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Job Creation and Firm Dynamics in the United States

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Executive Summary

Business dynamism plays an important role in job creation and productivity growth in the United States. Business start-ups are an important contributor to that dynamism. Start-ups contribute disproportionately to job creation but are very heterogeneous in terms of productivity. The subsequent “up-or-out” dynamic of young businesses is an important source of job and productivity growth: exiting young businesses are of very low productivity, and the surviving young businesses exhibit rapid growth with above average productivity. The United States shows signs of becoming less dynamic over time—exhibiting a slower pace of reallocation with an accompanying slower pace of job creation from business start-ups. The recent recession saw the lowest overall rate of gross job creation and job creation from start-ups since at least 1980. Job creation for small (young) businesses took an especially large hit in the recession and has been very slow to recover. An open question is whether the observed decline in dynamism exhibited by U.S. businesses will have adverse consequences for U.S. innovation, job, and productivity growth in the future.

The fundamental impulse that keeps the capital engine in motion comes from the new consumers' goods, the new methods of production and transportation, the new markets.... [The process] incessantly revolutionizes from within, incessantly destroying the old one, incessantly creating a new one. This process of Creative Destruction is the essential fact of capitalism.

Joseph Schumpeter

I. Introduction

The recent economic downturn and the relatively anemic recovery to date provoke much anxiety and concern among the public, the business sector, and the policy-making community. Although there are signs of economic improvement, an open question is what will be the nature of

the recovery and the prospects for sustained growth. In this paper, the contribution of business dynamism to U.S. job creation and productivity growth is explored. A key part of this exploration is to uncover the role of business start-ups, young firms and small firms to job creation and productivity growth. After first providing an overview of these dynamics, I discuss whether their nature has changed over the last few decades, the possible sources of these changes, and the potential implications for future U.S. economic performance.

The recent economic downturn has exhibited large increases in job destruction and layoffs, and the recovery has been slow in terms of hiring, job creation, and investment. However, it is important to emphasize that some *churning* of firms and jobs are part of a healthy economy. It is inherent in any dynamic capitalist economy that some firms enter, thrive, and grow, while others decline and sometimes exit. This paper summarizes recent economic research into the key role this churning process plays in enhancing economywide productivity growth. The sorting of successful business endeavors from unsuccessful ones is, in fact, a central and necessary part of our market economy, and it is essential that the public and policymakers understand this process.

The connection between the churning of businesses and jobs and productivity growth highlights the complex nature of economic growth. Developing new products and processes as well as adapting existing technologies to changing economic conditions involve substantial experimentation. Business start-ups and young businesses play an especially important role in business dynamics. Understanding the nature of those dynamics in general and the role of business start-ups in particular is of first-order importance to understanding the sources of job creation and productivity growth in the United States and the vulnerabilities of such growth.

II. The Role of Entry and Exit in Churning

The churning of businesses and jobs is a ubiquitous feature of the U.S. private sector. Each year, millions of jobs are created by the growth in existing businesses and the creation of new businesses. At the same time, millions of jobs are destroyed as businesses contract or close. Figure 1 illustrates the magnitude of this phenomenon, displaying the average annual job creation and job destruction rates at U.S. establishments between 1980 and 2009.¹ The pace of creative destruction is on average very high. In any given year, about 17% of all jobs are from

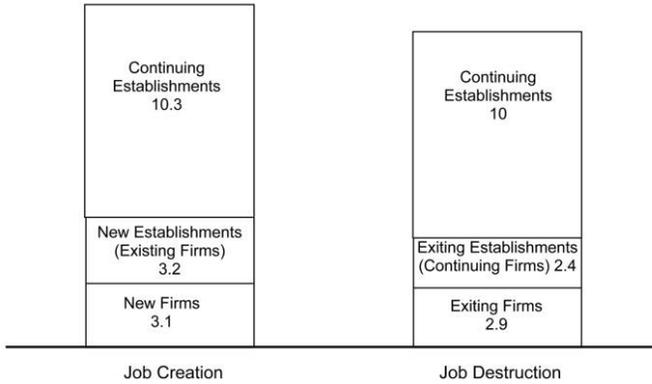


Fig. 1. Job creation and destruction, U.S. private sector, annual rates (% of employment), 1980–2009. Source: Tabulations from BDS combined with tabulations from Haltiwanger, Jarmin, and Miranda (2010).

expanding or entering businesses. Moreover, about 15% of all jobs present the prior year have disappeared through contracting or exiting businesses. The chart also indicates the significant role played by firm and establishment entry and exit.

To understand the role of business entry and exit in this context, it is important to distinguish between firms and establishments. The latter is a single physical location where economic activity takes place. A firm is defined as the economic activity under common operational control. To make the distinction concrete, for a large national chain each store is an *establishment*, whereas all the economic activity from all the stores from that chain (and distribution centers, headquarters, etc.) constitutes the *firm*.

With these concepts in mind, figure 1 shows that 18% of gross job creation is accounted for by new firms, 19% of gross job creation by the opening of new establishments of existing firms, and the remainder (63%) by the expansion of existing establishments. In terms of gross job destruction, 17% is accounted for by firm exit, 14% by the closing of establishments of existing firms, and the remainder (68%) by the contraction of existing establishments.

Figure 1 thus shows that the ongoing restructuring and reallocation in the United States involves considerable opening and closing of establishments and firms. Such churning is costly. The nature of such costs and the obstacles and challenges of opening establishments of existing firms and opening new firms likely differ substantially—hence the importance of distinguishing between the two types of openings.

So why does the U.S. economy exhibit such a high pace of churning of firms, establishments, and jobs? In healthy economic times, such churning contributes substantially to productivity growth. That is, churning reflects the moving of economic resources away from less productive to more productive establishments and firms. Moreover, as will also come apparent, the entry of new firms and the subsequent up-or-out dynamic of young firms contribute substantially to productivity growth.

Before discussing churning's contribution to productivity growth, it is instructive to examine more closely the role of young businesses in these dynamics. This is the subject of the next section.

III. Young Firms versus Small Firms as Sources of Job Creation

Figure 1 shows that new firms are an important source of job creation. The conventional wisdom is that small businesses are the primary net creators of jobs. Are these two facts connected? The answer is they are closely connected, as explored in depth by Haltiwanger, Jarmin, and Miranda (2010), who show that much of the conventional wisdom stems from the fact that business start-ups contribute much to job creation and business start-ups are small. In this section, I provide an overview of the findings from that earlier work.

Figure 2 shows the share of employment of start-ups by firm size class. A large fraction of employment by start-ups are in the very small firm categories. Thirty-eight % of employment from start-ups are from firms that start up with fewer than 10 employees—and more than 70% of employment from start-ups are at firms that start up with fewer than 50 employees.

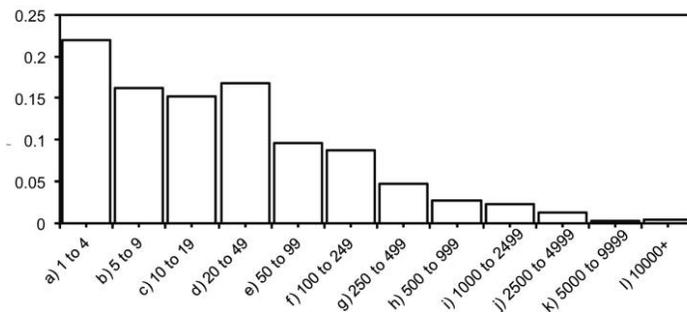


Fig. 2. Share of employment in start-ups by firm size class. Source: Haltiwanger et al. (2010).

Figure 3 shows that there is some truth to the conventional wisdom in that small businesses have higher net growth rates than larger businesses. Haltiwanger et al. (2010) show that this finding is sensitive to statistical issues such as regression to the mean. However, for the current purposes, I focus on their findings about whether it is firm age or firm size that underlies the conventional wisdom. Figure 3 shows that once firm size has been controlled for statistically, there is no longer any systematic relationship between net growth and firm size. The main implication is that it is instructive to focus on start-ups and young businesses.

Figure 4 shows how job destruction and net employment growth at the firm level vary with age of the parent firm.² Among surviving firms, young firms grow very fast in absolute terms and relative to their more mature counterparts. However, the employment-weighted exit rate (equivalent to the job destruction rate from firm exit) is also much higher for young firms. Taken together, the implication is that young firms exhibit an up-or-out dynamic—they either grow fast on average or they exit.

The up-or-out dynamic pattern for young firms is an indicator of their volatility. A more comprehensive measure of volatility is the total amount of churning of jobs over and above that due to the net changes. Davis, Haltiwanger, and Schuh (1996) developed such a measure of churning, which they called *excess reallocation*. Excess reallocation is

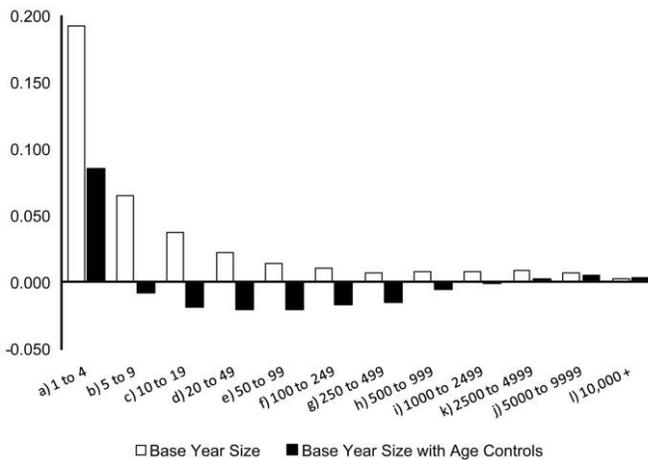


Fig. 3. Net employment growth by base year firm size. Source: Haltiwanger et al. (2010).

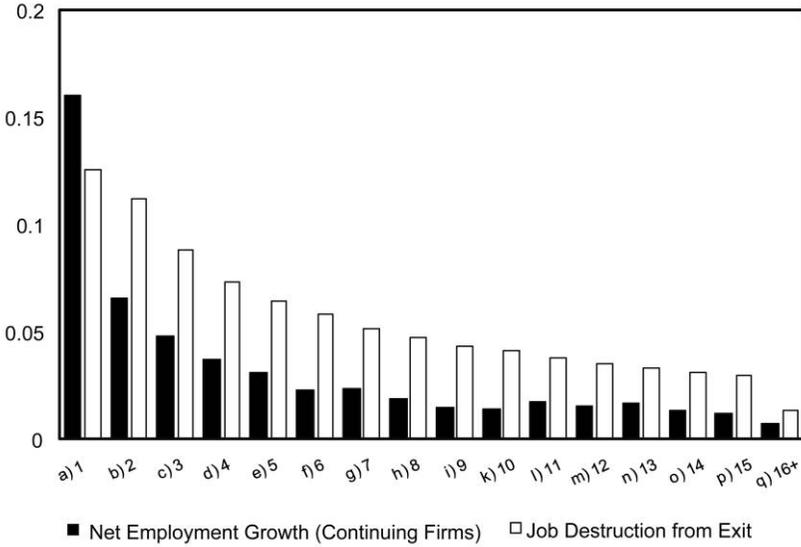


Fig. 4. Up-or-out dynamics of young U.S. firms. Source: Haltiwanger et al. (2010)

measured as the sum of job creation and destruction less the absolute value of net change.

Figure 5 confirms that young firms play a disproportionate role in the economy’s churning. The excess reallocation rate declines monotonically as firms mature. The magnitudes in figure 5 are impressive for all firms but especially for young firms. Over 40% of the jobs in a firm 1 year old are involved in reallocation, in that the jobs are either new that year or

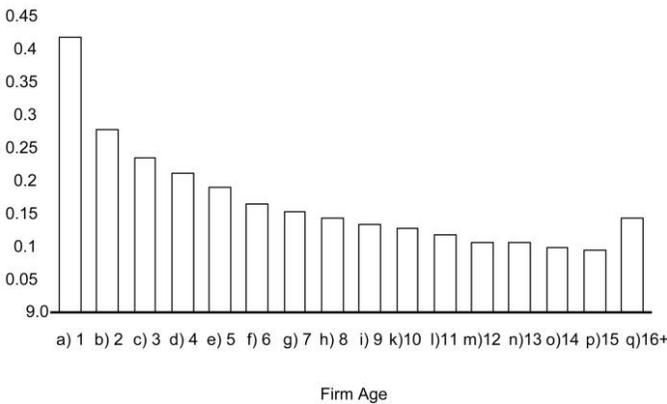


Fig. 5. Excess job reallocation rates by firm age. Source: Haltiwanger et al. (2010)

have disappeared. Even among mature firms reallocation is large in an absolute sense. Close to 15% of all jobs in mature firms (more than 16 years old) are either new or have disappeared.

IV. Is Reallocation Productivity Enhancing?

While the churning of jobs is the subject of much debate among policy-makers and the cause of much anxiety among workers, research indicates that it is important to the economy. A key finding is that there are large differences in productivity across businesses in the same narrowly defined industry. Such differences reflect a variety of factors—the ability of the entrepreneurs and managers, the way the business has been organized, the location of the business, the choice of technology, and the choice of product mix within an industry. That is, the vast number of choices made are what make any individual business different from another in the same industry.

Figure 6 illustrates a hypothetical productivity distribution within industries that reflects the patterns that have been observed in the data. As noted, a striking finding is that within narrowly defined industries there are large differences in productivity across businesses. For

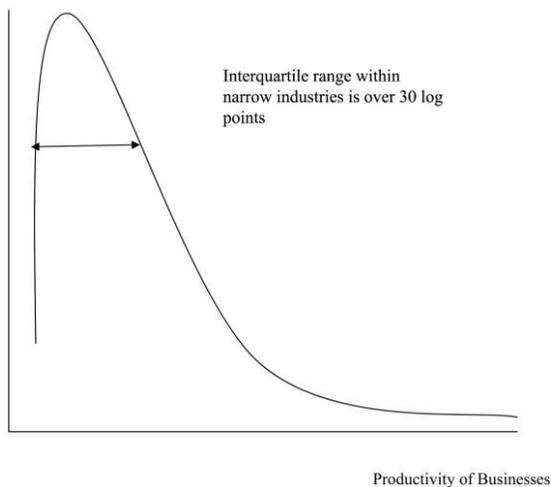


Fig. 6. Distribution of productivity across businesses in the same industry. This is a hypothetical depiction of the shape of the productivity distribution reflecting the empirical finding that productivity is approximately log-normally distributed. The reported interquartile range is based on the distribution of U.S. manufacturing establishments (see Syverson 2004).

example, Syverson (2004) finds that the interquartile range within narrow U.S. manufacturing industries is over 30 log points for measures of establishment-level total factor productivity. Foster, Haltiwanger, and Syverson (2008) show that the dispersion of establishment-level total factor productivity within detailed product classes that abstracts from variation in plant-level prices is at least as large. Similarly, there is substantial dispersion in business size. Bartelsman, Haltiwanger, and Scarpetta (2009a, 2009b) show, for example, that firms in the top quartile of the U.S. size distribution are on average 80 times larger than firms in the first quartile of the within-industry size distribution.

The large dispersion of productivity and size provide ample scope for differences across countries, time periods within countries, and industries within countries in “static” allocative efficiency. By the latter I mean the extent to which in the cross section resources are allocated to their highest-valued use. This allocation implies that the most productive firms should be the largest firms. Bartelsman et al. (2009a, 2009b) show there are large differences in the within-industry covariance of size and productivity across countries. For example, the covariance in firm size and firm productivity in the United States is high and positive whereas it is lower in Western Europe and still lower in Eastern Europe. Interestingly, while the covariance between size and productivity is low in Eastern Europe, it has been increasing substantially over the last couple of decades. Bartelsman et al. (2009a, 2009b) also show that these differences in the size and productivity covariances are potentially quite important in accounting for differences in output per capita across countries.

Although the variation in the within-industry cross-sectional patterns of productivity and size across countries are of critical interest and importance, they offer an incomplete picture. That is, on the basis of the cross-sectional evidence alone one might conclude that there is relatively stable within-industry size and productivity distribution (e.g., that high productivity firms remain high productivity firms; large firms remain large firms). While there is persistence in both firm size and firm productivity, there also is considerable reallocation and movements within the distributions. Estimates of the persistence of idiosyncratic of productivity shocks suggest first-order yearly autocorrelation of about 0.8 (see, e.g., Foster et al. 2008). This estimate of persistence (combined with estimates of dispersion) implies that the standard deviation of innovations to productivity shocks is about 0.20 (in terms of log total factor productivity).

Putting these facts about the size and productivity distributions together helps us to understand the potential benefit of the high pace

of ongoing reallocation in the U.S. economy. To achieve static allocative efficiency, there must also be dynamic allocative efficiency. That is, the reallocation in a healthy economy should be to move resources away from the less productive to the more productive businesses. The good news is that at least in healthy economic times, the U.S. does well in terms of both static and dynamic allocative efficiency.

To explore the extent of productivity-enhancing reallocation (i.e., the extent to which reallocation contributes to dynamic allocative efficiency), much of the focus of research has been to explore the connection between firm and establishment entry and exit and productivity. In the United States, research shows that exiting businesses are less productive than continuing ones. Furthermore, the data show that, conditional on survival, young establishments have higher productivity levels and higher productivity gains than more mature establishments. In effect, the churning process replaces lower-productivity businesses with new, more productive ones, thereby increasing productivity in the economy as a whole.

Figure 7 illustrates the important role of the entry and exit of establishments in productivity growth. Using the retail industry as an example, this chart shows that entry and exit of establishments makes a greater contribution to industry productivity growth than continuing establishments. While productivity growth at continuing businesses makes an important contribution to productivity growth in some retail segments

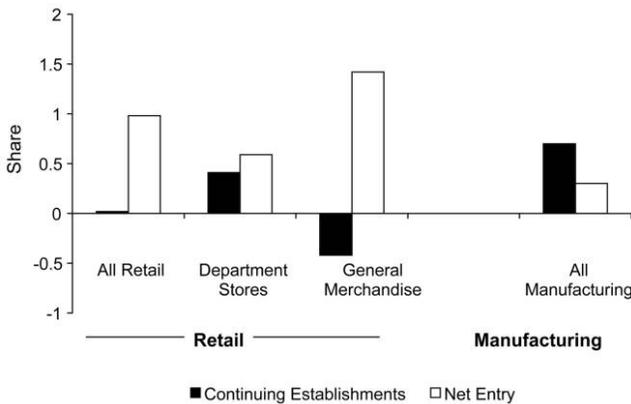


Fig. 7. Contribution of net entry to productivity growth (10-year horizon). General Merchandise includes warehouse clubs, catalog showrooms, and similar discount houses. See appendix for more information. Source: Tabulations from the Census of Retail Trade (taken from Foster et al. 2006) and the Census of Manufacturers (from Foster et al. 2001).

(e.g., department stores), virtually all the productivity growth in the sector as a whole appears to be accounted for by net entry. For comparison purposes, the overall figures for the manufacturing sector are also displayed. Here, the contribution of net entry is more modest (approximately 30%), but it remains substantial. It is also worth noting that Baily, Hulten, and Campbell (1992) and Foster, Haltiwanger, and Krizan (2001, 2006) find a substantial additional contribution of the reallocation of continuing establishments to productivity growth. For example, in the manufacturing sector, these studies suggest about 20%–30% of productivity growth is due to the reallocation among continuing establishments.

Figure 7 provides information about the relevance of establishment entry and exit for productivity growth but not necessarily firm entry and exit. Less is known about firm entry and exit given the challenges of measuring productivity at the firm level. However, much firm exit is for young firms and most start-ups and young firms are single unit establishment firms. Hence, the findings for establishment entry and exit do shed light on the role of firm entry and exit, albeit imperfectly.

More information about the role of firm entry and exit emerges from focusing on the entry and exit of single unit establishment firms (so that the firm and the establishment are one and the same). Figure 8 shows the relationship between productivity and continuing and exiting for all and single unit establishment firms. Interestingly, the patterns of all establishments are quite similar to those for single unit establishment firms suggesting that, at least for retail trade, the establishment and firm patterns for young firms are similar. Part of this effect, of course, is simply that many young establishments are part of single-unit firms.

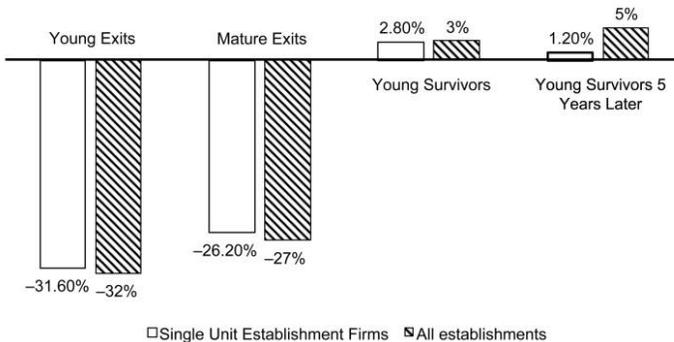


Fig. 8. Productivity of young businesses relative to mature surviving incumbents, U.S. retail trade. Young establishments are those that are under 5 years old. Source: Tabulations from Census of Retail Trade taken from Foster et al. (2006, table 5).

The up-or-out dynamic of young firms discussed earlier is closely connected to productivity differences across firms. Comparing the productivity of exits and new single unit establishment firms to the productivity of mature incumbents, the chart indicates that exits are less productive than (continuing) incumbents, and that young survivors are more productive than incumbents. The figure also shows that young survivors remain more productive five 5 years later. In particular, young survivors are initially 3% more productive than mature incumbents, and their productivity advantage over mature incumbents is about 1% 5 years later. The large productivity advantage of young surviving firms relative to exiting young (and mature) single unit establishment firms helps us understand the patterns in figure 7 showing the large contribution of net entry to productivity growth. Another closely related contributing factor is that not only are the young surviving firms more productive but they are among the fastest growing firms in the economy (fig. 4). The result is that the fast growing, highly productive young firms contribute substantially to aggregate productivity.

In short, the results suggest that a large fraction of U.S. productivity gains reflect the displacement of low productivity establishments by new establishments with higher productivity. The volatile role that new firms play in the churning of the economy, it seems, is vital to our productivity growth.

V. Is There Misallocation?

The role of reallocation in general and especially of firm entry and the up-or-out dynamic in productivity growth highlight the importance of flexibility. Such reallocation is obviously costly to both firms and workers so it is important that this reallocation be productivity enhancing and not too disruptive (i.e., so that costs do not outweigh the benefits). Put differently, reallocation has no value in its own right; it is valuable only as a critical feature of sustaining U.S. economic job creation and productivity growth. Given the complexity of such firm dynamics, it is also clear that much can go wrong with them.

Much of the recent literature concerning differences in productivity across countries and within countries over time discusses the many factors that can go wrong as countries try to achieve both static and dynamic allocative efficiency. A theme in the recent economics literature (see, e.g., Banerjee and Duflo 2005; Restuccia and Rogerson 2008; Hsieh and Klenow 2009; Bartelsman et al. 2009a, 2009b) is that there are a host of distortions to static and dynamic allocative efficiency. Such

distortions include barriers to entry and exit; regulations that deter job creation *and* job destruction; poorly functioning product, capital and labor markets; weak rule of law; poor public infrastructure for communication and transportation, as well as problems with graft and corruption or otherwise arbitrary and capricious behaviour of governments. The consequences of such distortions can be severe. There are large differences in output per capita across countries and a leading explanation (although not the only explanation) for such differences, according to the recent literature cited above, is misallocation across firms within a country.

As discussed above, in an ideal setting the most productive firms are the largest firms. In a distorted economy with poor institutions, the largest firms may not be the most productive but rather the best connected or perhaps the best at navigating the distortions within a country.³ In a related fashion, in a distorted economy, entrepreneurs with innovative ideas for new products, processes and ways of doing business may face barriers to entry and growth. Alternatively, unproductive incumbent firms may be able to maintain their size and survive because of lack of competition and distortions.

Achieving static and dynamic allocative efficiency implies that an economy needs to be sufficiently flexible and free from distortions to permit productivity-enhancing reallocation. However, given that reallocation is disruptive, it is also important to minimize the disruption costs from such reallocation in manner that does not stifle the reallocation. Few countries achieve the economic environment consistent with this broad lesson. One could argue that the United States has a market structure and economic institutions that closely approximate this objective in healthy economic times. But the recent Great Recession has reminded us that, even in the United States, the system is fragile and that disruptions in key markets can distort the economic volatility that is part of the ongoing process of making technological progress. An open question is how the prospects for the future look for the United States in terms of sustainable growth through productivity-enhancing reallocation. The next section explores patterns in U.S. business dynamism that raise some concerns.

VI. Is the United States Becoming Less Dynamic?

In the last several decades the United States has been well served by a dynamic, flexible economy. Using this as a starting point, in this section I look at whether there is evidence that the United States is becoming

less dynamic over time. It turns out there is substantial evidence that the pace of U.S. business dynamism has fallen over time. Recent studies that have focused on these patterns include Davis et al. (2007, 2010) and Davis, Faberman, and Haltiwanger (2011). The decline in business-level volatility is evident in a pronounced declining trend in the pace of gross job creation and gross job destruction, as seen in figure 9. An important component of the declining trend in gross job creation has been a decline in job creation from business start-ups. Average annual job creation from business start-ups has declined from 3.5% of employment in the 1980s, to 3% in the 1990s to 2.6% in the post-2000 period—a more than 25% decline in the pace of job creation from business start-ups.

What is the cause of this decline in U.S. business dynamism? This remains an open question for research although some progress has been made. One structural change that underlies at least part of the decline in firm volatility is the shift toward large national chains in key sectors such as retail trade. In retail, establishment-level volatility is inherent since the margin of adjustment is often in terms of adding new retail establishments or closing down existing establishments. In retail trade, there has been a sustained and dramatic shift toward large national chains and away from small single-unit-establishment (often referred to as “mom and pop”) firms.⁴ Much of the firm volatility in retail trade was historically driven by the volatility of mom and pop stores. Now that we see somewhat less establishment-level volatility and substantially less firm volatility (as entry and exit of establishments for a large, national chain does not yield firm entry and exit). Does this particular

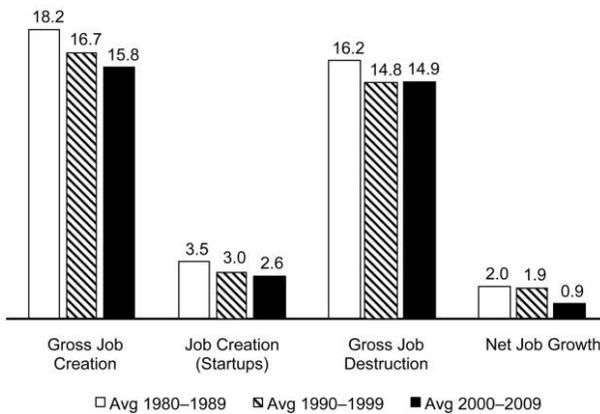


Fig. 9. Trends in gross flows and net job creation. Source: BDS and Haltiwanger et al. (2011).

type of structural change imply a less flexible U.S. economy? Not necessarily. One reason this shift has been observed is that large national chains in retail especially have taken advantage of improvements in information technology that permit better management of inventories and distribution networks. The evidence shows that a large fraction of productivity growth in the United States over the past few decades in retail trade is associated with this shift. An argument could be made that these large national chains, although currently more productive, might be less flexible, but that remains to be seen.

Many other factors might underlie the declining trend in firm-level volatility. Davis et al. (2007) find that a shift in the employment distribution toward older firms plays an important role in all industries. They find for example that from the early 1980s to 2001 the share of employment in businesses more than 6 years old increased from about 75% to 83%. This shift alone accounts for about 27% of the decline in volatility. Does this imply the U.S. economy has become less flexible? Much more research is needed but given the findings that young businesses are important drivers of productivity growth through the up-or-out dynamic discussed in earlier sections of the paper, it should be of concern if there is less scope for such dynamism.

The real question is what has driven the increase in the average age of businesses. In retail trade, this increase is associated with the shift toward large national chains, but what about in other sectors? One possible factor that may be at work is the aging U.S. population. To the extent that there is a connection between fast-growing young businesses and the age of entrepreneurs, this could be a relevant factor.⁵ Exploring this and other factors that underlie the rise in business age should be a high priority for future research. But note as well that the age of businesses accounts for only 27% of the decline in volatility so other factors (to be determined) are at work.

VII. Do the Job Creation Patterns Look Different in the Great Recession?

The observed decline in U.S. business dynamism is of particular interest given the recent Great Recession and anemic recovery. A less dynamic and flexible United States is will be less able to restructure and adapt, which will slow down the recovery and adversely affect prospects for sustained growth.

A related concern is that this recent recession has somehow been different from prior recessions in its impact on U.S. business dynamism

and the role of start-ups and young and small businesses. To shed light on these issues, figure 10 shows the annual patterns of job creation and destruction from the Business Dynamic Statistics (BDS) of 1980–2009. It is evident that in recessions there is a spike in job destruction and an accompanying decline of job creation. However, it is evident that the decline in job creation in the Great Recession is especially large relative to prior recessions. It is striking that the gross job creation rate in 2009 is the lowest for the entire 1980–2009 period. This difference in cyclical dynamics is illustrated further in figure 11, which shows the creation rates, job creation from start-ups, and net growth in the 3 years before the trough and in the trough year (as measured by net employment growth) for all recessions since the 1982–83 recession. It is evident in figure 11 that not only is job creation lower in 2009 than at any time since 1980 but so is job creation from business start-ups.

The BDS reflects the changes from March of the prior year to the current year. Thus the job creation rate of 12.4 in 2009 reported in figure 11 means that between March 2008 and March 2009 expanding and new businesses created jobs at a 12.4 percentage point rate. This is still many jobs being created in very difficult times, but it represents a substantial decline relative to the 16.5 percentage point rate in 2006 and is the lowest rate in at least 30 years.

It is of obvious interest to ask what the patterns of job creation and destruction look like after the first quarter of 2009. The Business Employment Dynamics (BED) provides quarterly job creation and destruction measures from the early 1990s through 2010:3 for the U.S.

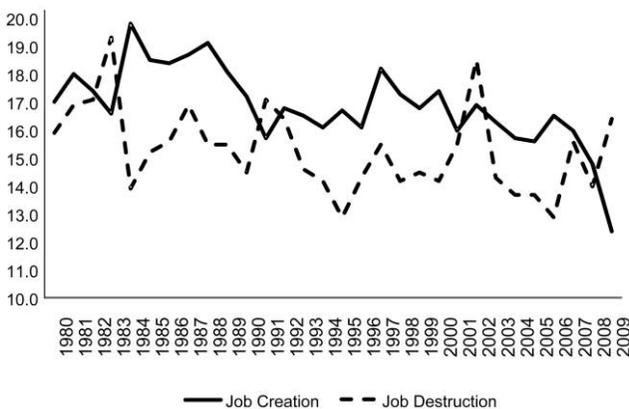


Fig. 10. Gross job creation and destruction rates, U.S. private sector. Source: Haltiwanger et al. (2011).

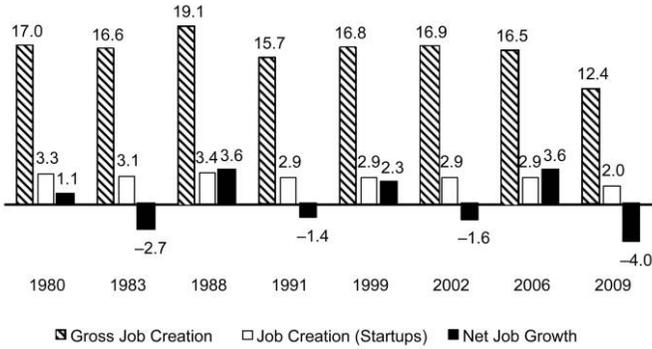


Fig. 11. Changing cyclical patterns of net and gross job creation. Source: BDS and Haltiwanger et al. (2011).

private sector. Figure 12 shows that since the first quarter of 2009 job destruction rates have largely fallen to prerecession levels but job creation rates remain low. The BED does not currently provide job creation rates by firm start-ups (it has establishment openings but we know that is somewhat different) but does provide job flows by employer size class.⁶ The prior discussion suggests appropriate caution in examining patterns by employer size, since they likely reflect the patterns of start-ups and young (small) businesses, but with that in mind it is still quite useful to look at these patterns.

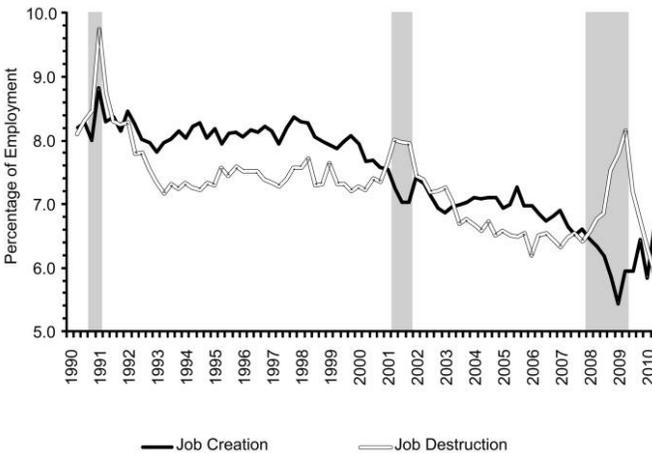


Fig. 12. Job creation and destruction rates, quarterly, U.S. private sector, 1990:2–2010:3. Source: BED and Davis, Faberman, and Haltiwanger (2011).

Figure 13 shows the job creation and destruction *levels* by size class. It is instructive to look at levels given the very skewed distribution of employer size. Figure 13 shows, consistent with figure 12, that by 2010:3 job destruction levels had fallen to below prerecession levels. However, figure 13 shows job creation levels remaining low through 2010:3 *especially* for small businesses.

Putting all the pieces together, we find that the Great Recession had an especially large impact on gross job creation rates, which in 2009

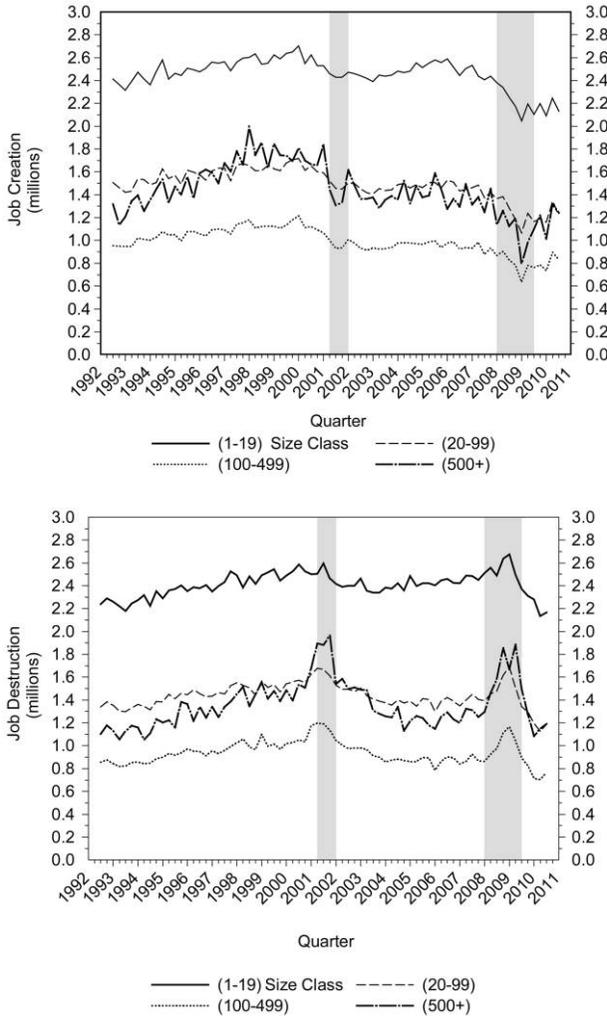


Fig. 13. Job creation and job destruction, quarterly levels, U.S. private sector by employer size class, 1992:3–2010:3. Source: BED.

were the lowest they had been since at least 1980. As part of this low gross job creation, 2009 saw the lowest rate of business start-ups (on an employment-weighted basis) since 1980. Moreover, job creation for small (young) businesses remains low in the anemic recovery. Combined with the downward trends in churning and job creation from business start-ups, these patterns raise concerns about how well the United States is poised to recover in a robust manner.

VIII. Concluding Remarks

It is important for policy makers, citizens, and researchers to understand the complex churning of firms and jobs in the economy. The costs of the churning process are highly visible—and often considerable for the owners and employees of failed or contracting businesses. Business failure and job loss can be traumatic on a personal level and create a sense of insecurity. The benefits that flow from this churning process are less visible but no less real. The reallocation of jobs, workers, and capital to their best uses is a major factor behind productivity gains over time, and these gains are the main source of improved living standards. Dynamism and turbulence in the economy have a favorable overall impact on productivity and economic well-being. The dynamism in our economy, it appears, is also one of its greatest strengths.

Of potential concern is that the United States shows some signs of becoming less dynamic over time—exhibiting a slower pace of reallocation with an accompanying slower pace of job creation from business start-ups. The recent recession saw the lowest overall rate of gross job creation and job creation from start-ups since at least 1980. Job creation for small (young) businesses took an especially large hit in the recession and has been very slow to recover. An open question is whether the observed decline in dynamism exhibited by U.S. businesses will have adverse consequences for U.S. innovation, job and productivity growth in the future.

Appendix

Definition of Terms:

Establishment: A fixed physical location where goods and services are produced (e.g., in retail trade a specific store).

Firm: All activity under common operational control.

Firm age: When a firm comes into existence: the firm age is based on the age of the oldest establishment at the firm that owns the establishment.

Thereafter the firm ages normally, adding 1 year for each year of existence. New establishments of large, mature firms in figures 2 and 3, for example, are classified as having a firm age consistent with the parent firm. In figures 2 and 3, most young firms operate a single establishment so that establishment age and firm age are the same. The implications for the definitions of firm entry and exit are discussed below.

Job creation rate: The gross number of new jobs added to the economy by expanding and new establishments as a percentage of total employment.

Job destruction rate: The gross number of jobs destroyed by contracting and exiting establishments as a percentage of total employment.

Net employment growth rate: The difference between the number of jobs in the current and prior periods as a percentage of total employment. By construction, it is equal to the difference between the job creation and the job destruction rate.

Excess job reallocation rate: The sum of job creation and destruction rates less the absolute value of the net employment growth rate. This measure captures the “excess” reallocation over and above that needed to accommodate net employment growth.

Firm entry and exit: Entry is defined as a new firm with all new establishments. Exit is defined as a firm that ceases operations and shuts down all establishments. The implication is that job creation from firm entry (start-ups) is jobs created by true new firms (not from ownership or organizational changes). Likewise, job destruction from firm exit is a true firm shutdown (not from ownership or organizational changes).

Establishment entry and exit: Entry is the opening of a new establishment and exit is the shutting down of an existing establishment.

Productivity: Two concepts of productivity are used in the discussion. In figure 6, the interquartile range reported is for total factor productivity. The latter is a measure of output per unit composite input (taking into account capital, labor, materials, energy, and purchased services). Another concept of productivity is used in figures 7 and 8—labor productivity, measured by output per worker.

Data Notes:

The BDS data from U.S. Census are based on the Census Longitudinal Data Base, which in turn is based on the Census Business Register. The core source for the latter is data from payroll taxes, supplemented with much value added from economic censuses and business surveys. An advantage of the BDS is that a firm is defined by operational control. The BED data from the BLS are based on the Quarterly Census of

Employment and Wages, for which the core source is administrative data from employer filings for unemployment insurance. The BED has the advantage of having quarterly and more timely statistics on job creation and destruction. There are however a few limitations of the BED data by employer size. One is that the series by employer size only begins in 1992. Another limitation is that the employer size measures used by the BED are based on defining firms by taxpayer identification—employer identification numbers (EINs). The taxpayer ID is not an economic concept and many large firms with multiple locations often have multiple EINs. Thus, the BED will classify some establishments as belonging to parent firms that are too small relative to the Census Bureau's preferred definition of size. A simple way to see this is that in 2005, the BDS has about 49% of employment in the firm size class 500+. The BED has about 43% of employment in the "same" size class. Legislation that would permit sharing of business data between BLS, Census, and the Bureau of Economic Analysis would overcome this and many other limitations and discrepancies in the business data across the federal statistical agencies. We also note that BLS has adopted a dynamic sizing method for allocating firms to size classes. See Haltiwanger et al. (2010) for discussion of this methodology.

Endnotes

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1. See the appendix for definitions of terms. The source data for fig. 1 and much of the analysis in this paper are the Business Dynamic Statistics (BDS) available at http://www.ces.census.gov/index.php/bds/bds_home. The figures in this paper take advantage on the latest release of the BDS through 2009. See Haltiwanger, Jarmin, and Miranda (2011) for a brief of the nature of this release. This paper draws on this brief in a number of places as well on Haltiwanger, Jarmin and Miranda (2010).

2. See appendix for definitions of firm age.

3. Bartelsman et al. (2009a, 2009b) provide evidence on differences across countries on a wide range of distortions.
4. See Foster et al. (2006) and references therein.
5. There is evidence that many individuals over 50 start businesses but most of these are nonemployer businesses that are an important sources of self-employment but not job creation and productivity growth.
6. See the appendix for discussion of the relationship between the BDS and BED measures of firm size.

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