Surging Business Formation in the Pandemic: A Brief Update[1]

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The pandemic and post-pandemic period have seen a dramatic surge in measures of new business formation. Decker and Haltiwanger (2024b) describe this surge in detail; in short, applications for new businesses—including those with characteristics indicative of potential to transition to true employer businesses—surged starting in the summer of 2020. The surge in applications was followed in 2021 with a surge in measures of employer entry, including both establishment and firm creation. The entry surge was consistent with broader economic themes of recent years, such as the reallocation of economic activity toward pandemic-friendly and high tech industries and the geographic reallocation of activity from city centers to suburbs and from the northeast to the south and sunbelt regions. The high tech dimension has been particularly notable, as Decker and Haltiwanger (2024a) show. Decker and Haltiwanger (2024b) also find a close geographic correlation between pandemic business formation and quits (or a proxy for quits), relating the entry surge to the "Great Resignation."

In this brief note, we update these prior results with more recent data. We provide overwhelming evidence that the pandemic and its aftermath featured a surge in genuine entrepreneurial employer business creation, and we show that measures of business formation have remained elevated relative to pre-pandemic levels even recently—though with clear signs of cooling. We update several data series: Census Bureau data on business applications through August 2024, Bureau of Labor Statistics (BLS) data on employer establishment births through the fourth quarter of 2023, and Census Bureau data on new employer firm births through the spring of 2022, covering the first full year of the pandemic employer entry surge already apparent in other data.[2] The Census Bureau's firm birth data published in the Business Dynamics Statistics (BDS) eliminate any uncertainty about new firm creation

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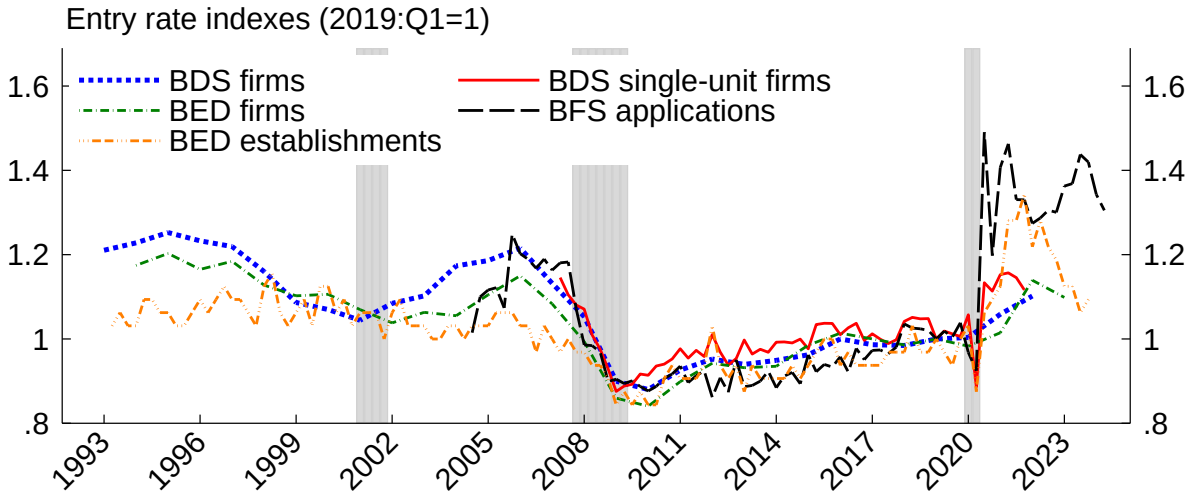
[2]The latest BDS data incorporate microdata from the 2022 Economic Census and other notable improvements; see the release note at `https://www2.census.gov/programs-surveys/bds/updates/bds2022-release-note.pdf`.

through early 2022 since these data are based on comprehensive firm identifiers that capture the ownership structure of firms, a broader definition of firms than the tax identifier-based definition used in prior analysis of firm birth data for recent years.

1 The surge confirmed

Figure 1, which is updated from Decker and Haltiwanger (2024b), shows several measures of business entry, each expressed as a rate indexed to early 2019. The figure well illustrates the richness, and tradeoffs, of U.S. business dynamics data, with different sources trading off timeliness, frequency, and measurement concept—a point made repeatedly by Decker and Haltiwanger (2024b). It is worth walking through this figure in some detail.[3]



Note: BDS and BED annual firm births are age-0 firms as of March. BFS applications are likely employers (HBA). All series expressed as rates except BFS. Quarterly series are seasonally adjusted. Gray bars indicate NBER recession dates (2001:Q1-Q4, 2007:Q4-2009:Q2, 2020:Q1-Q2).
Source: Business Dynamics Statistics, Business Employment Dynamics, Business Formation Statistics.

Figure 1: New business entry and new business applications

- The most striking and well-known series is "BFS applications," which measures monthly applications to the Internal Revenue Service (IRS) for new employer identification numbers (EIN); these are published by the Census Bureau's Business Formation Statistics (BFS). Here we use the subset we call "likely employers," which are those applications with at least one characteristic that is predictive of later employer entry.[4] Applications initially dropped at the onset of the pandemic but quickly recovered and reached an

[3]See Decker and Haltiwanger (2024b) and its online appendix for extensive detail on each of the data sources mentioned here.

[4]In BFS tabulations, what we call "likely employers" are called "high-propensity" applications or "HBA."

all-time high in July of 2020, easing down thereafter for the remainder of the year. Applications picked up again in 2021 and have remained elevated (relative to pre-pandemic norms) ever since; notably, in the most recent data (which are shown through August 2024), the pace of applications has been cooling off.

- The "BED establishments" line on figure 1 measures quarterly employer establishment births from the BLS Business Employment Dynamics (BED) through 2023:Q4; "establishment" births include new establishments from both entirely new firms (companies) and existing firms opening new locations (e.g., a new Starbucks location).[5] Establishment births started to rise late in 2020, rapidly increasing in 2021, and have remained elevated above pre-pandemic norms ever since, even while cooling recently. As we will show below, the job creation from these births has not cooled as much as establishment counts, with new establishments creating roughly 1 million jobs per quarter, on average, from 2021:Q2 all the way through 2023:Q4.

- "BED firms" refer to annual "firm" births—measured for the year ending in March—from the BLS BED through (March) 2023. BED firm births jumped in 2022—consistent with the pickup in establishment births starting in mid-2021—then remained elevated through 2023. A firm birth in the BED is any new EIN with all new establishments; it is likely that in almost all cases this is a truly new firm, but this measure does allow for some uncertainty since an existing firm could potentially open a new set of establishments under a newly obtained EIN.

- The "BDS firms" line reports annual (also through March) firm births from the BDS using the Census Bureau's broader firm definition based on ownership and operational control. Firm births measured in this manner reflect genuine entrepreneurial business creation with hiring of employees, and this measure rose in 2021 and 2022. This provides compelling, dispositive evidence that the pandemic entry surge featured a surge in genuine, job-creating entrepreneurial activity, among other stories.[6]

The updated data on figure 1 resolve a few key questions about the pandemic surge in business formation.

First, data on employer establishment and firm births show that the pandemic surge was not simply a rise in "gig economy" activity. This conclusion was always likely, even just based on the BFS business application data that have been available in near-real time throughout this episode: these applications are for EINs, which are necessary for starting employer businesses but not for sole proprietor business forms common in the gig economy. Many gig workers (e.g., rideshare drivers, food delivery drivers) are self-employed sole proprietors with no employees (in the administrative data referred to as nonemployers). Self-employed sole

[5] In statistical agency parlance, an "establishment" is a single operating location of a business with employees, while a "firm" is a collection of one or more establishments under a common tax identifier (in BLS data) or common ownership or operational control (in Census Bureau data).

[6] The figure also shows quarterly births of "BDS single-unit firms" through 2021:Q4; these refer to births of firms with only one establishment.

proprietors do not require an EIN and most do not obtain one. If, for example, there has been an increase in home delivery food services in the pandemic and its aftermath, this will not show up in the BFS application data.

In contrast, all employer businesses must have an EIN, and new employer businesses are our focus here. Some nonemployers do obtain an EIN—EINs are required for corporations and partnerships and for a business bank account and may afford some identity protections. A nonemployer might also choose to obtain an EIN if they have aspirations for growth including hiring employees. Consistent with this, nonemployers with EINs are about three times larger in terms of revenue than nonemployers without EINs (Davis et al., 2009). The data show that many pandemic-era business applications for likely employers did transition into genuine employer businesses (though it is possible that pandemic-era transition rates were somewhat lower than in prior years; Decker and Haltiwanger, 2024b, document suggestive evidence of this).

Second, the latest BDS data show that the pandemic surge in firm births reflects genuinely new entrepreneurial firms, not simply incumbent firms obtaining new tax identifiers, as has been argued by some skeptics of the pandemic entry surge. A surge in such activity among incumbents is entirely plausible, and indeed it does appear that the surge in new establishments includes a surge in openings of new locations by existing firms (Decker and Haltiwanger, 2022, 2024a). This is an interesting story on its own. However, it is clear from figure 1 that the recent data also feature a surge in the creation of genuinely new employer firms. This was already strongly suggested by the BED firm birth data reported by Decker and Haltiwanger (2024b) and Decker and Haltiwanger (2024a). While BED data do use EINs as a firm identifier, such that a single multi-EIN company will appear as multiple reported "firms" in BED data, a firm birth in those data requires not only a new EIN but also entirely new associated establishments.

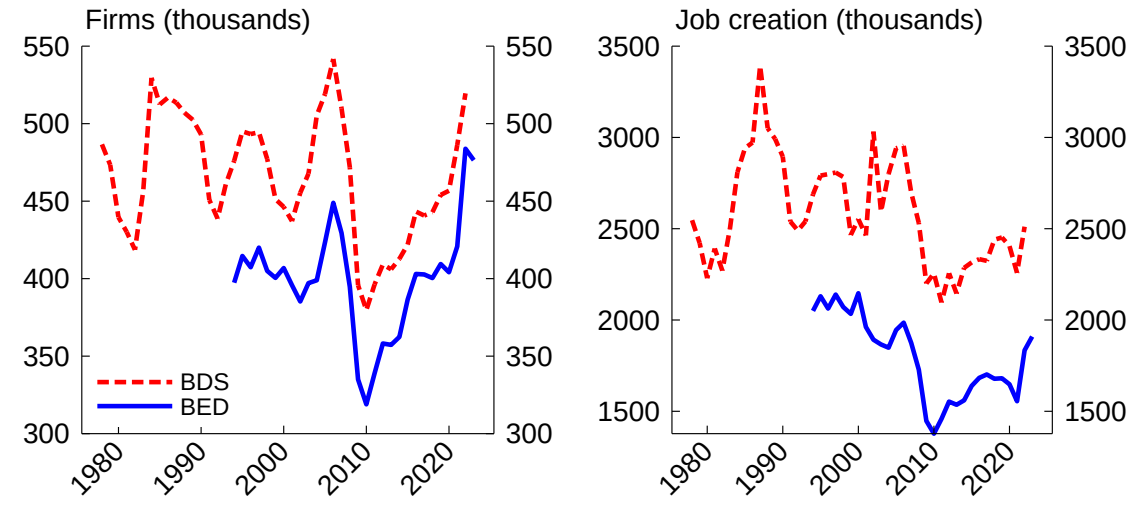
But whatever doubt there may have been is now resolved with the 2022 BDS firm birth data, which employ a broader and more definitive firm identifier that rolls up multi-EIN structures under common ownership or operational control. The rise in birth births during 2021-2022 evident in the BDS data can *only* be the result of genuinely new employer firm startups.

Third, measures of business entry have remained persistently above their pre-pandemic pace even in recent data, though they are certainly cooling off. This can be clearly seen in the business applications series on figure 1, which have cooled steadily since the fall of 2023 but still remain elevated. More cooling is seen in establishment births, though as we will show below, there has been less cooling in the pace of jobs created by those establishment births (that is, the average size of new entrants has recovered after initially dipping as documented by Decker and Haltiwanger, 2024b). This is relevant to the recently published preliminary benchmark revisions to the BLS Current Employment Statistics product, which may be due in large part to error in a component of that statistic that is estimated based in part on forecasted establishment openings and closures. Whatever the cause of the preliminary benchmark revision, it does not overturn the fact that pandemic business entry remained elevated in 2023. Entry did appear to cool during that year, but as we show below, BED

data suggest that the slowdown in job creation from *net* entry is also a result of rising establishment closures.

2 New firms, new jobs

Figure 1 above reports measures of business entry expressed as rates. We can gain further insights with figure 2. The left panel reports the number of firm births (in thousands) by year from the BDS (dashed line) and the BED (solid line); these series tend to have similar fluctuations historically albeit at different levels (and both have a March reference period for annual observations).[7] The jump in 2022 is readily apparent in both data series, while the BED has additional data for 2023 showing a continued elevated entry pace. In the BDS, firm births in the year through March 2022 reached a pace not seen since before the Great Recession.



Note: Y axes may not start at zero.
Source: Business Dynamics Statistics (BDS) and Business Employment Dynamics (BED).

Figure 2: Firm births and associated job creation

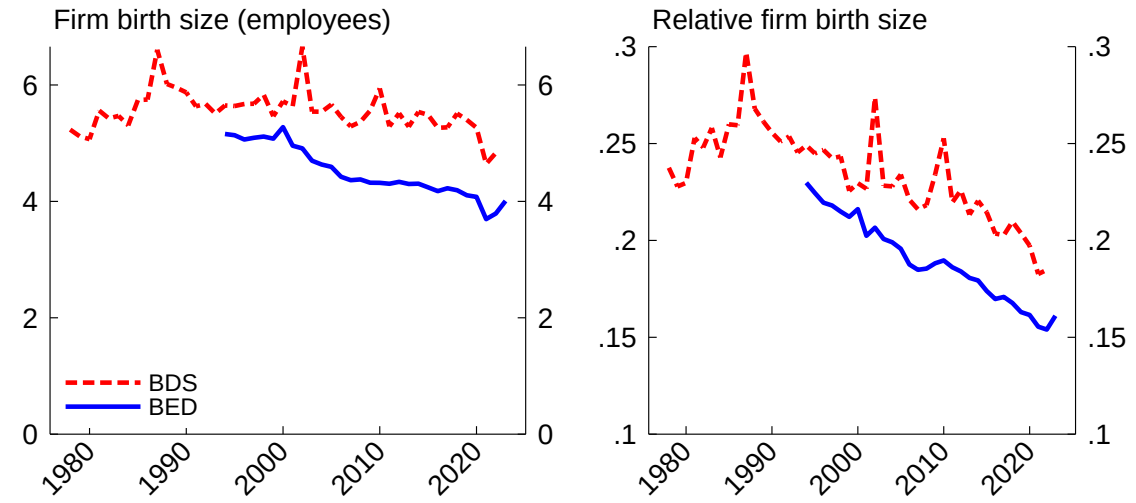
The jump in firm births in both the BDS and the BED is compelling evidence that the pandemic entry surge was not simply a surge in gig economy self employment, nor was it a burst of incumbent firms obtaining new EINs.

The right panel of figure 2 reports the number of jobs created by firm births in the two data sources. Here also we see a jump in 2022 in both data sources, though in the BDS it is not as dramatic. In both sources, the pandemic jump in the number of new firms is much

[7]The BDS and the BED are based on separate source data, have slightly different industry scope, and use different firm definitions. For further discussion see Decker and Haltiwanger (2024b), especially the online appendix.

larger than the jump in jobs created by those firms, reflecting a drop in the average size of entrants discussed in Decker and Haltiwanger (2024b).[8]

Figure 3, updated from Decker and Haltiwanger (2024b), shows the dip in average size of new firms starting in the pandemic era (left panel). Decker and Haltiwanger (2024b) note that the average firm birth size *relative to the average incumbent firm size* did not fall as markedly (right panel); new firms got smaller, but so did existing firms. A simple interpretation of this fact is that overall employment dropped early in the pandemic, and this is reflected in all firms getting smaller on average. Moreover, the BDS and BED data for 2022 and the BED data for 2023 suggest a recovery of average firm entrant size to its pre-pandemic trend.



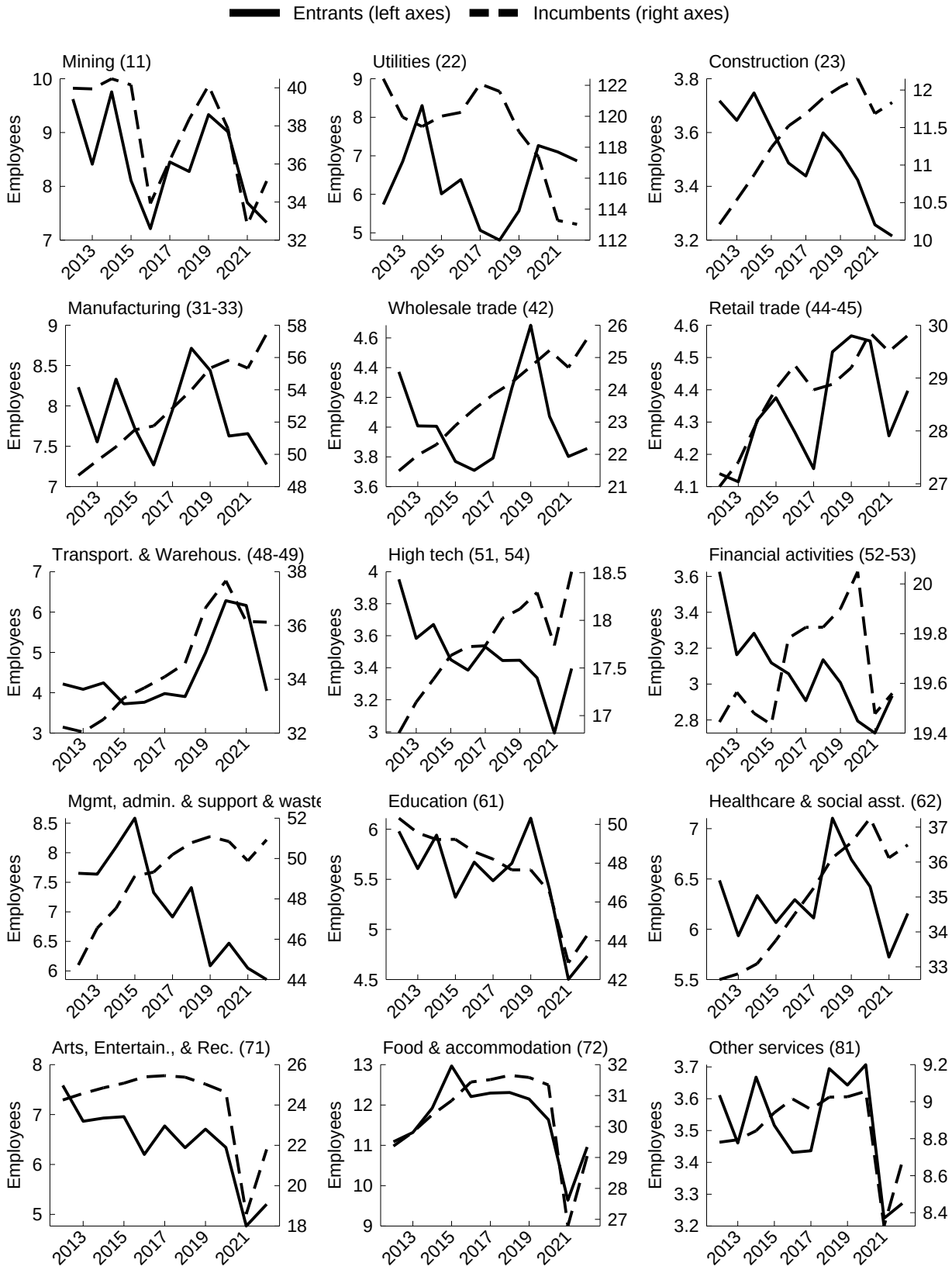
Note: Average size in first year (left); relative to incumbent average size (right).
Source: Business Dynamics Statistics (BDS) and Business Employment Dynamics (BED).

Figure 3: Average size of new firms and relative to incumbent firms

The recent fluctuations in the average size of new firms vary some by sector. This can be seen on figure 4 which reports average entrant size (solid lines) along with average incumbent size (dashed) by sector, both from BDS data.

For example, in the food & accommodation sector (NAICS 72), average firm entrant size dropped by more than 2 employees from 2019 to 2021, though 2022 saw a rebound. Other notable sectors seeing declines in entrant size early in the pandemic include mining (which includes oil and gas activities); construction (though it was already trending down); wholesale and retail trade; the broad "high tech" sector of information and professional, scientific, & technical services; (private) education; healthcare & social assistance; arts, entertainment, & recreation; and other services (which includes businesses ranging from churches to nail salons). Several of these saw at least partial rebounds in 2022 (and BED data not reported here show further recovery in 2023 in several sectors). Notably the "high tech" entrant

[8]The initial pandemic drop in entry size has also garnered press attention; see Simon and Overberg (2024).



Note: NAICS codes in parentheses. Source: Business Dynamics Statistics (BDS).

Figure 4: Average size of new firms and incumbents by sector

size has largely recovered to pre-pandemic levels by 2022. Transportation & warehousing exhibits an opposite pattern: average entrant size jumped by about 2 employees in 2020, stayed elevated through 2021, then dropped back into its pre-pandemic range.

Comparing the solid and dashed lines, though, we typically see average incumbent size moving the same direction as average entrant size *in the pandemic period* (though often not before); for example, in food & accommodation, the 2-employee drop in entrant size was accompanied by a more than 3-employee drop in incumbent size. Therefore, caution must be exercised when interpreting pandemic entry size patterns, which may be more reflective of broader industry or macroeconomic conditions than factors specific to business entry.

3 Entry since early 2023

The most recent available data indicate elevated employer firm entry through early 2023. The business application data are far more timely, extending through August 2024 (as shown on figure 1). But the BFS data also feature series for *predicted firm births* that leverage behind-the-firewall microdata characteristics of business applications along with true firm birth microdata underlying the BDS. This is helpful in part because actual employer firm birth tends to follow business application with a lag.

Figure 5, which is updated from Decker and Haltiwanger (2024b), shows likely employer applications along with firm births within 8 quarters of application, with actual historical data where available (through the end of 2019) then Census Bureau predictions thereafter. That is, this series shows, for a given month, how many of that month's business applications transition into actual firm births within two years (or are predicted to do so, for the series after 2019).

Figure 5 highlights that new applications for likely employers remain elevated but have seen a steady decline since peaking during the fall of 2023. Historically, the variation in applications has closely tracked the variation in actual firm births (with a lag)—indeed, the elasticity is approximately one as discussed in Decker and Haltiwanger (2024b) and elsewhere. The prediction series in Figure 5 behaves accordingly, suggesting that even during 2024 there has been an elevated pace of nascent entrepreneurship, albeit with some gradual cooling. It is critical to understand that the firm birth prediction series is not simply a translation of the aggregate application series but instead is a microdata-based prediction exploiting the full range of application characteristics and their historical propensity to predict successful transition from application to employer firm creation. In other words, not only the aggregate number but also the composition of applications seen over the past year suggest continued solid firm births over the next year or two.

4 The recent cooling of gross and net entry

As noted above, while business applications have remained elevated above the pre-pandemic pace, a steady cooling is evident since the fall of 2023. Sector-level application data can

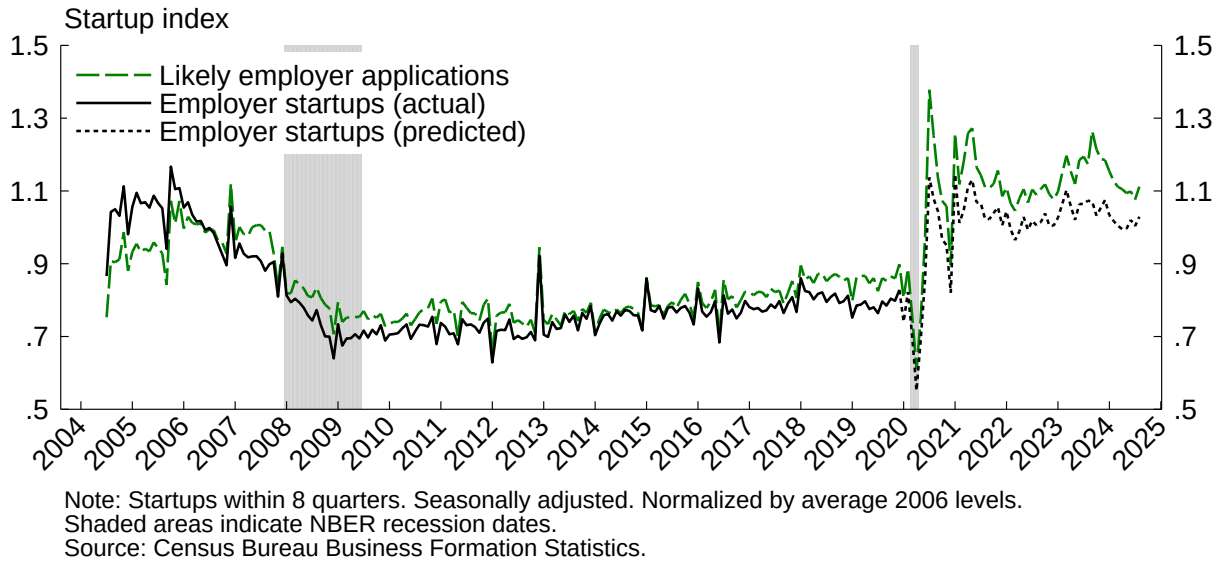


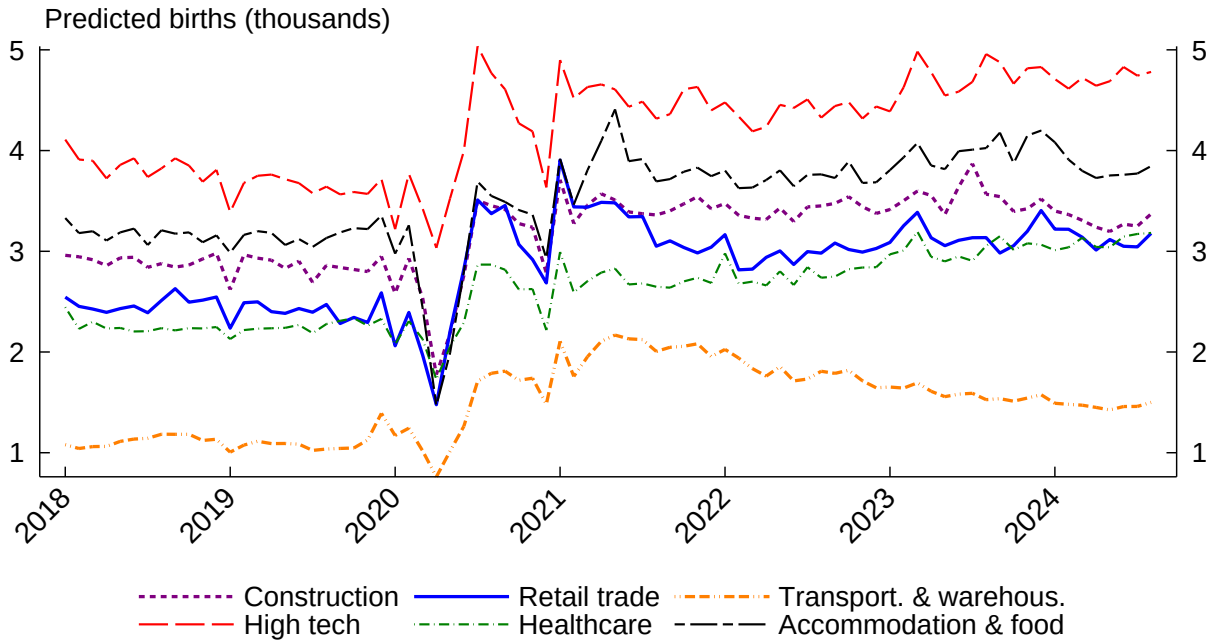
Figure 5: High-propensity business applications and firm births within 8 quarters

shed some light on the aggregate fluctuations in recent years. Figure 6 shows the business application-predicted firm birth series by broad sector.

There has been some decline in construction since mid-2023, some decline in retail trade and in accommodation & food services since late 2023, and a steady, pronounced decline in transportation & warehousing since late 2021. As discussed in Decker and Haltiwanger (2024b), these sector-level patterns are consistent with broader pandemic-era themes; for example, it is intuitive that transportation & warehousing saw strong entry during the height of the supply chain challenges of 2021, and it is not surprising that construction entry would decline during a period in which financial conditions tightened. But the pace of business formation in the high tech sector jumped early in the pandemic and has remained robust even through the summer of 2024 (a point emphasized by Decker and Haltiwanger, 2024a), suggesting that the high tech entry surge reflects more persistent economic shifts with implications beyond the pandemic.

One potential implication of the cooling of business entry is that the job creation role of the recent entry surge could be diminishing. This possibility has been emphasized by the recently released BLS Current Employment Statistics preliminary benchmark announcement pertaining to payroll growth during the year ending in March 2024.[9] The BLS currently expects the estimated level of private employment in March 2024 to be revised down by roughly 800,000 jobs, and some observers have speculated that a large driver of this revision could be error in the Net Establishment Birth-Death Model ("NBD model") used as part of monthly payroll estimates. Observers point to the decline in job creation from net establishment openings shown in BED data through the end of 2023. The NBD model is not designed

[9]See `https://www.bls.gov/web/empsit/cesprelbmk.htm`.



Note: 8-quarter predicted firm births (PBF8Q). High tech is NAICS 51 and 54. Seasonally adjusted.
Source: Census Bureau Business Formation Statistics.

Figure 6: Predicted firm births within 8 quarters by sector

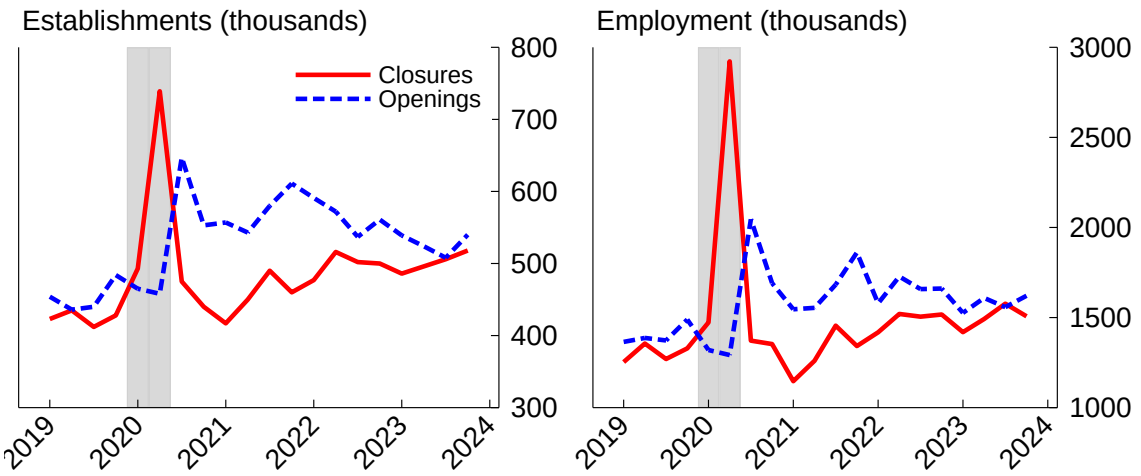
to simply capture job creation from net establishment entry in a given month. Rather, the NBD model is intended to capture any *residual* net job creation that is not measured in the actual payroll survey sample of continuing establishments or in the imputation steps BLS employs as an initial measure of net entry. This residual is a complicated object, even potentially capturing job creation from young (but not new) establishments that entered any time after the current establishment sample was implemented.[10]

That said, NBD residuals as reported in benchmark articles do tend to fluctuate closely with job creation from net establishment openings as measured in the BED, so we discuss this point briefly here.[11] Figure 7 shows establishment openings and closures from the BED (left panel) along with job creation and destruction associated with openings and closures (right panel).

The cooling of closures and gradual slowing of related job creation can be clearly seen. However, the narrowing of job creation from net entry during 2023 is even more related to rising establishment closures. An increase in closures is not surprising in light of the surge in establishment births that started two years earlier, since failure rates are high among young businesses.

[10] A more complete discussion of the NBD model is beyond the scope of this note. Details on the NBD model methodology can be found here: `https://www.bls.gov/web/empsit/cesbd.htm`.

[11] We thank Tomaz Cajner for many helpful insights on this topic and for pointing out the close correlation between 12-month moving averages of NBD model actuals and the BED.



Note: Includes temporary closures and reopenings. Seasonally adjusted. Y axes may not start at zero.
Shaded areas indicate NBER recession dates.
Source: Business Employment Dynamics (BED).

Figure 7: Establishment openings and closures

Note: Seasonally adjusted. Y axes may not start at zero. Shaded areas indicate NBER recession dates.
Exits after 2023q1 projected based on most recent share of exits in closures (orange dots).
Source: BLS Business Employment Dynamics.

Figure 8: Establishment openings and closures

In BED data openings include not only establishment births but also reopenings of temporarily closed establishments, and closures include not only establishment deaths but also temporary closures. Figure 8 shows establishment *birth* and *exit* data from the BED. Critically, an establishment birth is a new establishment with no activity in the past year, and an exit is a closure that does not reopen within a year. Since exit data require multiple sub-

sequent quarters for measurement, they lag the birth data, but we report simple projections of exits.

Comparing the left and right panels reveals that the slowdown in establishment births (previously shown on figure 1) is much less dramatic when measured in terms of job creation. Establishment births created roughly 1 million jobs per quarter, on average, from 2021:Q2 through the last observation in 2023:Q4. But job creation from net establishment entry has slowed from its high pace of 2021 due to a strong rise in exit.

Notably, our main focus in this note has been on *firm* entry, while the NBD model and related discussion are focused on *establishments*. Data on firm exit lag considerably and are not yet available for the period covered by the BLS preliminary benchmark announcement.

5 Conclusion

While there is still much we do not understand about the surge in business entry since 2020, with the data in hand we can conclude that this period featured a surge in genuine entpreneurial activity. New firm creation—complete with the hiring of workers—jumped to a pace not seen since before the Great Recession. While there is clearly some cooling evident in the most recent data, potential entrepreneurs continue to submit business applications at an elevated pace, particularly in sectors that are intensive in high tech activity.

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