

Scaling to \$1 Million: How Small Businesses Fare by Owner Race and Gender

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Introduction

The small business sector has captured the attention of policymakers as a significant contributor in aggregate to the U.S. economy.¹ Notably, the majority of small businesses are quite small. While these smaller businesses can provide meaningful income and generate some wealth for their owners, most have no employees and limited revenues.² In contrast, larger small businesses make more substantial contributions to innovation and job creation and may provide more meaningful opportunities for wealth creation. As such, policymakers have often focused on how to support the scaling of smaller businesses into larger businesses, particularly the growth of small businesses owned by people of underrepresented demographic groups.³ Given the policy interest, there is surprisingly little empirical evidence on the process by which firms scale and, in particular, grow their revenues.⁴

This report seeks to fill this gap by leveraging a unique administrative data asset that allows us to observe the revenue performance of small businesses during the first few years of their business activity and compare outcomes across owner race and gender. In particular, this report documents and compares by owner race and gender the growth of nascent small businesses (the majority of which begin with revenues less than \$100,000 annually) toward the milestone of \$1 million in annual revenues, an often-cited indicator of small business growth.⁵ We examined how commonly this milestone is reached within the first several years of a small business's existence, how the incidence of this phenomenon varies across industries and owners of different races and genders, and the implications this has for understanding small business growth and equitable access to growth opportunities and resources.

We found:

- A small share of small businesses reaches \$1 million in revenues within five years of starting.
- There are notable differences in the incidence of reaching \$1 million in revenues by firm owner race and gender, with Black- and Hispanic-owned firms less likely than White- and Asian-owned firms, respectively, to earn \$1 million in revenue within five years of starting business. Female-owned firms were less likely than male-owned firms to reach that milestone. Industry of operation may be relevant but does not fully account for these disparities.
- Revenue growth is relatively limited among young small businesses: most do not grow beyond the general realm of their initial revenues within five years of starting business. Relatedly, firms with lower revenues in their initial year show lower incidence of reaching \$1 million in revenues.
- Lower levels of revenue in the initial year may account for some of the differences in rates of reaching \$1 million in revenues across owner race and gender, but differences persist even among firms of similar initial revenues.

Collectively, these findings suggest that the growth of smaller businesses into businesses that can generate \$1 million in revenue is rare overall, and especially so among those with Black, Hispanic, and/or female owners. This suggests opportunities for policymakers in both the public and private sector to address the differential opportunities and barriers to growth these entrepreneurs may face. Banks and other financial institutions designing growth capital solutions have opportunities to target the specific needs of the firms most likely to scale. Moreover, products and policies that support personal wealth building to alleviate race and gender wealth gaps might provide more small business owners with personal financial capacity that would support business growth, thereby broadening the set of small businesses that ultimately contribute to overall economic growth.

Our data

Using Chase business banking transaction-level administrative data,⁶ we built a longitudinal data asset that tracked small businesses from the beginning of their business banking activity (we treated this as a firm's start of business) through their first five years of business (or all years of business, for firms that did not survive for five years). Our analytical window was January 2011 through February 2020, which marked a relatively stable business environment bookended by two major shocks to small businesses: the Great Financial Crisis and the COVID-19 pandemic.

Our administrative data source included over 9 million de-identified small businesses, from which we created a sample of approximately 835,000 firms that met our sample requirements:

- Minimum level of activity to be considered an active business during our analytical window
 - Firm must have had 10 total transactions (inflows or outflows) and \$500 total outflows in at least three months in any 12-month period during our analytical window
 - Firm must not have closed within its first year in business⁷
- Firm must not have operated in more than one industry in any given month and must have operated in an industry suggestive of a for-profit business⁸
- Firm must have opened its first account with Chase within the time period of January 1, 2011 through February 28, 2015⁹
- Firm must never have had an end-of-month balance greater than \$20 million during our analytical window¹⁰

Classifying the race and gender of firm ownership

To perform disaggregated analyses by owner race and gender, we assigned race and gender information for firm owners in our sample. We interpreted authorized signers on a firm's business accounts to be "owners"¹¹ and assigned race and gender information based on modeled race and gender data from a third-party vendor.¹² The data categorized owners by mutually exclusive categories in gender as "male" and "female" and race as "Asian," "Black," "Hispanic," and "White/Other."¹³ For simplicity, we refer to "White/Other" as "White," although the category cannot be further segmented into "White" and "Other."¹⁴

We then classified the race and gender composition of a firm's ownership based on the available race and gender data for its owners. Only firms with known race (gender) for all owners were given a classification of majority-race (majority-gender) ownership, resulting in 63 percent of small businesses in our sample having ownership classifiable by race and 57 percent being classifiable by gender. In this report, we refer to firms as being "[Race]-owned" (e.g., "Asian-owned") or "[Gender]- owned" (e.g., "female-owned") if the majority of the owners are of that race or gender.¹⁵

Measuring firm revenues

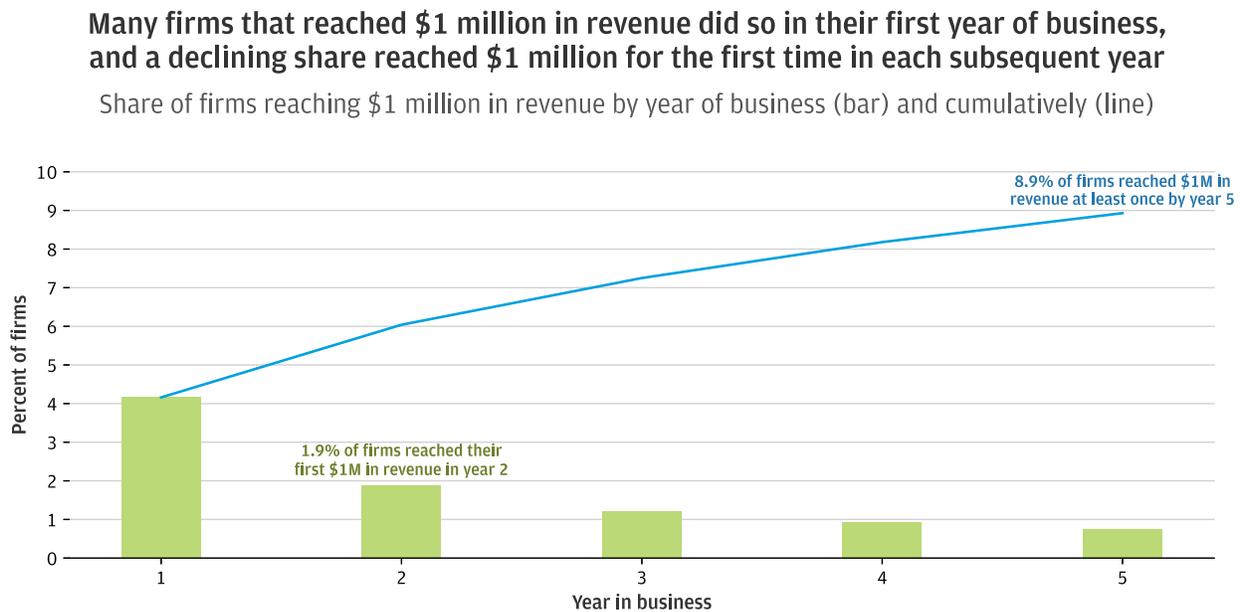
We calculated firm revenues for each year in business by totaling revenues across all of a firm's Chase deposit accounts that occurred between the firm's start date (or start anniversary) through the following 52 week-period.¹⁶ We identified revenues as any account inflows that were not financial transfers (e.g., transfers of funds between accounts, fee reversal, interest payment), inflows from a government organization (e.g., tax refund, grants related to declared disasters), or other inflows unlikely to be revenues (e.g., credit card rebate check).¹⁷

Analytical Findings

In our analyses, we focused on identifying the first year in business in which a firm reached \$1 million in revenues as the earliest realization of the firm's potential to function at that size.¹⁸ We documented the incidence and timing of that event across our sample, as well as how those data points varied with firm industry, owner race, and owner gender.¹⁹ These analyses describe the revenue trajectories of the firms in our sample—they are not *predictions* or *estimates of causal relationships* between firm or owner characteristics and the likelihood of a firm reaching \$1 million in revenue.

Finding 1: A small share of firms reached \$1 million in revenue in their first five years

Figure 1



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Source: JPMorgan Chase Institute

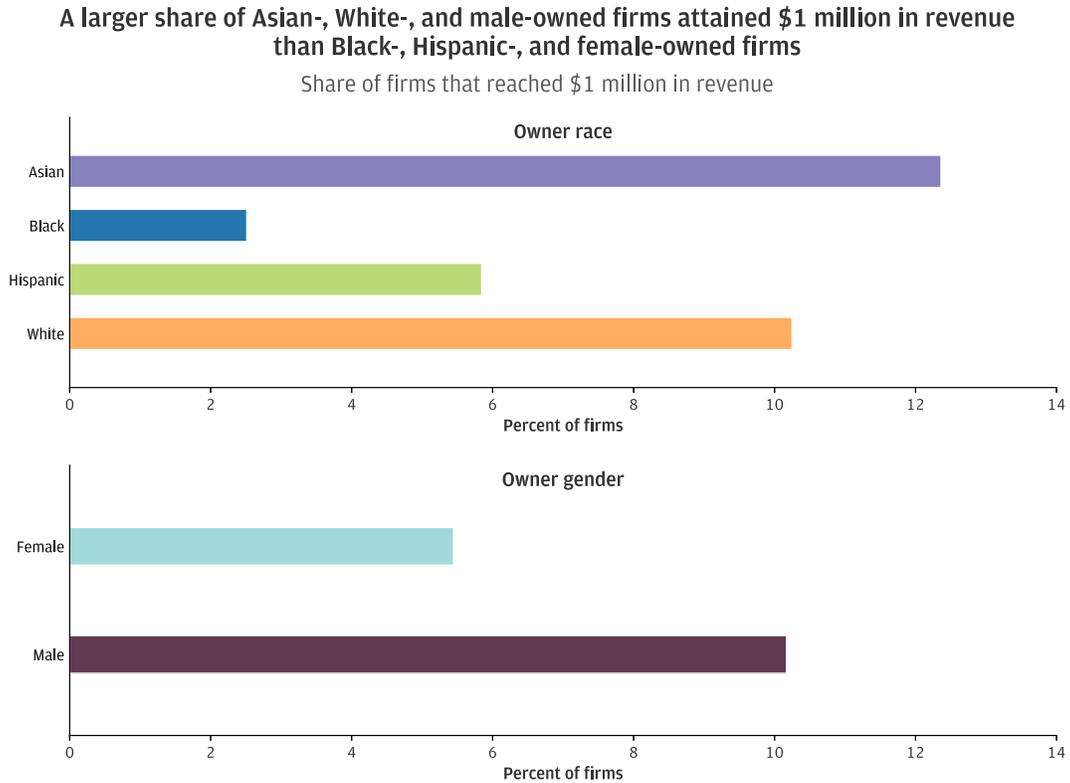
While the milestone of \$1 million in revenue is well within the range of revenues typically considered to define small businesses,²⁰ the typical small business has annual revenues below \$100,000 in its early years (Farrell, Wheat, and Mac 2019) and many owners do not have ambition to grow or scale (Hurst and Pugsley 2011). With this in mind, we first explored the timing and incidence of earning \$1 million among firms in our sample. Figure 1 shows the share of firms that reached \$1 million within five years of launching.

About 9 percent of small businesses in our sample reached \$1 million in revenue, and nearly half of those firms (about 4 percent of our sample) did so in their first year.²¹ The firms in our sample showed the highest incidence of receiving their first \$1 million in revenue in their first year of business, and as firms aged without hitting that milestone, that incidence declined.²² Assuming this trend persisted in later years of business, this suggests that many firms did not reach \$1 million in revenues, and those that did reach that milestone tended to do so earlier in their business activity.²³

One potential concern with this result is that our observation of firms reaching \$1 million in revenues may be biased upward due to the presence of firms that existed prior to their appearance in our data (“prior-existing firms”). While we cannot rule out that possibility, the implication for our findings is that, if anything, the share of firms reaching \$1 million in revenues within five years of starting business may be even smaller than our data reflect.²⁴

Finding 2: Black-, Hispanic-, and female-owned firms were least likely to earn \$1 million in revenue within five years of starting business

Figure 2



Note: Owner race and gender refers to classification of a majority of owners. Firms with unknown owner race or gender or no classifiable majority ownership by race or gender are not shown in their respective charts.

Source: JPMorgan Chase Institute ²⁴

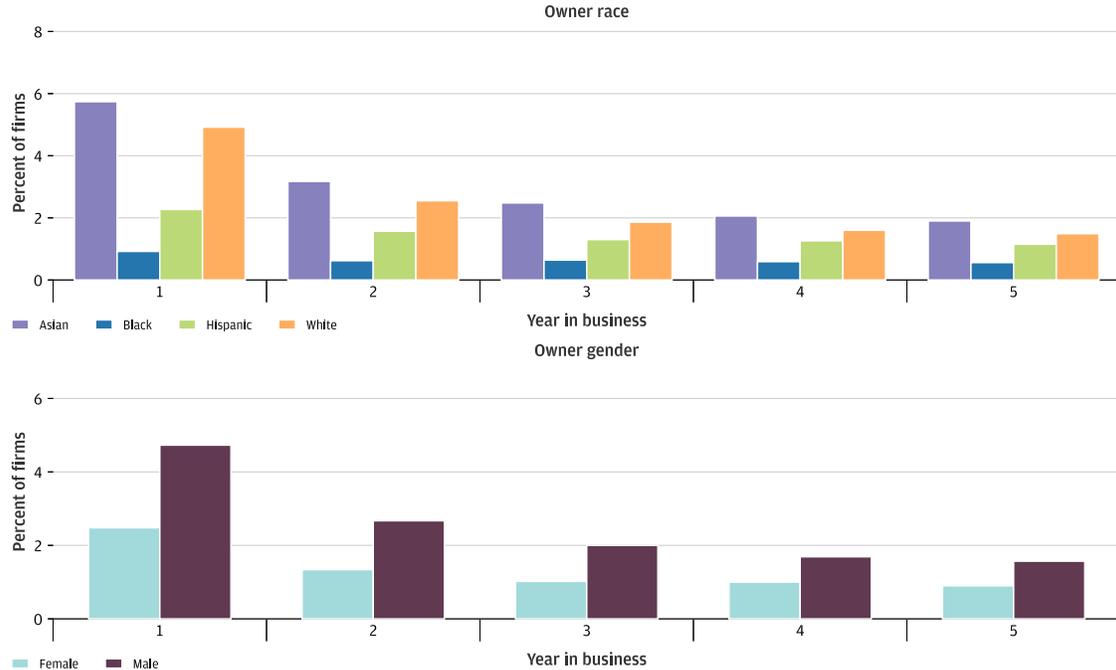
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We next observed differences in the incidence of \$1 million in revenues by business owner race and gender. As shown in Figure 2, Asian- and White-owned firms had higher incidence than Black- and Hispanic-owned firms of reaching \$1 million in revenues within five years of starting business, as did male-owned firms relative to female-owned firms.²⁵

Figure 3

A larger share of Asian-, White-, and male-owned firms reached \$1 million for the first time in each of the first five years of business compared to Black-, Hispanic-, and female-owned firms

Share of firms reaching first \$1 million in revenue by year in business



Note: Firms with unknown owner race or gender are excluded from their respective charts. Firms with no classifiable majority ownership by race or gender are not shown in their respective charts. Shares shown are the share of firms that reached \$1 million for the first time out of those that reach the end of the given year and have not previously reached \$1 million in revenue.

Source: JPMorgan Chase Institute

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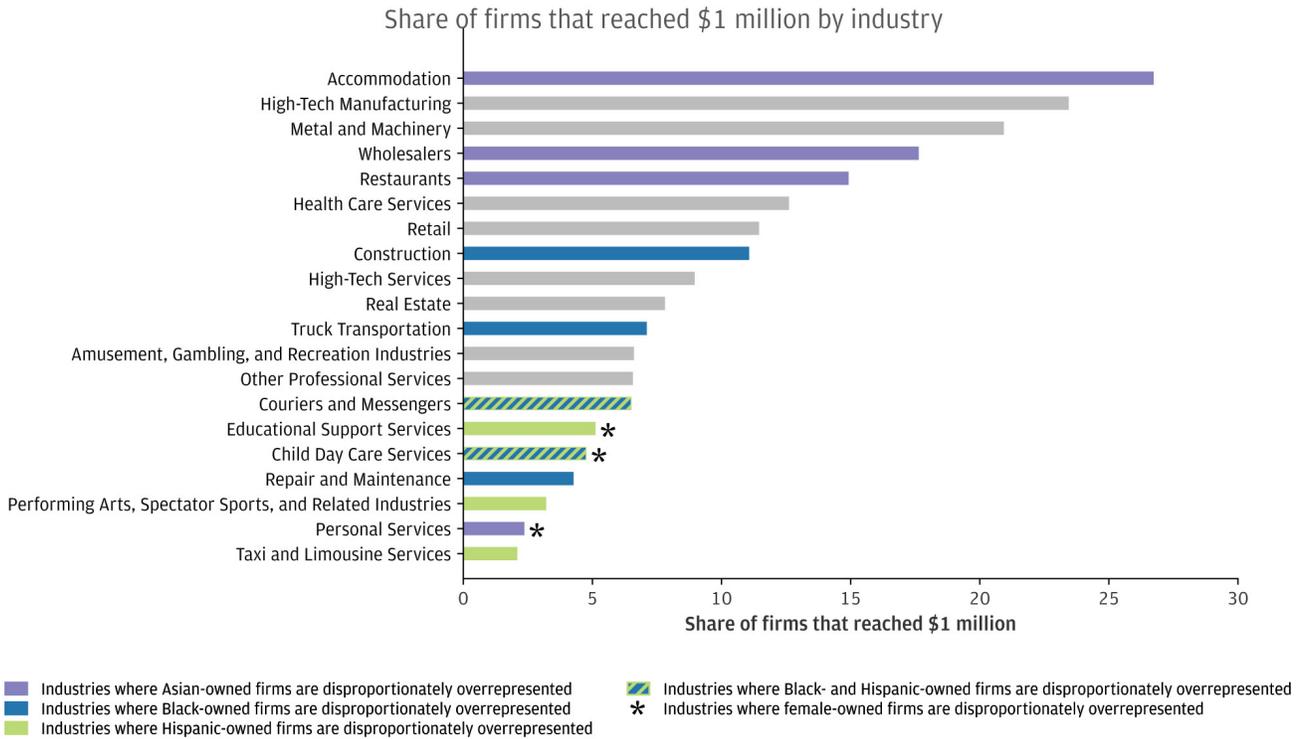
Figure 3 depicts the dynamics of this result as firms age by charting the share of firms reaching their first \$1 million in revenue by year in business, conditional on surviving to the end of that year. Even as the incidence of reaching \$1 million in revenue for the first time declined as firms aged, the same race and gender disparities shown in Figure 2 were present in each year in business, with the relative differences across races and genders (respectively) generally consistent in each year. As a result, the share of Black- and Hispanic-owned firms that earned \$1 million in revenues did not catch up with that of Asian- and White-owned firms as firms got older. As the bottom panel of Figure 3 shows, we observed the same pattern by gender: female-owned firms were less likely to have earned \$1 million than male-owned firms for each of the years we analyzed.

Finding 3: Industry only partially explains disparities in reaching \$1 million in revenue by owner race and gender

We next explored whether some of the disparities summarized in Finding 2 could be explained by industry or initial revenue size. If the industry of a firm's operation in part dictates the nature of its revenues and owners of certain race and gender tend to start businesses in certain industries, then industry may at least partially explain disparities in revenues across owner race and gender.²⁶ As shown in Figure 5, there was considerable heterogeneity in attainment of \$1 million in revenues and the makeup of owner race and gender across industries. Industries where Asian-owned firms were disproportionately overrepresented tended to be industries where firms attained \$1 million at the highest rates. In contrast, Black- and Hispanic-owned firms were disproportionately overrepresented in industries where firms tended to attain \$1 million at lower rates.²⁷

Figure 4

The incidence of \$1 million revenues and the representation of race and gender groups varied across industries



Note: Firms with ownership attributed to a given race or gender are considered 'disproportionately overrepresented' in an industry if the industry proportion of firms with that attribution is 1.5x or more the overall sample proportion of firms with that attribution. Firms with multiple owners but no majority ownership race are not categorized as Asian-, Black-, Hispanic-, or White-owned. Firms with multiple owners but no majority ownership gender are not categorized as female or male-owned. Black- and Hispanic-owned firms are both disproportionately overrepresented in Couriers and Messengers and Child Day Care Services.

Source: JPMorgan Chase Institute

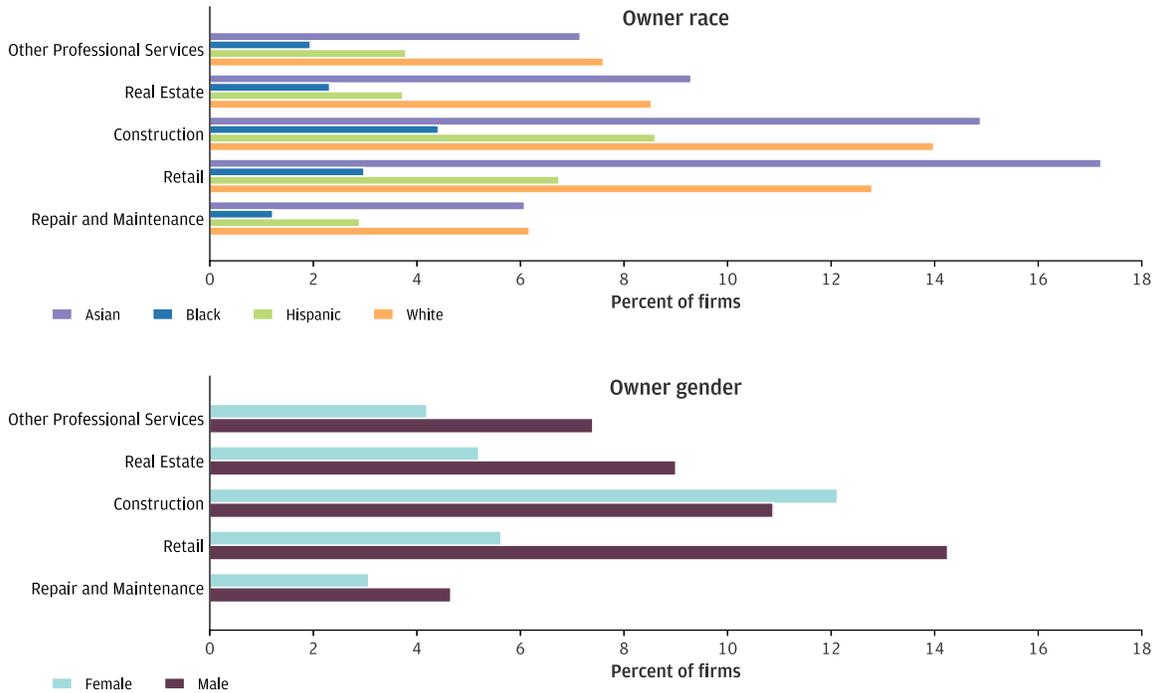
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If industry fully explained the differences in scaling to \$1 million revenues by owner race and gender, one would expect there to be no disparities across race and gender when comparing firms within industries. However, when we analyzed the incidence of \$1 million in revenues across owner race and gender within industries, Black- and Hispanic-owned firms still tended to reach \$1 million at lower rates than Asian- and White-owned firms, as did female-owned firms relative to male-owned firms. Figure 5 shows the most common industries in our sample.²⁸

Figure 5

Within most industries, smaller shares of Black-, Hispanic-, and female-owned firms earned \$1 million compared to Asian-, White-, and male-owned firms

Share of firms that reached \$1 million in revenue, selected industries



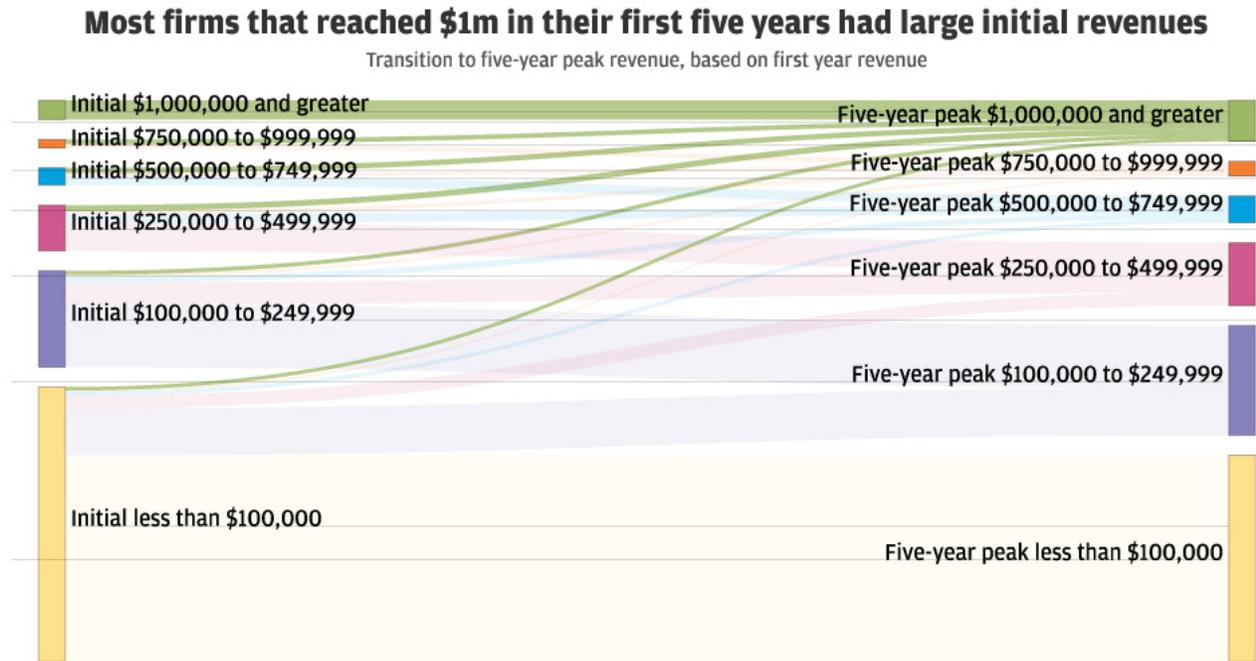
Note: Industries are ordered by representation in sample. Firms with unknown owner race or gender or no classifiable majority ownership by race or gender are not shown in their respective charts. Female-owned firms had a higher incidence of \$1 million in revenues in the Construction industry (as well as Truck Transportation and High-Tech Manufacturing, not shown). However, female-owned firms are disproportionately underrepresented in these industries, and the sample size of female-owned firms in these industries is very small, which may skew the results. Less than 0.1% of female-owned firms are in High-Tech Manufacturing, about 2% of female-owned firms are in Truck Transportation, and about 5.5% of female-owned firms are in Construction. Source: JPMorgan Chase Institute

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To probe this finding a bit deeper, we conducted a regression analysis that would allow us to simultaneously account for industry, owner race and gender, and the year in which the business began. Doing so showed us that, on average, 1) Black- and Hispanic-owned businesses still had lower incidence of reaching \$1 million in revenue relative to White-owned businesses after accounting for owner gender, industry, and the year in which the business began, and 2) female-owned businesses had a lower incidence of reaching \$1 million in revenue relative to male-owned businesses after accounting for owner race, industry, and the year in which the business began.²⁹ The persistence of these results indicates that industry cannot fully explain differences in the incidence of \$1 million revenues for firms with owners of different race and gender.³⁰

Finding 4: Initial size only partially explains disparities in reaching \$1 million in revenue by owner race and gender

Figure 6



Source: JPMorgan Chase Institute

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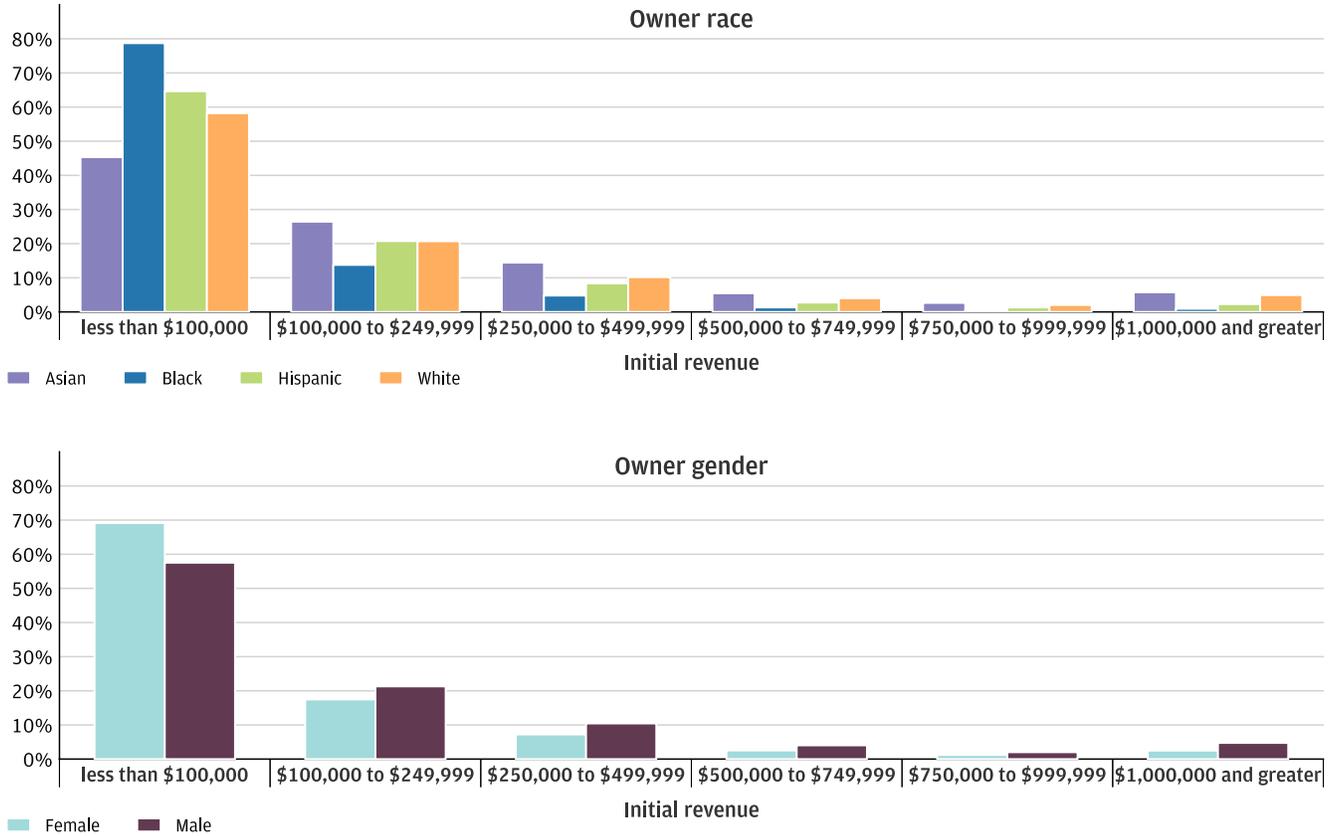
Figure 6 shows 1) the distribution of firms' initial-year revenues across revenue ranges (chart left), 2) the distribution of firms' highest revenues reached within five years of starting business ("five-year peak"; chart right),³¹ and 3) the distribution of firms within each five-year peak originating at each of the respective initial revenue levels (lines connecting chart left and right). Each horizontal line represents firms transitioning from an initial-year revenue range to a five-year-peak revenue range, where the width of each line is proportional to the number of firms that made that transition (i.e., wider lines depict transitions made by more firms).³² For example, most of the firms in our sample started with initial-year revenues below \$100,000 (yellow box at chart left) and, among those firms, most did not reach revenues greater than \$100,000 within five years of starting business (yellow box at chart right, which is more than half the size of the yellow box at chart left). A small portion of firms reached \$1 million in revenue within five years of starting business (green box, chart right), and those firms tended to have high initial-year revenues (thickest green lines connecting to higher initial-year revenue ranges).

Figure 6 suggests that initial revenue levels may be indicative of whether a firm grows to \$1 million in revenue. Because most firms did not exceed their initial-year revenues within five years of starting business, this suggests that initial-year disparities in revenue size by owner race or gender could help explain the disparities we observed in Figures 2 and 3.

Figure 7

Black-, Hispanic-, and female-owned firms tended to have lower revenues in the initial year than White- and Asian-, and male-owned firms

Initial revenues by owner demographics



Note: Firms with unknown owner race or gender or no classifiable majority ownership by race or gender are not shown in their respective charts. Source: JPMorgan Chase Institute

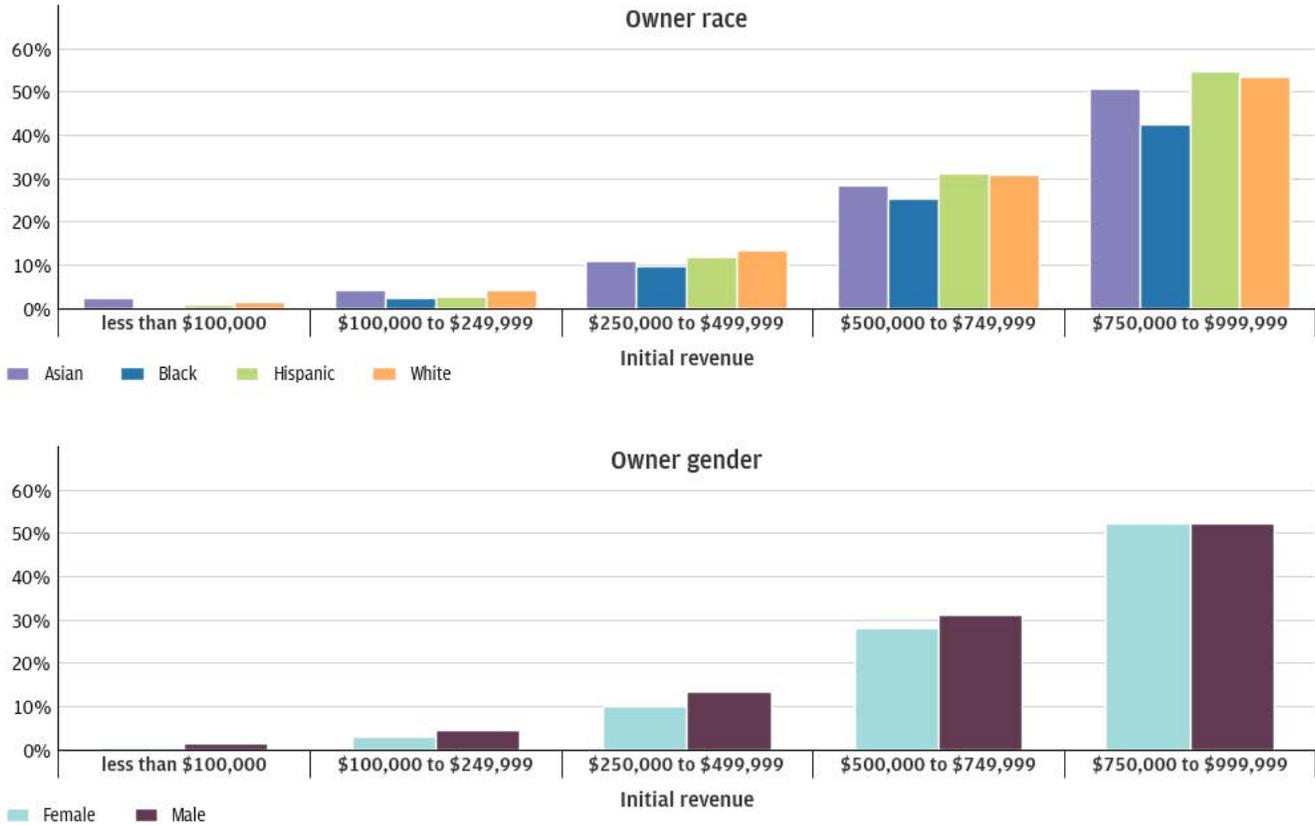
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Figure 8 confirms that Black- and Hispanic-owned businesses tended to have lower revenues than Asian- and White-owned businesses in the first year in business: a larger share of Black-owned and Hispanic-owned businesses earned less than \$100,000 in the first year than Asian- and White-owned businesses, respectively. Correspondingly, a smaller share of Black- and Hispanic-owned businesses earned \$1 million or more in the first year than White- and Asian-owned firms, respectively. There are also disparities along gender lines: a larger share of female-owned firms earned less than \$100,000 in their first year in business than male-owned firms; a smaller share of female-owned firms than male-owned firms earned \$1 million in revenues in the first year.

Figure 8

A smaller share of Black-owned firms reached \$1 million than White-owned firms, even after accounting for initial revenue

Incidence of \$1 million firms by initial revenues



Note: Firms with unknown owner race or gender or no classifiable majority ownership by race or gender are not shown in their respective charts. Source: JPMorgan Chase Institute

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The question that follows is whether the disparities we observe in initial-year revenues fully explain the disparities in incidence of \$1 million in revenue within five years of starting business. That could be true if all firms of the same initial-year revenue had the same likelihood of transitioning to \$1 million in revenue within five years of starting business. However, Figure 9 shows that Black- and Hispanic-owned firms generally had lower incidence of attaining \$1 million in revenues than Asian- and White-owned firms with similar initial revenues, as did female-owned firms relative to male-owned firms.³³ Most notable is that the disparities exist even among firms with the lowest levels of initial-year revenues (though at very small absolute scale), which describes most of the firms in our sample.

Discussion

We found that Black- and Hispanic-owned firms scaled to \$1 million in revenue less frequently in each of the five years following the start of business than White-owned firms, as did female-owned firms relative to male-owned firms. These firms tended to start with lower revenues in their first year and be over-represented in lower-revenue industries, though the same race and gender disparities in the incidence of \$1 million revenues existed *within* industries and *among firms with similar* initial-year revenues. These findings suggest that Black, Hispanic, and/or female small business owners may

face different opportunities and barriers to growth than White and/or male small business owners. In this section, we discuss a non-exhaustive set of financial factors that policy- and decisionmakers could consider for reducing disparities in this small business outcome. Though not discussed in detail in this report, other factors that policymakers could target as potentially relevant to small business scaling include access to market information, access to supplier networks and contracting opportunities, and owner business development and management skills.

Expanding the use of financing from banks and other financial institutions could provide more small business owners the startup and growth capital needed to scale

Our finding that the incidence of scaling to \$1 million in revenues was lowest among firms with the lowest initial-year revenues suggests that disparities in the resources available to entrepreneurs in the initial year of business, such as startup capital, may create some disparities in firms' likelihood of scaling to \$1 million in revenues.³⁴ Disparities in growth capital may also be important, given our finding of different rates of scaling to \$1 million among firms with similar initial-year revenues. While small businesses draw start-up and growth financing from a variety of sources, loans from banks and other financial institutions are important (and among the most commonly cited) sources of capital (Robb 2018). Banks and other financial institutions may not be optimally positioned to meet all small business financing needs, however innovative efforts to expand services to business owners of color and female business owners could provide more growth-intentioned small businesses a stronger start in the first year of business and beyond.

There are many factors that may impact whether and to what extent a small business owner uses financing from a bank or other financial institution to fund their business, and consequently there is potential for many interventions to be explored. For example:

- On the demand side for financing from banks and other financial institutions, for a small business owner to obtain a loan, they must be aware of financial products that address their needs, they must understand the associated application processes, and they must be willing and able to complete the application. Lastly, contingent on completing an application and receiving an approval, an owner must accept the financing from the bank or other financial institution. Demand for financial products from banks and other financial institutions could be improved by making information about financial products more accessible and comprehensible to small business owners, improving the accessibility of and/or effort required to complete an application, and/or strengthening access to and trust of/relationships with banks and other financial institutions.
- On the supply side, for a small business owner to obtain financing, banks and other financial institutions must offer financing products that address the needs of that owner, the products must be made accessible to potential borrowers, and financial institutions must ultimately make an underwriting decision to finance the owner when the owner applies. Expansion of the supply of financing from financial institutions could include innovations in the availability and accessibility of financial products that serve the diverse needs of more small businesses, improvements in the accessibility and trust of banks and other financial institutions, expansion of the credit box (e.g., use of alternative underwriting criteria), and/or assistance and support of credit score development for small businesses with low credit scores or thin financial histories.

Reducing disparities in personal savings and wealth of small business owners may reduce disparities in small business scaling outcomes

As discussed above, startup capital is correlated with small business sales. Business owners cite personal savings as the most common source of startup financing, with Asian, Black, and Hispanic owners citing this form of financing more frequently than White owners (Robb 2018).³⁵ However, there are disparities in how much startup capital owners of different race and gender use to launch a business: Asian- and White-owned firms are more likely to use larger amounts of startup capital than Black- and Hispanic-owned firms (Robb 2018, Toussaint-Comeau and Williams 2020), as are male-owned firms relative to female-owned firms (Fairlie and Robb 2009).

Some of these disparities could be rooted in disparities in personal wealth and savings across race and gender. An individual's ability to self-finance their business from personal savings and wealth is limited by the savings and wealth they have acquired. However, racial disparities in wealth have been well documented,³⁶ and as of 2019, the median household wealth of Black householders (\$14,100) and Hispanic householders (\$31,700) was lower

than that of non-Hispanic White (\$187,300) and Asian householders (\$206,400).³⁷ Even among entrepreneurs (who tend to have higher net worth than non-entrepreneurs), Black and Hispanic business owners may have less liquid savings than Asian or White owners (Wheat, Mac, and Tremper 2022). Although small business ownership is often seen as an opportunity to help Black and Hispanic households build wealth, a lack of wealth may be placing limitations or barriers on small business ownership for these households. Policies and interventions aimed at building wealth and savings for Black and Hispanic households could help Black and Hispanic small business owners access more capital during startup.

Appendix

Benchmarking

To assess the representativeness of our sample and generalizability of our results, we compared characteristics of the firms in our sample to publicly available data from the Census Bureau's Statistics of U.S. Businesses (SUSB) and Nonemployer Statistics by Demographics (NES-D) series. We found that our sample is generally representative of U.S. businesses by industry composition, but the firm revenues and demographic characteristics of owners in our sample is somewhat different from the universe of U.S. nonemployer businesses.

Industry Benchmark (SUSB)

To determine the representativeness of industry composition of our sample, we used the 2016 SUSB series from the Census Bureau. The SUSB is an annual series that tabulates firms by geography, industry, and firm size (as measured by employment) using data compiled from the Census Bureau's Business Register. According to the SUSB, the Business Register "contains the Census Bureau's most complete, current, and consistent data for U.S. business establishments" and covers most of U.S. economic activity. The 2016 SUSB is the most recent edition to classify firms into industries using 2012 NAICS codes, which is the same NAICS code vintage in our own data. To maximize comparability with the 2016 SUSB, we restricted our comparison to firms in our sample that were active in 2016.

The SUSB excludes nonemployer firms, private households, railroads, agriculture, and most government institutions. Since the majority of firms in our sample were likely nonemployers or very small employers, we compared the industry composition of our sample to industry composition in the SUSB for firms with fewer than five employees. To the extent that nonemployer firms are concentrated in different industries than small employers, one might expect to find some differences between our sample and the SUSB.

Table A.1 compares the distribution of firms in the SUSB to the firms in our sample that were active in 2016 by NAICS 2-digit sector. The industry composition of our sample generally resembled the industry composition of businesses in the SUSB, with the exception of Real Estate and Rental and Leasing being slightly overrepresented in our sample compared to the SUSB. Real Estate and Rental and Leasing firms tend to be nonemployers, so the representation of nonemployer firms in our data may explain why Real Estate and Rental and Leasing firms are overrepresented.³⁸

Table A.1

The industry composition of our sample generally resembles that of firms in the SUSB

NAICS sector in JPMCI data and 2016 SUSB

NAICS Sector	SUSB Share	JPMCI Share
Professional, Scientific, and Technical Services	16.2	18.5
Real Estate and Rental and Leasing	6.6	15.4
Construction	12.5	12.4
Retail Trade	10.6	9.9
Other Services (except Public Administration)	12.1	9.4
Health Care and Social Assistance	9.5	6.8
Administrative and Support and Waste Management and Remediation Services	6.0	6.4
Transportation and Warehousing	3.2	5.6
Accommodation and Food Services	5.5	5.3
Wholesale Trade	4.8	4.9
Arts, Entertainment, and Recreation	2.2	3.6
Manufacturing	2.8	0.9
Information	1.3	0.6
Educational Services	1.2	0.4
Finance and Insurance	4.7	-
Mining, Quarrying, and Oil and Gas Extraction	0.3	-
Agriculture, Forestry, Fishing and Hunting	0.4	-
Utilities	0.1	-
Management of Companies and Enterprises	0.1	-

Note: JPMCI sample restricted to firms active in 2016. SUSB restricted to firms with fewer than five employees.

Source: U.S. Census Bureau & JPMorgan Chase Institute

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Owner Demographic Characteristics and Revenue Size Benchmark (NES-D)

To determine the representativeness of firm owner demographics in our sample, we used the 2019 NES-D series from the Census Bureau. The NES-D leverages administrative data to compute comprehensive demographic statistics about the universe of U.S. nonemployer small businesses. Owner demographic characteristics available in the NES-D include race, ethnicity, sex, geography, industry, and firm size classified using receipts.

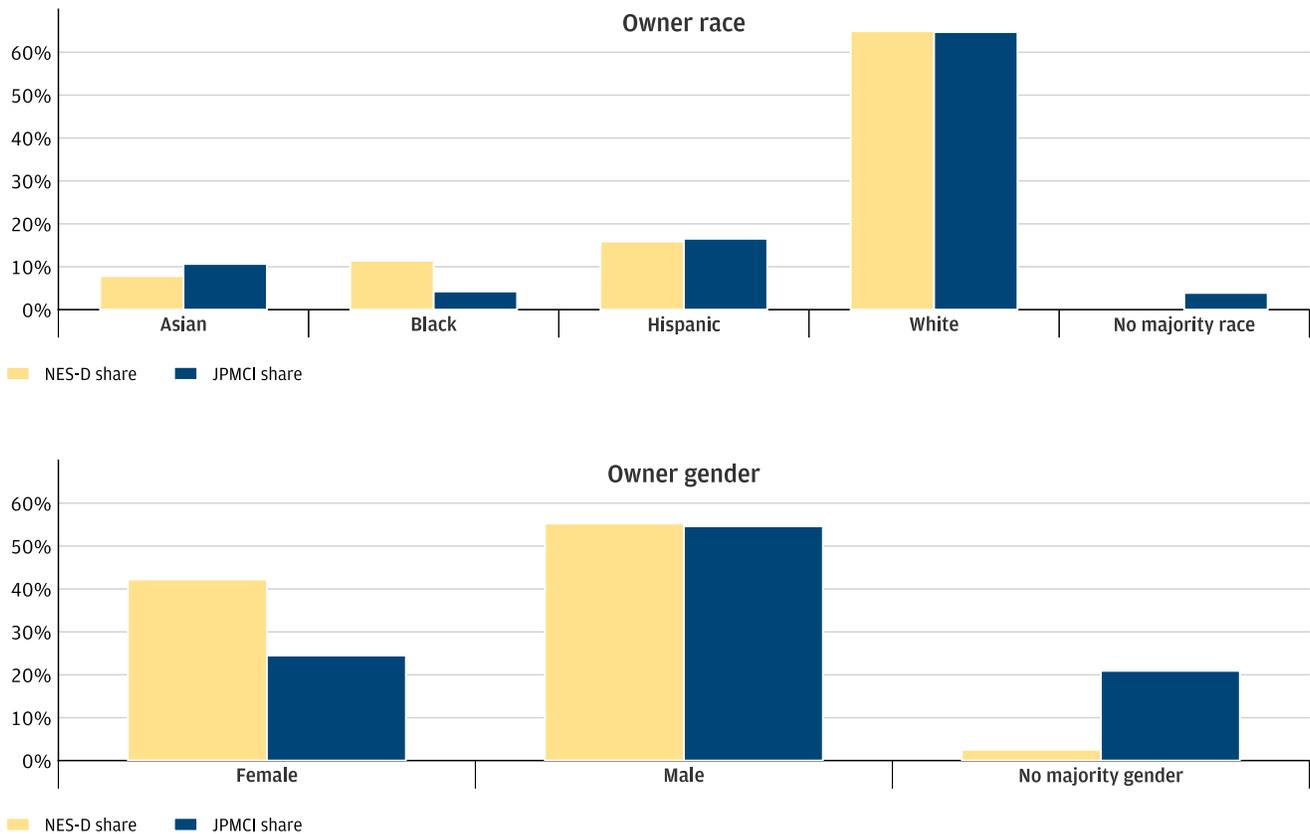
To most closely compare our data with the 2019 NES-D, we restricted the comparison to firms in our sample active in 2019. There are several features of the NES-D that affect its comparability to our data. Namely, the NES-D assigns race of ownership based on majority ownership stake in the firm,³⁹ while we assign the race of more than 50 percent of the firm's owners as the firm's race of ownership⁴⁰. Additionally, the NES-D tabulates race and ethnicity (i.e., Hispanic, non-Hispanic) as separate dimensions, whereas our data treats Hispanic as a racial category that is mutually exclusive from Asian, Black and White. The NES-D also includes racial categories not included in our data: American Indian and Alaska Native and Native Hawaiian and Other Pacific Islander. To reconcile the racial categories in the NES-D and our data, we grouped American Indian and Alaska Native and Native Hawaiian and Other Pacific Islander-owned firms with White-owned firms, since the White category in our data is technically "White/Other".⁴¹ Additionally, we aggregated the number of Hispanic owners across racial categories to estimate a "Hispanic" category comparable to our data and compared the estimates of non-Hispanic owners in the Asian, Black, and White racial categories to those respective racial categories in our data.⁴²

We found that our sample generally resembled the racial ownership of small businesses in the NES-D, though it had slightly higher representation of Asian-owned businesses (11 percent) and lower representation of Black-owned businesses (4 percent) than the NES-D (8 percent and 11 percent, respectively). See Figure A.1.

Figure A.1

Our sample generally resembles the ownership demographics of firms in the 2019 NES-D but has a smaller share of female-owned firms

Benchmarking to 2019 NES-D



Note: Firms with unknown owner race or gender are excluded. JPMCI sample restricted to firms active in 2019.

Source: U.S. Census Bureau & JPMorgan Chase Institute

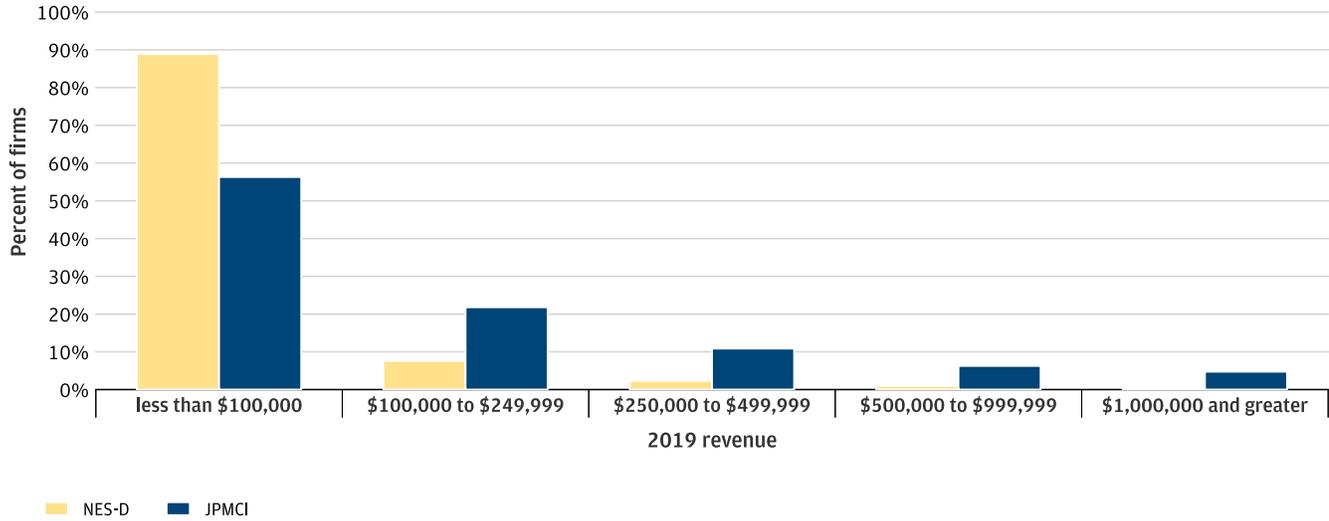
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We also found that the share of female-owned firms in our sample (24 percent) was smaller than in the NES-D (42 percent), while our sample had a much larger share of firms with no majority gender (21 percent) than the NES-D (3 percent). See Figure A.1. This may be due to the differences in ownership classification discussed above.

Lastly, revenues for firms in our sample tended to be larger than firms in the NES-D.⁴³ For example, almost 90 percent of firms in the NES-D had less than \$100,000 in revenue, while only 56 percent of firms in our sample had revenues of that size in 2019. Our data also show a higher incidence of \$1 million in revenues than the NES-D. This could be in part due to the inclusion of some employer firms in our data, which tend to have larger revenues than nonemployer firms. See Figure A.2.

Figure A.2

Firms in our sample tended to have larger 2019 revenues than firms in the 2019 NES-D
 2019 revenue in JPMCI data and NES-D



Source: U.S. Census Bureau & JPMorgan Chase Institute

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Regression model of reaching \$1 million revenues

We performed a regression analysis to describe the differential incidence of reaching \$1 million in revenue by race and gender after accounting for the industry and year in which firms began. We estimated a linear probability model, in which the outcome was measured by a binary indicator that took a value of one if a firm collected \$1 million in annual revenues in any of the five years following its start of business.⁴⁴ We estimated coefficients on a set of binary variables indicating whether a firm was Asian- Black, Hispanic-, or White-owned and a set of binary variables indicating whether a firm was female- or male-owned, observing these coefficients change as we added a set of binary variables indicating whether a firm began in 2011, 2012, 2013, 2014, or 2015 (cohort effects), and a set of binary variables indicating the industry where the firm was active (industry effects).⁴⁵ We used cohort effects to account for the different macroeconomic environments to which firms starting in different years may have been exposed. We used industry effects to account for industry-specific characteristics or conditions that may have impacted firms' growth.

To maintain simplicity in the model and its interpretation, we limited our regression sample to single-owner firms with complete race and gender information, which reduced our sample of nearly 850,000 firms by more than half (301,436 firms).⁴⁶ Table A.2 presents the estimated coefficients of interest as we added additional explanatory variables to the model specification. Column (1) shows the model estimated with only indicators for owner race, (2) estimates only indicators for owner gender, and (3) estimates owner race and gender. Column (4) adds cohort effects (coefficients not shown) and (5) includes both cohort and industry effects (coefficients not shown). The Asian, Black, and Hispanic coefficients represent the difference in the incidence of \$1 million revenues between firms with owners of that race relative to White-owned firms, on average and all else equal. The female coefficient represents the difference in the incidence of \$1 million revenues between female-owned and male-owned firms, on average and all else equal. All coefficients shown are significant at the 1 percent level.⁴⁷

Table A.2

Black-, Hispanic-, and female-owned firms have a lower incidence of reaching \$1 million than Asian-, White-, and male-owned firms when holding cohort and industry constant

Linear probability model of reaching \$1 million in revenue on firm and owner characteristics

	(1)	(2)	(3)	(4)	(5)
Constant	0.05 *** (0.00)	0.06 *** (0.00)	0.06 *** (0.00)	0.05 *** (0.00)	0.07 *** (0.00)
Asian	0.02 *** (0.00)	-	0.03 *** (0.00)	0.02 *** (0.00)	0.02 *** (0.00)
Black	-0.04 *** (0.00)	-	-0.03 *** (0.00)	-0.03 *** (0.00)	-0.03 *** (0.00)
Hispanic	-0.02 *** (0.00)	-	-0.02 *** (0.00)	-0.02 *** (0.00)	-0.02 *** (0.00)
Female	-	-0.03 *** (0.00)	-0.03 *** (0.00)	-0.03 *** (0.00)	-0.02 *** (0.00)
Cohort Effects	No	No	No	Yes	Yes
Industry Effects	No	No	No	No	Yes
Observations	301,436	301,436	301,436	301,436	301,436
R-squared	0.00	0.00	0.01	0.01	0.02

Note: The dependent variable is a binary indicator for whether a firm reached \$1 million in revenues within five years of starting business. For ease of interpretation, the sample is limited to single owner firms with full race and gender information. *** indicates significance at the 1 percent level. White (1980) standard errors shown in parentheses.

Source: JPMorgan Chase Institute

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The estimates are stable across specifications. In our full specification in Column (5), holding cohort, industry, and owner gender constant, Black- and Hispanic-owned firms had a lower incidence than White-owned firms of reaching \$1 million in revenue in the first five years following the start of business by 3 and 2 percentage points on average, respectively, while Asian-owned firms had a 2 percentage points *higher* incidence of reaching \$1 million in revenue in those first five years on average. Holding cohort, industry, and owner race constant, female-owned firms had a two percentage point lower incidence than male-owned firms of reaching \$1 million in revenue on average. Our results also suggest that including industry in the regression analysis explains only a small portion of the incidence of \$1 million revenues, as there is minimal adjustment of the race and gender coefficients between columns (4) and (5) when industry effects are added to the specification.

Sensitivity of results to firms that may have existed prior to the observed start date

One potential concern is that our observation of firms reaching \$1 million in revenues may be biased upward due to the presence of firms that existed prior to their appearance in our data (“prior-existing firms”). Because we depended on the beginning of a firm’s transaction activity in a Chase business account to determine the firm’s “start of business,” we were unable to differentiate truly nascent firms from prior-existing firms that may have transferred to Chase after having survived some number of years in business and possibly grown or scaled prior to opening a Chase business banking account.⁴⁸ If prior-existing firms were older and consequently operationally stronger and more likely to reach \$1 million in revenues than truly nascent firms, then we might overstate the incidence of \$1 million revenues within five years of “business start.” If prior-existing firms tend to transfer to Chase when they are at or near \$1 million in revenue, we might also overstate the proportion of firms that reached \$1 million revenues within the first few years of business.

In an attempt to identify firms that existed prior to appearing in our data (“prior-existing firms”), we identified about 16,500 firms (2 percent of our sample) that had large account-to-account financial transfers close to their respective start dates. We interpreted large account-to-account financial transfers as signs that the firm may have used account-to-account transfers to move a pre-existing banking relationship (reflective of pre-existing business activity) to Chase.⁴⁹ Firms were identified as having large financial transfers if either of the following conditions were true:

- A firm’s first year financial transfers were at least two times larger than the next highest annual financial transfers, and the value of the first-year financial transfers was at least \$750,000⁵⁰
- A firm’s financial transfers in its first month were at least ten times larger than the average monthly financial transfer for the rest of the year, and the value of the first month’s financial transfers was at least \$62,500⁵¹

While this is an imperfect approach to identifying firms that predated their business banking relationship with Chase, it is still informative that our general findings remain unchanged and our results comparing revenues by owner race and gender tend to be consistent with other cited work.

Initial to peak five-year revenue transition (table representation of Figure 6)

Table A.3

During the first five years following firm start, most firms never earn revenues much above their initial year revenues

Initial to peak five-year revenue transition (share)

	less than \$100,000	\$100,000 to \$249,999	\$250,000 to \$499,999	\$500,000 to \$749,999	\$750,000 to \$999,999	\$1,000,000 and greater
less than \$100,000	75.2	17.1	4.6	1.3	0.6	1.2
\$100,000 to \$249,999	-	65.2	22.8	5.8	2.4	3.8
\$250,000 to \$499,999	-	-	61.5	18.5	7.8	12.3
\$500,000 to \$749,999	-	-	-	52.9	17.6	29.5
\$750,000 to \$999,999	-	-	-	-	48.7	51.3
\$1,000,000 and greater	-	-	-	-	-	100.0

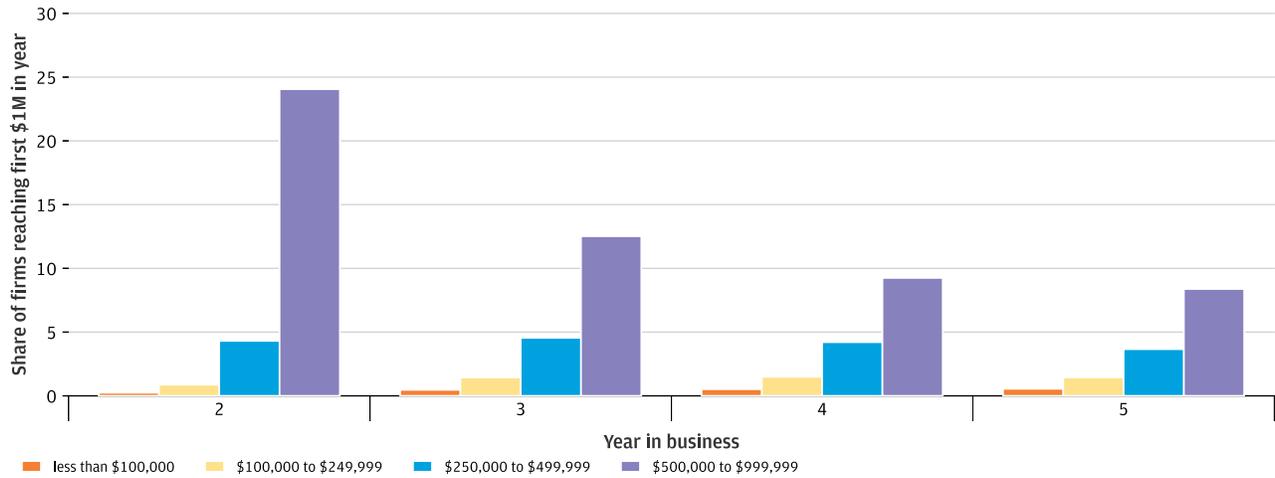
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Source: JPMorgan Chase Institute

Share of firms reaching \$1 million in revenue for the first time by year in business and initial revenues

Figure A.3

Firms that started with lower initial revenues showed evidence of reaching \$1 million at higher rates as they aged
Share of firms reaching first \$1 million in revenue by year in business



Note: Shares shown are the share of firms that reached \$1 million for the first time out of those that reach the end of the given year and have not previously reached \$1 million in revenue.

Source: JPMorgan Chase Institute

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Data Explanation

Figure 1: Share of firms reaching \$1 million in revenue by year of business (bar) and cumulatively (line)

This figure shows a line chart and bar chart. The line chart shows the cumulative share of firms reaching \$1 million in revenue in each of the first five years of business. The line shows that 4 percent of all firms reach \$1 million in revenue in their first year of business, and then increases to 8.9 percent of all firms by year 5. About 6 percent of firms reached \$1 million in revenue by year 2, about 7 percent did so by year three, and about 8 percent did so by year 4. A chart annotation above the line at year 5 reads, “8.9% of firms reached \$1M in revenue at least once by year 5.” The chart also shows the marginal number of new firms reaching \$1 million in revenue in each year as bars. These show that a decreasing share of new firms reach \$1 million for the first time in each of the first five years. The year 1 bar shows 4% of firms reach \$1 million in year 1 and the year 5 bar shows that less than 1 percent of firms reached their first \$1 million in year 5. A chart annotation above the bar for year 2 reads, “1.9% of firms reached their first \$1M in revenue in year 2.” Just over 1 percent of firms reached their first million in year 3 and about 1 percent of firms reached their first million in year 4. The chart note reads, “Source: JPMorgan Chase Institute”

[View chart version](#)

Figure 2: Share of firms reaching \$1 million in revenue by owner race and gender

This figure has two panels stacked vertically, each of which is a horizontal bar chart. The title reads “Share of firms reaching \$1 million in revenue.” The top panel has a subtitle that reads “Owner race.” In the top panel, bars represent the share of firms reaching \$1 million in revenue for firms categorized by each of the following owner races: Asian, Black, Hispanic, and White. The chart shows that the highest share of Asian-owned firms reached \$1 million in revenue, at about 12 percent. About 10 percent of White-owned firms reach \$1 million in revenue, about 6 percent of Hispanic-owned firms reached \$1 million in revenue, and about 2.5 percent of Black-owned firms reached \$1 million in revenue. The bottom panel has a subtitle that reads “Owner gender.” In the bottom panel, bars represent the share of firms reaching \$1 million in revenue for female-owned and male-owned firms. The chart shows that about 10 percent of male-owned firms reach \$1 million in revenue, while about 5.5 percent of female-owned firms reach \$1 million in revenue. The chart note reads, “Owner race and gender refers to classification of a majority of owners. Firms with unknown race or gender or no classifiable majority ownership by race or gender are not shown in their respective charts. Source: JPMorgan Chase Institute.”

[View chart version](#)

Figure 3: Share of firms reaching \$1 million in revenue by year in business and owner race and gender

This is a two-panel chart showing firms grouped by owner race and gender. The top panel has a subtitle that reads “Owner race.” This panel shows the share of firms with owners who were classified as Asian, Black, Hispanic, and White that reached \$1 million in each of the first five years of business, conditional on the firm not having reached \$1 million in earlier years of business and surviving to the end of the year. The chart shows that, for each year, Asian- and White-owned businesses have the highest share of firms reaching \$1 million in each year of business. About 6 percent of Asian-owned, 1 percent of Black-owned, 2 percent of Hispanic-owned, and 5 percent of White-owned firms reach \$1 million in revenue in year 1. The share reaching \$1 million for the first time declines for each group in each of the next four years. The bottom panel has a subtitle that reads “Owner gender.” This panel shows the share of firms classified as female- or male-owned, respectively, that reached \$1 million in each of the first five years of business, conditional on the firm not having reached \$1 million before and surviving to the end of the year. That chart shows that male-owned firms have the highest share of reaching \$1 million in revenue for the first time in each of the first five years. In each year, female-owned firms reach \$1 million in revenue at about half the rate of male-owned firms. The chart note reads, “Firms with unknown owner race or gender are excluded from their respective charts. Firms with no classifiable majority ownership by race or gender are not shown in their respective charts. Shares shown are the share of firms that reached \$1 million for the first time out of those that reach the end of the given year and have not previously reached \$1 million in revenue. Source: JPMorgan Chase Institute”

[View chart version](#)

Figure 4: Share of firms that reached \$1 million in revenue by industry

This figure is a horizontal bar chart. The title reads “Share of firms that reached \$1 million by industry.” Bars represent the share of firms within each industry reaching \$1 million in revenue. The industries represented are the following, in descending order of attainment of \$1 million in revenue: Accommodation; High-Tech Manufacturing; Metal and Machinery; Wholesalers; Restaurants; Health Care Services; Retail; Construction; High-Tech Services; Real Estate; Truck Transportation; Amusement, Gambling, and Recreation Industries; Other Professional Services; Couriers and Messengers; Educational Support Services; Child Day Care Services; Repair and Maintenance; Performing Arts, Spectator Sports, and Related Industries; Personal Services; and Taxi and Limousine Services. Bars are colored if firms with ownership attributed to a given race or gender are disproportionately overrepresented within the industry. Asian-owned firms are disproportionately overrepresented in Accommodation, Wholesalers, and Restaurants, and Personal Services. Hispanic-owned firms are disproportionately overrepresented in Couriers and Messengers; Child Day Care Services; Educational Support Services; Performing Arts, Spectator Sports, and Related Industries; and Taxi and Limousine Services. Black-owned firms are disproportionately overrepresented in Construction, Truck Transportation, Couriers and Messengers, Child Day Care Services, and Repair and Maintenance. Accommodation is the industry with the highest share of firms that reach \$1 million in revenue, at about 27 percent, while Taxi and Limousine Services is the industry with the lowest attainment of \$1 million in revenue, at about 2 percent. There is an asterisk next to each bar where female-owned firms are disproportionately overrepresented in the corresponding industry. Female-owned firms are disproportionately overrepresented in Educational Support Services, Child Day Care Services, and Personal Services. The chart note reads, “Firms with ownership attributed to a given race or gender are considered ‘disproportionately overrepresented’ in an industry if the industry concentration of firms with that attribution is 1.5x or more the overall sample concentration of firms with that attribution. Firms with multiple owners but no majority ownership race are not categorized as Asian-, Black-, Hispanic-, or White-owned. Firms with multiple owners but no majority ownership gender are not categorized as female- or male-owned. Black- and Hispanic-owned firms are both disproportionately overrepresented in Couriers and Messengers and Child Day Care Services. Source: JPMorgan Chase Institute.”

[View chart version](#)

Figure 5: Share of firms reaching \$1 million in revenue, selected industries

This figure has two panels stacked vertically, each of which is a horizontal grouped bar chart. In the top panel, subtitled “Owner race,” bars represent the share of firms in each industry with ownership of a given race reaching \$1 million in revenue. Bars are grouped by industry and colored by race of ownership. The industries represented are Other Professional Services, Real Estate, Construction, Retail, and Repair and Maintenance. Within each industry, either Asian- or White-owned firms have the highest attainment of \$1 million in revenue, Hispanic-owned firms have the third-highest attainment, and Black-owned firms have the lowest attainment. In the bottom panel, subtitled “Owner gender,” bars represent the share of firms in each industry with ownership of a given gender reaching \$1 million in revenue. Bars are grouped by industry and colored by gender of ownership. The industries represented are Other Professional Services, Real Estate, Construction, Retail, and Repair and Maintenance. Within each industry, male-owned firms have a higher attainment of \$1 million in revenue than female-owned firms, except for the Construction industry, where female-owned firms have a higher attainment of \$1 million in revenue. The chart note reads, “Industries are ordered by representation in sample. Firms with unknown owner race or gender or no classifiable majority ownership by race or gender are not shown in their respective charts. Female-owned firms had a higher incidence of \$1 million in revenues in the Construction industry (as well as Truck Transportation and High-Tech Manufacturing, not shown). However, female-owned firms are disproportionately underrepresented in these industries, and the sample size of female-owned firms in these industries is very small, which may skew the results. Less than 0.1% of female-owned firms are High-Tech Manufacturing, about 2% of female-owned firms are in Truck Transportation, and about 5.5% of female-owned firms are in Construction. Source: JPMorgan Chase Institute.”

[View chart version](#)

Figure 6: Transition to five-year peak revenue, based on first year revenue

This figure is a Sankey diagram showing the distribution of firms by initial year revenue and the peak annual revenue observed over the first five years of business, respectively, as well as the flow of firms from an initial revenue size to a peak revenue size. Revenue is bucketed into six groups: less than \$100,000; \$100,000-\$249,999; \$250,000-\$499,999; \$500,000-\$749,000; \$750,000-\$999,999; and \$1,000,000 and greater. The chart highlights firms that had a five-year peak revenue of \$1 million and higher. Most of these firms had initial revenues of at least \$1 million, and the share of firms that reached a five-year peak revenue of at least \$1 million decreases as the initial revenue levels decrease. The plurality of firms had an initial revenue of less than \$100,000. The chart note reads, “Source: JPMorgan Chase Institute”

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Figure 7: Initial revenue by owner demographics

This figure has two panels stacked vertically, each of which is a vertical grouped bar chart. The title reads “Initial revenues by owner demographics.” In the top panel, subtitled “Owner race,” firms are grouped by initial year revenue and owner race, and the bars represent the share of firms classified by owner race that fall into each revenue bucket. Initial year revenues are bucketed into six groups: less than \$100,000; \$100,000-\$249,999; \$250,000-\$499,999; \$500,000-\$749,999; \$750,000-\$999,999; and \$1,000,000 and greater. About 80 percent of Black-owned firms, 65 percent of Hispanic-owned firms, 58 percent of White-owned firms, and 45 percent of Asian-owned firms had revenues less than \$100,000 in the initial year. About 6 percent of Asian-owned firms, 5 percent of White-owned firms, 2 percent of Hispanic-owned firms, and 1 percent of Black-owned firms have revenues of \$1,000,000 or greater in the initial year. In summary, Black- and Hispanic-owned firms are less likely to have high initial year revenues than Asian- and White-owned firms. In the bottom panel, subtitled “Owner gender,” firms are grouped by initial year revenue and owner gender, and the bars represent the share of firms classified by owner gender falling into each initial revenue bucket. Initial year revenues are bucketed into six groups: less than \$100,000; \$100,000-\$249,999; \$250,000-\$499,999; \$500,000-\$749,999; \$750,000-\$999,999; and \$1,000,000 and greater. About 70 percent of female-owned firms and 58 percent of male-owned firms had revenues less than \$100,000 in the initial year. About 2.5 percent of female-owned firms and 5 percent of male-owned firms had revenues of \$1,000,000 or greater in the initial year. The chart note reads, “Firms with unknown owner race or gender or no classifiable majority ownership by race or gender are not shown in their respective charts. Source: JPMorgan Chase Institute.”

[View chart version](#)

Figure 8: Initial revenue by owner demographics

This figure has two panels stacked vertically, each of which is a vertical grouped bar chart. The title reads “Incidence of \$1 million firms by initial revenues.” In the top panel, subtitled “Owner race,” firms are grouped by initial year revenue and owner race. Initial year revenues are bucketed into five groups: less than \$100,000; \$100,000-\$249,999; \$250,000-\$499,999; \$500,000-\$749,999; and \$750,000-\$999,999. Bars represent the share of firms in the given initial revenue bucket and owner race that attain \$1 million in revenues. Across all races, firms with lower initial revenues are less likely to attain \$1 million in revenues, but within initial revenue buckets, Black-owned firms are consistently less likely to attain \$1 million in revenue than Asian-, Hispanic-, and White-owned firms. Among firms with initial revenues less than \$100,000, 2 percent of Asian-owned firms, 0.3 percent of Black-owned firms, 0.7 percent of Hispanic-owned firms, and 1.3 percent of White-owned firms attain \$1 million in revenue. Among firms with initial revenues between \$750,000 and \$999,999, 51 percent of Asian-owned firms, 42 percent of Black-owned firms, 55 percent of Hispanic-owned firms, and 53 percent of White-owned firms reach \$1 million in revenue. In the bottom panel, subtitled “Owner gender,” firms are grouped by initial year revenue and owner gender. Initial year revenues are bucketed into five groups: less than \$100,000; \$100,000-\$249,999; \$250,000-\$499,999; \$500,000-\$749,999; and \$750,000-\$999,999. Bars represent the share of firms in the given initial revenue bucket and owner gender that attain \$1 million in revenues. Across both genders, firms with lower initial revenues are less likely to attain \$1 million in revenues, but within initial revenue buckets, female-owned firms had consistently lower shares of reaching \$1 million. Among firms with initial revenues less than \$100,000, 0.6 percent of female-owned firms and 1.4 percent of male-owned firms attain \$1 million in revenues. Among firms with initial revenues between \$100,000 and \$249,999, 2.8 percent of female-owned firms and 4.4 percent of male owned firms reach \$1 million in revenue. Among firms with initial revenues between \$250,000 and \$499,999, 10 percent of female-owned firms and 13 percent of male-owned firms reach \$1 million in revenue. Among firms with initial revenues between \$500,000 and \$749,999, 28 percent of female-owned firms and 31 percent of male-owned firms reach \$1 million in revenue. Among firms with initial revenues between \$750,000 and \$999,999, 52 percent of both female-owned and male-owned firms reach \$1 million in revenue. The chart note reads, “Firms with unknown race or gender or no classifiable majority ownership by race or gender are not shown in their respective charts. Source: JPMorgan Chase Institute.”

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Figure A.1: Benchmarking to 2019 NES-D by owner race and gender

This figure has two panels stacked vertically, each of which is a vertical grouped bar chart. The title reads “Incidence of \$1 million firms by initial revenues.” In the top panel, subtitled “Owner race,” firms are grouped by initial year revenue and owner race. Initial year revenues are bucketed into five groups: less than \$100,000; \$100,000-\$249,999; \$250,000-\$499,999; \$500,000-\$749,999; and \$750,000-\$999,999. Bars represent the share of firms in the given initial revenue bucket and owner race that attain \$1 million in revenues. Across all races, firms with lower initial revenues are less likely to attain \$1 million in revenues, but within initial revenue buckets, Black-owned firms are consistently less likely to attain \$1 million in revenue than Asian-, Hispanic-, and White-owned firms. Among firms with initial revenues less than \$100,000, 2 percent of Asian-owned firms, 0.3 percent of Black-owned firms, 0.7 percent of Hispanic-owned firms, and 1.3 percent of White-owned firms attain \$1 million in revenue. Among firms with initial revenues between \$750,000 and \$999,999, 51 percent of Asian-owned firms, 42 percent of Black-owned firms, 55 percent of Hispanic-owned firms, and 53 percent of White-owned firms reach \$1 million in revenue. In the bottom panel, subtitled “Owner gender,” firms are grouped by initial year revenue and owner gender. Initial year revenues are bucketed into five groups: less than \$100,000; \$100,000-\$249,999; \$250,000-\$499,999; \$500,000-\$749,999; and \$750,000-\$999,999. Bars represent the share of firms in the given initial revenue bucket and owner gender that attain \$1 million in revenues. Across both genders, firms with lower initial revenues are less likely to attain \$1 million in revenues, but within initial revenue buckets, female-owned firms had consistently lower shares of reaching \$1 million. Among firms with initial revenues less than \$100,000, 0.6 percent of female-owned firms and 1.4 percent of male-owned firms attain \$1 million in revenues. Among firms with initial revenues between \$100,000 and \$249,999, 2.8 percent of female-owned firms and 4.4 percent of male owned firms reach \$1 million in revenue. Among firms with initial revenues between \$250,000 and \$499,999, 10 percent of female-owned firms and 13 percent of male-owned firms reach \$1 million in revenue. Among firms with initial revenues between \$500,000 and \$749,999, 28 percent of female-owned firms and 31 percent of male-owned firms reach \$1 million in revenue. Among firms with initial revenues between \$750,000 and \$999,999, 52 percent of both female-owned and male-owned firms reach \$1 million in revenue. The chart note reads, “Firms with unknown race or gender or no classifiable majority ownership by race or gender are not shown in their respective charts. Source: JPMorgan Chase Institute.”

[View chart version](#)

Figure A.2: 2019 revenue in JPMCI data and NES-D

This figure is a grouped vertical bar chart. Firms are grouped by 2019 revenue. The title reads “2019 revenue in JPMCI data and NES-D.” Revenues earned in 2019 are bucketed into six groups: less than \$100,000; \$100,000-\$249,999; \$250,000-\$499,999; \$500,000-\$749,999; \$750,000-\$999,999; and \$1,000,000 and greater. The bars represent the share of firms with 2019 revenue in the given range. 89 percent of firms in the NES-D and 57 percent of firms in the JPMCI data have 2019 revenues that are less than \$100,000. 7.6 percent of firms in the NES-D and 22 percent of firms in the JPMCI data have 2019 revenues between \$100,000 and \$249,999. 2.3 percent of firms in the NES-D and 11 percent of firms in the JPMCI data have 2019 revenues between \$250,000 and \$499,999. 1.0 percent of firms in the NES-D and 6.2 percent of firms in the JPMCI data have 2019 revenues between \$500,000 and \$749,999. 0.2 percent of firms in the NES-D and 4.7 percent of firms in the JPMCI data have 2019 revenues that are \$1,000,000 or greater. There is a chart note that reads, “Source: JPMorgan Chase Institute.”

[View chart version](#)

Table A.1: NAICS sector in JPMCI data and SUSB

This is a table with three columns. The title reads “NAICS sector in JPMCI data and 2016 SUSB.” The three columns are NAICS sector name, share of firms in the 2016 SUSB categorized as that sector, and share of firms in the JPMCI data categorized as that sector. There is a table note that reads, “JPMCI sample restricted to firms active in 2016. SUSB restricted to firms with fewer than five employees. Source: U.S. Census Bureau & JPMorgan Chase Institute.”

[View chart version](#)

Table A.2: Results from regression analysis

This is a table with six columns. The columns correspond to specifications of a linear probability model, in which the outcome was measured by a binary indicator that took a value of one if a firm attained \$1 million in annual revenues in any of the five years following its start of business. The first column lists the dependent variables used in the regression model. The second column provides estimates for a model that included only a set of binary indicators corresponding to owner race. The third column provides estimates for a model that included only a set of binary indicators corresponding to owner gender. The fourth column provides estimates from a model that included binary variables for both owner race and gender. The fifth column provides estimates from a model that included binary variables for owner race and gender and cohort fixed effects, and the fifth specification includes all of the previous dependent variables and industry fixed effects. A note on this table reads: "Note: The dependent variable is a binary indicator for whether a firm reached \$1 million in revenues within five years of starting business. For ease of interpretation, the sample is limited to single owner firms with full race and gender information. *** indicates significance at the 1 percent level White (1980) standard errors shown in parentheses."

[View chart version](#)

Table A.3: Initial to peak five-year revenue transition (table representation of Figure 6)

This is a table with seven columns. The title reads "Initial to peak five-year revenue transition (share)." The cells represent the share of firms in the initial revenue range (rows) that transitioned to a given peak revenue range (columns). Initial and peak revenues are bucketed into six groups: less than \$100,000; \$100,000-\$249,999; \$250,000-\$499,999; \$500,000-\$749,000; \$750,000-\$999,999; and \$1,000,000 and greater. The rows sum to 100. There is a chart note that reads, "Source: JPMorgan Chase Institute."

[View chart version](#)

Figure A.3: Share of firms reaching \$1 million in revenue for the first time by year in business and initial revenues

A bar graph measuring share of firms reaching first \$1 million in year versus years in business. For less than \$100,000, 2 years is 1%, 3 years is 2%, 4 years is 2%, and 5 years is 2%. For \$100,000 to \$249,999, 2 years is 2%, 3 years is 3%, 4 years is 3%, and 5 years is 3%. For \$250,000 to \$499,999, 2 years is 4%, 3 years is 4.5%, 4 years is 4%, and 5 years is 3.5%. For \$500,000 to \$999,999, 2 years is 24%, 3 years is 13%, 4 years is 9%, and 5 years is 8%.

[View chart version](#)

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Notes

1 According to the U.S. Small Business Administration Office of Advocacy, small businesses (independent businesses having fewer than 500 employees) account for 43.5 percent of the national gross domestic product (GDP) and 46.4 percent of private sector employment (Small Business Administration Office of Advocacy 2023).

2 More than 80 percent of small businesses are nonemployer firms (Small Business Administration Office of Advocacy 2023), and the typical small business earns annual revenues of less than \$100 thousand throughout its early life (Farrell, Wheat, and Mac 2019). However, when small businesses expand, they often innovate, add employees, and experience financial growth.

3 See, for example, the U.S. Department of Commerce Minority Business Development Authority (<https://www.mbda.gov/who-we-are/overview>), and statements from the White House regarding support for a diversity of small business owners (e.g., Council of Economic Advisers 2021).

4 The Census Business Dynamics Series provides a view of year-over-year growth in employment, but does not inform revenue, or disaggregate by owner race or gender. The Census Annual Business Survey provides a cross-sectional lens on employment and revenues (receipts) disaggregated by owner race and gender, but does not inform longitudinal processes.

5 See, e.g., Aspen Institute (2017), Stanford Latino Entrepreneurship Initiative (2016). While this report focusses on firm size measured by revenues, the analyses presented here should be considered only one dimension of business health and potential. For example, our metric of firm scale focusses on revenue size but disregards stability of revenues and business sustainability, which are additional dimensions of business growth and health. Small business health is a multidimensional concept and may include metrics of liquidity and financial management, access to credit and insurance, and debt management, among other things.

6 This includes business checking, business interest checking, business saving, business money market, and business certificate of deposit accounts.

7 We defined firm closure as the firm having closed all of its business accounts with Chase.

8 We grouped 2012 NAICS codes into industries that can generally be described as Accommodation; High-Tech Manufacturing; Metal & Machinery; Wholesalers; Restaurants; Health Care Services; Retail; Construction; High-Tech Services; Real Estate; Truck Transportation; Amusement, Gambling, and Recreation; Couriers and Messengers; Miscellaneous Professional Services (e.g., accountant or consultant

firm); Educational Support Services; Child Day Care Services; Repair & Maintenance; Performing Arts, Spectator Sports, and Related Industries; Personal Services; and Taxi and Limousine Services. As necessary, we converted non-2012 NAICS using the Bureau of Labor Statistics NAICS conversion files: <https://www.bls.gov/ces/naics/>.

9 We analyzed the first five years following when a firm started business activity (defined as beginning to transact in a Chase business account). Because our analytical window spanned January 2011 through February 2020, firms needed to have started business activity within our analytical window and at least five years prior to the end of the window. We did not require firms in our sample to remain in business for all five years, since doing so could bias our sample toward firms with more business activity and/or incidence of \$1 million in revenues.

10 Such balances are anomalously large and account for less than 0.01 percent of our administrative data source.

11 Because our data did not contain information on a firm's founders, owners, or shares of ownership as distributed across owners, we relied on business account signer designation. The data reflected all signers associated with a firm's accounts as of 2023, which may capture original "owners" and "owners" who became associated with the business in later years (including years post-dating our analysis window). While this feature of the data may have introduced some noise into our ability to accurately assign an owner (or owners) to a firm, it is likely minimal. 56 percent of the firms in our data have only one "owner," and another 31 percent have only two owners. Some businesses do not have any identified "owners": these account for only 3 percent of our sample.

12 Modeled demographic data were obtained in 2021 from a third party for the JPMorgan Chase Institute to conduct economic research examining financial outcomes by race, ethnicity, and gender. The demographic data were matched to internal banking records using encrypted quasi-identifiers. This de-identified file that contains banking records and demographics is only available to the JPMorgan Chase Institute.

13 We note that while these data allowed us to begin disaggregating our data by race and gender, statistics that summarize across these categories lack the nuance necessary to fully understand the diverse experiences that exist within these groups. For example, the Asian race category represents a wide diversity of cultural and ethnic heritages, tenures in the U.S., and economic circumstances and has the highest degree of income inequality in the U.S. (Budiman and Ruiz (2018); Kochlar and Cilluffo (2021)). Our data limit us to summarizing outcomes for the "Asian" overall category.

14 The third-party data provider estimates that about 85 percent of people classified as “White/Other” are White.

15 Of the firms in our sample, 2.5 percent (10.4 percent) had race (gender) data for all owners associated with the firm but no racial (gender) majority among those owners. Firms with known race (gender) data for all owners had a slightly lower incidence of \$1 million in annual revenues within five years of starting business (8.3 percent and 8.2 percent, respectively) than the overall sample (8.9 percent, see Figure 1). This is likely because firms with more owners were more likely to have at least one owner with unknown race or gender, and firms with more owners had a higher incidence of \$1 million revenues.

16 We defined a firm’s start as the date of the first observed transaction across all the firm’s deposit accounts. It is possible, however, that some firms began business before they appear in Chase’s administrative data, and our approach would have misidentified the year in business of those firms. We performed a sensitivity analysis in which attempted to remove firms that may have been in business prior to the start date that we observed in our data, and our main findings remained unchanged. More discussion is available in the Appendix.

17 We used a series of Chase bank transaction codes to identify financial transfers. To the extent that an inflow was a non-revenue financial transfer but did not contain one of those identifiers, we would have misclassified the transfer as a revenue, overestimating revenues, and potentially overstating the incidence of \$1 million revenues. Conversely, to the extent that a revenue carried financial transfer tags, it would have been misclassified as a financial transfer, underestimating revenues, and potentially causing us to underreport the incidence of \$1 million revenues. However, most small businesses are well below \$1 million in revenue (for example, see our distribution of firm revenues in 2019 in Appendix Figure A.2) so although revenues may be over- or understated it is unlikely that the incidence of reaching \$1 million would greatly change.

18 We do not evaluate whether firms in our sample *maintain* \$1 million in revenues.

19 Because “\$1 million in annual revenues” is a nominal benchmark, we analyzed nominal revenues. However, because our analysis window spans nearly a decade, we also performed the same analyses using revenues normalized to 2019 dollars. That exercise yielded similar results.

20 See, e.g., the U.S. Small Business Administration’s size standards, which generally allow revenues well above \$1 million to qualify as a “small business.” (https://www.sba.gov/sites/sbagov/files/2023-06/Table%20of%20Size%20Standards_Effective%20March%2017%2C%202023%20%282%29.pdf)

21 By focusing only on the first five years of business, we are unable to speak to firms that scale on a timeline longer than the scope of our analyses. That portion of the small business population is likely too small to constitute a growth “pipeline” and is not analyzed in this paper. We chose not to use a longer longitudinal history than five years because to do so within our analytical window would have resulted in a smaller sample of firms that started less recently than our current sample. Although some firms may reach \$1 million in revenue after the first five years in business, we found the overall incidence of doing so declined with firm age. Compounded by a declining survival rate, firms reaching \$1 million revenue after the fifth year in business are likely quite rare. (The five-year survival rate of small businesses started between 2004 and 2020 was 48 percent. See <https://advocacy.sba.gov/wp-content/uploads/2023/03/Frequently-Asked-Questions-About-Small-Business-March-2023-508c.pdf>)

22 The share of businesses reaching \$1 million in revenue for the first time declines with age in part due to firms exiting our sample (i.e., closing their business banking accounts without scaling to \$1 million in revenue). As we show in later figures, even when we condition on firm survival, the incidence of firms reaching \$1 million for the first time declines as firms age.

23 A deeper analysis shown in Appendix Figure A.3 shows heterogeneity in this pattern across firms of different initial-year revenue sizes. In particular, firms with initial revenues below \$250,000 see a higher incidence of \$1 million in revenue in later years, whereas firms with initial revenues of \$500,000 or above see a decline. Because the absolute incidence of reaching \$1 million in revenue for the first time is low among firms with the lowest initial revenues (less than two percent of firms with initial revenues below \$250,000 in any given year within five years of starting business), this result is not visible in Figure 1. While it remains true that most firms that reach \$1 million in revenue within five years of starting business do so soon after starting business, for firms that start at the lowest levels of revenues, there may be a slight trajectory toward growth that contrasts with that of firms that have larger initial-year revenues.

24 We conducted some additional analyses of how the presence of prior-existing firms might impact our results. Details are available in the appendix.

25 This is consistent with findings in Fairlie and Robb (2007), Fairlie and Robb (2009), and Small Business Facts: Business Owner Demographics. 2021. Available at: <https://advocacy.sba.gov/wp-content/uploads/2021/03/Business-Ownership-Demographics-Fact-Sheet.pdf> which show disparities in sales by owner race and gender. However, the data underlying those studies were not limited to nascent businesses, as ours is.

26 Fairlie and Robb (2007), Robb and Fairlie (2009), and Fairlie and Robb (2009) find that owners' work experience in a similar business as their own is strongly related to a business's profitability, sales, and likelihood of survival, and that this can explain some of the gap in business performance between Black-, Asian- and White-owned firms and female- and male-owned firms, respectively.

27 We considered firms with ownership attributed to a given race or gender to be "disproportionately overrepresented" in an industry if the proportion of firms in that industry with that attribution is 1.5x or more than the proportion of firms in the overall sample with that attribution.

28 These results are also present in industries not shown in Figure 5. The incidence of \$1 million in revenues within five years of starting business among Black- and Hispanic-owned firms was lower than among Asian- and White-owned firms, respectively, in all industries in our data. Female-owned firms had a higher incidence than male-owned firms of \$1 million in revenues in the Construction, Truck Transportation, and High-Tech Manufacturing industries, which are industries where female-owned firms are disproportionately underrepresented. This result may reflect the limitations of our data. For example, it may be the case that our approximation of ownership based on account signers may be particularly flawed in these industries. Alternatively, it could be the case that female-owned firms that enter these industries and survive for at least one year of business tend to be particularly strong revenue-generating firms. Caution should be used in interpreting these results.

29 For more detail on our regression analysis, see the Appendix.

30 This is consistent with previous work that has analyzed broader samples of businesses that are not limited to the young small businesses that we focus on. For example, Fairlie and Robb (2007) estimated that industry differences explained about 10 percent of the difference in sales between Black- and White-owned businesses in the 1992 Characteristics of Business Owners survey.

31 Some firms in our sample did not operate for a full five years. For those firms, a five-year peak revenue is determined based on the highest revenue earned in any of its years of business. For example, firms that exited in the second year of business are shown as having a five-year peak revenue equal to initial revenue.

32 Appendix Table A.3 shows the share of firms that transitioned from each initial to peak revenue band.

33 At high levels of initial revenues, Hispanic-owned firms had slightly higher incidence of reaching \$1 million in revenue than Asian- and White-owned firms with the same initial revenues, and female-owned firms had equal incidence of reaching \$1 million in revenues as male-owned firms with the same initial revenues. However, very small proportions of Hispanic- and female-owned firms have those high levels of initial year revenues (see Figure 7).

34 Other research has shown that startup capital is positively correlated with business sales volumes, and disparities in startup capital can account for a meaningful portion of the disparity in sales volumes between Black-, Asian-, and White-owned firms and male- and female-owned firms, respectively. Fairlie and Robb (2007), Robb and Fairlie (2009), and Fairlie and Robb (2009) estimated that differences in startup capital explained 24 percent of the difference in sales of Black- and White-owned firms, 57 percent of the difference in sales of Asian- and White-owned firms, and 15 percent of the difference of sales of male- and female-owned firms in the 1992 Characteristics of Business Owners survey.

35 Asian, Black, and Hispanic business owners are also more likely to cite personal savings as a source of ongoing financing than White owners (53 percent) (Robb 2018).

36 Today's wealth gap between Black and White households can partially be traced back to the time of emancipation. Derenoncourt, et al. (2022) constructed a time series of ratios of White and Black wealth from 1860 to the present, finding that "[t]he main reason for such a large and lasting gap is the enormous difference in initial wealth between Black and white Americans on the eve of the Civil War," and a Black-White wealth gap would still exist even if Black and White households had experienced the same rates of wealth accumulation since the Civil War.

37 Based on the 2019 Survey of Income and Program Participation. The median household wealth for Asian householders was not statistically different from the estimated median for White non-Hispanic householders. <https://www.census.gov/library/stories/2022/08/wealth-inequality-by-household-type.html>.

38 In the 2016 SUSB, 79% of Real Estate and Rental and Leasing firms have 0-4 employees, compared to 61% of firms overall. Real Estate and Rental and Leasing is the 2-digit NAICS code with the highest representation of firms with 0-4 employees in the SUSB.

39 For more information about demographic assignment methodology in the NES-D, see <https://www.census.gov/programs-surveys/abs/technical-documentation/NESDmethodology.html>.

40 Our data included all owners (defined as signers on the firm's business banking account) that were associated with the firm from the firm's establishment up to either mid-2023 or the end of the firm's relationship with Chase, whichever came first. Therefore, our identification of the firm's race of ownership may differ from the NES-D because we cannot observe owners' relative involvement with or share ownership of the firm.

41 American Indian and Alaska Native and Native Hawaiian and Other Pacific Islander-owned firms are 1.49 percent of firms in the NES-D.

42 We estimated the number of Hispanic owners in each racial category based on the proportion of owners in each racial category identifying as Hispanic and the total number of owners in that category (e.g., if 10% of all Black owners identified as Hispanic, and there were 100 Black owners in the data, then we would have estimated there were 10 Black Hispanic owners and 90 Black non-Hispanic owners).

43 Since we use the 2019 edition of the NES-D, we compare to 2019 revenue in our sample.

44 The vast majority of fitted values from all our linear probability model specifications fell in the [0,1] interval (more than 95 percent of observations in our full specification). We also estimated the same specifications in a logit model. The average marginal effects of the logit model were consistent with our linear probability model.

45 Firm owner race and gender are defined as explained in [[the data section of this report]]. In our model, White-owned, male-owned firms started in 2011 and active in the retail industry serve as the base case against which all other coefficients are measured.

46 Single-owner firms are not subject to some of the complications associated with our determination of firm ownership. That is, if there was one owner associated with a firm, that owner was likely the original owner of the firm and likely influenced the revenues of the firm in its first five years. However, because our data on owners included all owners associated with the firm from its start through the end of its relationship with Chase or mid-2023 (whichever comes first), the race and/or gender categorization of multiple-owner firms may not have reflected the race and/or gender of the firm's original owners.

47 We applied White's (1980) heteroskedasticity-adjusted standard errors.

48 Small businesses, especially in infancy, may be operated entirely out of an owner's personal account. Alternatively, some small businesses in our sample may have existed using an account with another financial institution before becoming a Chase customer. Some evidence of bank switching has been documented in industry reporting. For example, JD Power reported on bank switching and customer satisfaction among business owners: <https://www.jdpower.com/business/press-releases/2016-us-small-business-banking-satisfaction-study>

49 This approach focused on removing potential prior-existing firms that may have had large banking balances outside of Chase. It is possible that there may have been prior-existing firms that did not have large banking balances that this method did not remove from our data. However, since firms with larger account balances tend to have larger revenues, our approach likely targeted prior-existing firms with larger revenues that may have inflated our measure of firms reaching \$1 million revenues in the five years following the start of business.

50 \$750,000 is just above the 97th percentile of first year non-revenue inflows in our sample.

51 The first month non-revenue inflow amount of \$62,500 is 1/12 of the annual value of \$750,000.

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