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Abstract

We provide evidence that both firm and establishment entry rates in the US have been increasing over the past decade, seemingly ending the secular decline observed over previous decades. However, the job-size of new businesses relative to incumbents has decreased substantially. Controlling for these opposite trends reveals that the *size-adjusted* entry rate continues to decline.

Key words: Business entry rates; Business dynamism; Size-adjusted entry rates; BDS; BED

JEL Classification: E22, E32

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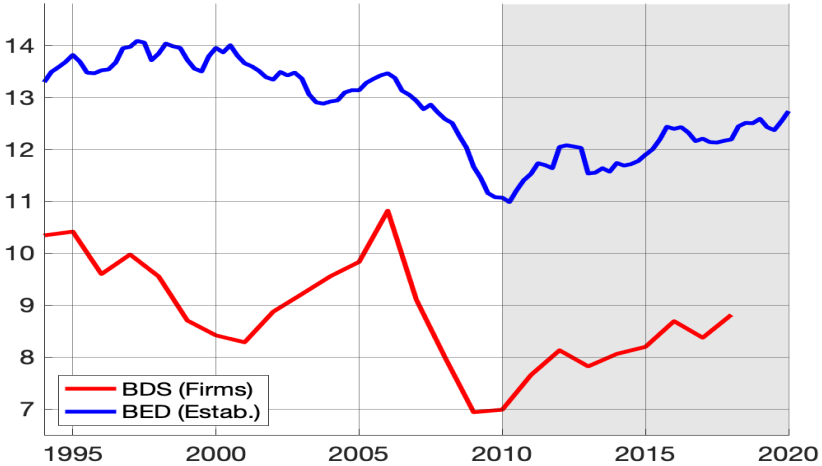
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1 Introduction

There is broad consensus in the literature that business entry rates have experienced a secular decline since the 1980s decade ((Decker et al. (2014), Decker et al. (2016a), Decker et al. (2016b), Hathaway and Litan (2014)). This stylized fact has given impetus to research in determining the sources of such slowdown of business dynamism within industries, and across size and age categories (Calvino et al. (2020), Decker et al. (2020), Ackcigit and Ates (2021)). It has also motivated a range of policy discussions and debates on trade agreements, tax and regulation policies, incentives for innovation, and other supporting measures for business creation.

Figure 1: US entry rates (1994-2020), Annual (%).



Note: Shaded area corresponds to the 2010-2020 period. BED data is annualized.

But somewhat surprisingly, we show that a different picture has emerged over the past decade (see Figure 1). In the annual Business Dynamics Statistics (BDS) database released by the US Census Bureau, the US firm-level entry rate (or, the start-up rate) shows a steady increase since 2010. The renaissance of business dynamism is also reflected in the quarterly Business Employment Dynamics (BED) database provided by the Bureau of Labor Statistics. The establishment entry rate experienced a sharp upward trend over the 2010s, approaching the average rate observed in the early 1990s. Put differently, business dynamism is rising, and hence appears to deviate from the consensus view.

While the secular decline in the entry rates, which describes the extensive margin of entrepreneurial

activity, appears to have stopped in 2010, it may be the case that the employment generating capacity of new firms and establishments has continued to wane. Indeed, previously, [Sadeghi \(2008\)](#), [Choi and Spletzer \(2012\)](#), and [Decker et al. \(2016a\)](#) have noted that job creation by startups or new establishments has declined over the 1990s and 2000s. Based on this evidence, a new firm or establishment in the 2010s (in terms of the jobs associated with the new production unit) is not the same as in the 1990s. How might this shrinking of the intensive margin matter for understanding the rising entry rate? Answering this question is the focus of our paper.

We construct a size-adjustment factor to make comparable the employment creation of a new business unit in the 2010s with that of a new business unit in the 1990s. The size-adjustment factors are built for both firm-level and establishment-level data. Adjusting with this factor, the series of new businesses and incumbents gives the size-adjusted entry rates as a measure of business creation with constant size. The evidence found in this paper indicates that the size-adjusted entry rates have not recovered over the 2010s and have stabilized at all-time low levels around 6.5% per year for firms and 8% per year for establishments.

2 Business dynamism

In this section we provide evidence on recent trends of US business dynamism from both firm-level BDS data and establishment-level BED data.¹ Although the BDS sample period begins in 1978, we have considered the first observation in 1994 to have a common reference period with that of the BED. As previously stated, the focus of our paper is the 2010s decade.

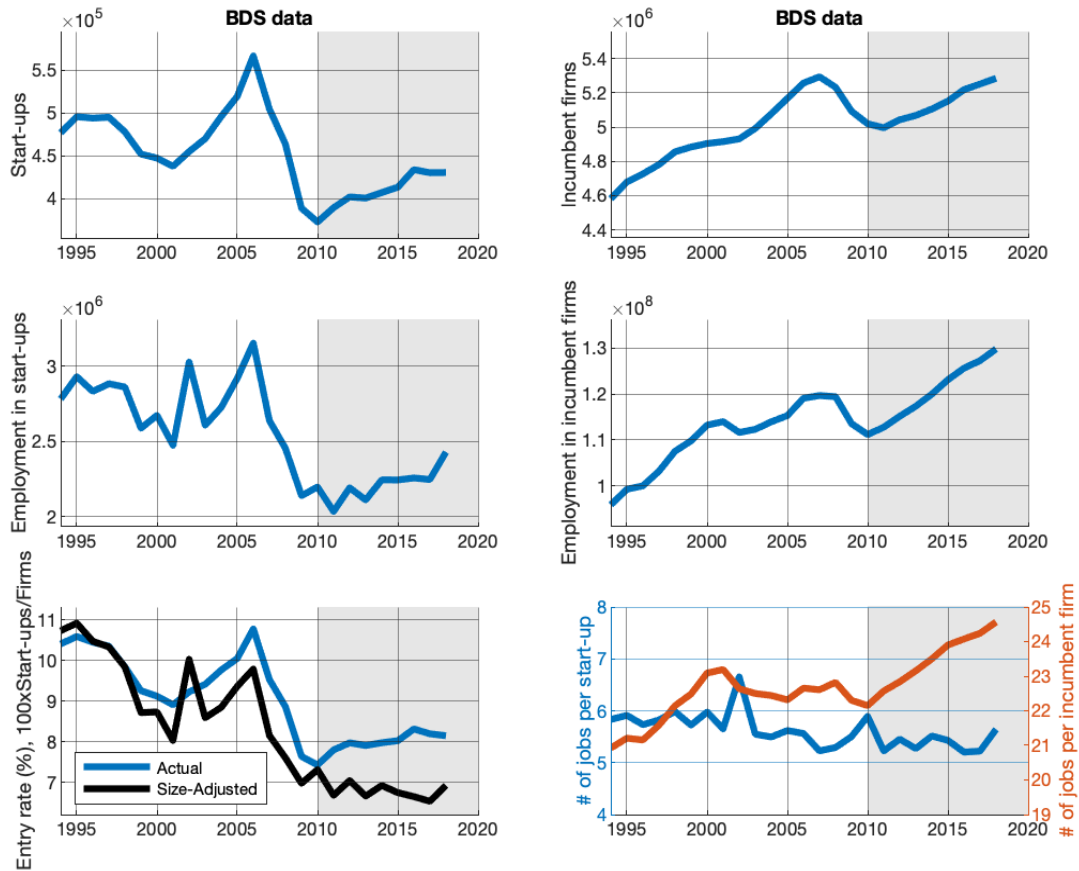
2.1 Firms

The annual series of firm start-ups is tabulated in the BDS database as those firms with age 0 years, as they have been created over the previous year. The release also provides the annual series of the number of people employed in these start-ups. [Figure 2](#) plots the BDS series reported from 1994 to 2018 for the units of both start-ups and incumbent firms (top row), and also for the employment held in either category (middle row). The bottom row of [Figure 2](#) includes the entry rate, obtained by

¹[Goetz et al. \(2017\)](#) provide an overview of the available data for entrepreneurship research (Table 11.1, page 436).

dividing the number of start-ups over the number of incumbent firms (bottom-left diagram), and the job size of either start-ups or incumbent firms (bottom-right figure), obtained by dividing the number of people employed in each category by the number of firms involved.

Figure 2: Business dynamism of US firms with BDS data (1994-2018)



Note: Shaded area corresponds to the 2010-2020 period.

Focusing the attention on the 2010s decade, we highlight some remarkable findings along three dimensions:

i) Business creation

Both start-ups and firm incumbents *rise* after 2010. The number of start-ups trends upwards from about 370 thousand created in 2010 to 430 thousand in 2018 (up by 16%). To a lesser extent, incumbent firms also move up from 5.0 million in 2010 to nearly 5.3 million in 2018 (up by 5%).

ii) Employment creation

There is a marked difference between the employment patterns of incumbents and start-ups. Incumbent firms increase their employment size after 2010 while start-ups barely change the number of hirings. The job creation of the 2010s decade concentrates on existing firms. Figure 2 (middle row) shows a substantially steeper pattern of employment in incumbent firms than in start-ups over the 2010s. When looking at intensive margin, the number of jobs per production unit in the 2010s, the number of hirings per start-up moves erratically between 5.2 and 5.9 jobs, while the number of jobs per incumbent firm rises steadily from 22.2 in 2010 to 24.6 in 2018.

iii) Entry rate

The US firm-level entry rate rises after 2010. As a consequence of a larger growth of start-ups than incumbents, the entry rate goes up from 7.43% in 2010 to 8.15% in 2018, with a peak observed in 2016 at 8.31%.

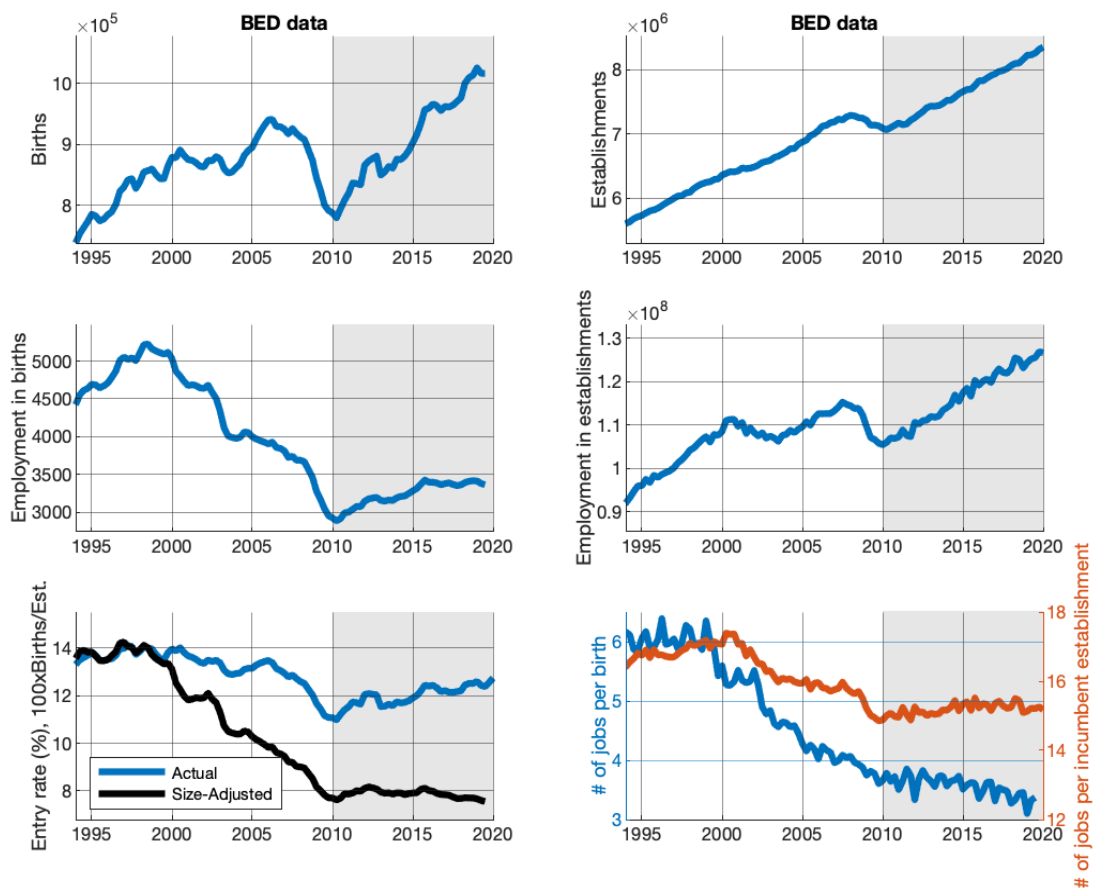
2.2 Establishments

The quarterly BED database has been extensively considered for studying establishments (see, for example, [Sadeghi \(2008\)](#) and [Choi and Spletzer \(2012\)](#)). The BED series starts in 1992 based on the administrative records of the Quarterly Census of Employment and Wages (QCEW). The QCEW covers all establishments under State unemployment insurance and hence embodies almost completely all employment on non-farm payrolls. An establishment is defined as “an economic unit that produces goods or services, usually at a single physical location, and engages in one or predominantly one activity”.

The BED series that best captures the entrepreneurial activity is the private establishment *births* because it excludes re-openings of seasonal businesses ([Sadeghi \(2008\)](#)). We annualize the quarterly

series by adding up the numbers observed in the current and three previous quarters. The sample runs from 1994 to 2019. As Figure 3 shows, there are two elements shaping business creation in BED data over the last decade: i) the remarkable increase in the number of births relative to incumbents (the strength of the extensive margin of entry), and ii) the little gains of jobs associated with births relative to incumbents (the weakness of the intensive margin of entry). Next, we describe the evolution of these two margins for business creation, employment creation, and the entry rate.

Figure 3: Business dynamism of US establishments with BED data (1994-2020)



Note: Shaded area corresponds to the 2010-2020 period.

i) Business creation

Both births and incumbent establishments *increase* throughout the 2010s decade (top row in Figure 3). After the 2007-08 financial crisis, the rise in births exhibits a fast and strong recovery from nearly

800 thousand births in 2010 to more than 1 million by the end of 2019 (25% change). Incumbents rise steadily from 7.1 million to 8.3 million establishments by the end of the decade (17% increase). Both series pass over its pre-2007 level by 2014-2015 and reach an all-time high during the last reported year of 2019.

ii) Employment creation

After a the sharp decline over the 2000s decade, the employment creation in establishment births shows a weak recovery over the 2010s decade, which by the end of 2019 only represents 65% of the maximum value reached in 1999 (3.4 million versus 5.5 million), as observed in the middle row in Figure 3. This is in contrast with the steady and fast increase in the employment held by incumbent establishments which, after a relatively stable 2000s decade, increased by nearly 20% during the 2010s decade (from around 105 million in 2010 to 126 million in 2019). Therefore, the establishment births have little capacity to create jobs, much smaller than that observed in expanding establishments. As seen in the bottom-right panel of Figure 3 there is a very low number of new jobs per establishment birth in the 2010s (close to 3 jobs when in the 1990s the number was around 6 jobs created per birth). Moreover, the number of hirings in births slightly trends downwards over the 2010s decade. Meanwhile, the average size of incumbents is quite stable around 15 workers per establishment (about 17 in the 1990s).

iii) Entry rate

The US establishment entry rate shows a modest upwards trend, moving from 11% in 2010 to 12.7% in 2019. Such a rise is explained by a faster increase in the count of establishment births than for incumbents as documented in the description of business creation above.

2.3 Size-adjustment factors

Did US business dynamism recover in the 2010s? In Figures 2 and 3 we documented that the actual BDS and BED data show that business dynamism seems to have recovered. This evidence, clearly, does not fit the widely held view of 'declining business dynamism' and suggests that a recovery has been underway. Consequently, model building efforts to understand business dynamism and policy advice that are based on the prevailing view would be at odds with the post-2010 evidence we have highlighted in Figures 2 and 3. The main part of our analysis is to go further than the headline data

and consider the joint dynamics of the intensive margin (jobs associated with a single new production unit) and the extensive margin (the total number of new production units) to determine the ‘effective’ or ‘size-adjusted’ entry rates.

The employment size of business units can be measured by the average number of jobs they create. Specifically, we consider the average employment creation in business entry as

$$E^{entry} = \frac{\text{Hirings of Births}}{\# \text{ of Births}}$$

and the average employment in existing businesses (incumbents)

$$E^{inc} = \frac{\text{Total Employment}}{\# \text{ of Incumbents}}.$$

Then, we define the size-adjustment factors for entry and incumbents, in a given period t , as

$$\bar{E}_t^{entry} = \frac{E_t^{entry}}{\frac{1}{T} \sum_{t=1}^T E_t^{entry}} \quad \text{and} \quad \bar{E}_t^{inc} = \frac{E_t^{inc}}{\frac{1}{T} \sum_{t=1}^T E_t^{inc}},$$

where T accounts for the base period running from 1 to T . The size-adjustment factor captures the evolution of the average employment associated with business units. The reference (base) period is the 1990s decade. This choice has the advantage that it allows us to compare how size-adjusted entry evolved relative to the average over a longer period (close to a decade) instead of, for example, the initial periods, E_{1994}^{entry} and E_{1994}^{inc} , respectively, which would induce a greater dependence on year-to-year variations. Nevertheless, none of the findings below are sensitive to this base period assumption.

Let N_t^{entry} be the count of new businesses in period t and N_t^{inc} the number of incumbents in period t . The size-adjusted series result from the product of the actual series and their corresponding size-adjustment factors as follows:

$$\begin{aligned} \bar{N}_t^{entry} &= \bar{E}_t^{entry} \times N_t^{entry} \\ \bar{N}_t^{inc} &= \bar{E}_t^{inc} \times N_t^{inc} \end{aligned}$$

Finally, we obtain the size-adjusted entry rate (in percentage terms), which is given by

$$100 \times \frac{\bar{N}_t^{entry}}{0.5 (\bar{N}_t^{inc} + \bar{N}_{t-1}^{inc})}$$

where the average level of incumbents in the current and previous quarter follows the concepts and methodology of the BED and BDS sources.

The US size-adjusted entry rate in the BDS keeps falling after 2010 (see the black line at the bottom left panel of Figure 2). Over the 2010s decade, the size-adjusted entry rate lays down below the non-adjusted entry rate (compare blue and black lines in bottom-left diagram of Figure 2) as an indication that start-ups are relatively smaller than incumbent firms in terms of job creating capacity. Numbers are really low: the size-adjusted entry rate in 2010 is at 7.31% and even lower at 6.92% in 2018.

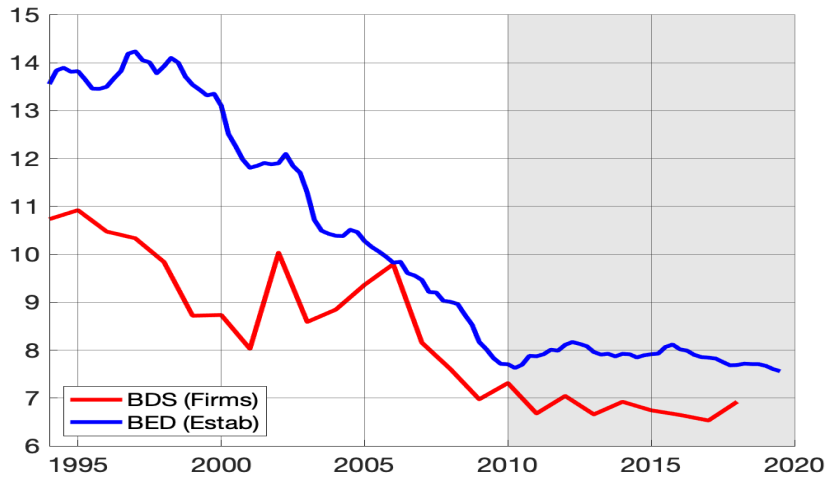
The new narrative that emerges is that the US economy experienced a recovery in the number of new businesses created after the financial crisis. However, these start-ups of the 2010s decade had a minor role in job creation, which got concentrated in existing firms. In turn, although the entry rate moved up showing a recovery in business dynamism, the size-adjusted entry rate continued a secular decline. Thus, it is the size-adjusted entry rate of start-ups that is consistent with the prevailing view on declining business dynamism in the US.

Figure 3 also displays the size-adjusted entry rate of establishments in the BED with a remarkable mark-down with respect to the actual entry rate that emerges during the 2000s and consolidates over the 2010s. In turn, the size-adjusted entry rate becomes rather flat after 2010, ending the abrupt decline initiated just before the year 2000 and contrary to the recovery path in the actual entry rate.

Figure 4 summarizes the main message of the paper. The size-adjusted entry rates, which account for the job creation capacity of new businesses, have continued to decline. There is also a convergence across BDS and BED databases when the entry rate is computed with a constant job size. Viewing through the lens of size-adjusted entry rates, therefore, provides a better picture of the evolution of business dynamism in the US.

Investigating the underlying factors that may explain these findings documented at the aggregate level is not only interesting but necessary for both researchers and policy makers. [Aguilera-Bravo et al. \(2021\)](#) take a step in this direction.

Figure 4: Size-adjusted US entry rates (1994-2020), Annual (%).



Note: Shaded area corresponds to the 2010-2020 period. BED data is annualized.

3 Conclusion

We have presented the case for using size-adjusted entry rates for a more informative view of business dynamism, which actually reconciles the post-2010 evidence with the decline in US business dynamism observed over the previous decades. Size-adjusted entry rates turn lower than the original ones because of the weaker employment creation observed in new businesses relative to incumbents. Our findings provide a useful guidepost for (i) thinking about the nature of business dynamism over the past decade, (ii) developing theoretical models consistent with the post-2010 facts and (iii) informing policy.

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