M_m + \varepsilon$$

Y is the outcome of interest, measured as the Yelp rating, number of reviews, and revenue growth. It varies at the level of the establishment (e), neighborhood (n), and metro area (m). E is a vector of establishment characteristics, which includes those described above (minority ownership, legal structure, sector, and origin of revenue data), and the Yelp rating and number of reviews, when applicable. N is a vector of neighborhood characteristics, and M is a control variable for metropolitan area fixed effects. Appendix Table 1 summarizes the variables used and Tables 2 to 4 present the results for each outcome.

MAIN CONCEPTS

Business Revenue Growth: Revenue Growth from 2016 to 2019
Location (Black share of population): Black population of ZIP code divided by total ZIP code population
Minority ownership: Whether the firm is owned by someone who is non-Latino or Hispanic and White.
Yelp rating: The mean number of stars customers give an establishment (on a one to five scale)
Number of Yelp reviews: The number of reviews provided by customers for the establishment.

RESULTS

1. Black people represent 12.7% of the U.S. population but only 4.3% of the nation's 22.2 million business owners. This gap represents major untapped entrepreneurial potential across U.S. cities.

Only 1% of Black business owners obtain loans in their founding year, compared to 7% of white business owners.[11]

Several pieces of evidence suggest that the lack of business ownership among Black people does not result from lack of talent at running businesses.

Gallup psychologists developed an assessment (Builder Profile 10) to measure the enduring characteristics that predict success as an entrepreneur.[12] One's degree of confidence, appetite for risk, creativity, determination, and other factors determine how people score. This index is highly predictive of whether someone is a business owner, how well their business performs as measured by outcomes such as revenue growth, and whether or not the owner meets revenue and profit goals. There are no statistically significant differences in performance on the Builder Profile 10 between non-Latino or Hispanic whites and Latino or Hispanic and Black people.[13]

Our analysis of Yelp data shows that businesses owned by the groups that Dun & Bradstreet classifies as minorities (Black people, Asian Americans, Latino or Hispanics, and American Indians) earn ratings that are just as high as businesses owned by non-Latino or Hispanic white people. In fact, in simple models that do not control for the sector of business, minority businesses are rated significantly higher. This effect goes away after controlling for sector, revealing no difference between racial groups in Yelp ratings.

The underrepresentation of Black business owners can be attributed in large part to Black people having less of their own money to invest in firms and less collateral to put toward a loan due to job, housing, and financing discrimination. Our examination of housing prices showed that, in 2017, homes in Black neighborhoods were priced 23% lower than equivalent homes in white neighborhoods, amounting to $156 billion in accumulative lost equity in Black neighborhoods throughout the United States. Black-owned businesses start with approximately a third less capital than their white peers and have difficulties raising private investments from mainstream investment systems.

2. Businesses with higher consumer ratings on Yelp or a larger number of reviews experience faster revenue growth. Businesses with four to five stars on Yelp experienced an average growth rate of 8.8% from 2016 to 2019. This compares to growth of just 6.2% for businesses with fewer than four stars.

As shown in Figure 1, the rate of growth is generally upward sloping at each point in the distribution, but falls off slightly at five stars. Growth was also unexpectedly high for businesses with only one star, but these represent a tiny fraction of all businesses.

Likewise, businesses that garner more reviews also experience faster growth (Figure 2), perhaps reflecting the fact that the number of reviews is related to the popularity of the restaurant, its marketing success, or the attention it receives online. Businesses with at least 50 reviews grew 9.8% over the period, compared to 6.6% for those with fewer than 50 reviews.

These findings linking Yelp to business performance are consistent with academic literature about Yelp, specifically from Michael Luca of Harvard Business School.[14] He found that in Seattle, a one-star increase in a Yelp rating led to 5% to 9% growth in revenue. In Appendix Table 4, we present the

FIGURE 1

Businesses with higher Yelp ratings enjoy faster revenue growth

Yelp sample of businesses in ZIP codes across 86 metro areas, 2016 - 2019

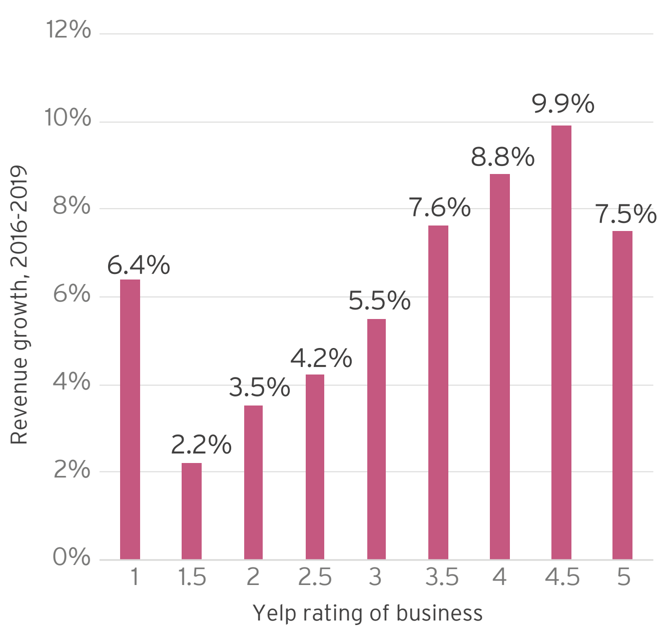
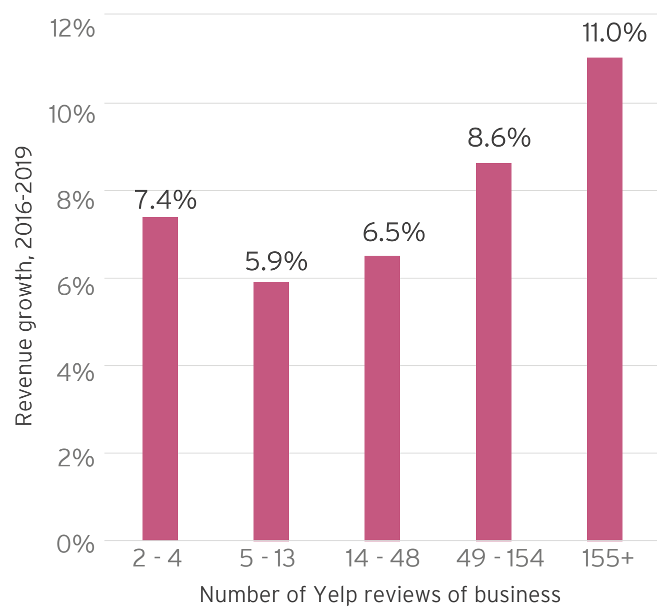


FIGURE 2

Businesses with more Yelp ratings experience faster revenue growth

Yelp sample of businesses in ZIP codes across 86 metro areas, 2016 - 2019



Note: Businesses with a single Yelp review were removed from the sample before analysis. Groupings of Yelp reviews represent quintiles.
Source: Author analysis of merged data from Yelp and National Establishment Time-Series (NETS) Database.

results of our econometric model, which finds that a one-star increase in the Yelp review leads to a 1.2 to 1.8 percentage point increase in growth over three years. We also find that for every 10 reviews a business receives, it experiences an additional 2 percentage points of revenue growth on average, regardless of the quality of reviews.

3. Businesses in Black-majority neighborhoods receive lower Yelp ratings and fewer reviews than other businesses.

Yelp reviews are 0.24 standard deviations below the mean in Black-majority neighborhoods, which amounts to about one-fifth of a star. The review gap is widest (0.34 standard deviations) between Black-majority neighborhoods and those with 5% to 10% Black population shares (Figure 3).

We find that this gap persists after controlling for other factors related to both the business (including the sector and minority ownership) and the neighborhood (Appendix Table 2). In other words, the lower quality rating for businesses in Black neighborhoods is explained by neither minority ownership nor the lower income or levels of education of people living in those ZIP codes.

To illustrate the relationship between minority or white ownership and the Black population, we plot the mean Yelp rating for minority-owned businesses and white-owned businesses against the share of the ZIP code's population that consists of Black people. Regardless of the race of owner, Yelp ratings are sharply lower as the Black population share increases (Figure 4).

Businesses in Black neighborhoods receive lower ratings from customers and less attention. The number of reviews per business sharply falls as the ZIP code's Black population increases (Figure 5a; Figure 5b). Again, this effect is independent of whether the store is owned by a white person or a minority. Businesses in neighborhoods with very few Black residents receive twice as many reviews as businesses in neighborhoods that are almost entirely made up of Black residents.

FIGURE 3

Businesses in Black neighborhoods receive lower Yelp ratings than others

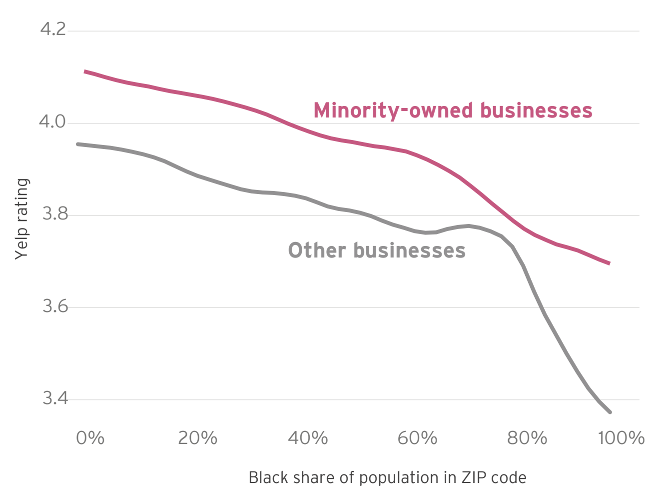
Yelp sample of businesses in ZIP codes across 86 metro areas, 2016 - 2019

Source: Author analysis of Yelp data and 2017 American Community Survey estimates.

FIGURE 4

Yelp ratings decrease as Black share of population increases

Yelp sample of businesses in ZIP codes across 86 metro areas, 2016 - 2019



Source: Author analysis of merged data from Yelp and National Establishment Time Series Database (NETS) and 2017 American Community Survey estimates.

The negative relationship between Black neighborhoods and Yelp reviews even holds true for highly rated businesses. In majority non-Black neighborhoods, highly rated businesses—defined as those receiving at least four out of five stars—receive roughly 50 more reviews than poorly rated businesses, and both receive high total numbers of reviews (150 to 100, respectively) (Figure 6). Yet, in Black-majority neighborhoods, both highly rated businesses and poorly rated ones receive only about 50 reviews. Our econometric model estimates that going from a ZIP code that is 25% Black to 75% Black would lower the number of reviews by 50 to 115 for an otherwise similar business, even after controlling for other characteristics of the neighborhood.

Given the strong relationship between the number of reviews and revenue growth, it follows that high-quality businesses in Black neighborhoods are hindered in their growth potential. We explore this theme next.

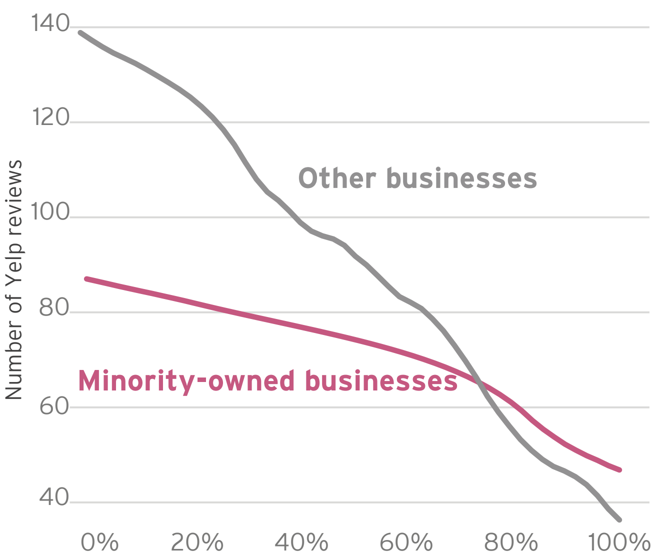
4. Highly rated businesses in Black-majority neighborhoods experience lower revenue growth than businesses with similar quality ratings outside of Black neighborhoods.

In non-Black-majority neighborhoods, businesses with high Yelp ratings grew, on average, between 8.5% and 9% between 2016 and 2019, and poorly rated businesses grew significantly less (between 5% and 7.5%). Yet, in Black-majority neighborhoods, 7% growth was the norm for both highly rated and poorly rated businesses, which is lower even than the growth of poorly rated businesses in neighborhoods that are less than 1% Black (Figure 7).

FIGURE 5a

Quantity of Yelp reviews decreases as Black share of population increases

Yelp sample of businesses in ZIP codes across 86 metro areas, 2016 - 2019

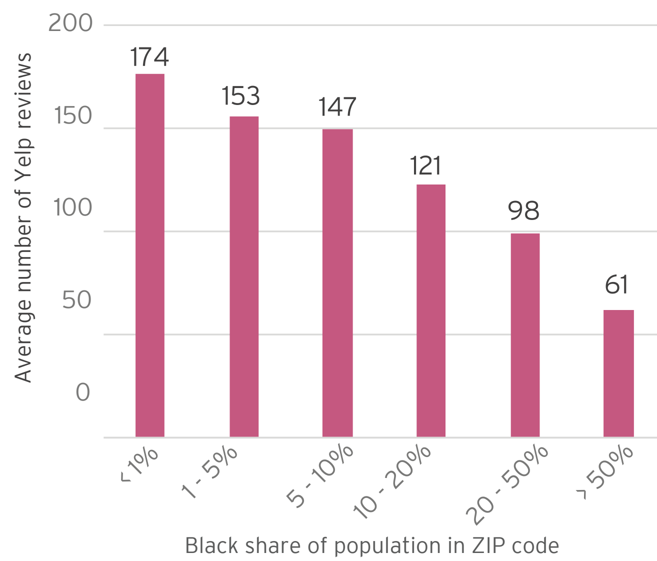


Source: Author analysis of merged data from Yelp and National Establishment Time Series Database (NETS) and 2017 American Community Survey estimates.

FIGURE 5b

Businesses in Black neighborhoods receive fewer Yelp reviews than others

Yelp sample of businesses in ZIP codes across 86 metro areas, 2016 - 2019

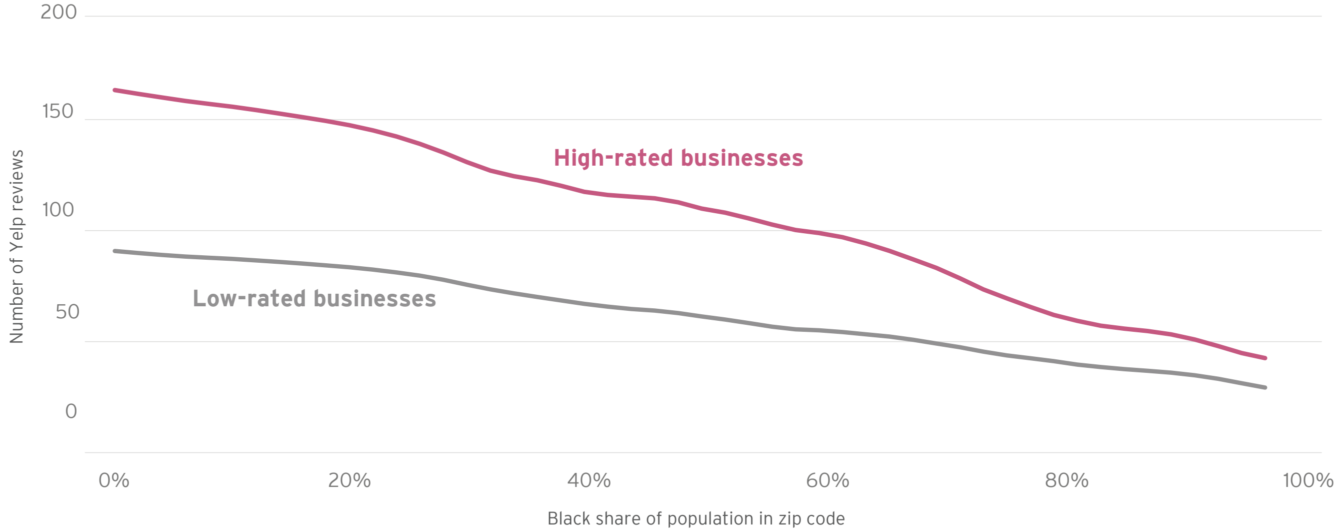


Source: Author analysis of merged data from Yelp and National Establishment Time-Series (NETS) Database.

FIGURE 6

High-rated businesses get fewer reviews in Black neighborhoods

Yelp sample of businesses in ZIP codes across 86 metro areas, 2016 - 2019



Note: A low-rated business has a Yelp rating below 4.0. High-rated businesses have ratings of 4.0 or higher.
Source: Author analysis of merged data from Yelp and National Establishment Time Series Database (NETS) and 2017 American Community Survey estimates.

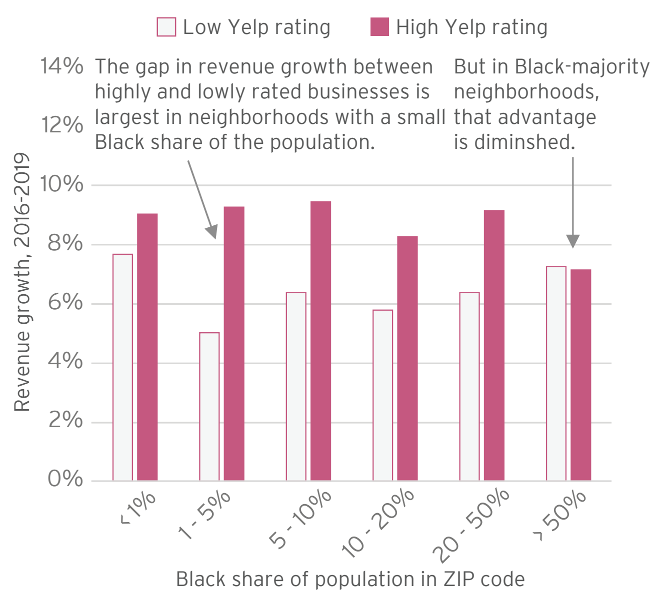
We consider that these patterns might be a function of business characteristics such as legal structure, age of business, or sector. Yet, when we control for these characteristics, we continue to find a negative and statistically significant interaction effect between the Black share of population and the Yelp rating. In other words, we do not find that revenue growth is uniformly lower in Black neighborhoods, but rather that location in Black-majority neighborhoods eliminates the benefit of being a highly rated establishment. This effect persists after controlling for other neighborhood characteristics such as the level of education of residents, total income in the ZIP code, average commute times to work, and the age of the housing stock.

This pattern poses a problem for consumers living in Black-majority neighborhoods because—unlike in other areas—business quality has no relationship to performance, so poorly rated businesses are able to compete with highly rated ones. It is a problem for the owners, too, because providing high-quality customer service and products does not result in financial rewards in Black neighborhoods to the same extent as in other neighborhoods.

FIGURE 7

Locating in a Black-majority neighborhood eliminates the advantage of being a highly rated business

Yelp sample of businesses in ZIP codes across 86 metro areas, 2016 - 2019



Note: Low Yelp ratings are defined as below 4.0. High Yelp ratings are defined as 4.0 and higher.
Source: Author analysis of merged data from Yelp and National Establishment Time-Series (NETS) Database and 2017 American Community Survey estimates.

The lack of revenue growth could be the result of any number of factors. High-quality businesses may have difficulty accessing capital in Black neighborhoods, or local media may tend to ignore them, or their location in a Black neighborhood dissuades people outside the area from becoming customers, despite the quality. The last explanation is consistent with the view that neighborhoods themselves can suffer from racial discrimination, devaluing the assets of homes and property.

5. On average, highly rated businesses in Black-majority neighborhoods experience a gap in revenue growth of 0.2 percentage points when compared with highly rated businesses in other neighborhoods.

From 2016 to 2019, average revenue growth for highly rated businesses in Black-majority neighborhoods was approximately 7.2%, and in other neighborhoods it was approximately 9%—a gap of approximately 1.8 percentage points. Over three years, this gap amounts to an annual location penalty of 0.58 percentage points in revenue growth for each business.

In 7,840 of 38,722 ZIP codes (20%) that have a Black majority, there is an average of 53 establishments employing an average of 1,618 workers, with $85 million in mean revenue. A location penalty of 0.58 percentage points per year suggests aggregate annual losses in business revenue as high as $3.9 billion for Black-majority neighborhoods.
This initial estimate compares only highly rated businesses. The full model suggests a 0.2% annual gap when all factors are included, amounting to $1.3 billion in unrealized revenue each year. This figure is a conservative estimate, and accounts for the relative wealth, proximity, and growth of the local consumer base.

6. The national patterns in Yelp reviews play out differently across metropolitan areas.

Businesses in Black-majority neighborhoods often, but not always, receive fewer Yelp reviews and lower Yelp ratings than businesses outside of Black-majority neighborhoods. There are no obvious explanations as to why Yelp activity differs for businesses in Black neighborhoods in some metropolitan areas relative to others. But we found some interesting patterns that suggest further research could be fruitful.

Drawing from our previous study, we find that in metro areas where home values in Black-majority neighborhoods are valued in line with their qualities, businesses in Black neighborhoods tend to receive more and higher ratings.[15] This is also true, somewhat, in larger and more affluent metropolitan areas.

TABLE 2

Gaps in Yelp ratings between businesses in Black-majority ZIP codes and other ZIP codes vary by metropolitan area

Yelp sample of businesses in ZIP codes across 86 metro areas, 2019

	Mean gap (Black-majority minus others)	Mean Yelp rating	
		Black-majority ZIP codes	Other ZIP codes
Metro areas with the largest negative gaps in Yelp ratings between Black-majority ZIP codes and others			
Tallahassee, FL	-0.79	3.05	3.84
Port St. Lucie, FL	-0.50	3.31	3.81
Chicago-Naperville-Elgin, IL-IN-WI	-0.47	3.52	3.99
Jacksonville, FL	-0.47	3.68	4.16
Philadelphia-Camden-Wilmington, PA-NJ-DE-MD	-0.43	3.56	3.99
Dallas-Fort Worth-Arlington, TX	-0.40	3.49	3.89
Detroit-Warren-Dearborn, MI	-0.40	3.47	3.86
Baton Rouge, LA	-0.31	3.44	3.75
Cleveland-Elyria, OH	-0.31	3.74	4.04
Cincinnati, OH-KY-IN	-0.30	3.73	4.03
Metro areas with the largest positive gaps in Yelp ratings between Black-majority ZIP codes and others			
Harrisburg-Carlisle, PA	1.27	5.00	3.73
Savannah, GA	0.60	4.33	3.73
Nashville-Davidson--Murfreesboro--Franklin, TN	0.49	4.35	3.87
Durham-Chapel Hill, NC	0.45	4.39	3.94
Kansas City, MO-KS	0.43	4.30	3.87
Gulfport-Biloxi-Pascagoula, MS	0.42	3.90	3.48
Huntsville, AL	0.36	3.91	3.55
Pensacola-Ferry Pass-Brent, FL	0.36	4.13	3.77
Chattanooga, TN-GA	0.31	4.08	3.77
Raleigh, NC	0.30	4.22	3.92

Source: Author analysis of Yelp data and 2017 American Community Survey estimates.

TABLE 3

Gaps in number of Yelp reviews between businesses in Black-majority ZIP codes and other ZIP codes vary by metropolitan area

Yelp sample of businesses in ZIP codes across 86 metro areas, 2019

	Mean gap (Black-majority minus others)	Mean Yelp review count	
		Black-majority ZIP codes	Other ZIP codes
Metro areas with the largest negative gaps in mean number of Yelp reviews between Black-majority ZIP codes and others			
Washington-Arlington-Alexandria, DC-VA-MD-WV	-330	69	399
Boston-Cambridge-Newton, MA-NH	-182	58	240
New Orleans-Metairie, LA	-179	134	313
Miami-Fort Lauderdale-West Palm Beach, FL	-157	63	219
Dallas-Fort Worth-Arlington, TX	-121	35	155
Houston-The Woodlands-Sugar Land, TX	-116	75	192
Chicago-Naperville-Elgin, IL-IN-WI	-110	43	153
Philadelphia-Camden-Wilmington, PA-NJ-DE-MD	-108	41	150
New York-Newark-Jersey City, NY-NJ-PA	-101	62	164
Durham-Chapel Hill, NC	-67	24	91
Metro areas with the largest positive gaps in mean number of Yelp reviews between Black-majority ZIP codes and others			
Nashville-Davidson--Murfreesboro--Franklin, TN	255	349	95
Raleigh, NC	214	286	72
Tampa-St. Petersburg-Clearwater, FL	78	234	156
Chattanooga, TN-GA	77	118	41
Pensacola-Ferry Pass-Brent, FL	56	99	44
Baltimore-Columbia-Towson, MD	53	207	154
Orlando-Kissimmee-Sanford, FL	53	179	126
Toledo, OH	15	42	27
Gulfport-Biloxi-Pascagoula, MS	12	47	35
Montgomery, AL	10	29	19

Source: Author analysis of Yelp data and 2017 American Community Survey estimates.

CONCLUSION

To achieve something close to racial equality in the United States, markets critical to capital flows must give equal access to Black people. As we documented in our previous report, residential real estate is systematically devalued in Black neighborhoods across the country. This prevents Black homeowners from accumulating the wealth that would otherwise flow to them through a well-functioning housing market that wasn't warped by racial discrimination.

Historic discrimination distorts how we gauge value at individual and institutional levels. These distortions rob Black people of the ability to uplift themselves and build stronger neighborhoods. Negative perceptions that are shaped by racism put drags on markets that hurt Black people and the communities they live in.

In this report, we found evidence that the market for local customer-facing services is also distorted in ways that harm Black people and neighborhoods. Residents of Black-majority neighborhoods confront lower-quality businesses, resulting in less value per dollar spent. When government economists calculate inflation, they subtract quality improvements from goods and services, when they can be measured. The intuition is that even more expensive products can result in an increase in income—measured as purchasing power—if the quality improvements are significant enough. It follows that lower-quality consumer services offered to residents of Black-majority neighborhoods mean that their living standards are actually lower than their incomes would otherwise suggest. The quality dynamics described above—which show that poor-quality businesses do better in Black neighborhoods and high-quality businesses do worse—harm Black people.

The owners of businesses in Black-majority neighborhoods are more likely to be minorities. Our data does not distinguish the race of minorities, but it stands to reason that the owners of businesses in Black neighborhoods are more likely to themselves be African American, since many owners live near their business. Thus, our finding that even high-performing businesses receive less attention from Yelp reviewers and experience slower revenue growth means that the potential for wealth creation through entrepreneurship is hampered by a dim view of Black neighborhoods.

How to spark the revaluation of Black neighborhoods is beyond the scope of this report, but there are practical things that cities and local governments can do. For example, they should invest in city infrastructure by providing adequate public transit, roads, parking, street lights, and park space near highly rated businesses in Black neighborhoods. Cities can also come up with creative financing solutions to provide attractive commercial space for businesses in Black neighborhoods to operate. Local governments should partner with businesses, real estate developers, and building owners to incentivize the renovation of business facades and buildings, and ensure that unnecessary bureaucratic and zoning restrictions are removed.

Some Black cities have led the way by making targeted infrastructure investments in Black communities, with the intent of forming a more equitable business environment. In New Orleans, firms designated as "Disadvantaged Business Enterprises" (DBEs) have long been underrepresented in contracts with the local government. In response, the regional transit authority chose to invest simultaneously in its infrastructure and minority-owned businesses by pledging that a minimum of 31% of its federally provisioned grants would go to contracts with DBEs throughout the New Orleans metropolitan area.
Additionally, cities must invest in people as well as places. In Oakland, Calif. (a city with a sizeable Black population, though not a majority), an $800 million plan to develop the infrastructure on and around the local Army base contained a provision that half of all work hours would be completed by local workers. The agreement also facilitated local workforce development through apprenticeships for residents.

However, we must do more than allocate municipal funds from existing projects toward Black workers and Black-owned businesses. We must find ways to restore the value of Black neighborhoods themselves, which has been reduced by racism. The economy stands to gain from anti-discrimination, anti-racist policies that increases capital flow to businesses in Black neighborhoods. If we don't extract the racism inherent in housing, financing, and other related systems, that racism will continue to extract wealth from Black communities.

These are practical ways to restore value, but solutions require capital flows to quality people and places that have historically been denied those important resources. Racism is the enemy of our taste buds. Prejudice won't go away by just having interracial discussions and courageous conversations—even if those talks are at places like the counter at Grandma B's. Bigotry ends when investment in Black-majority neighborhoods begins.

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