



# Budget Model

## Startups and Job Creation in the COVID-19 Economy

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**Summary:** As of mid-November, there have been 700,000 more business applications in 2020 than at the same point in 2019, especially concentrated in pandemic-affected industries such as online retail. Accounting for this change in industry composition, we project that the 600,000 additional applications in the first three quarters of 2020 will result in 27,000 more employer businesses formed by Q3 2021 and about 120,000 additional jobs.

### Introduction

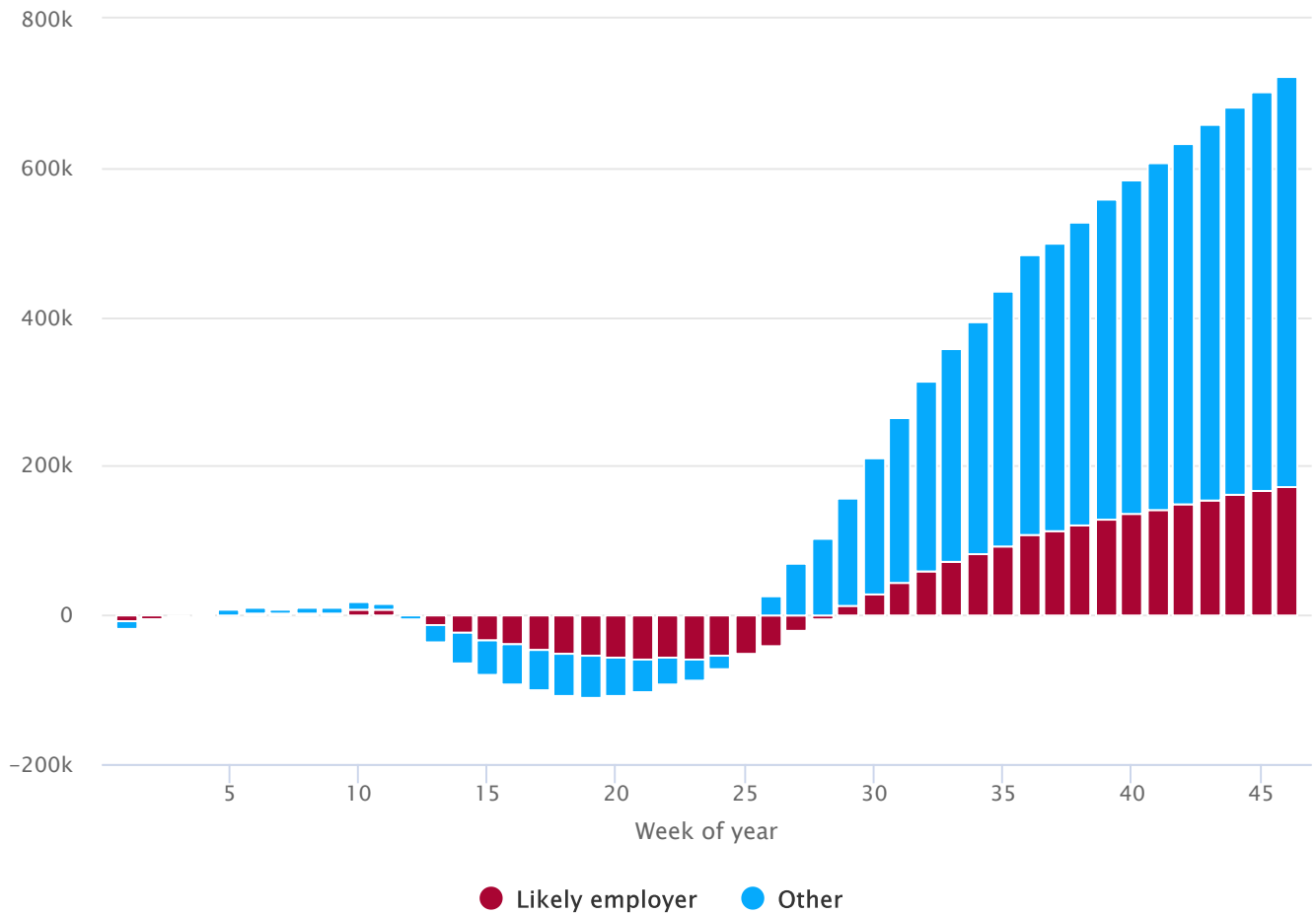
Applications to form a new business have surged in the second half of 2020, despite widespread business closures in response to the COVID-19 pandemic and the deepest recession in postwar US history. This post examines the industry composition of these additional applications and their implications for economic recovery in terms of future business formations and job creation.

### Business Applications

Figure 1 shows the cumulative change in business applications from 2019 to 2020 by week, drawing on data from [the Census Bureau's weekly Business Formation Statistics \(BFS\)](#). Business applications declined following the onset of coronavirus in the United States, bottoming out in the first week of May at about 110,000 fewer total applications than at the same point in 2019. Applications began to surge over the summer, however, and as of mid-November, the total number of applications filed in 2020 is 700,000 greater than over the same period of 2019. Applications identified by the Census Bureau as having a relatively high likelihood of becoming a new business with employees – referred to as “likely employer” applications – increased by 170,000 compared with 2019. For both total and likely employer applications, the third quarter of 2020 saw the highest number of applications since at least 2004, when the BFS data begin. This marks a sharp contrast with the 2007–2009 recession, when the number of likely employer applications by mid-November 2008 decreased by 230,000 compared to the same point in 2007.

Figure 1. Cumulative Change in Number of Business Applications from 2019 to 2020

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Note: Likely employer applications are applications identified by the Census Bureau as having a relatively high likelihood of becoming a new business with employees.

Sources: Census Bureau (Business Formation Statistics), PWBM.

### Business Applications, Business Formations, and Job Creation

Business applications are requests to the Internal Revenue Service for a new Employer Identification Number (EIN). Obtaining an EIN is generally a first step in the process of forming a business, as one is required to pay payroll taxes. However, a *business application* does not necessarily lead to a *business formation*. A *business formation* – or startup – refers to the point at which a new *employer business* actually begins operating. An *employer business* is a firm that has employees on payroll.<sup>1</sup>

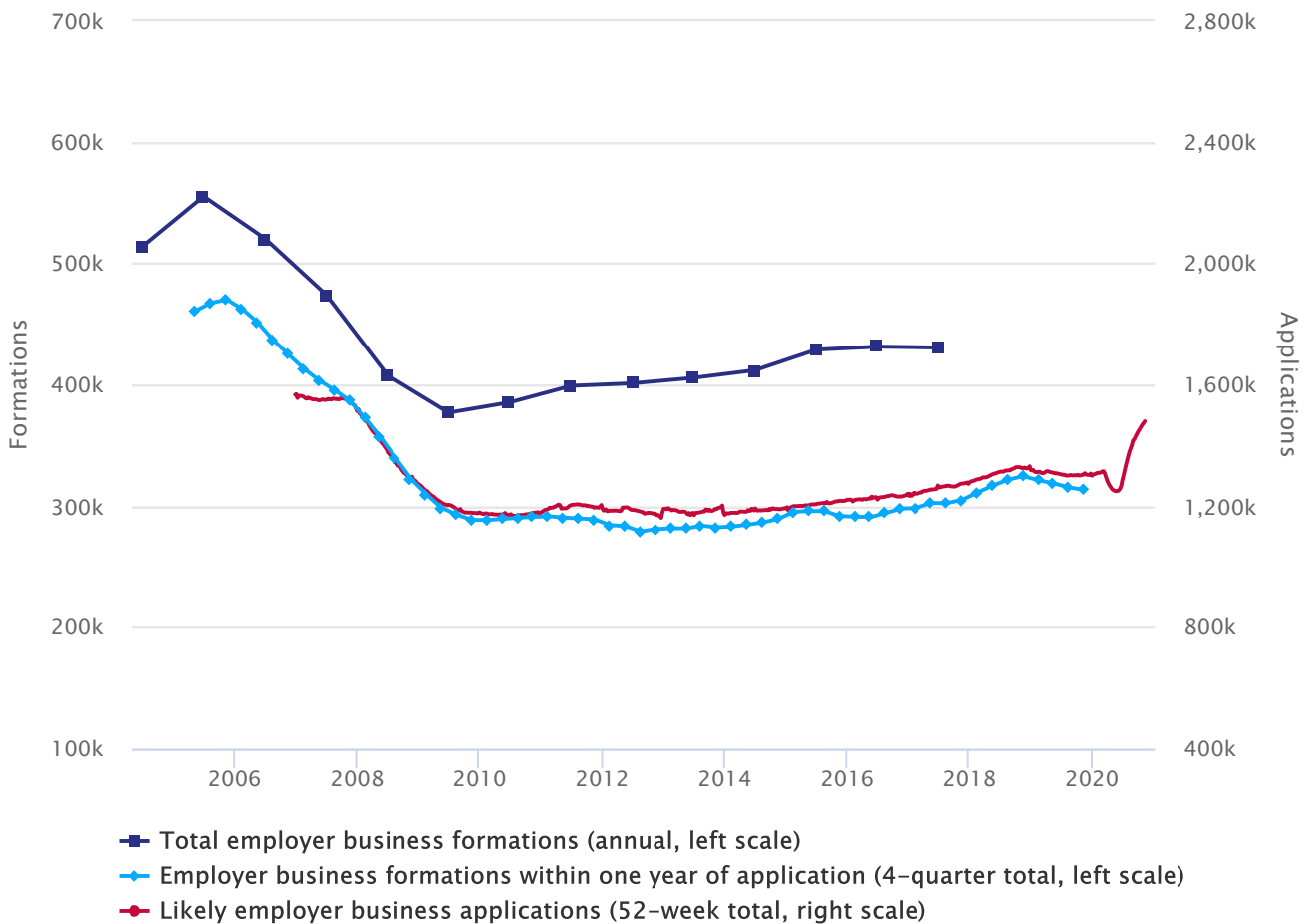
In fact, most business applications do not lead to the formation of a new employer business. Only 9 percent of business applications form an employer business within one year, and only around 25 percent of *likely employer* applications lead to a startup within one year of the application date. Individuals or existing businesses may request a new EIN for a variety of other reasons, including changes in ownership or organizational structure, tax compliance, or banking purposes. There may also be a long lag between an application for a new EIN and the eventual formation of an employer business.

Nevertheless, trends in the number of EIN applications provide a strong signal of startup activity. Figure 2 compares the number of likely employer applications with the total number of startups each year and with the

number of businesses formed within one year of their initial EIN application. Over the past decade, about 70 percent of the annual 400,000 to 450,000 new businesses formed reflect a business application filed within the previous year.

Figure 2. Employer Business Formations and Likely Employer Business Applications

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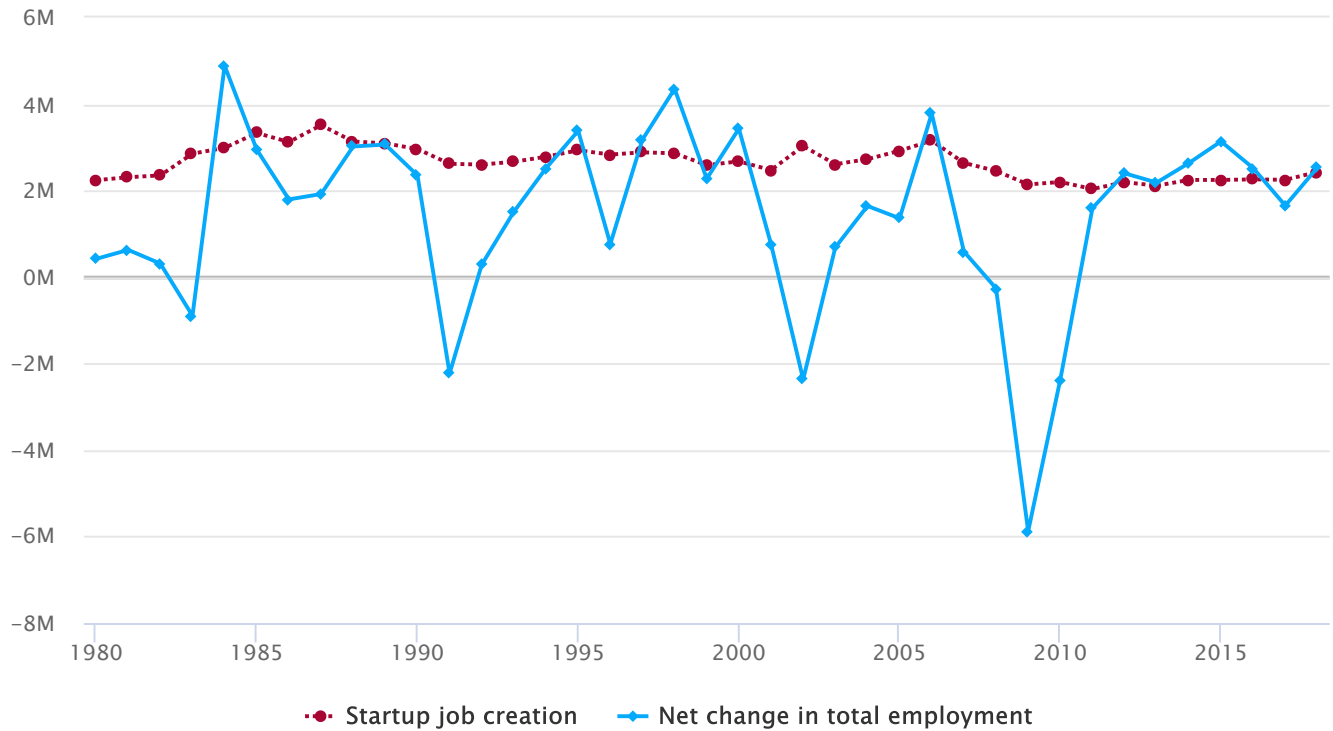
Notes: Total employer business formations (BF) are plotted as  $0.25 \cdot BF(t) + 0.75 \cdot BF(t+1)$  to match the timing of applications. Business formations within 1 year of application are Census Bureau projections from 2016 Q1 on. Sources: Census Bureau (Business Formation Statistics, Business Dynamics Statistics), PWBM.

Business startups play a critical role in overall job creation. Figure 3 shows that in most years since 1980, job creation from newly formed businesses is greater than the overall net change in employment. In other words, in a typical year existing businesses are losing jobs in aggregate (either through business closures or reductions in employment levels) while startups create the jobs that drive net growth in overall employment.

Figure 3. Startup Job Creation and Aggregate Employment

Millions

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Note: Startup job creation is the number of persons employed by a business its first year of operation.  
Sources: Census Bureau (Business Dynamics Statistics), PWBM.

**Business Applications by Industry**

A recent [special release](#) from the Census Bureau breaks down weekly business applications by industry for 2019 and the first 40 weeks of 2020 (through the week ended October 3rd).<sup>2</sup> The industry-level data reveal that the surge in applications has been highly concentrated in a few industries.

Figure 4 shows the 15 industries with the greatest increase in applications from 2019 to 2020 over the first 40 weeks of the year. These industries account for more than 90 percent of the net rise in applications from 2019 to 2020.<sup>3</sup> Notably, these industries made up only about 60 percent of total applications in the same period of 2019. The surge in 2020 applications therefore also represents a shift in the industry composition of business applications.

Figure 4. Business Applications Through Week 40: Top 15 Industries by Change from 2019 to 2020

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Notes: NAICS industry codes are shown in parentheses. Week 40 corresponds to the week ended October 3rd in 2020 and the week ended October 5th in 2019.

Sources: Census Bureau (Business Formation Statistics), PWBM.

Applications for nonstore retailers – the industry that includes online merchants – saw by far the largest increase and alone account for one third of the total rise in applications. Other industries involved in online sales and home delivery, such as truck transportation, also saw a significant increase. Perhaps surprisingly, applications for personal and laundry services and for food and drinking places rose substantially, together accounting for about 15 percent of the total increase. Personal and laundry services include hairdressers, beauty salons, and other close-contact personal services severely affected by COVID-19. It also includes funeral homes and other death-related services. Food and drinking places include bars and restaurants, but also food delivery services. Applications for professional and administrative services, which include many technology support activities, logistics, and a wide range of other business services, make up another 15 percent of the increase. Health care and social assistance industries saw rapid growth in applications, though they account for a relatively small share of the total in both 2019 and 2020.

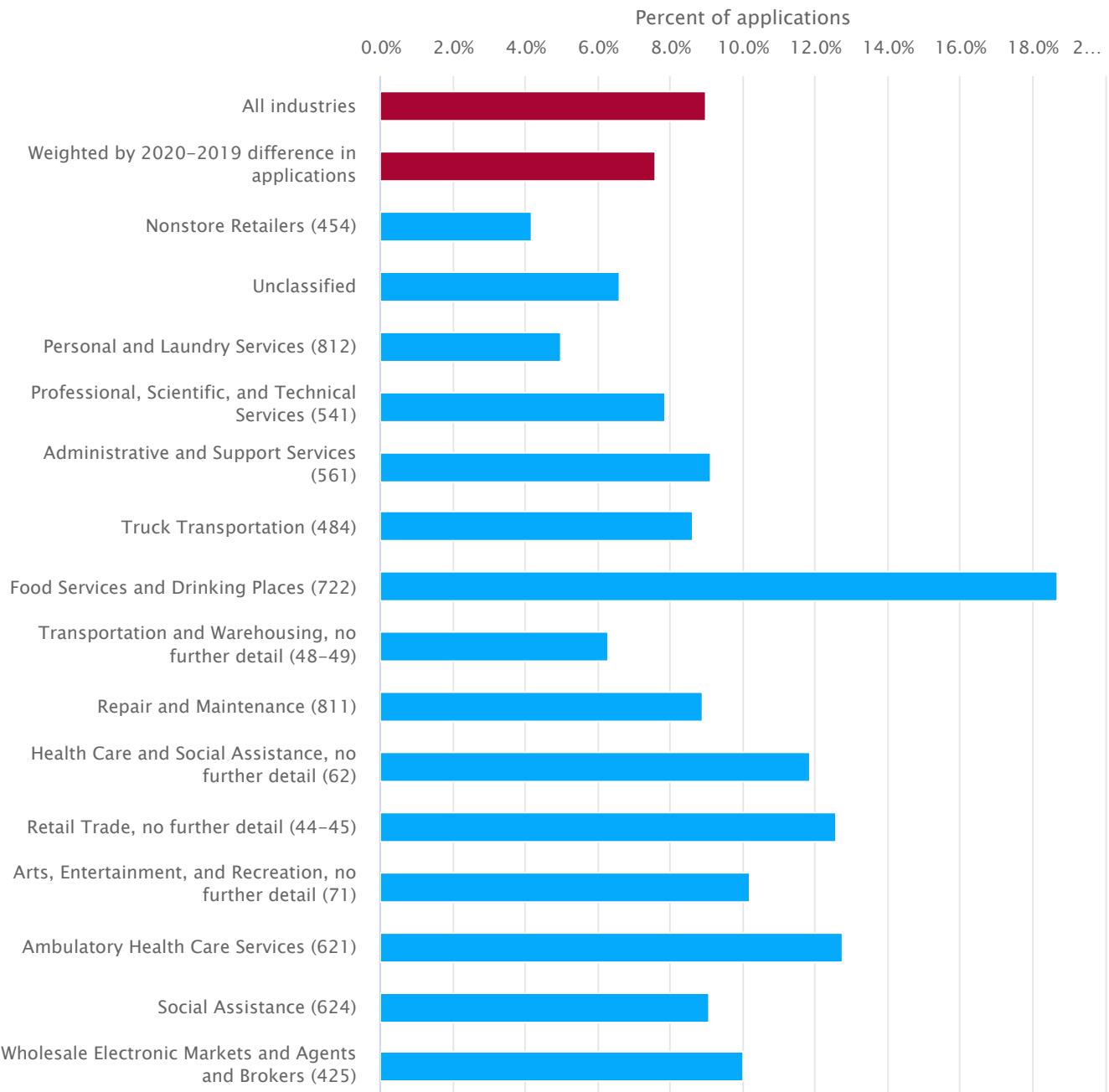
## **Business Formation Rates by Industry**

The shift in the composition of business applications potentially alters the relationships between business applications, business formations, and job creation. The share of businesses with an EIN that are nonemployers – self-employed individuals – varies widely across industries. A shift into industries with higher nonemployer shares would weaken the link between EIN applications and employer business formations. When an application does lead to an employer startup, the expected number of jobs created also depends on industry.

Figure 5 plots estimates of the one-year business formation rate (BFR) in 2019 for the industries with the greatest increase in applications in first 40 weeks of 2020. The one-year BFR is the probability that an application leads to the formation of an employer business within one year of the application date. These estimates are constructed by PWBM based on information from [Bayard and others \(2018\)](#), the BFS, and data from three other Census Bureau products: the [Business Dynamics Statistics](#), [Nonemployer Statistics](#), and [Statistics of US Businesses](#).

### Figure 5. One-Year Business Formation Rates, 2019

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Notes: The one-year business formation rate is PWBM's estimate of the percentage of business applications that become an active business with employees within one year of the application date. NAICS industry are shown in parentheses.

Source: PWBM.

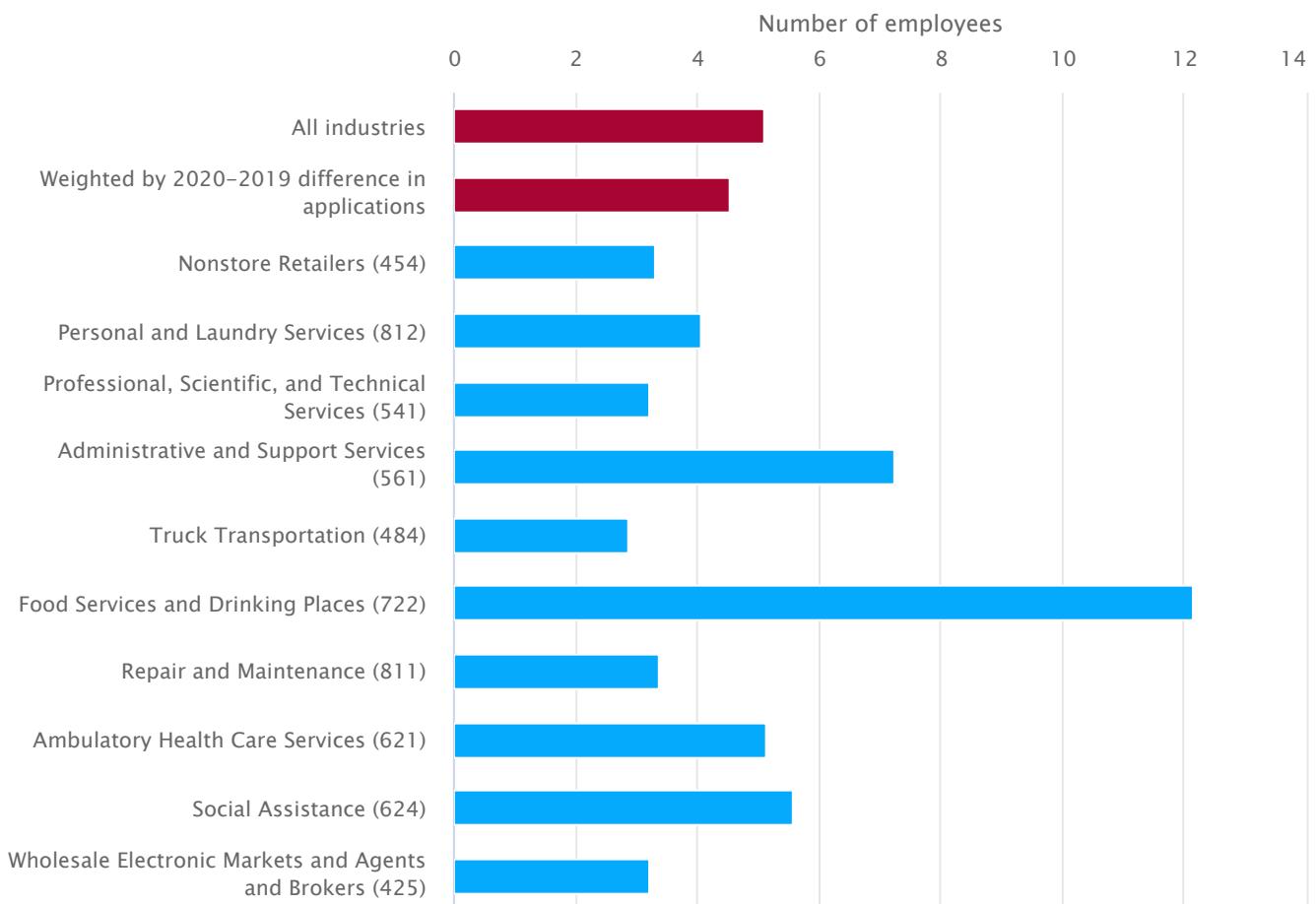
Figure 5 shows that the handful of industries with largest increases in applications in 2020 had below-average business formation rates in 2019. In particular, the BFR for nonstore retailers is less than half the overall BFR. Averaging across industries using the industry composition of the 2020-2019 difference in applications (instead of actual applications in 2019) leads to an overall BFR of 7.6 percent, about one and a half percentage points lower than the actual 2019 average of 9 percent.

#### Job Creation by Industry

Figure 6 plots average job creation per new business formation in 2018 for industries with sufficient information, calculated from the Census Bureau’s Business Dynamics Statistics. As with BFRs, many of the industries with large increases in applications in 2020 are below the overall average. For instance, each nonstore retailer startup created an average of 3.3 jobs, compared with an all-industry average of 5.1 jobs. Averaging across industries using the industry composition of the 2020-2019 difference in applications leads an overall average of 4.5 jobs per startup, about 10 percent lower than the actual average.

Figure 6. Average Startup Job Creation, 2018

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Notes: Startup job creation is the number of persons employed by a business in its first year of operation. NAICS industry codes are shown in parentheses.

Sources: Census Bureau (Business Dynamics Statistics), PWBM.

### Projected effects of the surge in business applications

The number of business applications filed through the third quarter of 2020 was about 600,000 higher than over the first three quarters of 2019, an increase of 23 percent.<sup>4</sup> Assuming that industry-level BFRs remain on their pre-pandemic trend throughout 2020, we project that this surge in applications will lead to an additional 27,000 business formations compared with the same period of 2019 – an increase of about 12 percent - and an additional 117,000 jobs created.<sup>5</sup> By the third quarter of 2021, 264,000 new businesses will have originated from applications filed in the first three quarters of 2020 – the most for any three-quarter period since 2008 – creating almost 1.5 million jobs.

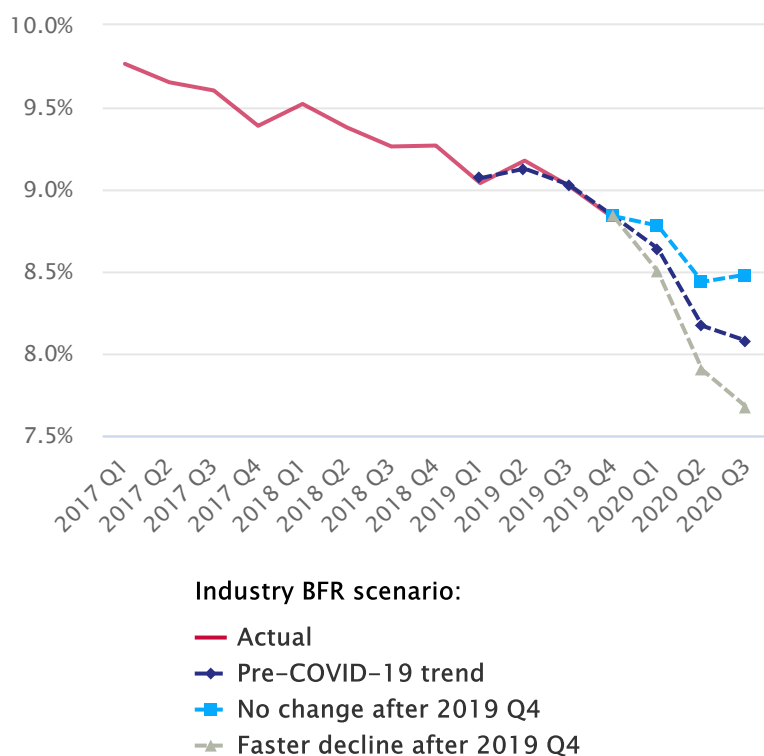


We also consider two alternative paths for industry BFRs, one lower and one higher: first, we assume BFRs decline at double the rate of their pre-pandemic trend – roughly matching the overall average rate of decline during the 2007-2009 recession; second, we assume that BFRs remain the same in 2020 as at the end of 2019. These two scenarios lead to range for the number of additional startups of 18,000 to 37,000 and a range for additional job creation of 65,000 to 169,000.

Figure 7 shows the overall one-year business formation rate projected under each of the three scenarios. Note that even when industry-level BFRs remain constant throughout 2020, the overall rate declines because of the changing industry composition of applications. This compositional shift reduces the overall BFR by between a quarter and half a percentage point in 2020. The pre-COVID-19 trend in industry-level BFRs lowers the overall rate by a similar amount over the course of 2020, as does doubling the industry-level rate of decline.

Figure 7. Projected One-Year Business Formation Rate

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Notes: The one-year business formation rate is the percentage of business applications that become an active business with employees within one year of the application date. BFR = business formation rate.

Sources: Census Bureau (Business Formation Statistics), PWBM.

Table 1 presents quarterly projections of business formations within one year of the application date and the resulting job creation. Values are listed by the quarter in which the initial application was filed. The 119,000 employer startups projected from 1.5 the million applications filed in the third quarter would be the highest number for any single quarter since 2005, and the second highest since the BFS data begin. Nevertheless, the 20,000 and 40,000 additional business formations projected from applications across the first three quarters of the year represent an increase of only 10 to 15 percent in aggregate startup activity. The projected increase in job creation is still smaller, reflecting the shift in the composition of applications towards industries with lower average startup employment. The additional 120,000 startup jobs projected in 2020 and 2021 would offset

around 1 percent of the more than 10 million nonfarm payroll jobs lost between February and October of 2020.

Table 1. Projected Business Formations and Job Creation Within One Year

*Thousands, Seasonally Adjusted*

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	<b>Business Applications</b>	<b>Business Formations Within One Year</b>	<b>Startup Job Creation Within One Year</b>
2019 Q1	871	79	434
2019 Q2	871	80	451
2019 Q3	866	78	443
2019 Q4	888	78	441

**Projections, by industry business formation rate scenario:**

		<b>Pre- COVID-19 trend</b>	<b>Faster decline after 2019 Q4</b>	<b>No change after 2019 Q4</b>	<b>Pre- COVID-19 trend</b>	<b>Faster decline after 2019 Q4</b>	<b>No change after 2019 Q4</b>
2020 Q1	848	73	71	74	400	394	407
2020 Q2	888	73	70	75	392	379	405
2020 Q3	1,476	119	113	125	652	619	684
<i>Total, Q1-Q3</i>							
2019	2,607	237			1,327		
2020	3,212	264	255	274	1,444	1,392	1,496
<i>Change</i>	605	27	18	37	117	65	169
<i>Percent change</i>	23%	12%	8%	16%	9%	5%	13%

Source: PWBM

*This analysis was conducted by [Alexander Arnon](#) with writing support from [Kody Carmody](#). Prepared for the website by [Mariko Paulson](#).*

1. Business formations do not include single-person business entities created by individuals who are self-employed – or *nonemployer businesses* – who may or may not have an EIN. ↩
2. The industry-level data do not distinguish between likely employers and other applications. ↩
3. These industries include categories for applications that could not be classified by industry and applications that could only be classified into broad sectors with no further industry detail. ↩
4. Historical data and projections are based the number of applications reported in the Weekly BFS, which are not seasonally adjusted and do not exactly match applications reported in the Quarterly BFS. Quarterly totals of weekly business applications and quarterly estimates of business formations are seasonally adjusted using implicit seasonal adjustment factors from the Quarterly BFS. Projections for 2020 are adjusted using the factors for 2019. ↩
5. Projections of job creation do not include businesses formed from EIN applications with no industry classification. ↩