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## Business Dynamics During The COVID-19 Pandemic

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### Summary

The COVID-19 pandemic affected every business, but the effects varied by sector, firm size, and geography. In some sectors, like Leisure and Hospitality, businesses were hit hard and have yet to fully recover. The pandemic also hurt states that rely heavily on tourism. The Transportation and Warehousing sector, however, recovered quickly. The smallest American businesses created nearly a million jobs in the first year of COVID-19, while other businesses shed over six million jobs. Business applications increased significantly in mid-2020, and record-high levels persisted in late 2022. The Retail sector (especially Nonstore) contributed the most, but applications grew across sectors. Preliminary results suggest that small businesses helped soften the economic blow of COVID-19, and they may have helped the economy innovate and adapt. Further research on the relationships between performance, business applications, startup rates, and job quits during COVID-19 could shed light on the importance of small businesses in combating and recovering from economic crises.

### Introduction

The economic decline following COVID-19 was swift and dramatic. Demand shifted between sectors rapidly, with restaurants and other in-person services hurt worst. The impacts also devastated metropolitan and coastal areas.<sup>1</sup> As restrictions eased and in-person activities resumed, not everything returned to normal. Many technologies and business practices from the pandemic may have permanently changed people's preferences.

Using data from the Census Bureau and the Bureau of Labor Statistics, this issue brief analyzes business dynamics in the U.S. to increase understanding of the economic trends related to small businesses during the first two years of the COVID-19 pandemic. This brief describes changes in establishments and employment by sector, firm size, and state. It assesses where job losses came from, how sectors fared, and how the experience differed by business size. The

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1. Wilmoth, Daniel. The Effects of the COVID-19 Pandemic on Small Businesses. Small Business Administration, Office of Advocacy. March 2021. <https://advocacy.sba.gov/2021/03/02/the-effects-of-the-covid-19-pandemic-on-small-businesses/>.

brief then describes the record-high rates of new business applications, particularly sector-level trends. The issue brief closes with some possible avenues for future research to assess potential explanations for these recent trends in business dynamics.

## About the Data

This issue brief uses the following economic data from publicly available federal sources.

**Business Employment Dynamics (BED):** Bureau of Labor Statistics data on net changes in establishments and employment by sector, firm size, and state among employer establishments by source, including business birth, death, opening, closing, expansion, and contraction. Openings and closings include entry and exit plus temporary closings and reopenings. This brief focuses on openings, closings, expansions, and contractions because these data are readily available by firm size.

**Business Formation Statistics (BFS):** Census Bureau data on new business applications by sector, measured by applications for Employer Identification Numbers (EINs). BFS provides a more real-time look at startup activity since many new businesses apply for EINs at formation and operate for months or years before hiring any employees.

**Job Openings and Labor Turnover Survey (JOLTS):** Bureau of Labor Statistics data on job separations and hirings at the worker level by sector, firm size, and state.

**Small Business Pulse Survey (SBPS):** Census Bureau data on COVID-19 impacts from a weekly survey of small businesses during the first two years of COVID-19.

## Changes in Establishments and Employment During COVID-19

### Economy-Wide Changes

In the first three months after the COVID-19 emergency declaration,<sup>2</sup> the number of U.S. establishments fell by 3.4 percent and U.S. employment fell by 12.1 percent.<sup>3</sup> According to data from the Bureau of Labor Statistics' Business Employment Dynamics (BED), this trend held for almost every sector, state, and firm size (extended tables are available in the appendix at the end of this brief). Following the downturn, the number of establishments and employment steadily rose, with U.S. establishments recovering by the end of 2020 and U.S. employment just short of pre-pandemic levels by March 2022 (Figure 1).

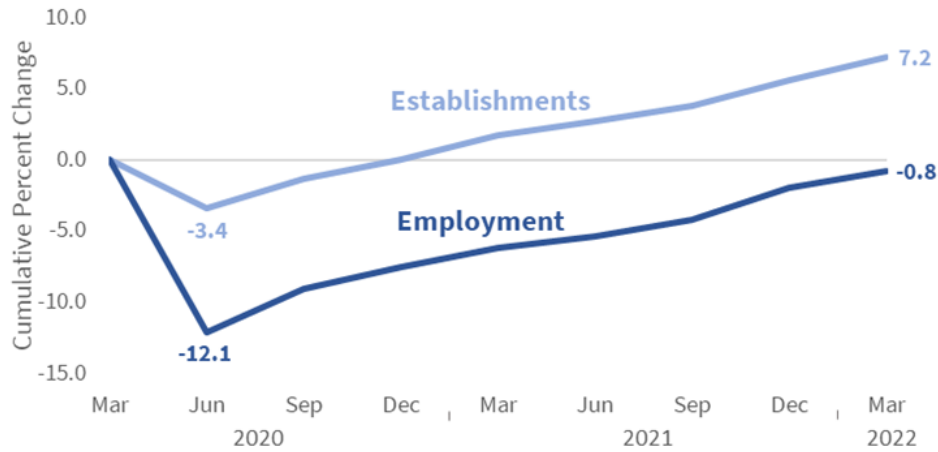
Within a year, the number of establishments returned to at least pre-pandemic levels in almost every state and firm size, and in more than half of the sectors.<sup>4</sup> Within two years, nearly every sector recovered to at least the number of establishments they had before the pandemic. Yet almost no sectors, states, or firm sizes recovered employment within a year. Part of the reason employment recovery has been slow is the high quit rate. Over 45 million Americans quit their

2. Executive Office of the President. "Proclamation on Declaring a National Emergency Concerning the Novel Coronavirus Disease (COVID-19) Outbreak." [whitehouse.gov](https://trumpwhitehouse.archives.gov/presidential-actions/proclamation-declaring-national-emergency-concerning-novel-coronavirus-disease-covid-19-outbreak/). March 13, 2020. <https://trumpwhitehouse.archives.gov/presidential-actions/proclamation-declaring-national-emergency-concerning-novel-coronavirus-disease-covid-19-outbreak/>.

3. Bureau of Labor Statistics. Business Employment Dynamics (BED). Washington, DC: Bureau of Labor Statistics, 2022. Web. 26 Oct 2022. <https://www.bls.gov/bdm/bdmind.htm#TOTAL>.

4. All datasets in this issue brief exclude the Agriculture, Forestry, Fishing and Hunting sector.

Figure 1. Change in Establishments and Employment Following COVID-19 Outbreak



Source: BED, author's calculations

jobs in 2021, setting a record and outpacing 2019 by 5.5 million.<sup>5</sup> According to the latest data, 2022 is on pace for even more.

The data demonstrate the role quits have played in the employment shortage. Reduced employment came almost entirely from an increase in job losses, not from a decrease in job gains.<sup>6</sup> More people than usual were quitting or being let go, as opposed to fewer people than usual being hired (see appendix for full table). The economy gained 12.4 million jobs during the first year of COVID-19, slightly down from 12.8 million and 13.1 million in the previous two years but still higher than any year from 2009 to 2014.<sup>7</sup> However, there were 18 million job losses in the first year of COVID-19, up from 12.4 million and 11.3 million in the previous two years. This was by far the largest number of job losses since the dataset began in 1994 (the next largest was 16.3 million during the dot-com bubble burst in 2001 to 2002).

**Additionally, the increase in job losses came almost entirely from shrinking establishments, not closing ones. More employees than usual were leaving businesses that were still operating, as opposed to losing jobs because their employer closed. Closing establishments caused 3.9**

5. Bureau of Labor Statistics. Job Openings and Labor Turnover Survey (JOLTS). Washington, DC: Bureau of Labor Statistics. Web. 14 Sept 2022. <https://www.bls.gov/jlt/#data>.

6. Since BED uses establishment data, it sums net changes at the establishment level. For example, if an establishment loses three workers and gains two in the same quarter, the BED data would show this as a job loss of one. This puts the focus on whether establishments are opening, closing, growing, or shrinking. JOLTS data, on the other hand, are worker level. This means the previous example would appear as three job losses and two job gains. This difference is why the number of quits in JOLTS is much greater than the number of losses in BED—many of those quits were netted out at the establishment level.

7. BED annual data cover the period from March of the previous year to March of the reference year. This provides a unique look at the effects of COVID-19 given the correspondence with the month COVID-19 hit the US. However, it also means describing the data using calendar years can be misleading. To avoid misrepresenting the timeline, this brief mostly discusses the first two years of COVID-19 (March 2020-March 2021 and March 2021-March 2022) but will reference calendar years for older data to maintain clarity.

million job losses in the first year of COVID-19, up slightly from 3.7 million and 3.4 million in the previous two years. Shrinking establishments, however, lost 14.1 million jobs in the first year of COVID-19, up from 8.7 million and 7.9 million in the previous two years. Like job losses overall, these 14.1 million job losses from shrinking establishments were the most on record (the next highest was 11.7 million during the Great Recession). Job gains from opening and expanding establishments were both in line with previous years.

## Sector-Level Changes

While most businesses suffered in the first few months of COVID-19, the recovery varied greatly by sector (see Table 1). Leisure and Hospitality took the biggest initial hit with a 9.6 percent loss in establishments and a 41.1 percent loss in employment. This sector includes restaurants, hotels, and businesses in arts and recreation. The Other Services sector, which includes services like equipment repair, dry cleaning and laundry, and personal or pet care, lost almost the same percentage of establishments (9.3 percent), but fared better on employment loss (22.1 percent). Hawaii, which relies heavily on tourism, took the biggest initial state-level hit in employment with a 26.7 percent loss (see Tables 7 and 8 and Figure 5 in the appendix for state data).

**Table 1. Cumulative Percent Changes in Establishments and Employment Since March 2020**

	Cumulative Percent Change in Establishments			Cumulative Percent Change in Employment		
	Jun-20	Mar-21	Mar-22	Jun-20	Mar-21	Mar-22
Total Private	-3.4	1.7	7.2	-12.1	-6.2	-0.8
All Goods-Producing	-3.3	0.6	2.7	-7	-4.4	-1.3
All Service-Providing	-3.4	1.8	7.8	-13.4	-6.8	-1
Financial Activities	-0.8	1.6	3.9	-3.8	-1.6	1.1
Information	-1.3	6.9	21.3	-11.6	-6.3	1.6
Professional and Business Services	-1.4	4	10.3	-8.8	-2.6	3.3
Natural Resources and Mining	-1.7	-0.8	0.9	-8.1	-8.9	-6.6
Education and Health Services	-2.2	1.2	6.4	-7.8	-3.9	-1.8
Wholesale Trade	-2.7	-1.4	-0.8	-7.1	-4.1	0.8
Manufacturing	-3.1	-1	0.6	-7.1	-4.4	-1.3
Construction	-3.7	1.7	4.1	-6.6	-3	0.4
Transportation and Warehousing	-3.7	2.8	9.7	-7.3	1.4	9.5
Retail Trade	-4.4	-1.5	-0.5	-10.7	-4.3	-2.2
Other Services (except public admin)	-9.3	-1	2.2	-22.1	-13.7	-7.2
Leisure and Hospitality	-9.6	-3.7	-0.2	-41.1	-28.9	-17.5

Note: Color formatting scaled to the maximum absolute value in each side of the table (for establishments, -21.3 is orange and 21.3 is blue; for employment, -41.1 is orange and 41.1 is blue). Sectors sorted by March 2020 to June 2020 percent decrease in establishments. Source: BED, author's calculations.

Not all service sectors fared so poorly. Service sectors that did not require in-person interaction took the smallest initial hits. For example, the Financial Activities sector experienced the smallest initial decreases in both establishments (0.8 percent) and employment (3.8 percent) by far. Goods-producing sectors, which includes Natural Resources and Mining, Manufacturing, and Construction, were in the middle of the pack, experiencing between 1.7 and 3.7 percent decreases in establishments and between 6.6 and 8.1 percent decreases in employment.

Some service sectors recovered to pre-pandemic levels, while others came back even stronger than pre-March 2020. The Information sector was only slightly above its pre-pandemic level of employment by March 2022 but experienced a boom in establishments, increasing 21.3 percent from March 2020 to March 2022. The Transportation and Warehousing sector also recovered with a 9.7 percent increase in establishments and a 9.5 percent increase in employment from March 2020 to March 2022. Goods-producing sectors have recovered to a slightly higher number of establishments in March 2022 than in March 2020 (2.7 percent increase) but did not recover employment (1.3 percent decrease).

## Firm-Size Changes

The data also shed light on establishment and employment differences by firm size, though the annual data are only available for the first year of COVID-19 (see Table 2).<sup>8</sup> Small businesses simultaneously experienced the biggest increase in establishments (193,157) and the second-biggest decrease in employment (2,992,757) since the data began in 1994. The next-largest increase in establishments was 139,980 from 2005 to 2006, and the largest annual decrease in employment was 3,773,721 during the Great Recession. Large businesses, on the other hand, experienced declines in both establishments and employment. In relative terms, small businesses experienced a 2.9 percent increase in establishments while large businesses experienced a 0.8 percent decrease in establishments.<sup>9</sup>

**Table 2. Net Change from March 2020 to March 2021**

	Establishments	Employment
<500 employees	193,157	-2,992,757
500+ employees	-12,629	-2,478,991

Source: BED, author's calculations.

Responses from the Census Bureau's Small Business Pulse Survey (SBPS) show COVID-19 negatively impacted small businesses.<sup>10</sup> The reported impact was much worse one month into the pandemic than either one or two years in. But even by March 2022, 65.4 percent of small businesses reported that the pandemic caused a moderate or large negative effect (Table 3).

8. The Bureau of Labor Statistics will release data for the second year of COVID-19 in early 2023. This issue brief uses base sizing for firm size data. Compared to other methods such as dynamic sizing, base sizing better reflects the size of a business when it took the actions (good or bad) that led to growing, shrinking, or closing. This is particularly pertinent during COVID-19 when many employees were furloughed or laid off simultaneously.

9. The percent decrease in employment by business size cannot be calculated accurately from the data.

10. Census Bureau. Small Business Pulse Survey (SBPS). Washington, DC: Census Bureau, 2022. Web. 9 Aug 2022. <https://www.census.gov/data/experimental-data-products/small-business-pulse-survey.html>.

**Table 3. Survey Responses on Overall Effect of COVID-19 on Business (Percentage of Total Responses)**

	Apr-20	Mar-21	Mar-22
Large negative effect	51.4	27.6	21.5
Moderate negative effect	38.5	44.6	43.9
Little or no effect	7.6	20.2	25.6
Moderate positive effect	1.7	5.9	6.9
Large positive effect	0.8	1.7	2

Source: SBPS

These survey data, like the data in Table 2, paint only part of the picture for small businesses because they group together all businesses with fewer than 500 employees. This grouping partially masks phenomena that occur primarily among the smallest businesses, a key reason that more-granular data from SBPS could provide deeper insights into the small business experience.

BED employment and establishment data are available for smaller firm-size categories and offer strikingly different results than SBPS. The smallest businesses with employees performed well as a group on overall metrics, while other employer size categories did not. During the first year of COVID-19, businesses with 1 to 4 employees experienced the largest establishment growth (openings minus closings) on record, gaining 178,605 establishments representing a 5.2 percent increase (Table 4). This was nearly 1.6 times the previous record of 111,845 set in 2006. The smallest businesses also created 922,818 net new jobs, a 13.5 percent increase. While this was not a record high, it was the largest employment growth for the size category since 2006. This provides a stark contrast to the Great Recession when businesses with 1 to 4 employees had record-low net establishment growth (-4.4 percent) and record-low net employment growth (3 percent).

The only other business sizes to experience a net increase in establishments or employment were those with fewer than 100 employees. In fact, every size category of 20 or more employees set a record-low percent change in employment. All small business size categories, however, had net establishment changes close to their historical averages, while large businesses (-0.9 percent) were far below their 1.9 percent net growth average.

Existing small businesses did not necessarily perform well. Instead, the increase in employment growth came from new entrants. Business births, deaths, openings, and closings were all higher than average.<sup>11</sup> Yet, it was the record-high opening rate of 22.6 percent (previous record was 20.9 percent) and the higher-than-average quarterly birth rates between 3.4 and 3.6 percent (highest since 2005) that drove the increase in establishments.

It is difficult to draw a conclusion about the impact of COVID-19 on small businesses that existed when the pandemic began by examining aggregate data. Many existing small businesses struggled with low sales, employment difficulties, and high uncertainty. However, the findings above indicate that when considered as a group, the smallest businesses were a

11. Openings and closings can include existing and continuing businesses that shut down for a period, whereas births and deaths are new or permanently shut down businesses.

**Table 4. Net Percent Change by Firm Size**

Employment Size	Establishment	Employment
1-4	5.2	13.5
5-9	1.1	0.2
10-19	0.3	-3.8
20-49	0.1	-6.9
50-99	0.1	-7.8
100-499	-0.1	-7.6
500+	-0.9	-4.8
All	2.2	-4.4

Note: Color formatting scaled to maximum absolute value in the table (-13.5 is orange and 13.5 is blue). Source: BED.

bright spot in an otherwise dreary economic picture. New and existing businesses with 1 to 4 employees created almost a million new jobs while other businesses lost almost 6.5 million. Businesses with 1 to 4 employees also accounted for nearly all the net establishment growth during the year, with a little help from businesses with 5 to 99 employees.

## Startup Trends During COVID-19

### Economy-Wide Trends

One surprising phenomenon that has come out of COVID-19 has been the recent rise in business applications measured by the Census Bureau's Business Formation Statistics (BFS).<sup>12</sup> As of September 2022, monthly business applications have exceeded pre-pandemic highs in every month since June 2020.<sup>13</sup> At their peak in July 2020, monthly business applications reached 552,748, nearly 80 percent more than the previous record of 309,607 set in December 2019. Since then, the average number of monthly business applications has been 435,249 (Figure 2).

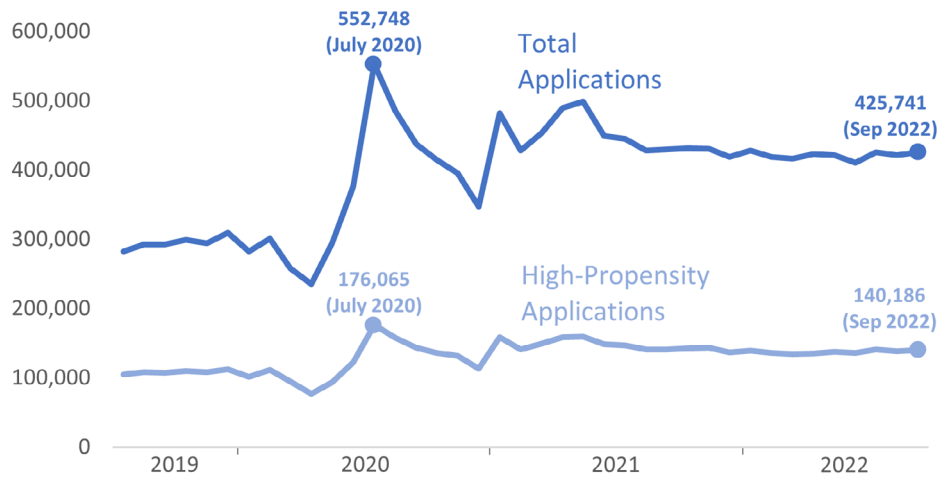
The BFS data indicate if applicants are likely to become employers by labeling those applications high propensity. High-propensity business applications also increased during the pandemic, growing from around 105,000 to 110,000 per month throughout 2019 to an average of 142,328 per month since June 2020. These applications peaked at 176,065 in July 2020, exceeding the pre-pandemic high by 25 percent.

12. Census Bureau. Business Formation Statistics (BFS). Washington, DC: Census Bureau. Web. 24 Oct 2022. <https://www.census.gov/econ/bfs/index.html>.

13. All figures presented here are seasonally adjusted.



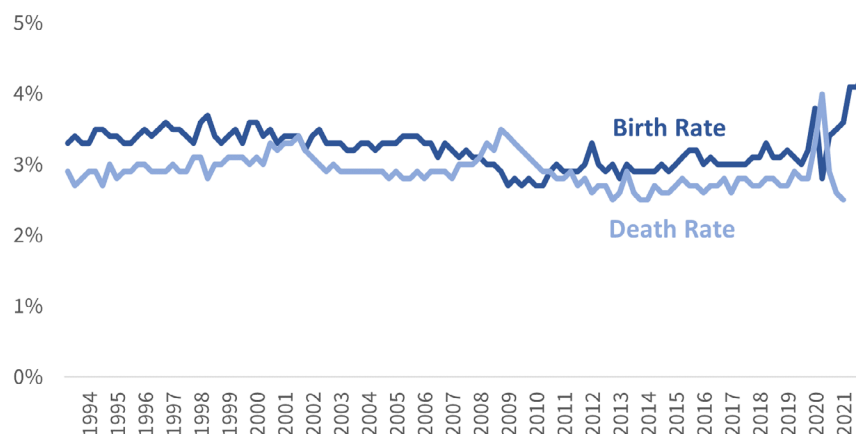
Figure 2. Total Monthly Business Applications



Source: BFS

While business applications alone do not indicate entrepreneurship, the establishment data described earlier suggest an increase in entrepreneurial activity. Not only did business birth rates in the first year of COVID-19 exceed historical averages, but birth rates were even higher in the following year (Figure 3). Prior to COVID-19, the highest quarterly birth rate in the data, beginning in 1993, was 3.7 percent in April to June 1998. In the last three quarters of 2021, the birth rate exceeded 4 percent each quarter, hitting a high of 4.3 percent in October to December.

Figure 3. Quarterly Establishment Birth and Death Rate



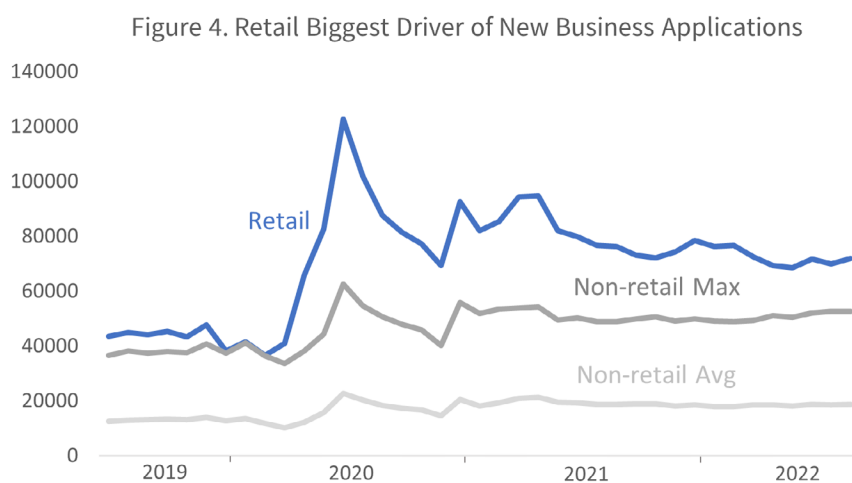
Source: BED



## Sector-Level Trends

The 2020 increase in business applications spanned nearly every sector (see appendix for full tables). The only sectors with fewer business applications in 2020 than in 2019 were Mining and Real Estate. In 2021, each sector other than Mining had over 20 percent more business applications than in 2019.<sup>14</sup>

The Retail sector was the biggest driver of business application growth, increasing from 524,803 applications in 2019 to 983,464 applications in 2021. Retail already had the most business applications of any sector before COVID-19, but the difference grew substantially in 2020, and a sizeable difference remains in September 2022 (Figure 4). Within Retail, Nonstore was the biggest driver of application growth. Nonstore's share of Retail applications grew from 60 percent before the pandemic to 75 percent at the July 2020 peak. This fits with the industry's overall performance. Monthly sales for Nonstore Retail rose sharply from January to May 2020, then increased steadily for over a year, growing 45 percent from December 2019 to December 2021.<sup>15</sup>



Source: BFS

The Transportation and Warehousing sector also had a large increase in business applications. Excluding the Mining and Utilities sectors (which have very few monthly applications), Transportation and Warehousing experienced the greatest relative increase in total and high-propensity business applications. Total applications in this sector grew by 100.7 percent from 2019 to 2021, and high-propensity applications grew by 71.3 percent. Accommodation and Food Services, part of the Leisure and Hospitality sector, experienced the third-largest relative increase in total applications behind Retail and the second-largest relative increase in high-propensity applications, with a 64.2 percent growth in both types.<sup>16</sup>

14. The Mining sector shows up as an outlier throughout this issue brief. Mining also has only a tiny fraction of the number of establishments and applications that other industries have. For both reasons, this issue brief often omits Mining for comparative analyses to avoid the skewed or spurious results that including Mining might produce.

15. Census Bureau. Monthly Retail and Food Services: Sales and Inventories—January 1992 Through March 2022. Washington, DC: Census Bureau. Web. 14 Nov 2022. <https://www.census.gov/retail/mrts/www/benchmark/2022/html/annrev22.html>.

16. Census considers all applications in Accommodation and Food Services to be high propensity.

## Discussion and Avenues for Future Research

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The most comprehensive sources of economic data often take years to come out, which has posed challenges in examining the unusual economic phenomena caused by COVID-19. With more data from 2020 and 2021 starting to become available, researchers are now better equipped to examine what COVID-19 did to the economy and why. While this issue brief is primarily focused on describing trends from the available data, some relationships between the economic factors are worth exploring. This section addresses some of those relationships to provide context for more rigorous research that could answer deeper economic questions. The brief examines three potential factors related to the increase in business applications that warrant further analysis.

### Sector-Level Performance

One potential explanation for the large increase in business applications is that entrepreneurs were capitalizing on sectors that were growing because of pandemic-driven changes. For example, the increase in applications in Nonstore Retail and in Transportation and Warehousing could be explained by a combination of the higher demand for durable goods<sup>17</sup> and the increase in freight delivery services for e-commerce as fewer people left their homes following the outbreak of COVID-19.<sup>18</sup> The Transportation and Warehousing sector's strong recovery in establishments and employment discussed above lends additional support to this explanation.

However, this explanation does not account for business application growth in other sectors. The correspondence between performance indicators in the two datasets appears mostly confined to Transportation and Warehousing, implying that the increase in business applications may not be following, or even driving, sector trends.

Sector-level changes during the first year of COVID-19 demonstrate this. The percent changes in both total and high-propensity business applications have no correlation with the percent change in establishments and only a very weak correlation (between 0.1 and 0.25) with the percent change in employment.<sup>19</sup> Removing the two sectors most impacted by the shift toward e-commerce (Retail and Transportation and Warehousing) eliminates the positive application-employment correlation entirely.

**This lack of a detectable relationship also holds for the smallest businesses, where changes in establishments and employment differed markedly from other size categories. The same**

17. Tauber, Kristen and Willem Van Zandweghe. Why Has Durable Goods Spending Been So Strong during the COVID-19 Pandemic? Federal Reserve Bank of Cleveland, July 2013. <https://www.clevelandfed.org/en/newsroom-and-events/publications/economic-commentary/2021-economic-commentaries/ec-202116-durable-goods-spending-during-covid19-pandemic.aspx>.

18. Brewster, Mayumi. Annual Retail Trade Survey Shows Impact of Online Shopping on Retail Sales During COVID-19 Pandemic. U.S. Census Bureau, April 2022. [https://www.census.gov/library/stories/2022/04/ecommerce-sales-surged-during-pandemic.html?utm\\_campaign=20220427msacos1ccstors&utm\\_medium=email&utm\\_source=govdelivery](https://www.census.gov/library/stories/2022/04/ecommerce-sales-surged-during-pandemic.html?utm_campaign=20220427msacos1ccstors&utm_medium=email&utm_source=govdelivery). Roman <https://www2.census.gov/library/publications/2022/economics/coronavirus-pandemics-economic-impact.pdf>.

19. The values correlated here are the percent changes in business applications and establishments or employment from the year leading up to COVID-19 (March 2019 to March 2020) to the first year of COVID-19 (March 2020 to March 2021). Mining omitted.

is true when using other performance metrics. There is no correlation between the percent change in business applications (total or high propensity) and percent change in revenue at the sector level during this period.<sup>20</sup>

Future research examining the demand for durable goods and e-commerce might help explain why applications grew more in some industries than in others. However, even though correlation is not causation, the discordance between applications and performance in other sectors seems to indicate that it is neither sector performance nor sector-level shifts in demand that are driving the overall increase in business applications. A deeper dive into industry-level (rather than sector-level) dynamics may shed additional light on these relationships. For now, this issue brief will turn to other explanations that could account for the overall trend.

## COVID-19 Policy Responses

Two policy candidates stand out as potential explanations for the increase in business applications: the stimulus payments and the Paycheck Protection Program (PPP). Following the outbreak of COVID-19, the federal government gave three stimulus payments to working-age Americans.<sup>21</sup> These payments were associated with increased business registrations, as people used the payments to help start their businesses.<sup>22</sup> This may be relevant for the increase in applications in the Nonstore Retail industry. While the stimulus payments would not cover a significant portion of startup costs in many industries, Nonstore Retail has relatively low startup costs, especially if new business owners are making their own products at home or drop shipping others' products.

Around the same time as the stimulus payments were issued, the PPP provided low-interest, forgivable loans to small businesses through banks, which often prioritized existing customers.<sup>23</sup> The BFS data above measure business applications not by new business registrations but by applications for Employer Identification Numbers (EINs), which are required to open a business account with a bank. Many existing nonemployers who did not have a bank account or EIN may have applied for one to receive a PPP loan.

20. Revenue (or sales) data come from multiple Census Bureau surveys and reports, including Monthly Retail Trade and Food Services, Manufacturing and Trade Inventories and Sales, Construction Spending, and Quarterly Services Survey.

21. U.S. Government Accountability Office. "Stimulus Checks: Direct Payments to Individuals during the COVID-19 Pandemic". GAO.gov. <https://www.gao.gov/products/gao-22-106044#:~:text=The%20federal%20government%20made%20direct,to%20help%20with%20COVID%2D19>.

22. Fazio, Catherine E., et al. "How is COVID Changing the Geography of Entrepreneurship? Evidence from the Startup Cartography Project." No. w28787. National Bureau of Economic Research, 2021.

23. U.S. Small Business Administration. Paycheck Protection Program (PPP) Report. May 2021. [https://www.sba.gov/sites/default/files/2021-06/PPP\\_Report\\_Public\\_210531-508.pdf](https://www.sba.gov/sites/default/files/2021-06/PPP_Report_Public_210531-508.pdf); Miao, Hannah. "Treasury encouraged banks to prioritize PPP loans for existing clients, hurting minority- and women-owned small businesses, House report says." CNBC. 16 Oct 2020. <https://www.cnbc.com/2020/10/16/treasury-encouraged-banks-to-prioritize-ppp-loans-for-existing-clients.html>.

While both the stimulus payments and PPP loans coincided with upticks in business applications, neither policy can account for the sustained high levels of monthly business applications over a year after both policies ended. Future research could provide more insight into the role that these policies played in the sharp rises in business applications, but there is likely to be other phenomena to explain the overall trend.

## Structural Changes to Markets

Another potential explanation for the increase in business applications is structural changes to U.S. markets. As COVID-19 swept through the country, the economy changed rapidly, and so did the public's cost-benefit calculus. Not only did COVID-19 increase the risk of doing business in person, but the demand for shifting further toward an online economy also drove innovation and greater supply of online capabilities, which further increased the benefit of doing business online.

This culminated in structural changes to the economy, like the shift toward e-commerce and remote work. Those structural changes diminished the incumbent advantage in many markets. Existing businesses had to incur the costs of adaptation. The difficulty of changing long-held practices, especially in large businesses, gave a rare advantage to new and small businesses that were less rigid. Meanwhile, entry costs for new businesses remained relatively unchanged or even fell because of the shift to remote work.

While this relative advantage has diminished since its peak in 2020, it still exists today. Structural changes and innovation are slow. Entrepreneurs and businesses are still finding new ways to operate virtually and satisfy new customer demands. It is still unclear how the pandemic and subsequent technological changes will shape future consumer and worker preferences.

These structural changes could explain why business applications increased substantially while GDP growth and employment did not.<sup>24</sup> The economy could have been reorganizing rather than growing. Structural changes could also explain the differences among industries heavily involved in e-commerce. Transportation and Warehousing experienced increases in business applications, establishments, and employment as the shift from brick-and-mortar to online shopping meant greater shipping needs. Businesses had to get individual goods to people's doorsteps, rather than just getting bulk shipments to local stores. Retail also experienced large increases in business applications as entrepreneurs saw an opportunity to capture market share online and from the heightened demand for durable goods. Yet both establishments and employment in the Retail sector fell because it was not a shift in demand from non-retail to retail, but a shift within the Retail sector from brick-and-mortar to online shopping and from nondurable to durable goods.

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24. Research shows not only that entrepreneurship (including startup activity) drives economic activity, but that entrepreneurship, economic activity, and innovation all drive one another (feedback effects). This implies that under normal circumstances, economic growth would accompany entrepreneurial growth (as a cause or an effect). For evidence on these connections, see Audretsch, David B., Max C. Keilbach, and Erik E. Lehmann. *Entrepreneurship and Economic Growth*. Oxford University Press, 2006; Dejardin, Marcus. "Linking Net Entry to Regional Economic Growth." *Small Business Economics* 36.4 (2011): 443-460; and Galindo, Miguel-Ángel, and María Teresa Méndez. "Entrepreneurship, Economic Growth, and Innovation: Are Feedback Effects at Work?." *Journal of Business Research* 67.5 (2014): 825-829.

Structural changes could have also played a part in the high rate of quits. First, market power shifting within sectors may have led many workers to seek employment at better-performing businesses. Future research could examine the relationship between this employment shifting and firm size. For example, if smaller businesses are more adaptable to changing customer preferences and business practices, and therefore outperformed larger businesses during COVID-19, workers may have been leaving larger businesses for smaller ones. Future research might be able to determine whether this helps explain the record-high employment growth among the smallest businesses and the record-high employment declines among larger businesses.

Second, many of the entrepreneurs filing business applications may have been employees who saw a unique opportunity for self-employment. 83 percent of U.S. employees who want to start a business claim that the pandemic accelerated their plans.<sup>25</sup> These prospective entrepreneurs frequently cited motivations that reflect a desire for more control rather than a desire to change careers, indicating many intended to start a business in their current industry.

Sector-level data support the relationship between structural changes and quit rates. The 2021 increase in quits was heavily concentrated in the sectors involved in durable goods and e-commerce, supporting the explanation that many quits were employees leaving for better-performing businesses. There is also a positive correlation between increases in annual quits and increases in business applications at the sector level, supporting the worker-turned-entrepreneur explanation (see quits table and analysis in Appendix 2 for more detail).

The structural changes explanation has important implications for small business research and policy. For example, it points to a potential reason for the discordance between measures of entrepreneurship and measures of performance. Entrepreneurs in new and small businesses may be engaging in cost-focused innovative adaptation in low-performing industries, rather than traditional benefit-focused innovation in high-growth industries. This implies that entrepreneurship during COVID-19 may be combating economic decline, rather than creating economic growth (as it normally would). If that is the case, both startups and existing small businesses may have helped stave off the worst economic effects of COVID-19.

Research already shows how important small startups were for innovation and job growth prior to the pandemic.<sup>26</sup> A more rigorous analysis of the connections between structural changes, entrepreneurship, and recovery during COVID-19 could provide crucial information about the importance of small businesses for economic resilience during times of crisis.

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25. Worsfold, Simon. "New Business Insights: 2022 projected to be another record year for new business starts." QuickBooks Blog. 20 Dec 2021. <https://quickbooks.intuit.com/r/inspiration/new-business-insights-dec-2021/>.

26. Haltiwanger, John, Ron S. Jarmin, and Javier Miranda. "Who creates jobs? Small versus large versus young." Review of Economics and Statistics 95.2 (2013): 347-361.

## Conclusion

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The data included in this issue brief provide new insights into economic performance and trends during COVID-19. The sector, firm-size, and state data can help researchers and policymakers understand how COVID-19 affected some market actors differently than others.

The preliminary findings point to potential explanations for the differences in economic performance and for the recent increase in business applications. They suggest a resilient and adaptive small business economy that may have softened the economic blow of COVID-19, helped the economy recover, and even helped markets innovate when consumer and worker preferences changed. Future research could demonstrate not only the role small businesses played during COVID-19, but also how an even more resilient small business economy could help minimize the impact of future crises.

## Appendix 1: Extended Tables

**Table 5. Quarterly, Annual, and Cumulative Percent Change in Establishments by Sector During COVID-19**

	Quarterly Percent Change in Establishments								Annual Percent Change		Cumulative Change
	2020				2021						
	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Year 1	Year 2	Total
Total Private	-3.4	2.1	1.4	1.7	1	1	1.8	1.5	1.7	5.4	7.2
All Goods-Producing	-3.3	1.6	1	1.4	0	0.3	1.2	0.6	0.6	2.1	2.7
All Service-Providing	-3.4	2.2	1.4	1.7	1.3	1.2	1.7	1.6	1.8	5.9	7.8
Financial Activities	-0.8	0.6	1.2	0.6	0.7	0.6	1.5	-0.5	1.6	2.3	3.9
Information	-1.3	2.6	1.9	3.6	4.1	3.4	2.7	2.6	6.9	13.4	21.3
Professional and Business Services	-1.4	1.3	1.7	2.4	1.6	1.4	1.5	1.4	4	6	10.3
Natural Resources and Mining	-1.7	0	0.9	0	0	0	1.7	0	-0.8	1.7	0.9
Education and Health Services	-2.2	1.4	0.9	1.1	0.4	0.5	1.6	2.6	1.2	5.2	6.4
Wholesale Trade	-2.7	0.4	0.5	0.4	0	-0.2	0.9	-0.1	-1.4	0.6	-0.8
Manufacturing	-3.1	1.3	0.3	0.6	0.3	0.3	0.7	0.3	-1	1.6	0.6
Construction	-3.7	2	1.5	2	-0.2	0.3	1.4	0.9	1.7	2.4	4.1
Transportation and Warehousing	-3.7	2.3	2.2	2.1	1.7	1.7	2.4	0.8	2.8	6.8	9.7
Retail Trade	-4.4	2.1	0.3	0.6	0.3	0.3	0.6	-0.2	-1.5	1	-0.5
Other Services (except public admin)	-9.3	6.1	1.2	1.7	0.9	0.8	1.5	0	-1	3.2	2.2
Leisure and Hospitality	-9.6	3.2	1.3	1.9	1.3	1	1.6	-0.3	-3.7	3.6	-0.2

Note: Color formatting scaled to the maximum absolute value in the table (-21.3 is orange and 21.3 is blue). Sectors sorted by March 2020 to June 2020 percent decrease in establishments. Source: BED, author's calculations.



**Table 6. Quarterly, Annual, and Cumulative Percent Change in Employment by Sector During COVID-19**

	Quarterly Percent Change in Employment								Annual Percent Change		Cumulative Change
	2020				2021						
	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Year 1	Year 2	Total
Total Private	-12.1	3.5	1.6	1.5	0.9	1.2	2.3	1.2	-6.2	5.7	-0.8
All Goods-Producing	-7	0.6	1.3	0.9	-0.2	0.4	1.8	1.2	-4.4	3.2	-1.3
All Service-Providing	-13.4	4.1	1.8	1.6	1	1.3	2.4	1.3	-6.8	6.1	-1
Financial Activities	-3.8	0.9	0.7	0.7	0	0.8	1.3	0.6	-1.6	2.7	1.1
Information	-11.6	2.8	1.2	1.9	1.3	3.2	1.9	1.8	-6.3	8.4	1.6
Professional and Business Services	-8.8	2.5	3.1	1.1	0.4	1.4	3	1.1	-2.6	6	3.3
Natural Resources and Mining	-8.1	-1.1	0	0.2	0	1.1	0.6	0.8	-8.9	2.5	-6.6
Education and Health Services	-7.8	2.2	1.2	0.8	0	0.1	1.1	0.9	-3.9	2.1	-1.8
Wholesale Trade	-7.1	1	1.4	0.8	0.6	0.8	2.3	1.3	-4.1	5.1	0.8
Manufacturing	-7.1	1	1.1	0.8	-0.2	0.6	1.8	1	-4.4	3.2	-1.3
Construction	-6.6	0.5	2	1.3	-0.3	0	2	1.8	-3	3.5	0.4
Transportation and Warehousing	-7.3	4	6	-0.8	-1.3	2.4	7.3	-0.4	1.4	8	9.5
Retail Trade	-10.7	4.9	0.6	1.6	-0.2	-0.2	0.7	1.8	-4.3	2.1	-2.2
Other Services (except public admin)	-22.1	7.5	1.1	1.9	2	2	2.6	0.8	-13.7	7.6	-7.2
Leisure and Hospitality	-41.1	12.7	1.1	6	5.5	4.4	3.8	1.5	-28.9	16	-17.5

Note: Color formatting scaled to the maximum absolute value in the table (-41.1 is orange and 41.1 is blue). Sectors sorted by March 2020 to June 2020 percent decrease in establishments. Source: BED, author's calculations.

**Table 7. Quarterly, Annual, and Cumulative Percent Change in Establishments by State During COVID-19**

State	Quarterly Percent Change in Establishments								Annual Percent Change		Cumulative Change
	2020				2021				Year 1	Year 2	Total
	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar			
Alabama	-1	-0.8	0.5	0.6	2.3	0.4	1.7	0.8	-0.7	5.3	4.5
Alaska	-4.7	2	2.8	2.9	0.9	0.5	1.2	2	2.8	4.7	7.6
Arizona	0.7	2.4	0.5	1.9	1.4	3.2	1.7	-0.2	5.6	6.2	12.2
Arkansas	-1.5	0.3	-0.6	2.7	-0.2	-4	2.6	4.7	0.9	2.9	3.8
California	-3.6	1.1	2.1	0.6	0.6	1.1	2.6	2.5	0.1	7	7.1
Colorado	-0.1	1.1	1.2	2.6	1.1	0.8	1.3	1.4	4.9	4.7	9.8
Connecticut	-4.8	3	1	2.3	2.1	1.4	0.7	2.1	1.3	6.4	7.8
Delaware	-3.1	4.1	1.4	0.3	0.3	1.7	2.2	1	2.6	5.3	8
D.C.	-3.5	2.9	0.8	1.2	2.5	2.3	2	2.2	1.3	9.3	10.7
Florida	-0.1	1.4	0.9	2.6	0.7	3.1	1.1	1.1	4.9	6.1	11.3
Georgia	0.1	0.3	0.8	2.7	1.7	1.5	1.6	1.5	3.9	6.5	10.6
Hawaii	-7	-1.2	4.2	2.5	1.4	1.2	2.5	0.5	-1.9	5.7	3.7
Idaho	-0.4	1.8	2	4	1.8	0.9	3.1	2.3	7.6	8.3	16.5
Illinois	-4.2	4	0.4	2	1.1	1	0.5	0.8	2	3.4	5.5
Indiana	-1.3	1.4	1.5	1.2	0.8	-0.2	2.2	0.6	2.8	3.4	6.3
Iowa	-1.9	0.6	1.1	0.4	0.6	-0.4	1	1.1	0.2	2.3	2.5
Kansas	-1.7	0.5	0.9	1.3	0.3	0	2.1	1	1	3.4	4.4
Kentucky	-3.4	2	-1.6	3	1.5	-0.1	2.3	1.6	-0.1	5.4	5.2
Louisiana	-3.4	1	1.9	0.8	0.7	-1	1.8	-1.6	0.2	-0.1	0.1
Maine	-6	3.1	2.4	3.2	1.2	1	2	2.6	2.4	7	9.6
Maryland	-5.6	3	0	1	-0.2	2.6	-0.2	1.8	-1.8	4	2.2
Massachusetts	-5.9	2.8	0.7	3.1	3.4	2.4	-1.5	1.7	0.4	6.1	6.5
Michigan	-9.2	6.9	0.3	2	2.2	1.3	1.1	0	-0.7	4.7	3.9
Minnesota	-2.9	1.5	0.6	2.2	0.5	-0.3	1.8	0.1	1.3	2.1	3.5
Mississippi	-2.2	1.3	1.4	0.5	1	0.1	0.8	1.2	1	3.1	4.1

Missouri	-2.1	2.4	1.2	1.9	0.2	0.5	1.2	1.1	3.4	3	6.5
Montana	-1.4	1.2	3	1.7	1.7	0.8	1.9	-0.7	4.5	3.7	8.4
Nebraska	-1.6	0.9	0.2	0.7	0.9	0.7	1.3	0.2	0.2	3.1	3.3
Nevada	-1.1	2.4	2.9	2.1	2.6	1.7	2.8	4.5	6.4	12.1	19.3
New Hampshire	-4.4	3.6	1.4	2.8	1.6	0.7	2.2	2.2	3.2	6.9	10.3
New Jersey	-10.5	4.9	2.6	3	1.3	1.7	4.2	0.5	-0.8	7.9	7
New Mexico	-5.9	3.1	-2.2	3.5	0.7	-0.1	-0.5	2.5	-1.8	2.6	0.8
New York	-11	5	1.6	1.7	1.1	0.7	1.2	1.3	-3.4	4.4	0.8
North Carolina	-2.1	2.2	1.4	4.1	1.9	-0.4	0.5	2.8	5.6	4.9	10.7
North Dakota	-2.5	1.1	0.7	1.1	0.7	0.3	0.8	0.8	0.4	2.6	3
Ohio	-2.8	1.6	1	1.2	0.6	-0.4	2	0.3	0.9	2.5	3.5
Oklahoma	-0.9	-0.5	1.3	0.7	0.9	-0.8	0.8	1.9	0.6	2.8	3.4
Oregon	-4.9	4.1	0.4	2.2	1.3	0	-0.9	1.8	1.6	2.2	3.8
Pennsylvania	-6.5	4.6	1.3	1.5	1.2	1.9	1.5	0.2	0.6	4.9	5.5
Rhode Island	-8	4.3	2.1	3.6	1.2	-0.1	2.2	4.2	1.5	7.7	9.3
South Carolina	-0.9	1.3	1.5	1.3	1.4	1.5	1.5	3	3.2	7.6	11.1
South Dakota	-1.7	1.1	1.8	2	1.3	0.7	2.1	1.7	3.2	5.9	9.3
Tennessee	-1.6	1.2	1.6	1.8	1.8	2.4	-2.8	4.6	3	6	9.2
Texas	-0.8	0.2	1	1.8	1.4	0.5	1.2	1	2.2	4.2	6.5
Utah	0.9	1.9	2.3	1.6	2.3	1.1	2.2	1.5	6.9	7.3	14.7
Vermont	-6.7	1.9	0.5	3.1	2.6	0	2.6	3.9	-1.5	9.4	7.7
Virginia	-2.4	2.3	0.5	1.1	1.2	0.2	1	0.9	1.4	3.3	4.8
Washington	-3.9	1.4	1.4	0.3	0.5	0.2	5	3.7	-0.9	9.6	8.7
West Virginia	-3.8	1.3	1.4	1.5	0.6	0.2	2.1	1.4	0.3	4.4	4.7
Wisconsin	-2.8	2.1	0.3	2.2	1.7	1	-0.1	1.1	1.7	3.7	5.5
Wyoming	-2.1	0.9	0.7	2.1	0.7	1	1.4	0.4	1.6	3.5	5.2

Note: Color formatting scaled to the maximum absolute value in the table (-19.3 is orange and 19.3 is blue). Source: BED, author's calculations.

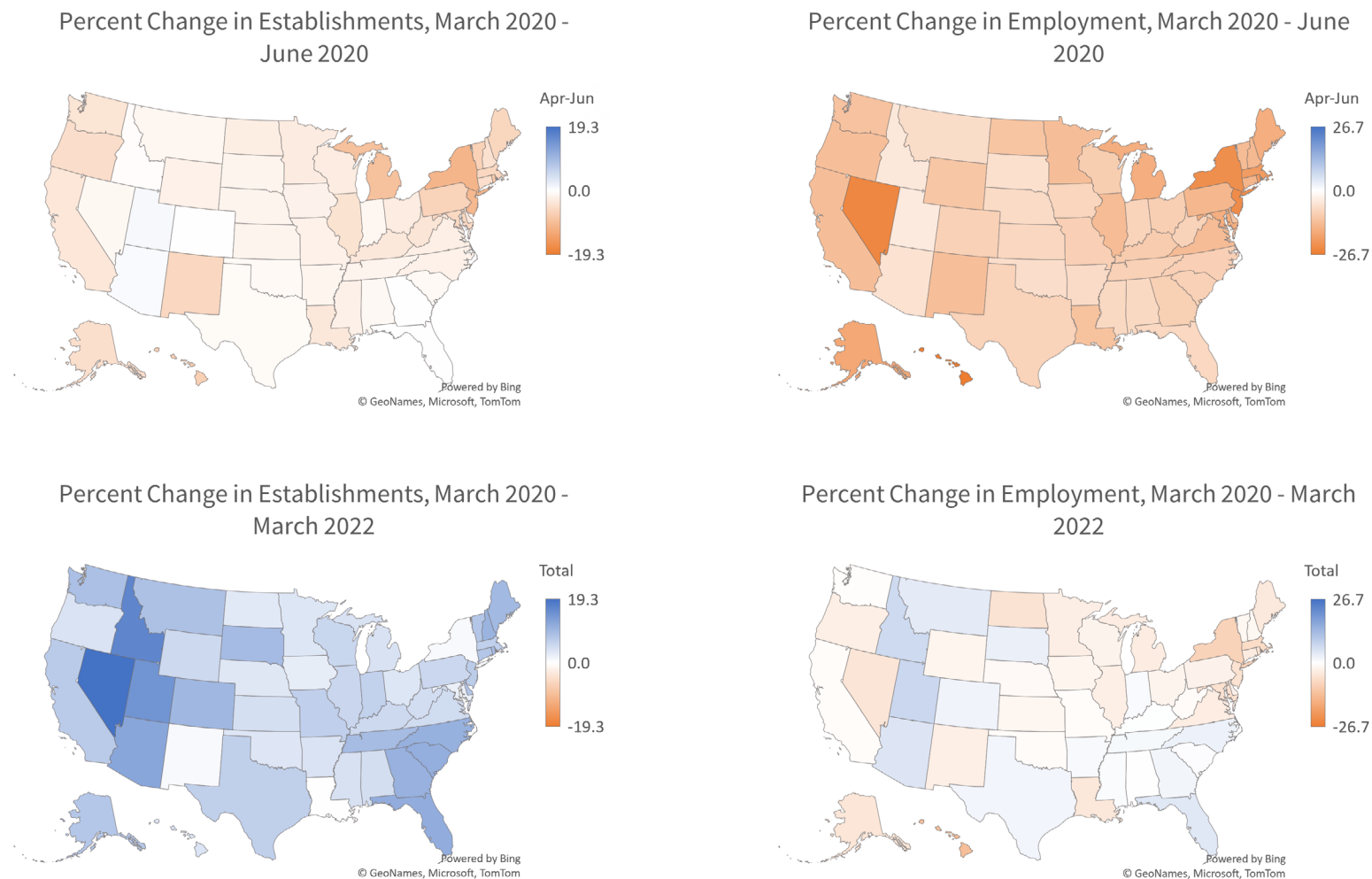
**Table 8. Quarterly, Annual, and Cumulative Percent Change in Employment by State During COVID-19**

State	Quarterly Percent Change in Employment								Annual Percent Change		Cumulative Change
	2020				2021				Year 1	Year 2	Total
	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar			
Alabama	-7.9	1.9	2.1	0.9	0.3	0.4	2.4	0.2	-3.3	3.3	-0.1
Alaska	-17.8	2.3	5.6	1.7	0.2	0.8	3.1	0.8	-9.7	5	-5.2
Arizona	-5.9	1.7	2.3	1.1	0.9	2	1.8	1.1	-1	5.9	4.8
Arkansas	-7.3	2	1.9	1.2	0.1	0.1	3	0.5	-2.5	3.7	1.1
California	-13.3	1.8	2.3	1.9	1.3	1.7	3	1.8	-8	8	-0.6
Colorado	-9.4	3.7	0.3	3.1	1.4	1	1.5	1.2	-2.8	5.2	2.2
Connecticut	-15.2	6.4	0.7	1.1	0.9	0.9	1.6	1	-8.1	4.5	-4
Delaware	-12.1	4	0.8	0.8	0.3	0.4	2.2	1.7	-7.1	4.7	-2.8
D.C.	-19.2	2.4	-0.2	0.1	1.7	3	2.4	1.1	-17.3	8.4	-10.4
Florida	-8	2.6	2	1.2	1.5	3	1.7	0.8	-2.6	7.2	4.4
Georgia	-9.7	2.8	2.6	1.1	0.8	1.3	2.4	1.1	-3.7	5.7	1.8
Hawaii	-26.7	-4.6	10.1	3	5.2	1	2	1	-20.7	9.5	-13.2
Idaho	-4.8	2	2.5	2.5	0	0.4	2.2	2.3	2	5	7.1
Illinois	-13.8	4.1	0.3	2.2	0.7	0.6	2.6	1.2	-8	5.2	-3.2
Indiana	-8.8	3.1	1.8	1.2	-0.3	0.6	2.6	1.2	-3.1	4.1	0.9
Iowa	-8.5	2	1.7	0.7	0	0.1	1.2	1.2	-4.4	2.5	-2
Kansas	-8.2	2	0.9	0.6	0	0.1	2.3	0.8	-5	3.2	-1.9
Kentucky	-10.5	3.9	1.1	2	0.1	0.3	2.5	1.6	-4.1	4.6	0.3
Louisiana	-12.4	2.2	3	0.9	0.8	-1.6	3.8	-0.6	-7	2.3	-4.8
Maine	-16.6	6.3	2.1	2.5	-0.2	0	1.3	1.9	-7.2	3	-4.4
Maryland	-16.6	5.7	1.3	1.1	0.1	1.1	2	0.7	-9.7	3.9	-6.2
Massachusetts	-20.4	7	1.5	1.7	1.2	1.4	1.3	1.5	-12.1	5.5	-7.2
Michigan	-16.6	6.1	-0.2	3.8	0.7	0.6	2.3	1.2	-8.3	4.9	-3.9
Minnesota	-13.4	3.6	0	4.6	0.5	-0.3	2.1	0.6	-6.2	2.9	-3.4

Mississippi	-7.8	3.2	3	-0.8	-0.1	1.5	2.2	0.1	-2.8	3.7	0.9
Missouri	-9.6	2.8	1.9	1.2	0	0.6	1.9	1.1	-4.2	3.6	-0.7
Montana	-7	2.7	2.4	2	0.4	0.2	2.7	0.8	-0.2	4.1	3.9
Nebraska	-7.4	2.4	1.3	0.8	0.2	-0.2	1.2	0.9	-3.2	2.1	-1.1
Nevada	-24.6	6.4	3.1	1.8	3.7	3.2	3.5	1.6	-15.8	12.5	-5.2
New Hampshire	-14.3	6.6	1.1	2.1	0.7	0.2	1.2	2.3	-5.7	4.5	-1.5
New Jersey	-23.6	10	2.3	1.3	1.4	1.4	3.3	1.6	-12.9	7.9	-6
New Mexico	-13.1	2.4	-0.3	3.1	0.8	1.7	1.9	1.2	-8.5	5.7	-3.3
New York	-23	7.4	1.1	1.6	1.4	1.6	2.3	1.5	-15.1	7	-9.1
North Carolina	-9.6	3.1	2.9	1.5	0.6	0.4	3.1	1.2	-2.7	5.4	2.6
North Dakota	-12	2	0.1	1.6	0.4	0.8	1.1	1	-8.7	3.3	-5.7
Ohio	-9.9	2.5	1.4	1.1	0.1	0.1	1.8	1.3	-5.3	3.3	-2.2
Oklahoma	-6.7	0.5	2.1	0.3	0.5	0.5	1.7	0.6	-4	3.3	-0.8
Oregon	-13.1	2.7	0.9	3.1	0	0.6	1.7	1.8	-7.2	4.2	-3.3
Pennsylvania	-14.6	5.3	0.9	2	0.4	1.3	2	1.4	-7.4	5.2	-2.6
Rhode Island	-20.6	7.7	0.5	4.3	0.6	0.5	1.9	2.2	-10.4	5.3	-5.6
South Carolina	-9.5	2.9	2.8	0.4	-0.1	1.3	2.6	0.7	-3.9	4.6	0.5
South Dakota	-6.4	3.1	1.1	1.3	1	0.2	1.3	1.6	-1.2	4.2	2.9
Tennessee	-9.4	2.6	2.8	0.6	0.1	1.5	1.7	1.9	-3.9	5.3	1.2
Texas	-9	1.2	2.6	1	1.2	1.6	2.9	0.9	-4.6	6.8	1.9
Utah	-4.3	2.9	2.6	1.6	0.9	0.4	1.5	1.9	2.7	4.8	7.6
Vermont	-13.8	7	-0.3	2.2	1.4	0.3	1.2	1.7	-6	4.7	-1.6
Virginia	-13.7	5	1.7	0.8	0.3	0.9	1.9	0.6	-7.1	3.7	-3.6
Washington	-12.5	2.6	1.1	2.3	0.8	1.4	2.5	2.3	-7.1	7.2	-0.5
West Virginia	-9.1	2.1	1.2	1.5	0	0.6	1.9	1.4	-4.7	3.9	-0.9
Wisconsin	-10.1	2.6	1.1	1.3	0.5	-0.3	1.4	1.7	-5.5	3.3	-2.4
Wyoming	-11.7	3.2	2.2	1.1	0.4	0.7	2.3	0.6	-5.8	4	-2

Note: Color formatting scaled to the maximum absolute value in the table (-26.7 is orange and 26.7 is blue). Source: BED, author's calculations.

Figure 5. Maps of Establishments and Employment Changes by State During First Quarter and First Two Years of COVID-19



Note: Color formatting scaled to maximum absolute value for each metric (for establishments, -19.3 is orange and 19.3 is blue; for employment, -26.7 is orange and 26.7 is blue). Source: BED, author's calculations.

**Table 9. Net Percent Change in Establishments (Openings Minus Closings) by Firm Size, March 2020 to March 2021**

Industry	Size of Firm by Number of Employees							All
	1-4	5-9	10-19	20-49	50-99	100-499	500+	
Total Private	5.2	1.1	0.3	0.1	0.1	-0.1	-0.9	2.2
Financial Activities	5.1	1.3	1.4	0.3	1	1	-1.4	2.3
Information	15.1	5.5	3	3.2	1.8	3.6	4.2	8.4
Professional and Business Services	6.7	3	1.8	2.5	3	3.4	2	4.7
Natural Resources and Mining	0	0.7	-0.2	-0.7	-2.2	-3.7	-6	-0.5
Education and Health Services	3.8	0.6	0.3	0.1	0.2	-0.4	0.4	1.5
Wholesale Trade	0.3	-1.4	-1.5	-1.3	-1.7	-1	-1.2	-0.7
Manufacturing	0	-0.1	-0.5	-0.4	-0.4	0.5	0.7	0
Construction	4.2	2	0.4	-0.6	-1	-2.1	-1.9	2.6
Transportation and Warehousing	7.9	1.2	0.3	2.4	3.3	-2.5	0.2	4
Retail Trade	1.1	0.4	-0.2	-0.5	-1.5	-2.4	-3.1	-0.9
Leisure and Hospitality	-1.6	-1.1	-1.1	-2.1	-3	-3.5	-3.6	-2

Note: Color formatting scaled to the maximum absolute value in the table (-15.1 is orange and 15.1 is blue). Sectors sorted by March 2020 to June 2020 percent decrease in establishments. Source: BED.



**Table 10. Net Percent Change in Employment (Gains Minus Losses) by Firm Size, March 2020 to March 2021**

Industry	Size of Firm by Number of Employees							All
	1-4	5-9	10-19	20-49	50-99	100-499	500+	
Total Private	13.5	0.2	-3.8	-6.9	-7.8	-7.6	-4.8	-4.4
Financial Activities	9.5	-1	-2.5	-3.1	-3	-1.6	-2.1	-1.2
Information	23.9	1.7	-5.4	-7.4	-9.2	-8.5	-5.6	-5.1
Professional and Business Services	15.7	3.3	-0.1	-1.1	-3.3	-3.5	-3.2	-1.2
Natural Resources and Mining	11.2	0.8	-2	-4	-8.4	-11	-18.1	-7.6
Education and Health Services	11.5	1.6	-2.4	-4.9	-5.9	-6.4	-3.5	-3.7
Wholesale Trade	7.8	-0.8	-2.9	-3.9	-4.5	-5.4	-4.2	-3.3
Manufacturing	11.7	-0.5	-3.3	-4.9	-5.8	-5.1	-3.2	-3.8
Construction	16	2.5	-0.8	-3.4	-4.8	-6.7	-10.7	-2.1
Transportation and Warehousing	16.7	2.1	2	1.8	1.1	-10.6	6.9	3.3
Retail Trade	10.2	-0.6	-2.8	-3.4	-5.3	-6.5	-0.6	-1.2
Leisure and Hospitality	15.4	-3.7	-10.8	-19.2	-23.7	-25.6	-27	-20.2

Note: Color formatting scaled to the maximum absolute value in the table (-27 is orange and 27 is blue). Sectors sorted by March 2020 to June 2020 percent decrease in establishments. Source: BED.

**Table 11. Net Change in Jobs (Gains Minus Losses) by Firm Size, March 2020 to March 2021**

Industry	Size of Firm by Number of Employees							
	1-4	5-9	10-19	20-49	50-99	100-499	500+	All
Total Private	922,818	13,019	-345,645	-945,529	-830,423	-1,806,997	-2,478,991	-5,471,748
Financial Activities	64,123	-4,595	-10,431	-18,803	-15,690	-23,745	-87,664	-96,805
Information	27,251	1,478	-6,178	-14,390	-16,270	-43,115	-92,251	-143,475
Professional and Business Services	231,160	38,035	-1,909	-23,326	-56,495	-151,286	-281,511	-245,332
Natural Resources and Mining	14,797	918	-3,469	-10,109	-15,403	-47,385	-68,219	-128,870
Education and Health Services	106,531	16,967	-32,026	-102,856	-115,150	-334,361	-370,328	-831,223
Wholesale Trade	29,823	-2,854	-14,478	-31,870	-28,763	-78,410	-64,023	-190,575
Manufacturing	26,409	-1,555	-18,597	-61,401	-70,659	-184,601	-164,129	-474,533
Construction	127,163	20,168	-7,569	-44,206	-43,059	-99,348	-99,325	-146,176
Transportation and Warehousing	32,649	3,749	5,546	8,906	4,165	-90,082	225,108	190,041
Retail Trade	73,358	-5,838	-24,581	-37,349	-46,538	-94,303	-58,544	-193,795
Leisure and Hospitality	72,666	-32,295	-182,273	-540,078	-378,608	-559,634	-1,264,748	-2,884,970

Note: Sectors sorted by March 2020 to June 2020 percent decrease in establishments. Source: BED, author's calculations.

**Table 12. Sources of Establishment-Level Job Gains and Losses for the Previous Year**

Year Ending	Net Change	Gross Job Gains			Gross Job Losses		
		Total	Expanding Estabs	Opening Estabs	Total	Contracting Estabs	Closing Estabs
Mar-94	2,742,230	13,585,307	8,877,404	4,707,903	10,843,077	6,833,504	4,009,573
Mar-95	3,313,625	14,414,737	9,414,898	4,999,839	11,101,112	7,099,064	4,002,048
Mar-96	1,956,906	14,178,010	9,172,944	5,005,066	12,221,104	7,875,891	4,345,213
Mar-97	2,884,073	15,018,218	9,645,478	5,372,740	12,134,145	7,697,596	4,436,549
Mar-98	2,827,667	15,556,193	10,127,408	5,428,785	12,728,526	7,801,419	4,927,107
Mar-99	2,486,571	16,031,584	10,264,212	5,767,372	13,545,013	8,449,499	5,095,514
Mar-00	2,985,011	16,145,107	10,620,228	5,524,879	13,160,096	8,291,365	4,868,731
Mar-01	860,641	15,228,425	10,150,063	5,078,362	14,367,784	9,250,677	5,117,107
Mar-02	-2,703,598	13,642,776	8,637,175	5,005,601	16,346,374	11,044,619	5,301,755
Mar-03	-695,719	13,272,436	8,603,069	4,669,367	13,968,155	9,291,717	4,676,438
Mar-04	897,331	13,378,522	8,957,397	4,421,125	12,481,191	8,241,705	4,239,486
Mar-05	2,003,263	13,829,279	9,405,994	4,423,285	11,826,016	7,675,282	4,150,734
Mar-06	2,601,593	14,095,289	9,628,591	4,466,698	11,493,696	7,714,682	3,779,014
Mar-07	1,514,574	13,516,251	9,242,616	4,273,635	12,001,677	8,248,533	3,753,144
Mar-08	110,983	12,785,511	8,717,657	4,067,854	12,674,528	8,776,418	3,898,110
Mar-09	-5,820,914	10,148,874	6,667,799	3,481,075	15,969,788	11,706,387	4,263,401
Mar-10	-2,684,187	10,075,083	6,838,820	3,236,263	12,759,270	9,141,500	3,617,770
Mar-11	1,908,912	11,629,458	8,295,368	3,334,090	9,720,546	6,622,649	3,097,897
Mar-12	2,669,332	12,215,722	8,661,666	3,554,056	9,546,390	6,508,104	3,038,286
Mar-13	2,120,901	12,044,757	8,553,248	3,491,509	9,923,856	6,829,304	3,094,552
Mar-14	2,274,379	12,282,246	8,699,990	3,582,256	10,007,867	6,944,757	3,063,110
Mar-15	2,717,966	12,833,679	9,142,665	3,691,014	10,115,713	6,940,251	3,175,462
Mar-16	2,511,589	13,167,936	9,394,030	3,773,906	10,656,347	7,426,392	3,229,955
Mar-17	2,032,665	12,953,630	9,156,416	3,797,214	10,920,965	7,637,645	3,283,320
Mar-18	2,168,233	13,116,333	9,358,837	3,757,496	10,948,100	7,635,469	3,312,631
Mar-19	1,844,818	13,133,753	9,376,184	3,757,569	11,288,935	7,854,781	3,434,154
Mar-20	366,970	12,779,893	8,963,456	3,816,437	12,412,923	8,669,304	3,743,619
Mar-21	-5,566,090	12,445,364	8,567,015	3,878,349	18,011,454	14,067,941	3,943,513

Source: BED.

**Table 13. Annual and Percent Change (from 2019) in Total and High Propensity Business Applications Before and During COVID-19**

	All Business Applications					High Propensity Business Applications				
	Total			Percent Change from 2019		Total			Percent Change from 2019	
	2019	2020	2021	2020	2021	2019	2020	2021	2020	2021
Retail Trade	524,803	845,942	983,464	61.20%	87.40%	144,760	176,060	211,717	21.60%	46.30%
Professional Services	455,592	529,663	616,228	16.30%	35.30%	151,540	167,251	198,500	10.40%	31.00%
Other Services	332,013	429,492	520,162	29.40%	56.70%	73,804	78,980	89,609	7.00%	21.40%
Construction	382,800	407,494	497,004	6.50%	29.80%	211,126	220,022	261,210	4.20%	23.70%
Transportation and Warehousing	241,031	324,357	483,783	34.60%	100.70%	71,239	90,104	122,066	26.50%	71.30%
Administrative and Support	239,346	304,726	372,975	27.30%	55.80%	59,468	69,528	79,014	16.90%	32.90%
Accommodation and Food Services	184,131	220,255	302,395	19.60%	64.20%	184,131	220,255	302,395	19.60%	64.20%
Health Care and Social Assistance	225,413	267,631	299,641	18.70%	32.90%	157,820	180,752	206,166	14.50%	30.60%
Real Estate	219,233	207,794	287,247	-5.20%	31.00%	37,760	39,108	48,391	3.60%	28.20%
Finance and Insurance	164,010	186,851	250,502	13.90%	52.70%	49,298	55,642	65,705	12.90%	33.30%
Arts and Entertainment	114,603	122,829	153,826	7.20%	34.20%	24,891	23,919	28,485	-3.90%	14.40%
Unidentified Industry	48,301	68,648	116,138	42.10%	140.40%	8,029	9,844	16,123	22.60%	100.80%
Wholesale Trade	100,257	126,437	125,554	26.10%	25.20%	34,632	38,430	36,063	11.00%	4.10%
Information	74,132	94,075	107,418	26.90%	44.90%	19,729	22,087	23,933	12.00%	21.30%
Manufacturing	66,611	78,056	88,369	17.20%	32.70%	29,429	31,107	34,775	5.70%	18.20%
Educational Services	59,656	70,204	74,389	17.70%	24.70%	14,230	14,757	15,016	3.70%	5.50%
Agriculture	45,069	55,027	57,444	22.10%	27.50%	11,082	13,252	11,840	19.60%	6.80%
Management of Companies	32,190	35,116	52,658	9.10%	63.60%	6,967	7,379	10,952	5.90%	57.20%
Mining	5,972	4,751	5,332	-20.40%	-10.70%	1,599	1,200	1,254	-25.00%	-21.60%
Utilities	2,990	3,406	5,096	13.90%	70.40%	496	543	811	9.50%	63.50%
Total	3,518,153	4,382,754	5,399,625	24.60%	53.50%	1,292,030	1,460,220	1,764,025	13.00%	36.50%

Note: Color formatting scaled to maximum absolute value for levels (for total applications, 983,464 is blue; for high-propensity applications, 302,395 is blue) and scaled from -100% (orange) to 100% (blue) for percent changes. Sectors sorted by total business applications in 2021. Source: BFS, author's calculations.

## Appendix 2: Analysis of Business Applications and Quits

A cursory look at sector-level quits seems to support the relationship between structural changes and quit rates.<sup>27</sup> While the 2021 increase in quits occurred across nearly every sector, it was heavily concentrated in those involved in durable goods and e-commerce: Manufacturing, Wholesale Trade, Transportation and Warehousing, and Retail Trade (Table 5). These were four of only six sectors that had more quits in the first two years of COVID-19 than in the two years prior. These sectors also had larger increases in their hiring rates compared to other sectors. This last fact lends support to the explanation that workers quit to find employment at better-performing businesses as market power shifted, rather than the explanation that workers quit to become entrepreneurs.

**Table 14. Annual Quits by Sector and Quits Levels Relative to Prior Years**

	Annual Quits (Thousands)				Relative to 2019		Relative to 2018-2019
	2018	2019	2020	2021	2020	2021	2020-2021
Total Private	38,208	39,967	33,469	45,444	-16.3%	13.7%	0.9%
Finance and Insurance	856	1,002	908	1,044	-9.4%	4.2%	5.1%
Information	566	553	440	626	-20.4%	13.2%	-4.7%
Professional and Business Services	7,564	7,772	6,632	8,596	-14.7%	10.6%	-0.7%
Mining and Logging	247	180	106	118	-41.1%	-34.4%	-47.5%
Education and Health Services	5,400	5,546	5,374	6,742	-3.1%	21.6%	10.7%
Wholesale Trade	1,068	1,032	990	1,334	-4.1%	29.3%	10.7%
Manufacturing	2,507	2,497	2,365	3,466	-5.3%	38.8%	16.5%
Construction	2,058	2,080	1,593	2,193	-23.4%	5.4%	-8.5%
Transportation, Warehousing, and Utilities	1,472	1,647	1,667	2,076	1.2%	26.0%	20.0%
Retail Trade	5,966	6,238	5,623	7,766	-9.9%	24.5%	9.7%
Other Services	1,512	1,633	1,044	1,556	-36.1%	-4.7%	-17.3%
Leisure and Hospitality	8,440	9,246	6,311	9,407	-31.7%	1.7%	-11.1%

Note: Color formatting scaled to the maximum absolute value in the table (-47.5% is orange and 47.5% is blue). Sectors sorted by March 2020 to June 2020 percent decrease in establishments. Source: JOLTS, author's calculations.

27. Bureau of Labor Statistics. *Job Openings and Labor Turnover Survey (JOLTS)*. Washington, DC: Bureau of Labor Statistics. Web. 24 Oct 2022. <https://www.bls.gov/jlt/>.

Nonetheless, comparing quits with applications does provide some support for the worker-turned-entrepreneur explanation. There is a positive correlation between the surpluses of annual quits and business applications at the sector level (0.32 in the first year of COVID-19 and 0.12 in the second).<sup>28</sup> The correlation is even stronger between the surpluses of second-year quits and first-year applications (0.43), indicating that many of these entrepreneurs may have filed business applications before quitting their jobs to maintain a paycheck. This also makes sense considering the record-high business birth rates in 2021.

However, the correlation of the overall sector-level surpluses in quits and applications during COVID-19 is still relatively low at 0.26. There could also be an explanation for the relationship other than workers quitting to become entrepreneurs. The churning within certain sectors could have been driving workers to move to better-performing businesses while also driving entrepreneurs to flock to those industries all without any increase in workers turning to entrepreneurship. Further analysis could help determine what really happened.

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28. The values correlated here are the relative surpluses during COVID-19, which are calculated as the percent differences in quits or applications in the target year relative to 2019 (or 2018 and 2019 for two-year data). That is, the analysis treats 2019 as the norm and the percent difference from 2019 in 2020 or 2021 as the “surplus.” Mining is omitted, though including it would increase the correlation.