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Asier Aguilera-Bravo

Universidad de Navarra

Miguel Casares

Universidad Pública de Navarra

Hashmat Khan

Carleton University

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Department of Economics

1125 Colonel By Drive
Ottawa, Ontario, Canada
K1S 5B6

Did US Business Dynamism Recover in the 2010s?*

Asier Aguilera-Bravo†   Miguel Casares‡   Hashmat Khan§
Universidad de Navarra   Universidad Pública de Navarra   Carleton University

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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 decline observed over previous decades. However, neither the job creation and destruction rates nor the reallocation rates show signs of recovery. These conflicting features are reconciled after we control for the changes in job size of business units. As a result, we conclude that business dynamism flattened at historically low levels during the 2010s.

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

JEL Classification: E22, E32

1   Introduction

Business dynamism in its broad definition covers two dimensions of economic activity: business units (entry and exit) and their corresponding labor flows (creation, destruction and reallocation of jobs). Typically, however, business entry rates have been used as the headline indicator of this process. The relationship between exit rates and business dynamism is less straightforward. Under the Schumpeterian 'creative destruction' view, a rising exit rate along with a rising entry rate is a sign of business 'churning' which may foster economic growth. Thus, increasing entry and exit rates, taken together, is consistent with the notion of increasing business dynamism. This is precisely what we document in Figure 1 for both firm- and establishment-level in recent years.

Figure 1: Entry and Exit Rates of US Business Units
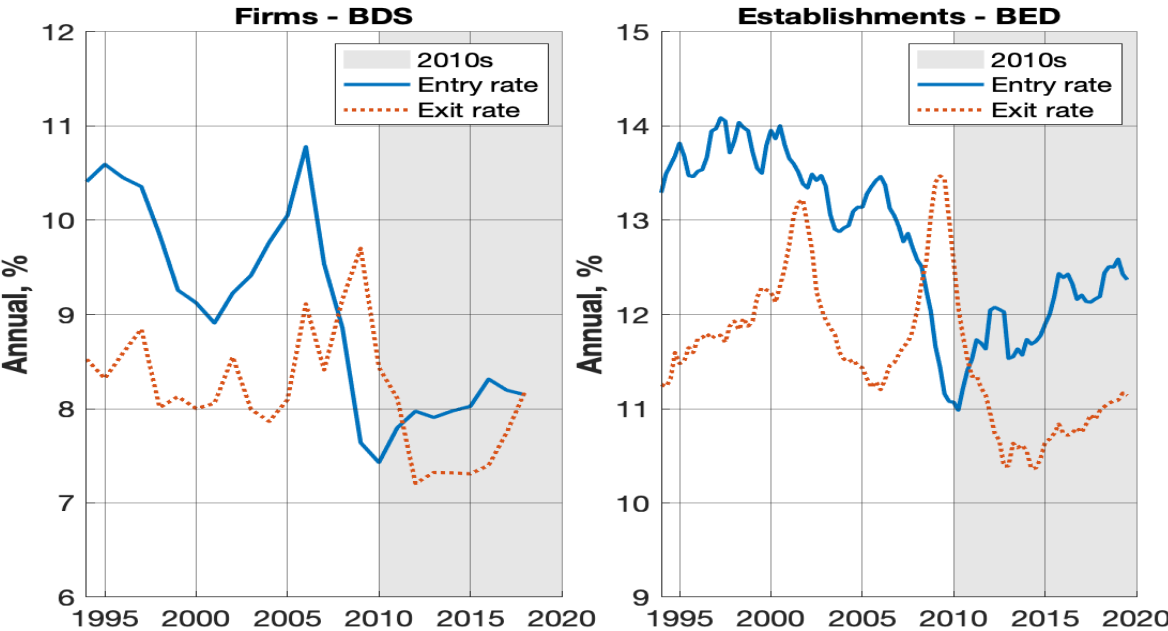
In the annual Business Dynamics Statistics (BDS) database released by the US Census Bureau, the US firm-level entry rate (the rate of start-ups born relative to incumbents) shows a steady increase since 2010. The renaissance of business dynamism is also reflected in the quarterly series of establishments provided in the Business Employment Dynamics (BED) database of the Bureau of Labor Statistics.[1] The establishment entry rate experienced a sharp upward trend over the 2010s, approach-

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

ing the average rate observed in the early 1990s (see Figure 1). The exit rates are also increasing albeit lagging behind the entry rate.

These post-2010 rising trends sit oddly with the consensus in the literature that business dynamism experienced a secular decline over the past decades ((Decker et al. (2014), Hathaway and Litan (2014), Haltiwanger (2015), Decker et al. (2016a), Decker et al. (2016b)). The latter 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), Andrew (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. Interestingly, however, when we bring in the labor dimension, the lack of business dynamism remains.

The main focus of our paper is to reconcile these opposing features in the data and determine the direction of business dynamism over the past decade. To that end, we construct size-adjusted entry and exit rates keeping a constant job-size of business units across time. Our results show that the *size-adjusted* entry and exit rates have bottomed-out for both firms and establishments, confirming the decline in business dynamism including the past decade. This highlights the importance of integrating both dimensions of business dynamism to unambiguously determine its evolution.

## 2 The labor dimension of business dynamism

2.1 Job flows

Having documented the rising trends in business entry and exit rates (Figure 1), we now introduce other measures of business dynamism related to labor flows. Specifically, following Haltiwanger (2015), we consider the job creation and destruction rates, and the job reallocation rate. Once again, we do so for both firm-level BDS data and establishment-level BED data.

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436). 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.

Figure 2: Labor Flows of US Business Units
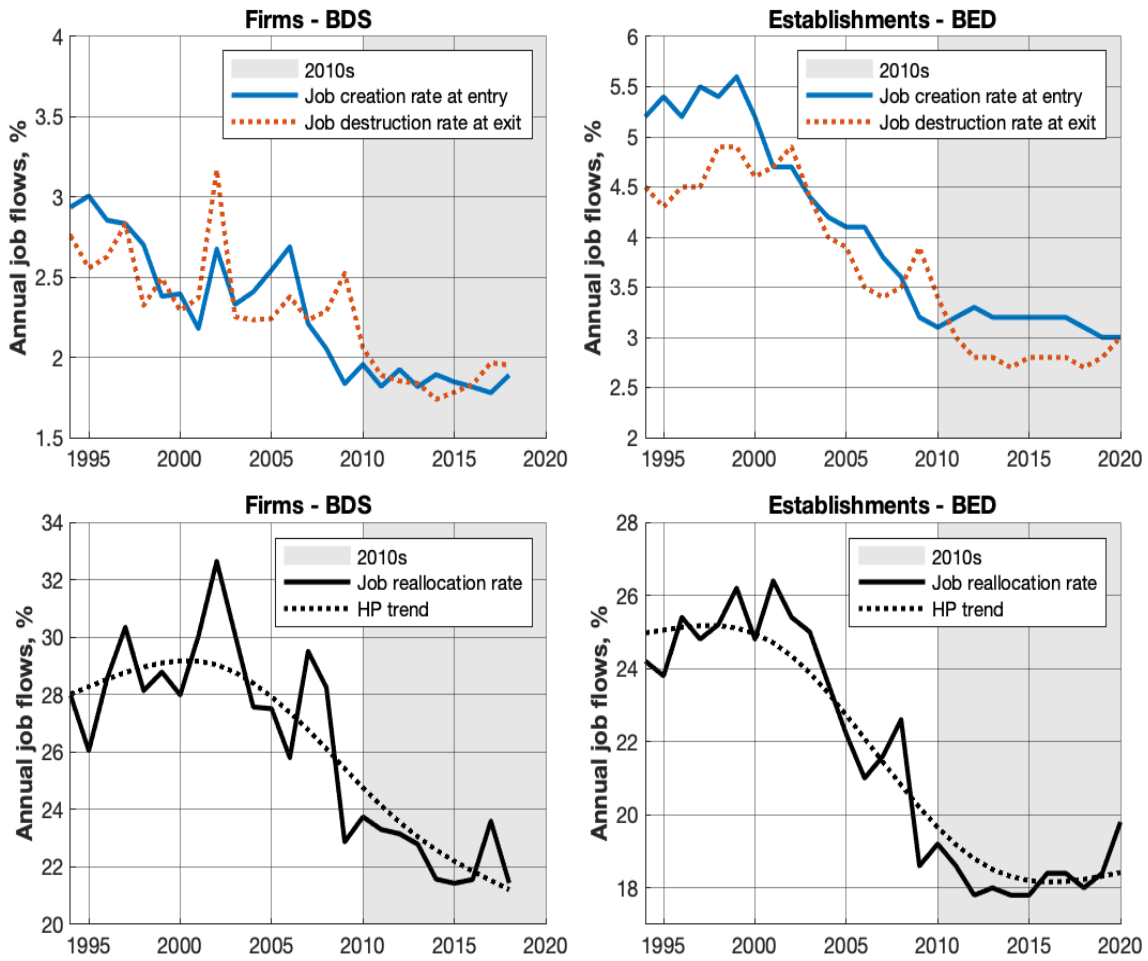
The top row in Figure 2 documents the effects of business activity on job creation and destruction. The job creation rates at entry are obtained as the number of jobs in start-up firms (BDS data) and in establishments (BED data) created in the last year as a percentage of the average employment between the current and the previous period. Analogously, we use the number of jobs lost in business shutdowns in the last period to obtain the job destruction rates at exit. As an indicator of job churning, the bottom row of Figure 2 shows the job reallocation rate.[2] All series in Figure 2 come in annual data.

The rate of job creation at firm start-ups has a falling pattern from numbers close to 3% of em-

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[2] See BDS Glossary (US Census Bureau) for the definition of the job reallocation rate.

ployment in 1994 to values below 2% in the 2010s decade. The rate of job destruction at firm deaths also trends downwards with severe falls in the second halves of the 1990s and 2000s. By the 2010s, job creation and destruction rates are very small and similar (their averages in the decade are 1.86% and 1.88% of employment, respectively), far away from the values close to 3% documented at the beginning of our sample. For establishment-level data, the shrinking of job flows at both entry and exit is observed in the 2000s. A playground slide pattern of the curves on the top right panel of Figure 2 shows a severe decrease of job creation (destruction) rates in opening (closing) establishments from values around 5% of employment in the late 1990s to a range close to 3% in the 2010s.

As previously noted in Haltiwanger (2015), the job reallocation rates in both establishments and firms also suffer an intense reduction in the 2000s.[3] Including the most recent data, we find that the rates flatten out in the 2010s at around 22% at firms and 18% at establishments, respectively.[4] Therefore, the percentage of workers switching jobs during the 2010s is at the lowest values observed over the full sample.

The top row in Figure 3 shows the series of the average number of workers employed (jobs) in different types of business units.[5] As a general finding, the job size of opening and closing businesses turns relatively smaller than that of incumbents.[6] At the firm-level, the number of jobs per incumbent trends upwards, with an average in the post-2010 period 5.35% higher than in the pre-2010 period. By contrast, the average job size of start-ups and firm deaths is smaller in the 2010s compared to the pre-2010 period, with drops of 5.39% and 11.92%, respectively. Moreover, the size reductions observed at the establishment level are substantially higher. The falls in the average number of jobs created in entry and exit, are 29.84% (from 5.1 jobs to 3.6 jobs) and 33.48% (from 5.1 jobs to 3.4 jobs), respectively, while the job size in incumbent establishments features a weaker fall of 7.36% (from 16.4 jobs to 15.2 jobs). Taken together, these facts reveal the changing nature of US entry and exit in terms of their job size, that is, a new firm or establishment in the 2010s (in terms of the jobs associated with the

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[3]See Figures 1a and 1b in Haltiwanger (2015) which end in 2014:3 and 2012, respectively.

[4]The Hodrick-Prescott filtered series provide the trend behavior of the reallocation rates displayed in Figure 2 (see dotted lines).

[5]See Choi and Spletzer (2012) for pre-2010 evidence.

[6]We note a substantial drop in the relative job size of business units during the 2000s followed by a flattening during the 2010s.

new production unit) is considerably smaller than in previous decades. Importantly, in this paper, we argue that this shrinking of the intensive margin matters for reconciling the two dimensions of business dynamism, the business units (Figure 1) and their corresponding labor flows (Figure 2), after 2010.

Figure 3: Job Size and Size Adjustment Factors of US Business Units
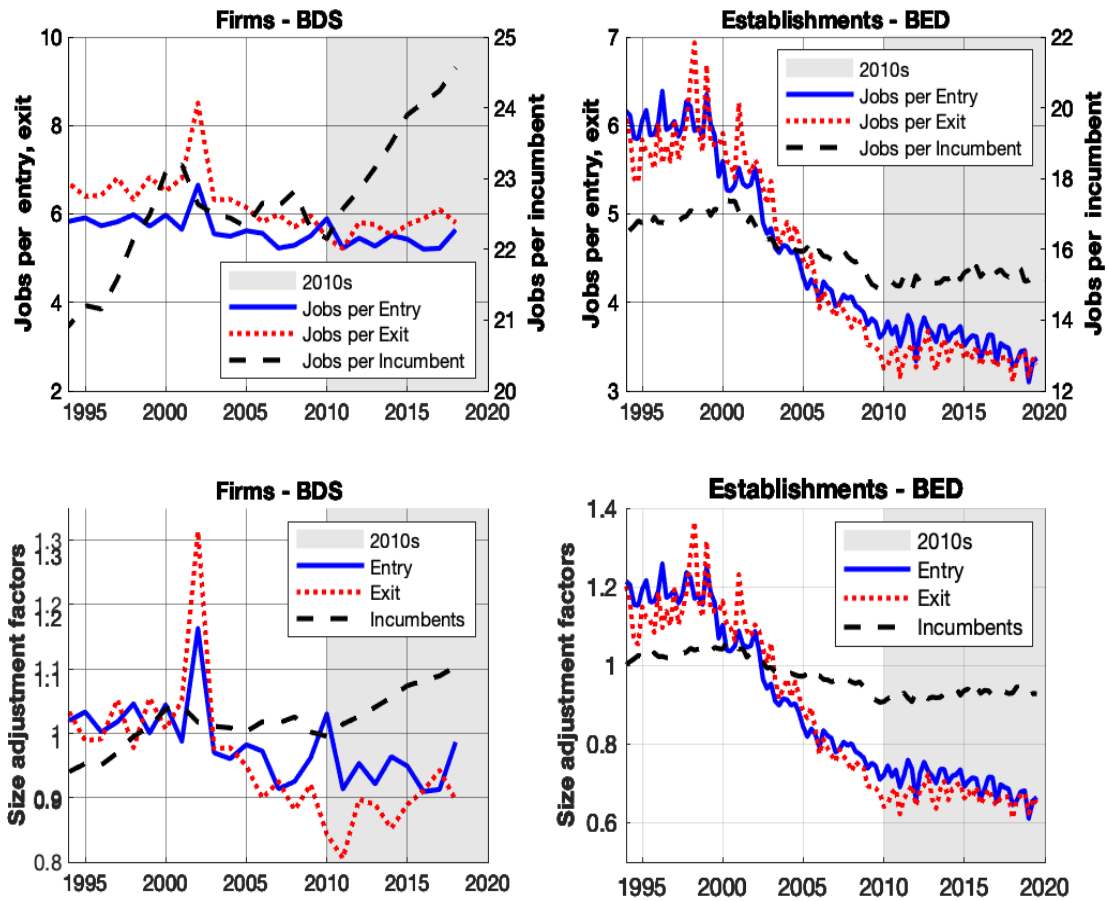
In the next sub-section we construct size-adjustment factors to control for these substantial changes in the job size of entry, exit and incumbents.

2.2 Size adjustment factors

In a given period t, let J_t^{entry} denote the average job creation in business entry, J_t^{exit} the job destruction in business exit, and J_t^{inc} the job size of incumbents (all displayed in the top row of Figure 3).

Then, we can define the corresponding size adjustment factors as

$$\bar{J}_t^{entry} = \frac{J_t^{entry}}{(1/T)\sum_{t=1}^{T} J_t^{entry}}; \quad \bar{J}_t^{exit} = \frac{J_t^{exit}}{(1/T)\sum_{t=1}^{T} J_t^{exit}}; \quad \bar{J}_t^{inc} = \frac{J_t^{inc}}{(1/T)\sum_{t=1}^{T} J_t^{inc}}$$

where T accounts for the base period running from 1 to T. These size adjustment factors capture the evolution of the average employment associated with business units relative to that of the base period. For annual (BDS) data, the base period is 1994-2009, with $T = 16$ years. For quarterly (BED) data, the base period is 1994:1-2009:4 with $T = 64$ quarters. Hence, a factor higher than 1.0 would be indicative of larger size than the 1994-2009 average while a factor below 1.0 informs of a smaller relative size.

The bottom row of Figure 3 shows the size adjustment factors at both firm level and establishment level. Firm-level size adjustment factors for entry and exit in the 2010 are below 1.0 reflecting the downsizing of start-ups and closing firms; contrasting with rising numbers for the size adjustment factor of incumbents that reach the 1.10 level in the last observed year 2018 (10% larger than the average 1994-2009 level). Regarding the size adjustment factors of establishments, incumbents report values slightly below 1.0 in the 2010s while both entry and exit suffer the deep downsizing of the 2000s that result in factors between 0.6 and 0.7 in the 2010s decade (i.e., the job size of establishments is around 2/3 of that the average obtained over the 1994-2009 period).

3 Size-adjusted US entry and exit rates

In any period t, let N_t^{entry} be the count of new businesses, N_t^{exit} the number of business shutdowns, and N_t^{inc} the number of incumbents. The size-adjusted series in levels result from the product of the actual series and their corresponding size adjustment factors as follows:

$$\bar{N}_t^{entry} = N_t^{entry} \times \bar{J}_t^{entry}; \quad \bar{N}_t^{exit} = N_t^{exit} \times \bar{J}_t^{exit}; \quad \bar{N}_t^{inc} = N_t^{inc} \times \bar{J}_t^{inc}$$
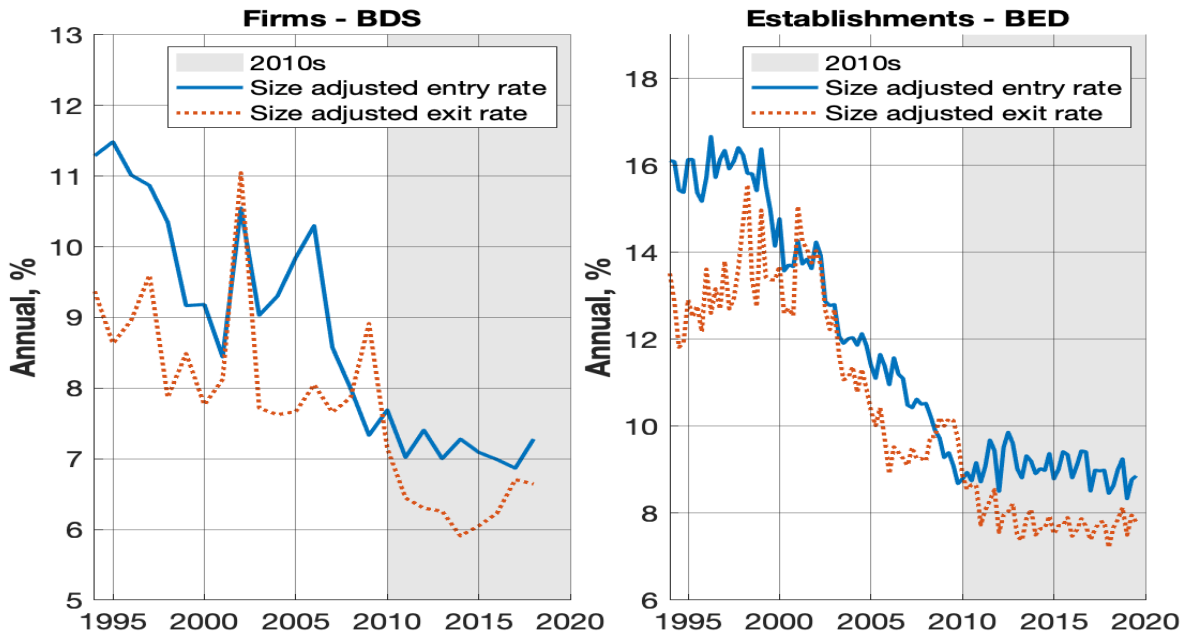
Next, we obtain the size-adjusted entry and exit rates (in percentage terms), as follows

$$\tilde{n}_t^{entry} \equiv 100 \times \frac{\bar{N}_t^{entry}}{0.5\left(\bar{N}_t^{inc} + \bar{N}_{t-1}^{inc}\right)} \text{ and } \tilde{n}_t^{exit} \equiv 100 \times \frac{\bar{N}_t^{exit}}{0.5\left(\bar{N}_t^{inc} + \bar{N}_{t-1}^{inc}\right)} \tag{1}$$

In (1), the average level of incumbents in the current and previous periods follows the concepts and methodology of the BED and BDS sources.

Figure 4: Size-Adjusted Entry and Exit Rates of US Business Units

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

The US size-adjusted entry rate in the BDS does not recover after 2010 as the untreated entry rate does (compare blue lines of the left-side see Figure 4). Numbers are really low: the size-adjusted entry rate in 2010 is at 7.69% and even lower at the end of the sample (6.87% in 2017 and 7.28% in 2018). After running some statistical inference, we found that the OLS estimates of a linear trend on US entry rates during the 2010s decade switch from positive to negative values when considering size adjustment (both for firms and establishments), though these slope coefficients are not statistically different from zero. The estimated slopes from the OLS regression with the full sample period (indicate a more severe detrend for the whole 1994-2019 with size-adjusted entry rates (1994-the estimated coefficient is -0.19 versus -0.11 with the untreated series with firm data, and –0.088 versus -0.023 with establishments data).[7] The new narrative that emerges from these results is that the US economy experienced a

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[7]A complete description of the OLS regressions of linear trends on size-adjusted versus untreated entry and

recovery in the number of new businesses created after the financial crisis, but these start-ups and new establishments 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 that is consistent with labor dimension of business dynamism which displays no recovery during the last decade.

The comparison between Figures 4 and 1 summarizes the main message of the paper. The size-adjusted entry and exit rates, which account for the job flows in business creation and destruction, have continued to decline in the last decade, in a way that obscures the apparent recovery observed in the untreated series of Figure 1. Viewing through the lens of size-adjusted entry rates (i.e., controlling for job size variations) serves to examine the two dimensions of business dynamism in the US.

The empirical evidence obtained with this integrated approach indicates that the fragility of US entrepreneurial activity comes from the difficulties to create employment rather than the lack of initiatives to create new businesses. 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.

4 Conclusion

This paper documents recovery signals of US entrepreneurial activity: the entry rates of both firms and establishments show an upwards trend during the 2010s decade. However, the labor dimension of business dynamism weakens as job flows in business creation and destruction have a decreasing participation on overall employment. Additionally, the relative size of new business units turns significantly smaller than that of incumbents. A size-adjustment factor is used to capture the evolution of the job size of business units. The corresponding size-adjusted entry and exit rates pin down the creation and destruction of production units at a constant job size. Looking at such integrated indicators, the secular decline of US business dynamism deepens in the last decade.

Our findings provide a useful guidepost for (i) thinking about the nature of business dynamism

exit rates can be found in a technical appendix available upon request (and on the authors' websites).

over the past decade, (ii) developing theoretical models consistent with the post-2010 facts and (iii) informing policy.

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