

COVID-19, Small Business Owners, and Racial Inequality

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Abstract: This paper examines the impacts of COVID-19 on small business owners and racial inequality by reviewing findings from previous studies and providing new estimates from the most recent data available from the Current Population Survey (CPS). In the first month of the pandemic, Black business owner activity dropped by 41 percent compared with a 17 percent drop for white business owner activity. Latinx business activity dropped by 32 percent and Asian business activity dropped by 26 percent. In the first quarter of the pandemic, Native American business activity dropped by 43 percent compared with a 10 percent drop for white business activity. Business earnings dropped by roughly 28 percent for Black business owners in 2020 which was considerably higher than the loss of 15 percent for white business owners. Asian business owners lost 21 percent and Latinx business owners lost 19 percent in 2020. The \$800 billion Paycheck Protection Program (PPP) designed to curtail losses in the pandemic was not disbursed proportionately to minority communities in the first round but reversed course in the next two rounds, especially in the revised 2021 program. More recently, the latest available data on business activity (through September 2022) indicate that the numbers of Black, Latinx, Asian and Native American active business owners are substantially higher than pre-pandemic levels.

1 Introduction

The widespread shutdown of stores and businesses in the United States and around the world due to COVID-19 was unprecedented. Stores, factories, and many other businesses closed operations by policy mandate, downward demand shifts, health concerns, or other factors. Stores have mostly reopened since social distancing restrictions were lifted and COVID cases have declined but many have suffered lost revenues from the waves of shutdowns, restrictions and reduced customer demand in the pandemic and recovery period. Many small businesses have closed permanently because of these disruptions to operations and revenues in the pandemic.

Turning to the evidence, business activity rates fell sharply in the first few months of the pandemic as owners and businesses were forced to shut down operations. Estimates of temporary closures ranged from 22 to 43 percent in the beginning of the pandemic (Bartik et al. 2020; Fairlie 2020). Losses to small business revenues and sales ranged from 30 to 50 percent (Farrell, Wheat, and Mac 2020; Kim, Parker, and Schoar 2020; Bloom, Fletcher, and Yeh 2021; Fairlie and Fossen 2021a). Although the losses to small businesses were unprecedented, a pressing concern for inequality is whether they were felt disproportionately by people of color.

This paper examines the impacts of COVID-19 on small business owners and racial inequality using timely microdata from the Current Population Survey (CPS). The findings of early stage effects of the pandemic from previous studies are reviewed and summarized. In addition, new estimates are presented that track the pandemic from its beginning in March 2020 to the latest data available on racial inequality in business ownership, which is as recent as September 2022. Additionally, for the first time, estimates are presented at the quarterly level for Native American business activity in the pandemic.

2 The Early-Stages of the Pandemic

COVID-19 was declared a pandemic on March 11 by the World Health Organization which was shortly followed by unprecedented measures to stop the spread of the disease. On March 19, 2020, the State of California imposed shelter-in-place restrictions with New York State following the next day. By early April most states imposed social distancing restrictions that closed “non-essential” businesses and added to consumer health concerns in the emerging pandemic. In previous work, I used microdata from the Current Population Survey (CPS) to examine how COVID-19 impacted small business owners in mid-April 2020—the first month to capture these changes (Fairlie 2020).¹ In particular, I focused on trends in the number of business owners actively operating their businesses over time. Figure 1 shows that the number of working business owners plummeted from 15.0 million in February 2020 to 11.7 million in April 2020 (the entire Great Recession only resulted in a drop of 5 percent). Even more growth-oriented and stable incorporated business owners experienced a substantial drop in business activity (20 percent) from February to April 2020. The findings were also consistent using various hours worked cutoffs.

Turning to racial patterns, Figure 2 displays the number of active business owners for major minority groups in the first 3 months of the pandemic. The patterns are striking. The number of Black business owners plummeted from 1.1 million in February 2020 to 640,000 in April. The drop of 440,000 Black business owners actively working in their businesses, represents 41 percent of February 2020 levels.² Although there was a partial rebound in the next

¹ The CPS is conducted monthly by the U.S. Bureau of the Census and the U.S. Bureau of Labor Statistics. It is the underlying source of official government statistics on employment and unemployment. The data cover all persons in the civilian noninstitutionalized population of the United States living in households.

² The findings from this paper on racial inequality were cited and used to justify policy responses that included additional assistance to minority and small businesses during the pandemic. U.S. Senate. 2020.

two months, the number of actively working Black business owners remained 26 percent lower in May and 19 percent lower in June than in February 2020, which were the largest losses for any major racial/ethnic group. Latinx business owners also suffered major losses in business activity. The number of active Latinx business owners dropped from 2.1 million to 1.4 million (32 percent) from February to April 2020. These losses in Latinx business activity from COVID-19 continued into the second and third months after widespread shelter-in-place restrictions. The number of active Latinx business owners dropped by 19 percent from February to May and 10 percent from February to June. Asian business owners suffered losses in business activity in April 2020 of 230,000 representing 26 percent of February levels. Even with the rebounds in May and June, the number of Asian business owners who were actively running their businesses dropped by 21 percent and 10 percent, respectively. Consumer discrimination against Asian-owned businesses was a concern because of the coronavirus first appeared in China (CDC 2020).

The drop in business activity from February to April for white business owners was also large at 1.8 million business owners, but smaller as a percentage of starting levels (17 percent). White business owners experienced declines in operating businesses of 11 percent in May and 5 percent in June from February levels. The losses among white business owners were large, but lower than for minority business owners, increasing inequality during the pandemic. Job losses were also higher for minority workers compared with white workers (Couch et al. 2020).

These findings are corroborated by other studies of the impacts on business owner activity by race. Also using CPS data but focusing on year-over-year (YOY) changes, Wilmoth (2020) finds that Black business owners experienced the largest YOY decline at 37.6 percent,

“Cardin, Cantwell, Schumer, Booker, Cortez Masto & Harris Introduce Legislation to Invest in Minority-Owned Businesses,” U.S. Senate Committee on Small Business & Entrepreneurship. Newsom, Gavin. 2020. “Governor Newsom Signs Bills to Support Small Businesses Grappling with Impact of COVID-19 Pandemic, Bolster Economic Recovery,” State of California, Office of the Governor.

with Asian business owners experiencing only a slightly smaller decline at 37.1 percent. The decline for Latinx business owners was smaller (26.0 percent) but also larger than the national average (20.2 percent). Amuedo-Dorantes, Borra, and Wang (2021) find that COVID-19 disproportionately hurt Asian entrepreneurship especially for Asian immigrants, declining by 17 percent relative to non-Latinx whites. Using geospatial data, Huang et al. (2022) examine visitation levels at restaurants and found that Black-owned restaurants were disproportionately affected by COVID-19 among different cities.

Turning to potential explanations for disproportionate losses in business activity, I found that the concentrations of Black, Latinx, and Asian businesses in industries hit the hardest by the pandemic were partly responsible for why losses were higher for these groups than the national average losses (Fairlie 2020). Mills and Batisto (2020) examine why Black businesses were twice as likely to shutter as all businesses using data on COVID-19 cases, the Paycheck Protection Program (PPP), and small firms' financial health from the Federal Reserve's Small Business Credit Survey. They find that volumes of COVID-19 cases coincided with Black-owned business locations, PPP funds were less likely to reach businesses in high-density Black firm areas, and black businesses generally had weaker cash positions, bank relationships, and funding at the beginning of the pandemic.

2.2 Other Business Outcomes by Race

Expanding the focus from business owner activity losses in the pandemic, a few studies estimate the disproportionate impacts on minority business outcomes such as sales, earnings and cash balances. Bloom, Fletcher, and Yeh (2021) partnered with a large payments technology company to collect survey data from 2,500 small businesses and find an average loss of 29 percent in sales

in 2020 Q2. They find an 8 percent larger drop for Black businesses, but estimates are not statistically significant. Farrell, Wheat, and Mac (2020) examine data from the transactions of financial accounts at JP Morgan Chase (JPMC) for a few states and find that by the end of March 2020, Black firms had cash balances that were 26 percent lower compared with a 12 percent decrease for all firms. Also, the Stanford Latino Entrepreneurship Initiative (2020) surveyed 224 high-revenue Latinx-owned businesses and found that 86 percent of respondents reported immediate negative effects such as delayed projects and closure from the pandemic.

In previous work, I examined the impacts of COVID-19 on racial inequality in business earnings (Fairlie 2022). Using CPS microdata from the Annual Social and Economic Supplement (ASEC) files, I explored whether the earnings of minority business owners were disproportionately affected by COVID-19, and thus contributed to furthering income inequality in the United States.³ Calendar year 2020 is the first year affected by the pandemic with nearly the entire year being affected. Trends in mean log business earnings by race and ethnicity indicate differential losses by group. Figure 3 displays estimates. Business earnings dropped by roughly 28 percent for Black business owners which was considerably higher than the loss of 15 percent for white business owners. Asian business owners lost 21 percent and Latinx business owners lost 19 percent in the pandemic.

More formal tests of whether COVID had disproportionate impacts on business owner earnings using regression analysis also show larger losses for Black businesses. The regressions build on the underlying patterns displayed in Figure 3 by controlling for pre-COVID trends and owner, business, and geographical characteristics. For example, if there were converging trends in business earnings between two racial groups the regression equation can simulate where these

³ The CPS ASEC files contain calendar year earnings for all business owners. The monthly CPS files do not contain calendar year earnings and only allow for a measure of business activity.

trends would have likely led to in 2020 if COVID had not happened. Figure 4 displays regression-adjusted estimates of COVID impacts on business earnings in 2020.⁴ The total pandemic induced earnings losses in calendar year 2020 for whites are estimated by the regressions to be 16.5 percent. Black business owners lost an additional 14 percent in business earnings which totaled 30.4 percent in business earnings losses. Latinx business owners lost a total of 19 percent in business earnings, and Asian business owners lost a total of 25 percent in business earnings.

I also explored the underlying causes of disproportionate impacts of COVID on minority-owned business earnings using a new decomposition technique. The types of businesses, owners, and geographical locations that experienced the largest losses in business earnings in the pandemic were in the leisure and hospitality industries, wholesale and retail trade industries, located in the west or south, operating in central city areas, and owners with less education than a college degree. Estimates from the decomposition technique indicate that the industry concentrations of Black, Latinx, and Asian business owners placed each of these groups at a higher risk of experiencing disproportionate business earnings losses in the pandemic. Higher education levels among Asian business owners helped insulate them from larger losses due to COVID-19. On the other hand, COVID case rates, business closure policies and mask mandates did not contribute to disproportionate earnings among business owners of color.

3 Business Ownership Patterns Since the Start of the Pandemic

Building on the estimates reported in Fairlie (2020), I next present the latest possible estimates on business activity by race and ethnicity. I present both monthly estimates and quarterly estimates (which improve precision). Figure 5 displays monthly estimates from January 2019

⁴ Estimates are reported in Specification 3 of Table 3 in Fairlie (2022).

through September 2022. As noted above, I found a rebound in the number of active business owners in May 2020 and June 2020 (Fairlie 2020). The rebound continued with increasing business owner activity through the summer and into fall. But, as COVID cases increased because people started to return inside with colder weather and holidays including Halloween brought people together, social distancing restrictions and business shutdowns started up again. Business activity dropped in November 2020 through February 2021. Then vaccines started to roll out and there was a lot more optimism. The result is that business activity increased through spring and summer of 2021. It was not until fall 2021 that business activity dropped again partly due to shutdowns related to the surge in the Delta variant of COVID and once again a return to indoors and the holidays. February 2022 marked perhaps a final turning point. Business activity increased for the next few months and only experienced a slight drop in the summer of 2022. Levels of business activity are higher than prior to the pandemic. In September 2022 there were 15.9 million active business owners compared with 15.2 million in September 2019.

Figure 6 displays quarterly estimates of business activity by minority group from the first quarter of 2019 to the third quarter of 2022 (Appendix Table 1 reports estimates). The patterns for each group generally follow the total pattern for all groups displayed in Figure 5. The drop in the 2020 Q2 from the start of the pandemic is large for each group. The subsequent rebound after the initial drop was also uneven for most groups. But, a key finding is that for some groups business activity is above pre-pandemic levels. Latinx business owners experienced the largest longer-term increase in business activity, rising from 2.0 million in 2019 Q3 to 2.5 million in 2022 Q3. The number of Black active business owners increased from 1.16 million in 2019 Q3 to 1.31 million in 2022 Q3. Asian business activity increased from 861,000 in 2019 Q3 to 982,000 in 2022 Q3.

For the first time Native American business ownership activity is presented. Focusing on quarterly rates of business activity results in larger sample sizes to improve precision in the estimates. Similar to other groups Native Americans experienced a large drop in business activity at the start of the pandemic. From 2020 Q1 to 2020 Q2 business activity dropped from 112,000 to only 63,000 (43 percent drop). The quarter-to-quarter drop in percentage terms was the largest of any group. Black business owner activity dropped by 31 percent, Asian business activity by 18 percent, and Latinx business activity by 17 percent. In comparison, the number of active white business owners dropped by 10 percent from the first to second quarters of 2020 at the beginning of the pandemic.

Native Americans experienced the largest drop early in the pandemic of any major racial or ethnic group, but have rebounded since then. The number of Native American active business owners increased from 108,000 in 2019 Q3 to 137,000 in 2022 Q3. The growth of 27 percent over this period matched the growth for Latinx business owners as the highest. In comparison, white business owner activity fell slightly by 3 percent from 2019 Q3 to 2022 Q3. Black business activity increased by 13 percent and Asian business activity increased by 14 percent over the same time period.

Over a longer period of time it is also useful to examine the number of active business owners that adjusts for changes in the size of the labor force for each group. Figure 7 displays the percentage of the labor force that is actively running a business for each group. The time series patterns are essentially similar to the number of active business owners for each racial group. The first quarter after the start of the pandemic resulted in a substantial drop in the percent of the labor force actively running a business for each group. The Black rate of business activity dropped from 5.4 percent in 2020 Q1 to 3.9 percent in 2020 Q2. The Native American business

activity rate dropped from 6.2 to 3.6 percent. Both the Latinx and Asian business activity rates dropped by a full percentage point from the first to second quarters of 2020. In comparison, the white business activity rate dropped from 10.4 to 9.6 percent in the first quarter of the pandemic.

All minority groups experienced increases in the percentage of the labor force actively running a business by 2022 Q3 compared to just prior to the start of the pandemic. White business activity as a percentage of the labor force, however, has essentially remained at the same level as prior to the pandemic. These patterns are roughly similar to those for the number of active business owners by group. An interesting finding from Figure 7 is that the ordering of groups by business activity rates remained somewhat constant over time. The white business activity rate was the highest throughout the time period whereas the Black business activity rate generally remained the lowest. Even with increases in business activity rates among minority groups since the beginning of the pandemic large differences in business activity rates remain. The latest estimates of the percentage of the labor force actively running a business are 10.4 percent for the white labor force, 9.1 percent for the Latinx labor force, 8.2 percent for the Asian labor force, 7.2 for the Native American labor force, and 6.1 percent for the Black labor force.

4 Policy Response to COVID-19

Given the severity of the pandemic, the federal government provided a response of larger magnitude than ever seen before in terms of financial assistance to small businesses. The largest programs providing funds to small businesses were the Paycheck Protection Program (PPP) and the Economic Injury Disaster Loan (EIDL) program. Both of these programs were part of the larger \$2.2 trillion CARES Act passed into law on March 27, 2020. One of the stated goals of the CARES Act was to prioritize serving “underserved markets” and businesses owned by “socially

and economically disadvantaged individuals” (U.S. Congress 2020). In the beginning of the pandemic, however, minority businesses and communities were generally delayed in obtaining financial assistance through the PPP (Grotto, et al. 2020). The PPP was designed to provide loans to small businesses to keep them afloat and retain their employees. Loan amounts were intended to equal 2.5 months of average payroll costs, and could be forgiven if the business retained its employees on the payroll. The first round of the PPP provided \$342 billion through 1.7 million loans with disproportionately less going to minority communities (Grotto et al. 2020; Fairlie and Fossen 2021b).⁵

As the pandemic continued and the negative economic impacts became increasingly clear, Congress appropriated additional funds and the PPP started up again on April 27, 2020. In this second round of PPP funding, fintech lenders were more involved in making loans, and disbursement to minority businesses and communities improved (Grotto et al. 2020; Fei and Yang, 2021; Fairlie and Fossen 2021b; Erel and Liebersohn 2020). The second round which ran until August 8, 2020 provided \$189 billion through 2.6 million loans to small businesses. Figure 8 shows how the relationship between PPP loan disbursement and minority shares of the population by zip code changed from the first round to the second round.⁶ The shift from a negative relationship to a positive relationship over time is very clear.

The other major small business program providing funds in the pandemic was the EIDL program. The EIDL program was designed to provide either loans or advances to small businesses that are losing revenues and sales due to COVID-19. Nearly 3.6 EIDL loans for \$200 billion and

⁵ Lederer et al. (2020) conducted matched-pair audit testing of financial institutions in Washington, D.C. for PPP loans and found disparities between Black and white testers in encouragement in applying for a loan, products offered, and information provided by the bank representative.

⁶ The Small Business Administration (SBA) provides microdata on PPP and EIDL loans at <https://data.sba.gov/dataset/ppp-foia>, <https://data.sba.gov/dataset/covid-19-eidl>, and <https://data.sba.gov/dataset/covid-19-eidl-advance>.

nearly 5.8 million EIDL advances for \$20 billion were provided to small businesses in 2020. An analysis of the disbursement of EIDL funds to minority communities finds a positive relationship (Fairlie and Fossen (2021b)).

A few months after the PPP ended in summer 2020, COVID cases began to rise rapidly and social-distancing restrictions returned. New COVID cases rose from 1.2 million in September 2020 to 6.4 million in December 2020 and 6.1 million in January 2021 (Centers for Disease Control and Prevention 2021). Given these concerns the PPP restarted in January 2021 with a strong emphasis on helping eligible borrowers in underserved and disadvantaged communities. To promote access for smaller lenders and their customers, the SBA restricted the program which included a head start for applications through Community Development Financial Institutions (CDFI) before more broadly opening up the program, and a two-week exclusivity application period for businesses with fewer than 20 employees in February 2021. Part of the funds were set aside for low- or moderate-income businesses, and some exclusionary restrictions were eliminated (U.S. Small Business Administration 2021). Another major change was that the PPP opened up to allow small businesses that continued to struggle in the pandemic to obtain a second loan. During this third round of the PPP from January to May 2021, a total of \$278 billion through 6.7 million loans was provided of which \$209 billion and 2.9 million loans were second draw loans. At this stage of the pandemic, PPP loans were focused more on sole proprietors, self-employed individuals, and independent contractors without employees than employer businesses with an emphasis on helping to preserve the owner's job.

Did PPP funds in the rebooted program in 2021 get disproportionately disbursed to minority communities as intended or did the program struggle with equitable loan disbursement? Using administrative microdata on the universe of PPP loans, Fairlie and Fossen (2022) find a

strong positive relationship between PPP flows, as measured by the number of loans per employer business or loan amounts per employee, and the minority share of the population or businesses in the third round (see Figure 9). A stronger positive relationship is found between minority share and loan numbers or amounts to employer businesses for first draw loans than second draw loans in 2021 (capturing some persistence in inequities). The patterns are similar for loan numbers and amounts to nonemployer businesses but with a strong positive relationship with minority share for both first draw and second draw loans. In contrast to these patterns, the analysis reveals a negative relationship in the first round of 2020 and a less positive relationship in the second round of 2020 for both employer and nonemployer businesses. The rebooted PPP that ran from January to May 2021 and provided \$278 billion in funds to small businesses appears to have been disbursed to minority communities as intended.

The research on PPP fund receipt among business owners of color has been limited by data constraints. In particular, information on the race, ethnicity, gender and veteran status of the owner is incomplete. Some versions of the application form include questions to optionally self-report demographic information on the owners while others relied on banks to report the information. The result is that 70 percent of loans provide neither race nor ethnicity information, and those that have information are heavily correlated with zip code and owner characteristics indicating that missingness is likely to be non-random.⁷ A few alternative approaches have been taken to identify the race of the business owner on the loan. Howell et al. (2021), for example, predict a business owner's race and ethnicity using information such as the owner's name and location. Owner names are obtained from business registrations in collaboration with a data analytics firm. A random

⁷ Noting these concerns Atkins, Cook and Seamans (2021) use different comparison groups with and without missing race information and find that Black-owned businesses received loans that were approximately 50 percent lower than white-owned businesses after controlling for other factors. Darity and Garcia (2022) find evidence of benefits from not reporting race by black-owned businesses on the PPP loan applications.

forest model trained by using the subset of PPP loans with owner's race information is used to improve prediction accuracy. They note that the assigned race should be viewed as being highly correlated with self-reported race and that it contains important socioeconomic content, consistent with previous research showing discrimination against job applicants with "African American-sounding" names. Fei and Yang (2021) focus on PPP recipients in the Food Services and Drinking Places sector for which they can find a Yelp listing. They proxy for minority-owned businesses based on the food type from yelp.com. Chernenko and Scharfstein (2021) merge race and ethnicity information for owners of restaurants in Florida from voter registration data.

5 Implications

The research examining disproportionate impacts of the pandemic finds larger losses for businesses owned by people of color. The disproportionate business activity and earnings losses among business owners of color in the pandemic contributed to widening broader economic inequality setting back one of the long-term goals of fostering minority business development (Bradford 2003, 2014; Kroeger and Wright 2021; Chatterji et al. 2014). Another concern, which is often overlooked, is the loss in economic efficiency resulting from losses to business opportunities for minorities (Fairlie and Robb 2008). Business formation has been associated with the creation of new industries, innovation, job creation, improvement in sector productivity, and economic growth (Reynolds 2005). If minority entrepreneurs face liquidity constraints, discrimination, or other barriers to creating new business or expanding current businesses, there will be efficiency losses in the economy. These efficiency losses may have been exacerbated in the pandemic. Losses to business earnings may be especially damaging for job creation and

economic stability in low-income and disadvantaged neighborhoods (Boston 1999, 2006; Stoll, Holzer, and Raphael 2001).

The large earnings losses among small businesses in general and those owned by people of color are worrisome for the longer-term survival of small, local, and diverse businesses throughout the country. Although larger stores and chains with a strong online presence may survive, many small businesses might not have the resources to weather continued reduced demand and longer-term shifts to online shopping. Just prior to the pandemic when small business owners were asked what actions they would take if faced with a two-month revenue loss, 17 percent said they would close or sell the business (Mills et al. 2020). Early estimates from the weekly U.S. Census Small Business Pulse Survey indicated that only 15-20 percent of businesses have enough cash on hand to cover 3 months of operations (U.S. Census Bureau 2020; Bohn, Mejia, and Lafortune 2020).

More research is needed on whether disproportionate business earnings losses are long-lasting. Due to data limitations, very little research has focused on permanent closures in the pandemic and whether these differ by race and ethnicity. An important question will be whether the continuing shift in consumer behavior towards online shopping, supply-chain problems, rising inflation, and the potential for new strains of COVID lead to even more small business closures and will these longer-term setbacks from the pandemic disproportionately affect minority-owned businesses. But, a promising sign is that the number of active business owners has increased since pre-pandemic levels for Black, Latinx, Asian and Native American business owners.

References

Atkins, Rachel, Lisa D. Cook, and Robert Seamans. 2021. "Discrimination in lending? Evidence from the Paycheck Protection Program." *Small Business Economics*.

Atkins, Rachel, Lisa D. Cook, and Robert Seamans. 2022. Using Technology to Tackle Discrimination in Lending: The Role of FinTechs in the Paycheck Protection Program. *AER Papers and Proceedings*

Amuedo-Dorantes, Catalina, Cristina Borra, and Chunbei Wang. 2021. "Asian Discrimination in the Coronavirus Era: Implications for Business Formation and Survival." IZA Discussion Paper No. 14182.

Bartik, Alexander W., Marianne Bertrand, Zoë B. Cullen, Edward L. Glaeser, Michael Luca, and Christopher T. Stanton. 2020. "How Are Small Businesses Adjusting to COVID-19? Early Evidence from a Survey." NBER Working Paper No. w26989.

Bloom, Nicholas, Robert S. Fletcher, and Ethan Yeh. 2021. "The Impact of COVID-19 on US Firms," NBER Working Paper No. w28314.

Bohn, Sarah, Marisol Cuellar Mejia, and Julien Lafortune. 2020. "The Economic Toll of COVID-19 on Small Business," Public Policy Institute of California.

Boston, Thomas D. 1999. "Generating Jobs Through African American Business Development", in J. Whitehead and C. Harris, eds. *Readings in Black Political Economy* (Dubuque: Kendall-Hunt).

Boston, Thomas D. 2006. "The Role of Black-owned Businesses in Black Community Development" ed. Paul Ong, *Jobs and Economic Development in Minority Communities: Realities, Challenges, and Innovation*. Temple University Press.

Bradford, William D. 2003. "The Wealth Dynamics of Entrepreneurship for Black and White Families in the U.S.," *Review of Income and Wealth*, 49(1): 89-116.

Bradford, William D. 2014. "The "myth" that black entrepreneurship can reduce the gap in wealth between black and white families." *Economic Development Quarterly* 28.3: 254-269.

Centers for Disease Control and Prevention (CDC). 2020. "Identifying the source of the outbreak." <https://www.cdc.gov/coronavirus/2019-ncov/cases-updates/about-epidemiology/identifying-source-outbreak.html>

Centers for Disease Control and Prevention. 2021. "COVID Data Tracker," https://covid.cdc.gov/covid-data-tracker/#trends_dailycases.

Chatterji, Aaron K., Kenneth Y. Chay, and Robert W. Fairlie. 2014. "The impact of city contracting set-asides on black self-employment and employment." *Journal of Labor Economics* 32.3 (2014): 507-561.

- Chernenko, Sergey and David S. Scharfstein. 2021. "Racial Disparities in the Paycheck Protection Program," SSRN Working Paper 3907575.
- Couch, Kenneth A., Robert W. Fairlie, and Huanan Xu. 2020. "Early evidence of the impacts of COVID-19 on minority unemployment." *Journal of Public Economics*, 192: 104287.
- Darity, William, and Raffi Garcia. 2022. "Self-Reporting Race in Small Business Loan Applications: A Game-Theoretic Analysis of Evidence from PPP Loans in Durham, NC," Duke University Working Paper.
- Erel, Isil, and Jack Liebersohn. 2020. "Does FinTech Substitute for Banks? Evidence from the Paycheck Protection Program." NBER Working Paper No. 27659.
- Farrell, Diana, Chris Wheat and Chi Mac. 2020. "Small Business Financial Outcomes during the Onset of COVID-19," JPMorgan Chase & Co. Institute Report.
- Fairlie, Robert. 2020. "The Impact of COVID-19 on Small Business Owners: Evidence from the First Three Months after Widespread Social-distancing Restrictions," *Journal of Economics & Management Strategy* 29(4): 727-740.
- Fairlie, Robert W. 2022. "The Impacts of COVID-19 on Racial Inequality in Business Earnings." NBER Working Paper No. w30532.
- Fairlie, Robert, and Frank M. Fossen. 2021a. "Sales Losses in the First Quarter of the COVID-19 Pandemic: Evidence from California Administrative Data," NBER Working Paper No. 28144.
- Fairlie, Robert W., and Frank Fossen. 2021b. "Did the \$660 Billion Paycheck Protection Program and \$220 Billion Economic Injury Disaster Loan Program Get Disbursed to Minority Communities in the Early Stages of COVID-19?" NBER Working Paper No. 28321.
- Fairlie, Robert, and Frank M. Fossen. 2022. "The 2021 Paycheck Protection Program Reboot: Loan Disbursement to Employer and Nonemployer Businesses in Minority Communities" *AER Papers & Proceedings*, 112: 287–291.
- Fairlie, Robert W., and Alicia M. Robb. 2008. *Race and Entrepreneurial Success: Black-, Asian-, and White-Owned Businesses in the United States*, Cambridge: MIT Press.
- Fei, Celine Yue and Keer Yang. 2021. "Fintech and Racial Barriers in Small Business Lending," University of North Carolina at Chapel Hill Working Paper.
- Howell, Sabrina T., Theresa Kuchler, David Snitkof, Johannes Stroebel, and Jun Wong. 2021. "Racial Disparities in Access to Small Business Credit: Evidence from the Paycheck Protection Program," National Bureau of Economic Research Working Paper No. w29364.

Huang, Xiao, Xiaoqi Bao, Zhenlong Li, Shaozeng Zhang, and Bo Zhao. 2022. "Black Businesses Matter: A Longitudinal Study of Black-Owned Restaurants in the COVID-19 Pandemic Using Geospatial Big Data." *Annals of the American Association of Geographers*, 1-17.

Kim, Olivia S., Jonathan A. Parker, and Antoinette Schoar. 2020. "Revenue collapses and the consumption of small business owners in the early stages of the covid-19 pandemic," National Bureau of Economic Research, Working Paper No. w28151.

Kroeger, Teresa, and Graham Wright. 2021. "Entrepreneurship and the Racial Wealth Gap: The Impact of Entrepreneurial Success or Failure on the Wealth Mobility of Black and White Families." *Journal of Economics, Race, and Policy*: 4: pages183–195.

Lederer, Anneliese, Sara Oros, Sterling Bone, Glenn Christensen, and Jerome Williams. 2020. "Lending Discrimination within the Paycheck Protection Program," National Community Reinvestment Coalition, Washington D.C.

Mills, Claire Kramer, Jessica Battisto, Mels de Zeeuw, Scott Lieberman, and Ann Marie Wiersch. 2020. *Small Business Credit Survey*, Federal Reserve Banks.

Mills, Claire Kramer, and Jessica Battisto. 2020. "Double Jeopardy: COVID-19'S Concentrated Health and Wealth Effects in Black Communities," Federal Reserve Bank of New York.

Reynolds, Paul. 2005. *Entrepreneurship in the US: The Future is Now*. Springer.

Stanford Latino Entrepreneurship Initiative. (2020). *The impact of COVID-19 on Latino-owned business*. Stanford, CA: Stanford Latino Entrepreneurship Initiative.

Stoll, Michael A., Steven Raphael, and Harry J. Holzer. 2001. "Why Are Black Employers More Likely than White Employers to Hire Blacks?" Institute for Research on Poverty, University of Wisconsin, Madison.

Wilmoth, Daniel. 2020. "Black Business Owners Hit Hard by Pandemic." U.S. Small Business Administration, Office of Advocacy, August 2020.

Figure 1
Number of Active Business Owners in the United States (January 2000 - June 2020)

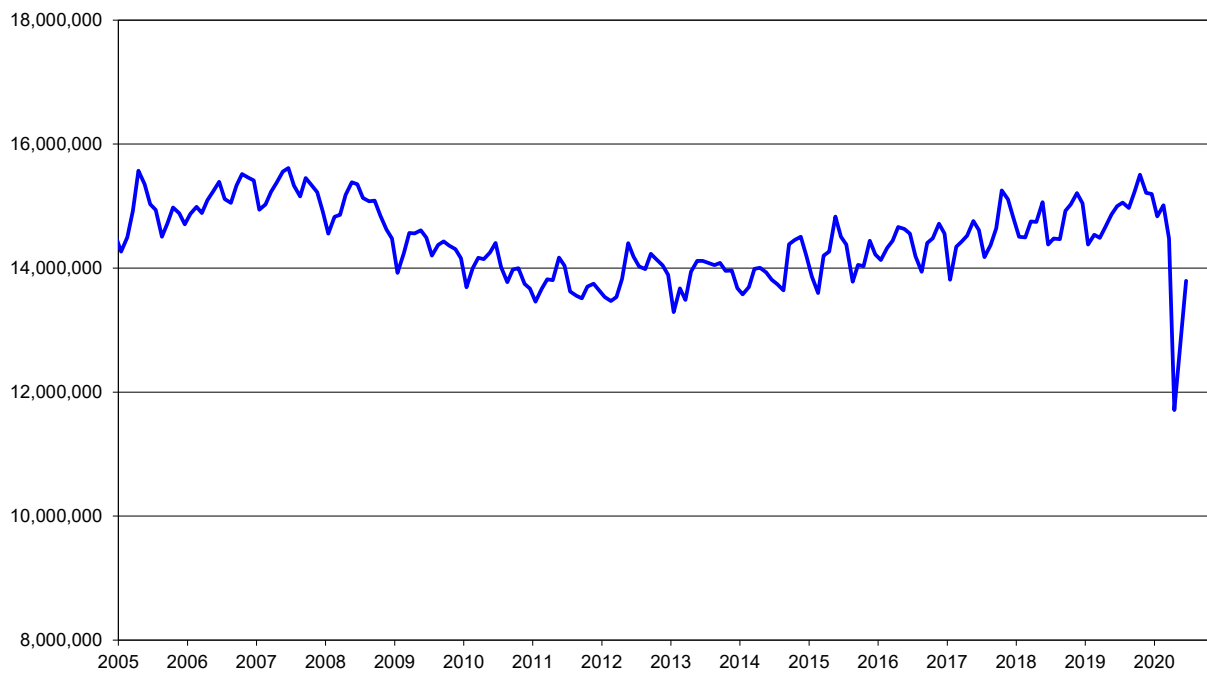


Figure 2: Number of Active Business Owners by Race/Ethnicity in First Three Months after COVID-19

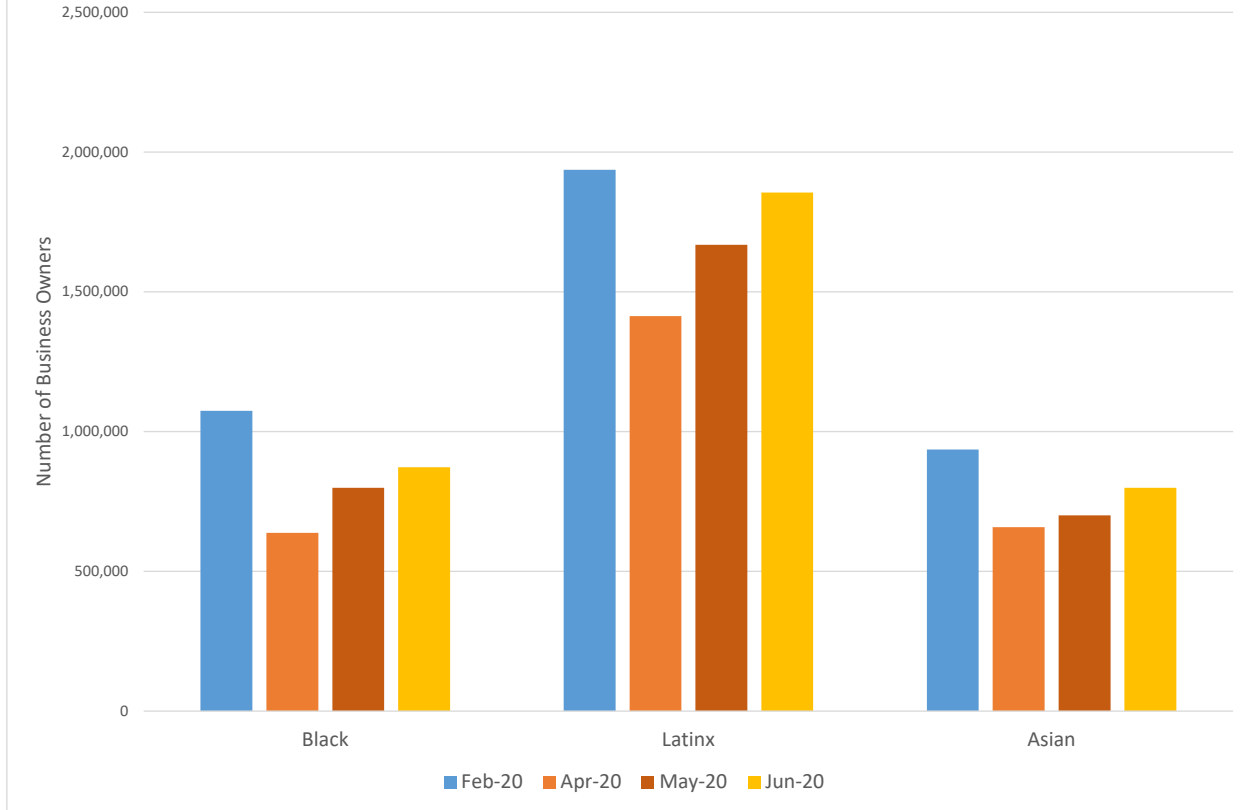


Figure 3: Mean Log Business Earnings Trends, 2015-2020

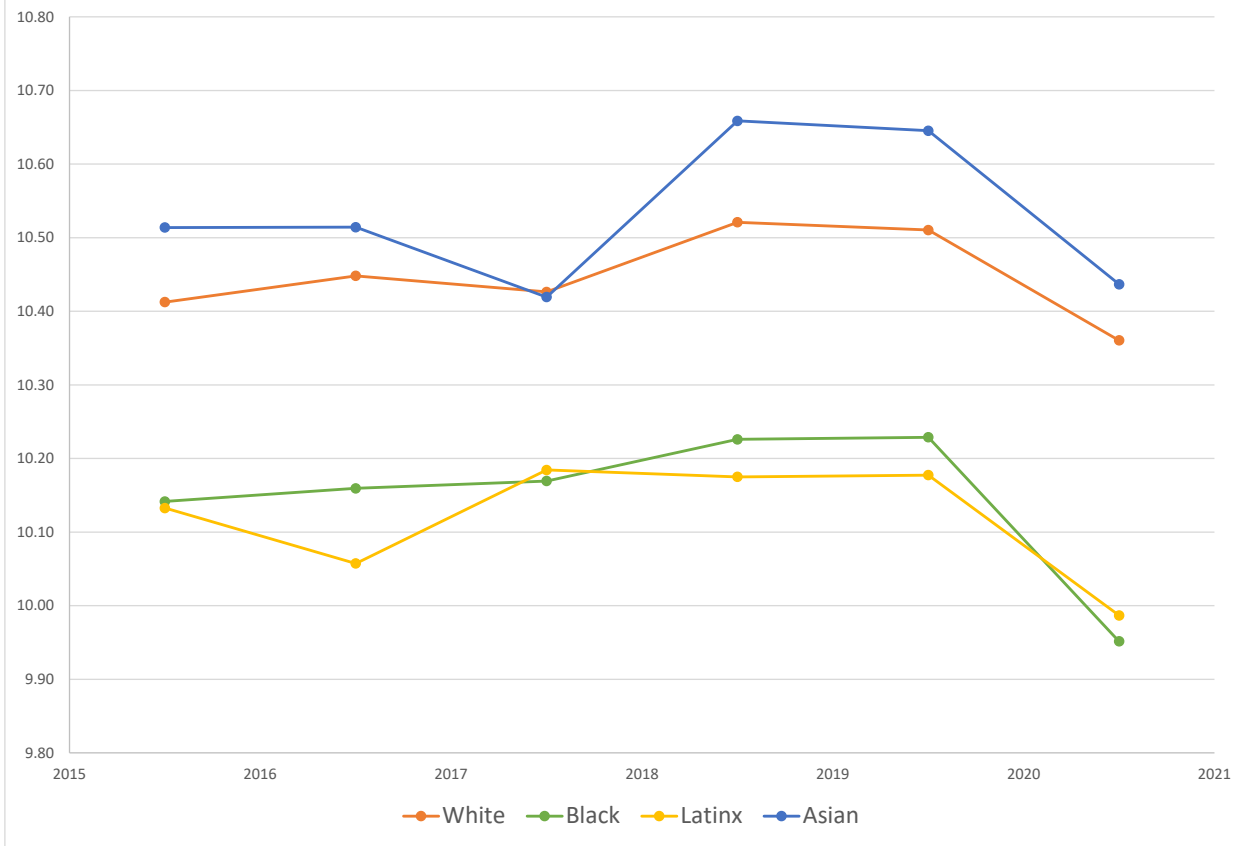


Figure 4: Regression-Adjusted COVID Effects on Business Earnings in 2020 by Race

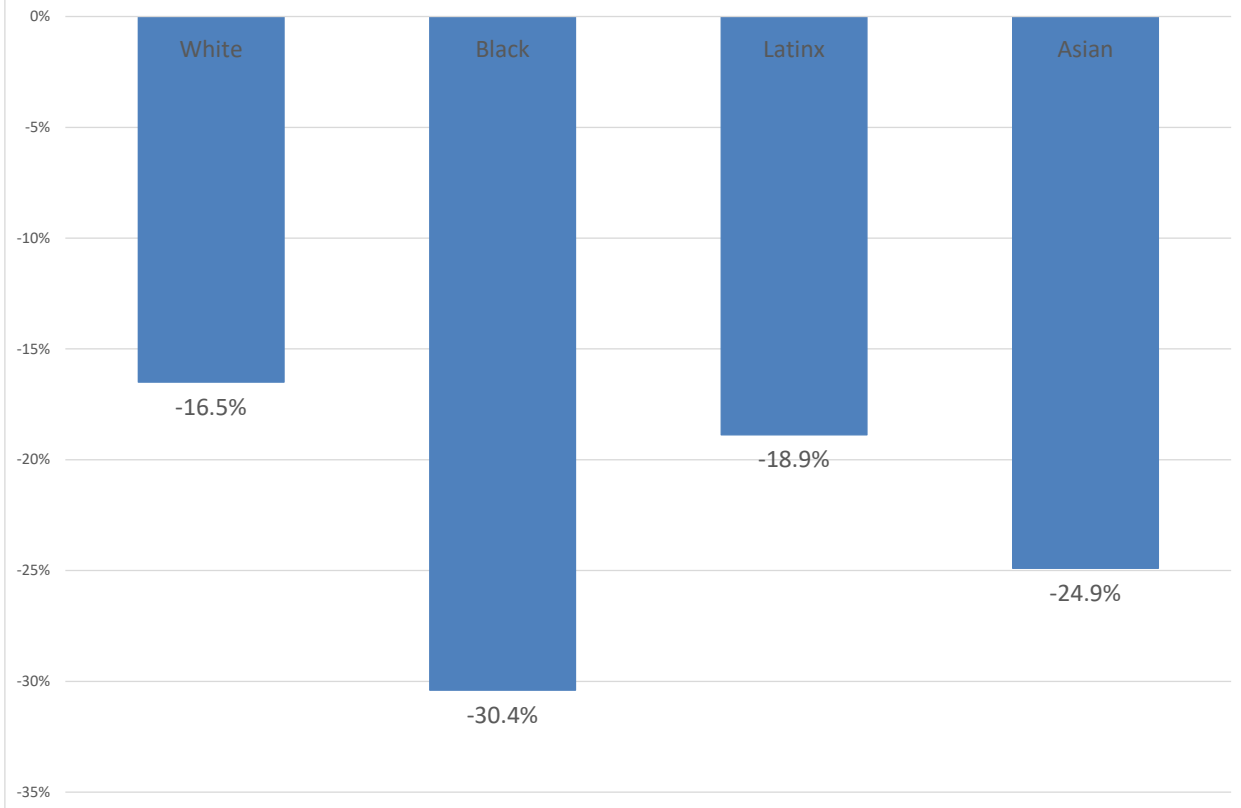


Figure 5: Number of Active Business Owners in the United States (Jan. 2019 - Sept. 2022)

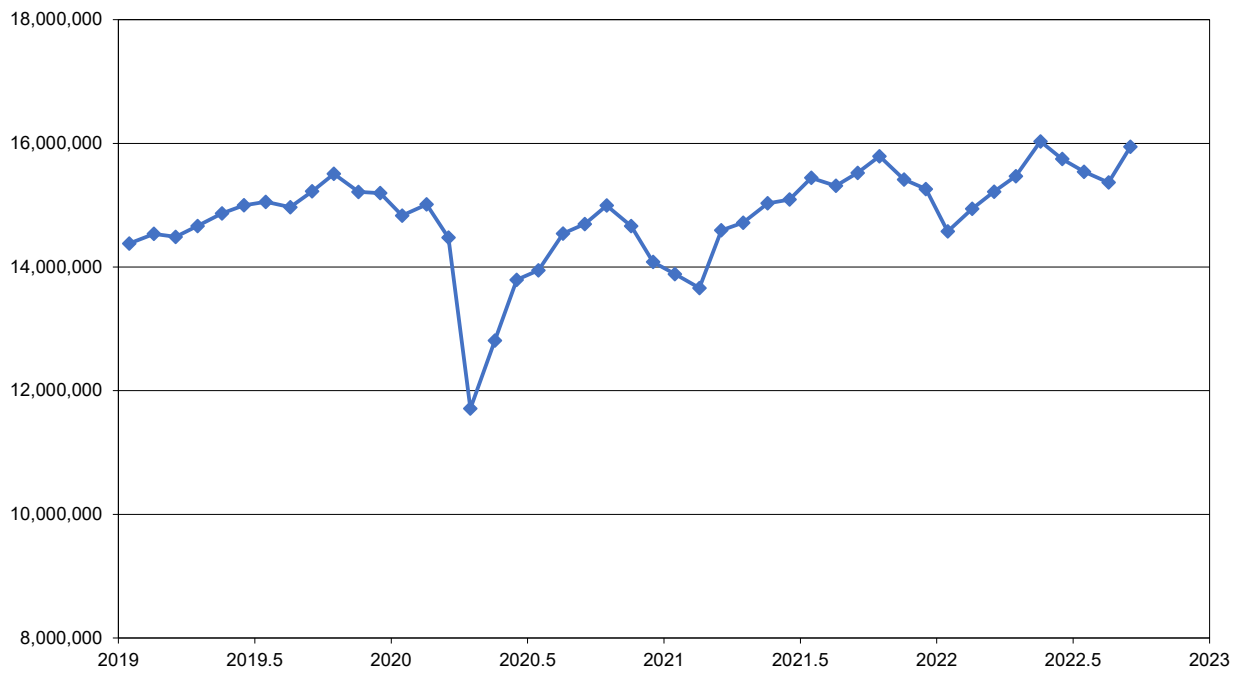


Figure 6: Quarterly Number of Active Business Owners by Race (2019 Q1 - 2022 Q3)

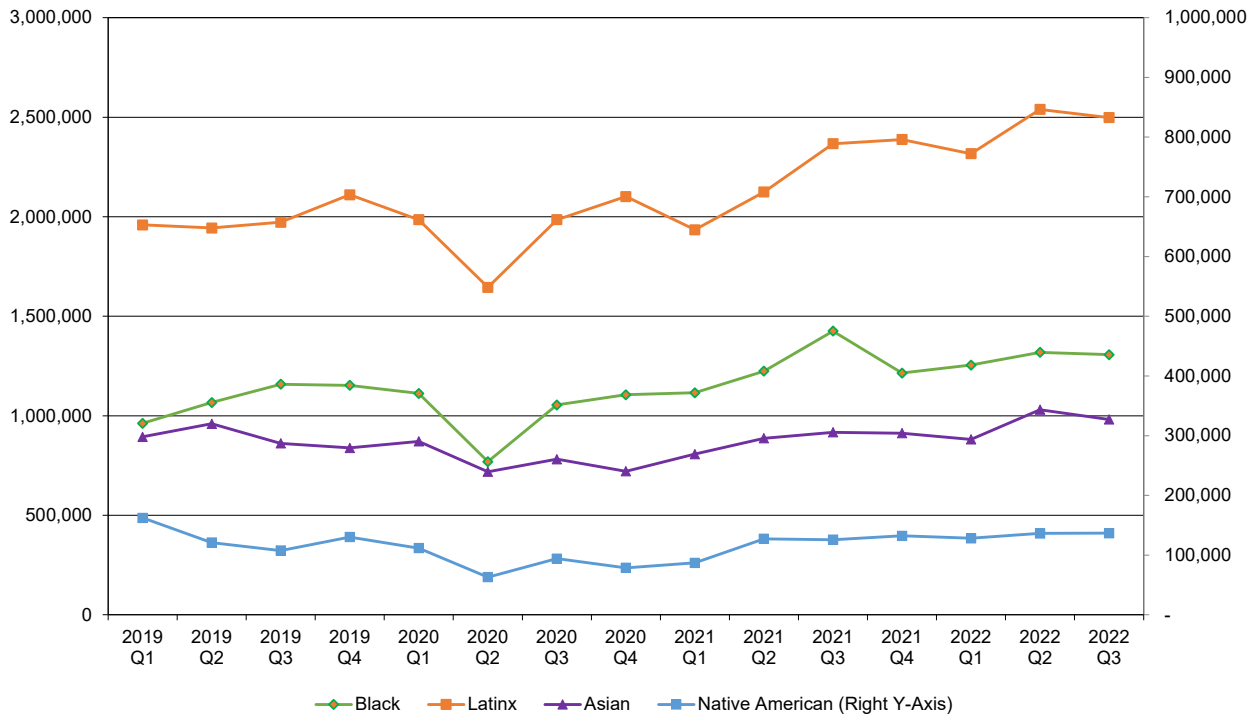


Figure 7: Quarterly Percentage of Labor Force Actively Running Businesses by Race (2019 Q1 - 2022 Q3)

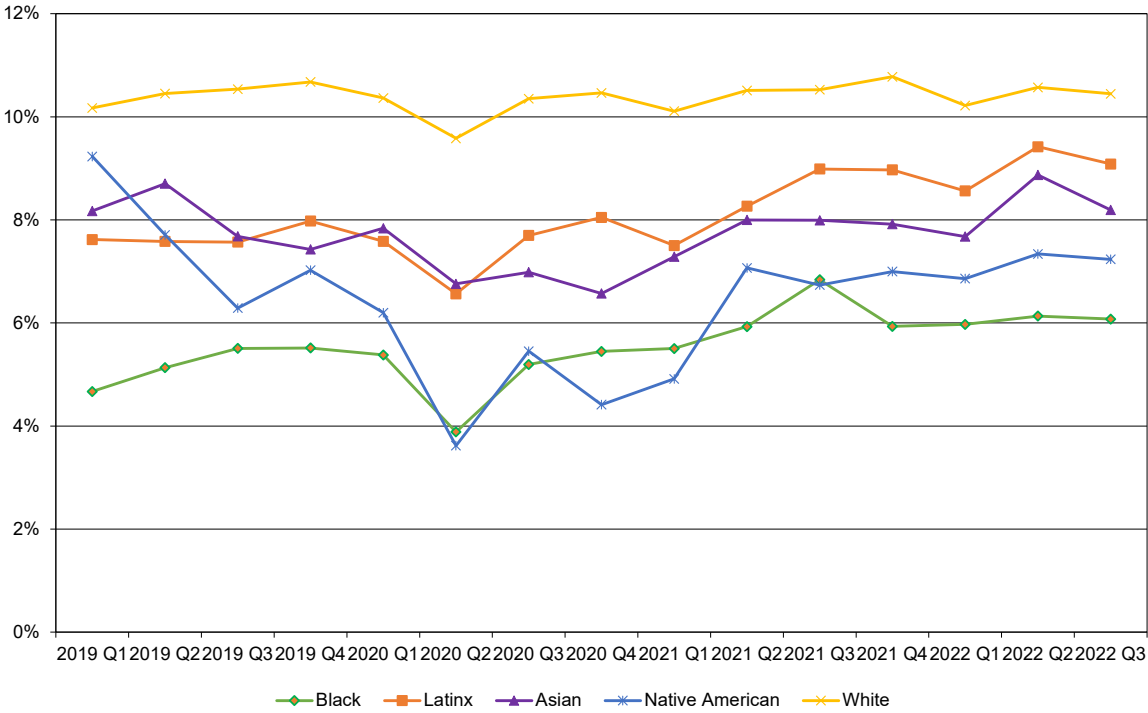
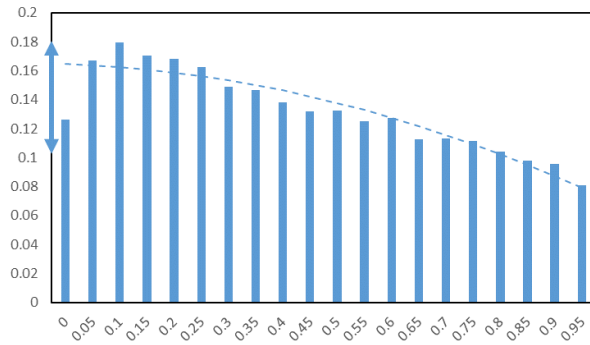
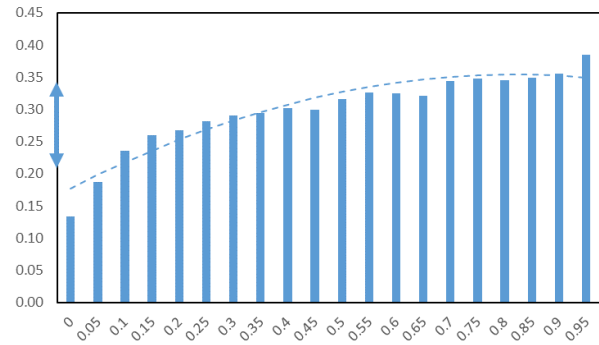


Figure 8: PPP Number of Loans to Employer Businesses per Employer Business in Zip Code by Minority Share in 2020

Panel A: First Round



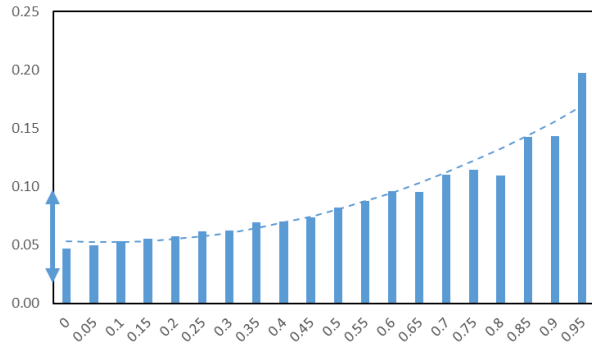
Panel B: Second Round



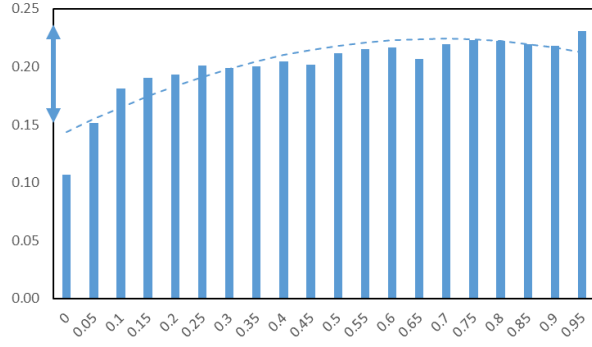
Notes: Mean numbers of PPP loans to employer businesses in 2020 (Rounds 1 and 2) per employer business in zip codes by minority share of the population, weighted by population. The dashed lines are from quadratic regressions at the county level. The double arrow on the Y-axis indicates the median \pm $\frac{1}{2}$ standard deviation.

Figure 9: PPP Number of Loans to Employer Businesses per Employer Business in Zip Code by Minority Share in 2021

Panel A: First Draw



Panel B: Second Draw



Notes: Mean numbers of first and second draw PPP loans to employer businesses in 2021 (Round 3) per employer business in zip codes by minority share of the population, weighted by population. The dashed lines are from quadratic regressions at the county level. The double arrow on the Y-axis indicates the median \pm $\frac{1}{2}$ standard deviation.

Appendix Table 1: Quarterly Number of Active Business Owners by Race and Ethnicity in the United States

	Black/African- American	Latinx	Native American	Asian	White
2019 Q1	962,184	1,959,297	162,243	894,307	10,253,591
2019 Q2	1,066,815	1,943,571	120,863	959,657	10,549,131
2019 Q3	1,158,524	1,972,253	107,524	861,441	10,719,756
2019 Q4	1,152,941	2,110,413	130,154	838,814	10,821,281
2020 Q1	1,112,101	1,985,366	111,648	871,564	10,414,240
2020 Q2	769,718	1,645,401	63,171	719,033	9,378,766
2020 Q3	1,054,241	1,985,090	94,126	781,868	10,263,368
2020 Q4	1,105,385	2,101,515	78,612	721,364	10,329,082
2021 Q1	1,115,637	1,934,316	87,083	807,475	9,884,284
2021 Q2	1,224,377	2,124,422	127,315	886,890	10,327,088
2021 Q3	1,425,428	2,366,802	125,831	917,205	10,387,784
2021 Q4	1,214,584	2,388,162	132,351	912,623	10,595,951
2022 Q1	1,254,571	2,317,051	128,202	881,608	10,091,628
2022 Q2	1,318,434	2,539,358	136,398	1,030,472	10,451,713
2022 Q3	1,307,116	2,498,404	136,768	981,546	10,410,143

Source: Author's calculations from Current Population Survey (CPS) microdata.