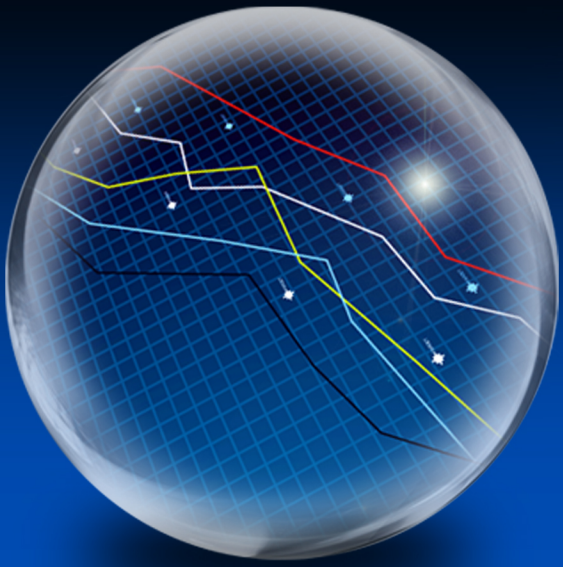
UNDERSTANDING THE GROWTH SLOWDOWN



EDITED BY

BRINK LINDSEY

9. Is Entrepreneurship in Decline?

Alex Tabarrok and Nathan Goldschlag[1]

The U.S. economy has been one of the most dynamic economies in the world, but recent research suggests that U.S. dynamism is in decline. Well, what is dynamism? We may be tempted to say that we know it when we see it, and, in the past, discussions of dynamism were invariably impressionistic. Pointing to Steve Jobs, Elon Musk, or the upending of the taxi industry by Uber, however, isn't enough to say whether dynamism has increased or decreased or is higher or lower in the United States than, say, France. What makes the recent discussion different is that new, comprehensive data sets put together by the U.S. Census Bureau and statistical agencies abroad have given us quantitative measures of dynamism that are signaling a potential problem. Although quantitative data are of enormous help, however, data are always subject to interpretation and questions remain as to the relationship between dynamism and entrepreneurship, flexibility, and growth.

The evidence on the decline of dynamism comes from microdata on business startups and job creation (Decker et al. 2014). Between 1980 and 2011, for example, the annual entry rate of new firms (measured by the number of new firms created in a year divided by the total number of firms) fell from about 15 percent annually to 10 percent annually, as shown in Figure 9.1. The exit rate, however, fell by much less.

Although most new firms fail, a large proportion of net job creation is created by the minority of new firms that succeed and grow (Decker et al. 2014). It's not surprising, therefore, that, as shown in Figure 9.2, annual U.S. job creation has also declined while job destruction has declined by much less.

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Figure 9.1

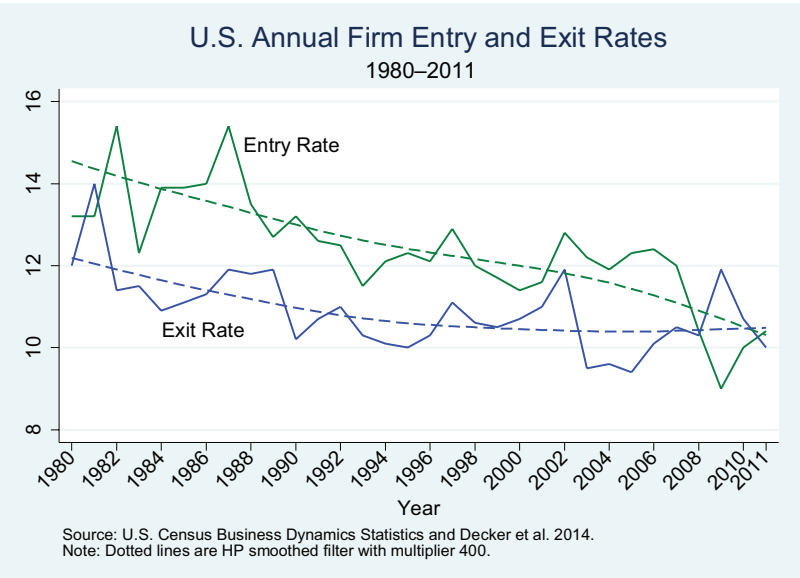
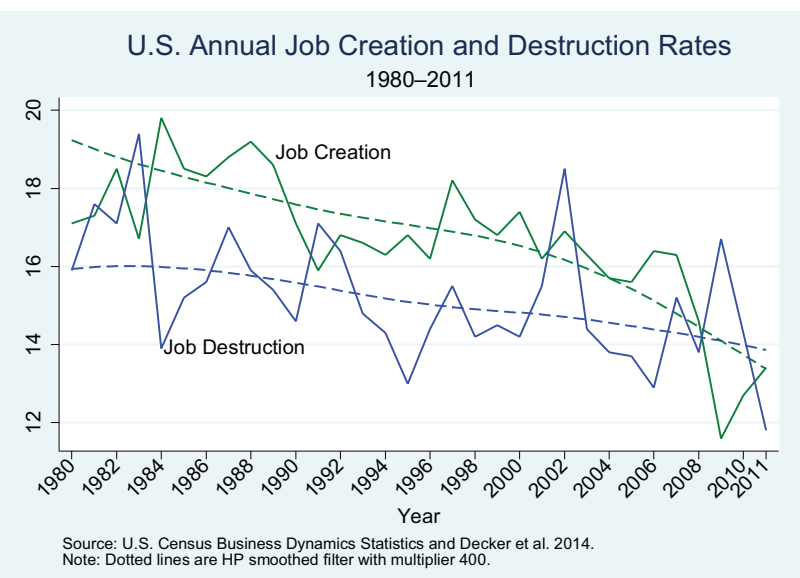


Figure 9.2

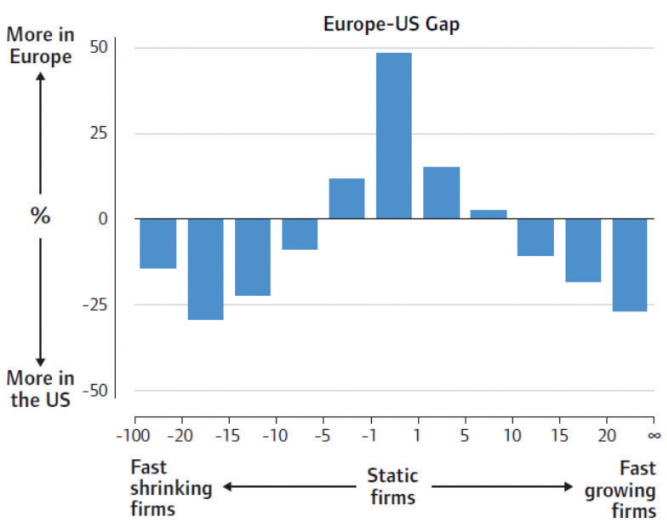


Other sources compare business dynamism across countries (Bravo-Biosca 2010, Criscuolo, Gal, and Menon 2014). Compared to Europe, for example, the United States has traditionally been more dynamic. In particular, successful firms in the United States grow more quickly than in Europe, and unsuccessful firms die more quickly in the United States than in Europe. Figure 9.3 shows the distribution of growth rates of firms in Europe relative to firms in the United States. In the middle of the distribution are firms that are static—both the behemoths and the small family firms that have been doing the same thing for generations. In the static category, Europe dominates. At the ends of the distribution are the fast firms, fast-dying firms on the left and the fast-growing firms on the right. In both of these cases, the United States dominates. It may be that the United States is becoming more like Europe.

A closely related point concerns the age distribution of firms. In all economies, young firms tend to be small, but small firms are not necessarily young. The United States has historically had a relatively high share of small firms that are young and also a relatively high share of large firms that are young. The latter,

Figure 9.3

Distribution of Firm Growth Rates in the United States and Europe



Source: Bravo-Biosca (2010).

of course, are relatively rare, but it's in the United States that a small firm has the greatest probability of growing rapidly and thus becoming large. Conditional on survival, it is these young firms that account for a significant share of net job growth (Decker et al. 2014; Criscuolo, Gal, and Menon 2014). Overall, however, U.S. firms are getting older. The share of firms aged 16 years or more, for example, rose from 23 percent in 1992 to 34 percent in 2011 (Hathaway and Litan 2014). Since older firms tend to be larger and larger firms tend to be older, the share of employment in older firms has increased from 60 percent in 1992 to 72 percent in 2011, as shown in Figure 9.4.

Is It Regulation?

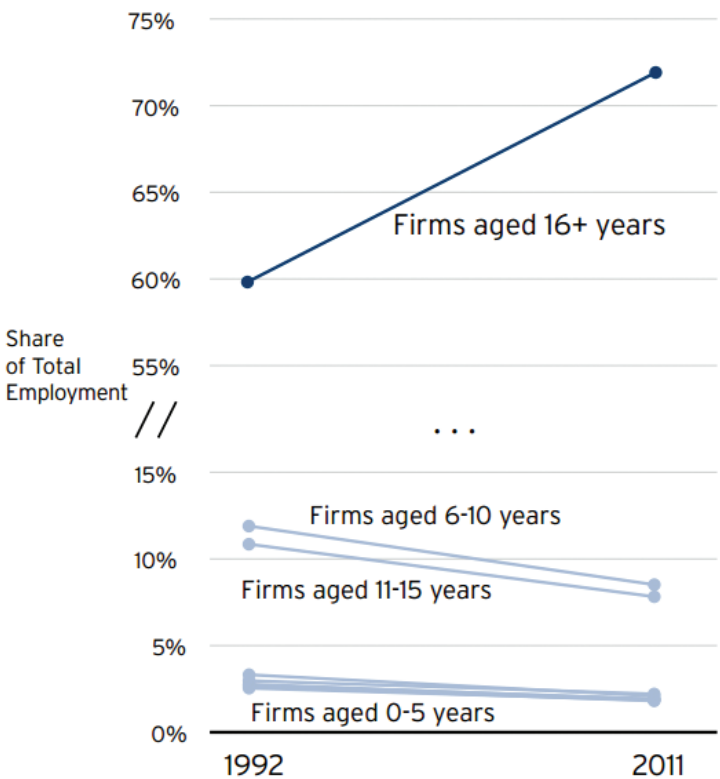
One potential explanation for the secular decline in firm dynamism is regulations that impede entry, exit, expansion, and contraction. Regulation has increased in the United States over time, but it has not increased at the same rate in all industries. Thus, one test of whether increased regulation is the cause of decreased dynamism is to examine whether dynamism by industry is correlated with regulation by industry.

In preliminary work, Goldschlag and Tabarrok (2014) combine measures of industry dynamism from the Census Bureau's Statistics of U.S. Businesses with measures of industry regulation from RegData, a new data set on regulatory stringency by industry produced by Al-Ubaydli and McLaughlin (2014). They then test whether increased regulation can explain reduced dynamism. Surprisingly, the answer appears to be no.

Regulatory stringency does vary greatly by industry. More than 50 percent of industries, for example, received fewer than 354 regulatory restrictions between 1998 and 2012, while the top 5 percent of industries were subjected to more than 16,000 restrictions. (See Al-Ubaydli and McLaughlin 2014 and Goldschlag and Tabarrok 2014 for more detail on the measure of regulatory restrictions.)

How do measures of dynamism correlate with regulatory restrictions? Figure 9.5 shows job-creation rates against regulatory stringency (both averaged over 1999–2011) by industry (measured at the three-digit NAICS level). The correlation between job-creation rates and restrictions is weak and positive. Note that restrictions are plotted on a log scale since they vary from a few hundred in furniture

Figure 9.4
DISTRIBUTION OF TOTAL EMPLOYMENT BY
FIRM AGE, 1992 VERSUS 2011



SOURCE: Hathaway and Litan (2014).

production to over 100,000 restrictions in the air-transport industry. Despite significant variation in regulation, there is only a small change in job-creation rates, and it is positive, not negative—that is, industries with greater regulation had slightly higher job-creation rates.

The story for startup rates is similar. As shown in Figure 9.6, regulation is weakly positively correlated with startup rates.

These simple scatter plots do not control for other factors—in particular, industry effects. It could be the case that industries with a lot

Figure 9.5

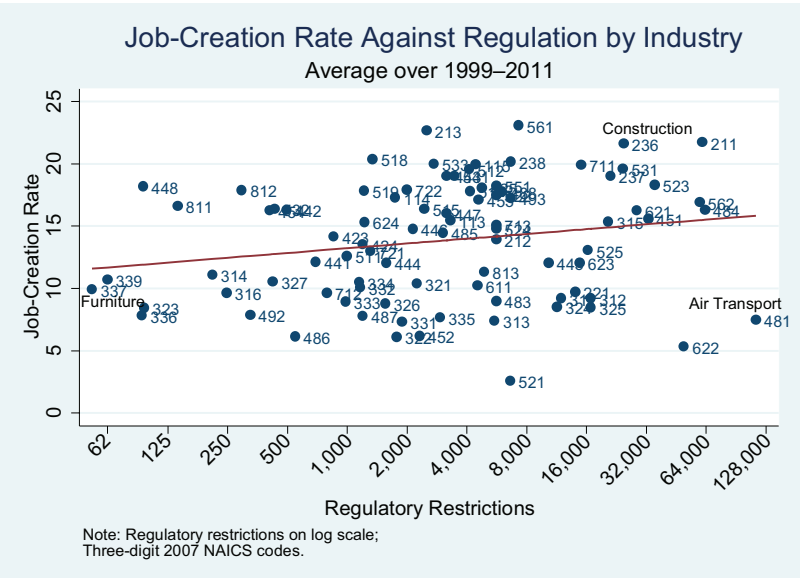
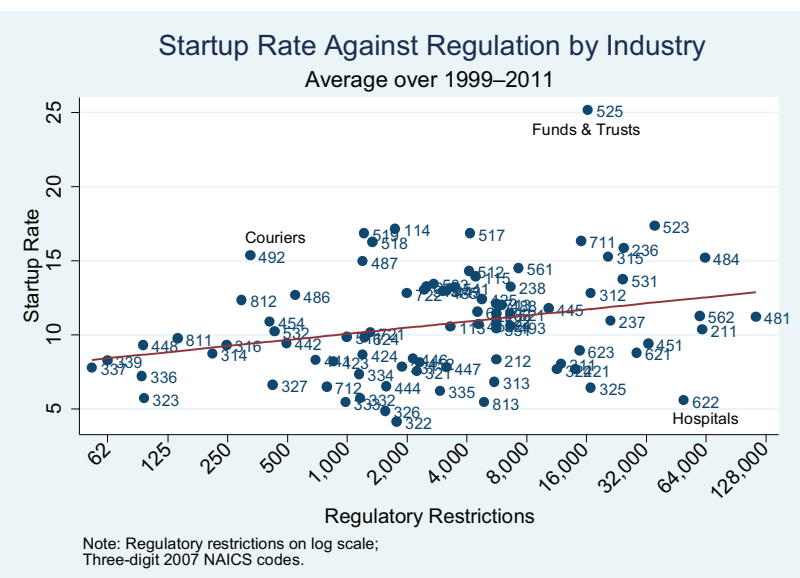


Figure 9.6



of job creation and startups attract more regulation than other industries and as a result of this reverse causation we find a positive correlation between dynamism and regulation. Thus, Goldschlag and Tabarrok (2014) look in more detail at within-industry effects. Do industries that are regulated more over time show lower dynamism rates? Although this does happen in some industries, the effect of regulation on dynamism continues to be small in more sophisticated analyses.

Thus, perhaps surprisingly, regulation does not appear to be the cause of decreased dynamism. A few other patterns in the data suggest that regulation may not be to blame for the decline in dynamism. First, as we discuss in greater length below, when looking across countries, the dominant type of regulatory restriction (or other friction) is one that prevents firms from growing large. U.S. firms, however, are the largest in the world and growing larger. Moreover, on average, larger firms are more productive and in the United States this correlation between size and productivity is higher than anywhere else in the world (Haltiwanger 2012). Thus, unlike in most of the world, size per se doesn't appear to be penalized in the United States.

Regulation, however, could certainly deter startups or impede small firms from growing into large firms. As already noted, preliminary results do not find a relationship between regulation and startups in the data. Moreover, if small firms were being penalized, then theory suggests that when entry does occur it would be by larger firms. We do see some weak evidence for this across countries. The average entry size for a manufacturing startup in France, for example, is more than twice as large as in the United States. In the United States, however, there is no trend toward increasing entry size (Haltiwanger, Jarmin, and Miranda 2013), which is what we would expect if regulation was increasing the cost of small firms disproportionately.

Finally, startup growth is also declining in other countries (Criscuolo, Gal, and Menon 2014), and dynamism is declining across most sectors of the U.S. economy and also across most U.S. states (Decker et al. 2014). Since regulation varies widely across industries, countries, states, and time, the consistent decline of dynamism across these categories suggests that regulation is not the cause.

If regulation is not the cause of declining dynamism, then there are two possible stories—one pessimistic, the other optimistic. If regulation was the cause of declining dynamism, then we would at least know how to solve the problem (it might be politically difficult to solve the problem, but we would at least know what to do in principle). If regulation isn't the cause, then we have very little idea what to do. Suppose the cause is a declining spirit of entrepreneurship. If so, we have no real knowledge about how to rekindle that spirit. Or perhaps, as we discuss below, the cause is that there is less to be entrepreneurial about—a great stagnation. Once again, we don't have a surefire solution.

The optimistic story is that if regulation isn't the cause of declining dynamism, then maybe declining dynamism isn't such a bad thing. We should not let words guide our normative evaluation; dynamism sounds like a good thing and decline like a bad thing, but if we substituted churn for dynamism we might say there has been a decline in churn. Or, better yet, we might say that there has been an increase in business stability. We turn to exploring these two stories in greater depth.

A Pessimistic Story about Causality

First, a caution on causality. Productivity growth has declined as business dynamism has declined. It's even true that some productivity growth is caused by business dynamism. Even so, it doesn't necessarily follow that the decline in productivity growth is due to the decline in business dynamism. The causality, for example, could be the other way—from a decline in productivity growth to a decline in business dynamism. One reason that entrepreneurs start new firms is precisely that they believe that new ideas and technological developments can be used profitably in new business ventures. If productivity growth has declined for primarily exogenous reasons (as argued, for example, by Cowen 2011 and Gordon 2012), then we may expect fewer new-business startups as a result. The direction of causality is important, as the policy levers that we do have may vary in effectiveness depending on the cause. If business dynamism is primary, for example, then we may look for direct levers such as regulation of new businesses (contrary to our preliminary results) or an increase in entrepreneurial immigration. If deeper technological change is at work, then our options are more limited, but perhaps

policy could be more focused on improving science and math education, investing in knowledge production, and fostering creativity.

Alternative Perspectives

The standard explanation of the above facts is that entrepreneurship is in decline, with negative consequences for efficiency and growth. We propose several other interpretations with less dire conclusions. We do not dispute that the standard interpretation *may* be correct. Our proposals should be taken as hypotheses.

Firm Size and Entrepreneurship

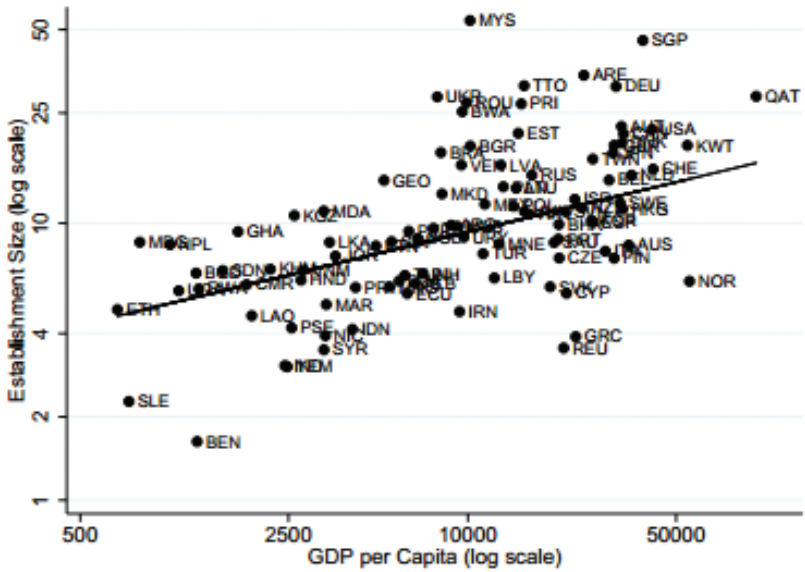
The literature takes for granted that entrepreneurship is about the growth of young, small firms. The identification is problematic for three reasons. First, when looking across countries, it's larger firms that are associated with more advanced development. Second, entrepreneurship occurs within firms—even large firms—as well as between firms. Third, there is a great deal of excess reallocation and churn, and declines in these magnitudes represent gains, not declines. We examine each of these in turn.

The most-developed economies have the largest firms. The least-developed economies have the most entrepreneurs. One might imagine that the least-developed economies are dominated by inefficient, lumbering behemoths while the more developed economies are characterized by smaller, nimble entrepreneurial firms. In the case of the communist economies, that characterization had some element of truth. Nevertheless, today and on average, firm size increases with gross domestic product per capita as illustrated in Figure 9.7. In the poorest 10 percent of countries, average firm size is 6 persons, while in the richest 10 percent it's more than three times larger—19 persons (Bento and Restuccia 2014).[2]

The second fact, that the least-developed economies have the most entrepreneurs, is closely related to the first. If we define entrepreneurship as self-employment, then there is much more entrepreneurship in poorer countries. People in poorer countries have to be entrepreneurs because there are relatively few

[2] Technically, Bento and Restuccia measure establishment size, which is the number of workers at a particular location. Firm size will be somewhat larger but more so in more developed economies, so this comparison somewhat understates the difference.

Figure 9.7
Establishment Size per Capita



Source: Bento and Restuccia (2014).
Note: Countries with fewer than 500,000 people omitted.

jobs—that is to say, few employers of large numbers of workers. Moreover, although not all self-employed workers have the skills or temperament for entrepreneurship, the identification of entrepreneurship with self-employment is not a definitional sleight-of-hand. Travelers to less developed economies often are surprised at how much more market-oriented, dynamic, and entrepreneurial these economies appear to the naked eye. Indeed, tourists are more likely to visit an actual market in a developing economy than they are at home. The hustle and bustle of the town market provide a display of real entrepreneurship. The greater familiarity that people in less developed countries have with entrepreneurship is likely one reason why immigrants to the United States are more than twice as likely to start new firms as are natives (Fairlie 2013).

The problem with less developed countries is not that they lack entrepreneurs but that entrepreneurs cannot grow their firms large

enough to become major employers.[3] The distribution of firm size is highly right skewed, so the share of workers employed in large firms increases even more dramatically with development than does average firm size. In Ethiopia, Egypt, and India, for example, more than half of all workers are employed in firms that employ fewer than 10 employees. In the United States, in contrast, more than half of all workers work for firms that employ more than 250 people, even though these firms account for less than one percent of all firms (Criscuolo, Gal, and Menon 2014). Fortunately, larger firms are better managed, more productive, and more innovative than are smaller firms, and they pay higher wages as well (World Bank 2013). Indeed, the best-managed firms in the world are the large multinationals (Bloom and Van Reenen 2010).

Why are these cross-country findings important for understanding the development of business dynamism in the United States? The cross-country effects are also found across time: namely, as economies develop—in particular, as the U.S. economy has developed—we have seen larger firms, a larger share of employment in large firms, and *less* apparent entrepreneurship (Poschke 2014). The fact that these correlations are seen widely in both cross-sectional and time-series data suggests that they have some causal basis (see Lucas 1978 and Poschke 2014 for models of the possible causality).

In short, some of the measures of declining business dynamism that on the surface appear unambiguously negative are in fact associated with greater gross domestic product per capita. Thus, we should be cautious about drawing normative conclusions from the fact of declining business dynamism.

Entrepreneurship in Large Firms

The annals of entrepreneurship are replete with David-versus-Goliath stories, but entrepreneurship is not limited to startups. In 2006, when Alan Mulally became chief executive of Ford Motor Company, Ford was losing billions, product quality was declining,

[3] In the United States, for example, firms are much more likely to increase in size as they age than firms in other economies, especially relative to developing economies. By age 35, for example, the typical firm in the United States has grown by over 700 percent, in Mexico a comparable firm by only 100 percent, and in India by just 40 percent (Hsieh and Klenow 2009).

inefficiencies were tremendous, union contracts were rigid, and Ford's credit rating had been downgraded to junk—and that was in a growing economy. When the financial crisis hit in 2008–9, Ford's seemingly stronger competitors General Motors and Chrysler filed for bankruptcy and were kept afloat only through a government bailout. In one of the great turnarounds in business history, however, Mulally guided Ford through the crisis without bankruptcy or a bailout and returned the firm to profitability by 2010, with record profits by 2014 (Hoffman 2013, Woodall 2014).

Mulally's turnaround of Ford illustrates two propositions. First, entrepreneurship is not limited to small firms. Indeed, because of scale, entrepreneurship at large firms is much more important than at small firms. Moreover, there is some evidence that chief executive officers (CEOs) have become less managerial and more entrepreneurial over time. CEO turnover, for example, has increased over time and the turnover–performance gradient has grown steeper—that is, CEOs whose firms perform poorly are increasingly likely to be fired (Murphy and Zabojnik 2007, Kaplan and Minton 2006). CEOs are also less likely to be insiders than in the past. In the 1970s, only 15 percent of the CEOs in S&P 500 firms were outside appointments; by 2000–2005 the figure had risen to 32.7 percent (Murphy and Zabojnik 2007). The decrease in the appointment of insiders and increase in the appointment of outsiders suggest that firm-specific knowledge and skills—"How does this firm work? What do we do? What relationships need to be managed?"—became less important and more general managerial or entrepreneurial ability became more important in managing U.S. corporations.

Alan Mulally's career is a case in point. He came to Ford from Boeing, where he had been president of Boeing Commercial Airplanes and was credited with a successful competition against Airbus. After retiring from Ford in 2014, he was appointed to Google's board of directors—further illustrating the importance of general entrepreneurial ability rather than firm-specific knowledge.

Second, by all accounts, Mulally remade Ford into a different firm—not just a different set of products (although there were innovative new designs and building methods) but also a new corporate culture (Hoffman 2013).

What then is a startup? We measure startups as firms that yesterday had zero workers and today have one or more workers.

We say startups are born. The metaphor may constrain. Philosophers wrestle with the problem of identity even for persons (Parfit 1986). The problem is more severe for objects and organizations. The Ise Grand Shrine, Japan's most sacred shrine, was first built around AD 686. Every 20 years since that time, the entire shrine complex, some 62 buildings, has been dismantled and removed and an entirely new structure rebuilt in exactly the same place in exactly the same way with exactly the same 16,000 artifacts put back in place. This has been going on for over 1,000 years. Is the Ise Grand Shrine an old building or a new one?

The problem is not merely philosophical. We measure new firms as firms that go from zero to one or more employees, but restructuring and remaking old firms is not counted. If Ford can be said to have been reborn in the ashes of the financial crisis, then innovation, entrepreneurship, and reallocation may be larger than we measure.

Can this perspective be reconciled with the time trends? It's plausible that information technology has made older and larger firms more flexible, nimble, and capable of change. Consider Zara, the world's largest fashion retailer, founded by Amancio Ortega, the third- or fourth-richest person in the world, depending on the day one counts. In the past, a fashion retailer would have one line per season planned well in advance and based mostly on trends and guesswork about consumer demand. In contrast, twice a week, the managers of each of Zara's 6,500 stores examine sales data and also feedback from shoppers and then order product from headquarters. At the Spanish headquarters, trends are identified and designers are charged with creating new product. Within weeks, Zara stores have new product on the shelves. In this way Zara is able to offer five or six new lines over the course of a season (Ruddick 2014).

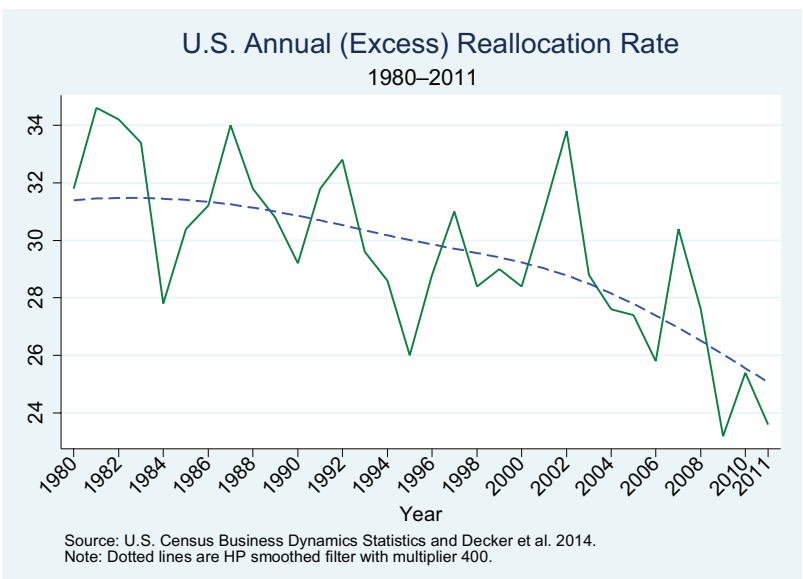
In the past, a fashion retailer that did a poor job of predicting fashion trends for one or two seasons might have found itself vulnerable to an upstart startup. Today, the same fashion retailer can turn on a dime and correct its fashion faux pas before a startup has a chance to grab market share. Business dynamism as measured by entry and reallocation will decline, but measured by the *goals* of business dynamism, the movement of resources to their highest-valued uses, and the satisfaction of consumer demand, the decline has been an improvement.

Excess Reallocation and Churn

By focusing on the goals of business dynamism, it becomes clear that startups are not necessarily a sign of vigor, growth, and efficiency but instead can signal inefficiency. Why should firms have to die for the economy to grow? Death and birth are painful processes. Bankruptcy wastes resources, reallocation takes time, and most startups fail. High job-creation and job-destruction rates speak to dynamism but also to churn. Reallocation rates are down in the economy, but so are excess reallocation rates, the rate of reallocation above that necessary for net job creation, and that can be a positive development (see Figure 9.8).

Walmart, the world's largest firm by employment, has revolutionized the retail sector while driving out many so-called mom-and-pop stores in the process. The Walmart vs. mom-and-pop story that's commonly told paints a picture of a bucolic time in which family-run firms that had been around for generations are driven out in a giant mass-extinction event by the arrival of asteroid Walmart. The truth, however, is that, like other small firms, the moms and pops

Figure 9.8



rarely lasted for very long. Mom and Pop churned, with Mom and Pop Jones being replaced by Mom and Pop Smith and then Mom and Pop Garcia on a recurring basis (Haltiwanger 2012). Walmart and other big-box retailers greatly increased productivity in the retail sector—Walmart alone was responsible for a measurable share of U.S. productivity growth in the mid-1990s—and, in addition, the big-box retailers have been more stable. As a result, dynamism, as measured by reallocation, has declined, but the efficiency by which consumer demand is satisfied has greatly improved.

Death and birth are redeemed if they are necessary to improve productivity and innovation, but it would be preferable if older and larger firms could instead become more flexible, nimble, and capable of change. Information technology may have made that the case, allowing firms to be reborn from within rather than dying and being replaced by new firms.

National and International Entrepreneurship

The U.S. economy is very large and therefore largely internally driven. Nevertheless, imports of goods and services have risen from approximately 5 percent of gross domestic product in 1970 to around 17 percent today. The more internationalized the economy, the less national statistics on business dynamism may reflect reality. In 2013, Apple Inc. had 748 suppliers, only 81 of which were in the United States while over 600 were located in Asia (Barreda 2013). Most importantly, Apple is an exacting customer that can and does hire and fire suppliers on the basis of slim differences in price and quality (Satariano and Burrows 2014). Firms live and die in anticipation and fear of a call from Cupertino. Like the Ise Grand Shrine, Apple continues even as its component parts are dismantled and rebuilt with every iPhone iteration. The underlying flux in suppliers, however, is invisible to the customer as well as U.S. business-dynamics statistics.

Entrepreneurship, Globalization, and the Future

William Gibson famously said that "the future is already here—it's just not very evenly distributed." That, however, was in 1992. Today, the future is much more evenly distributed. Consider mobile phones. Almost five billion people today have a mobile phone and nearly two billion people have a smartphone. Today's smartphone is more powerful than a Cray supercomputer was when Gibson spoke, and when

Gibson spoke there were just a few hundred Crays in the world. Two billion Crays is a lot more evenly distributed. Not only does today's smartphone have more memory and processing power than the supercomputers of the past, it's also much more connected to the world with cameras, microphones, gyroscopic orientation, GPS receivers, Wi-Fi, cellular, Bluetooth connectivity, and much more. Thus, nearly two billion people are equipped today with a supercomputer networked to the world around it and to other supercomputers. The ability of small entrepreneurs from virtually anywhere in the world to tie into this network of vast computational power must alone be a tremendous boost for entrepreneurship.

As late as 1990, just seven nations accounted for 92 percent of world research and development (R&D).[4] Today those nations are spending more than ever before on R&D, but now they account for only 56 percent of the total (Organization for Economic Cooperation and Development 2014). World R&D is increasing rapidly for multiple reasons. First, the capacity for research and development has increased—not just in the spread of supercomputer-like power but also in the spread of human capital. The number of world scientists and engineers is increasing rapidly as China and India increase the percentage of their population that is highly educated. Second, the demand for R&D is increasing as world wealth increases. Greater wealth means a deeper market, which increases the incentives to invest in R&D. If China and India were as wealthy as the United States is today, the market for cancer drugs would be eight times larger than it is now. This illustrates why we all have an interest in other countries becoming rich (Tabarrok 2011).

When we speak of globalization, we often speak of exports and imports, of goods crossing borders. But in the information age, globalization also means an erasing of borders. Skype was created by Estonian programmers and launched simultaneously everywhere in the world in 2003. What kind of startup is Skype? Is Skype an Estonian startup or a world startup? Today, especially in information technology, but increasingly in other areas of technology as well, the physical location of an entrepreneur doesn't tell us much about the

[4] UNESCO, *UNESCO Science Report 2010*, http://www.unesco.org/new/en/natural-sciences/science-technology/prospective-studies/unesco-science-report/unesco-science-report-2010/.

location of innovation or value. Chinese and Indian entrepreneurs, just like Estonian entrepreneurs, can also be U.S. entrepreneurs. Thus, we remain optimistic about the global state of entrepreneurship.

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