

## How Declining Dynamism Affects Wages

Jay Shambaugh, Ryan Nunn, and Patrick Liu



## MISSION STATEMENT

The Hamilton Project seeks to advance America's promise of opportunity, prosperity, and growth.

We believe that today's increasingly competitive global economy demands public policy ideas commensurate with the challenges of the 21st Century. The Project's economic strategy reflects a judgment that long-term prosperity is best achieved by fostering economic growth and broad participation in that growth, by enhancing individual economic security, and by embracing a role for effective government in making needed public investments.

Our strategy calls for combining public investment, a secure social safety net, and fiscal discipline. In that framework, the Project puts forward innovative proposals from leading economic thinkers — based on credible evidence and experience, not ideology or doctrine — to introduce new and effective policy options into the national debate.

The Project is named after Alexander Hamilton, the nation's first Treasury Secretary, who laid the foundation for the modern American economy. Hamilton stood for sound fiscal policy, believed that broad-based opportunity for advancement would drive American economic growth, and recognized that "prudent aids and encouragements on the part of government" are necessary to enhance and guide market forces. The guiding principles of the Project remain consistent with these views.





# How Declining Dynamism Affects Wages

Jay Shambaugh

*The Hamilton Project, the Brookings Institution, and The George Washington University*

Ryan Nunn

*The Hamilton Project and the Brookings Institution*

Patrick Liu

*The Hamilton Project*

FEBRUARY 2018

A CHAPTER IN THE RECENTLY RELEASED HAMILTON PROJECT BOOK

REVITALIZING  
★ WAGE ★  
GROWTH

Policies to Get American  
Workers a Raise

Edited by  
JAY SHAMBAUGH and RYAN NUNN

## Revitalizing Wage Growth Policies to Get American Workers a Raise

One simple question—Are wages rising?—is as central to the health of our democracy as it is to the health of our economy. For the last few decades, the U.S. economy has experienced real wage stagnation. Without rising wages, the dreams of American families to live in good homes, to support their families, to retire comfortably, and to see their children do better—what we call the American Dream—simply cannot be realized. By raising productivity growth and strengthening worker bargaining power, we can create a faster-growing and more-dynamic economy that will benefit all workers over the long term.

---

## Abstract

Wages have stagnated in recent decades for typical workers. While a number of economic, policy, and technological developments bear some responsibility, economists have grown increasingly concerned that declining dynamism is an important cause. The decline in dynamism encompasses the various ways in which workers and entrepreneurs have become less likely to explore new patterns of economic activity: starting new, fast-growing businesses; switching jobs; and moving across the country. As these activities diminish, both productivity growth and worker bargaining power suffer, limiting workers' opportunities and damaging wage growth. Improving the ability of workers to switch jobs could thus improve both their wages and their productivity. Declining dynamism may suggest a role for public policy in establishing the conditions for workers to successfully climb the job ladder.

---

## Introduction

Wage growth relies on rising productivity of labor—doing more with less—as well as workers' ability to bargain for their share of the gains. Many changes in the U.S. economy ranging from shifts in labor market competitiveness to technological change and globalization have contributed to stagnant wage growth for some workers. While some of these developments have predominantly affected either worker bargaining power or productivity growth, what is often called declining dynamism has been a serious problem for both.

The decline in dynamism encompasses the various ways in which workers and entrepreneurs have become less likely to explore new patterns of economic activity: starting new, fast-growing businesses; switching jobs; and moving across the country. This can affect wages in a variety of ways. First, declining dynamism appears to put downward pressure on productivity growth because it slows the replacement of unproductive firms with productive firms (Decker et al. 2014a). Impediments to job creation and destruction, which are at least partially responsible for recent declines in dynamism, also lower productivity growth by slowing the reallocation of workers to more productive firms (Decker et al. 2018). In turn, falling productivity growth can negatively impact wage growth in both the short run and the long run (Stansbury and Summers 2017).

Second, declining dynamism directly reduces wages by limiting the frequency with which workers receive outside offers and make wage-enhancing job transitions (Haltiwanger et al. 2017a). Thus, the goals of increased worker bargaining power and increased labor productivity should not be viewed as in opposition to each other, but can in fact both be achieved when labor market dynamism is enhanced.

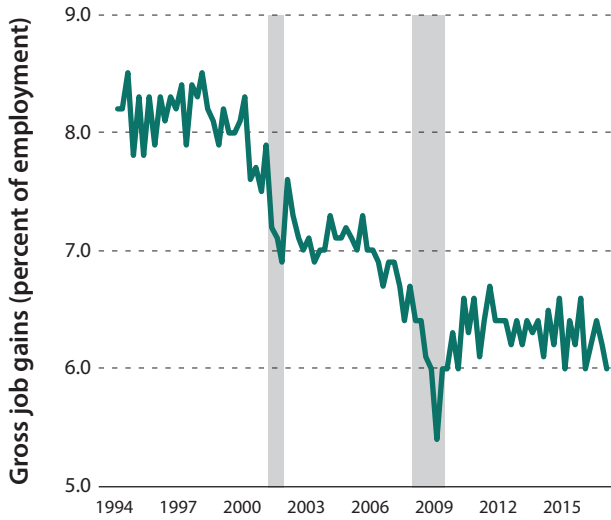
## Declining Labor Market Dynamism

One of the most direct measures of declining labor market dynamism is the rate of job creation. Job creation combines the employment gains at new and growing establishments. While there has been some cyclical fluctuation, job creation as a share of employment has been on a long downward trend since the early 1990s (figure 1a). At the same time, workers are increasingly less likely to switch jobs (figure 1b). This decline matters for wage growth. First, at least one-third of all hires are made among those already employed (Karahan et al. 2017), suggesting that job switching is a major part of how workers' careers evolve. Second, part of the decline in hiring comes from the decline in job switching. Indeed, more than 40 percent of the decline in hires and separations can be ascribed to declining job-to-job transitions (Hyatt and Spletzer 2013). Given that workers generally receive a raise when they transition directly from one job to another, declining job switching has put downward pressure on wage growth.

These are not the only statistical measures showing declining flexibility in the U.S. labor market. There have been substantial declines in dynamism—sometimes referred to as labor market fluidity—across a variety of related measures. When job creation, job destruction, job switching, interstate migration, and other indicators of fluidity are combined, Molloy, Smith, Trezzi, and Wozniak (2016) find that labor market fluidity has been on a downward trend since at least the 1980s, and has fallen by 10 to 15 percent since the 1990s.

FIGURE 1A.

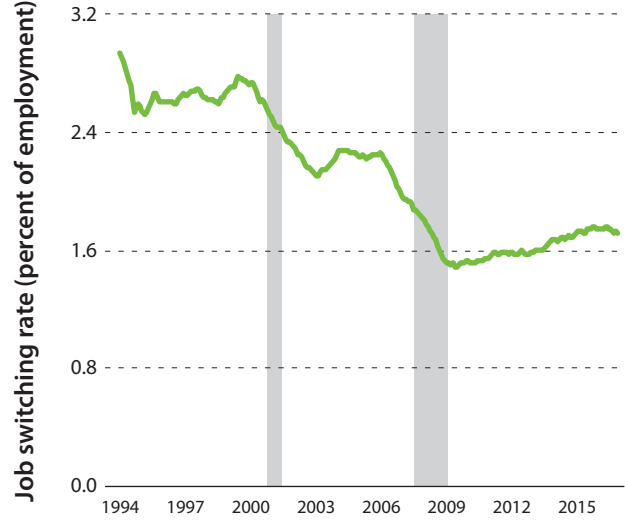
Private Sector Job Creation Rate, 1994–2017



Source: Bureau of Labor Statistics (BLS) 1994–2017.  
 Note: Data are quarterly and seasonally adjusted. Shaded bars indicate recessions.

FIGURE 1B.

Job Switching Rate, 1994–2017



Source: Fallick and Fleischman 2004; authors' calculations.  
 Note: Data are the 12-month centered moving average of monthly employer-to-employer flows expressed as a hazard rate. Employer-to-employer transitions occur when a worker switches employment without a spell of nonemployment in between. Shaded bars indicate recessions.



## Wage Growth for Movers

The link between dynamism and wages is apparent in the wage growth that occurs when workers switch jobs to accept a better offer. That link is also evident in the wage growth induced by more-abundant job opportunities for workers. When workers receive more job offers, employers must increase wages to retain their workforce (Moscarini and Postel-Vinay 2016).

Figure 2 shows median and mean earnings growth over the course of a year for workers who stayed with the same employer (0 and 1.3 percent, respectively), for those who switched jobs but remained within the same state (3.7 and 7.6 percent, respectively), and those who switched jobs and moved across state lines (8.0 percent and 8.2 percent, respectively).<sup>1</sup> These estimates, calculated using data from the Survey of Income and Program Participation, are smaller than those calculated for earlier periods using other data (Hyatt et al. 2016), but similar in finding much weaker earnings growth for job stayers than for job movers, whether within the state or interstate.<sup>2</sup>

Job switching has a large impact on aggregate wage growth, with job-to-job moves responsible for total earnings gains of about 1 percent per quarter (Haltiwanger et al. 2017a). Because it is unlikely that all workers will find the best possible match in their first job, models of so-called job ladders assume that workers will search for new jobs while employed, and the resulting job-to-job transitions will increase both wages and productivity. Haltiwanger et al. (2017a) find that, on

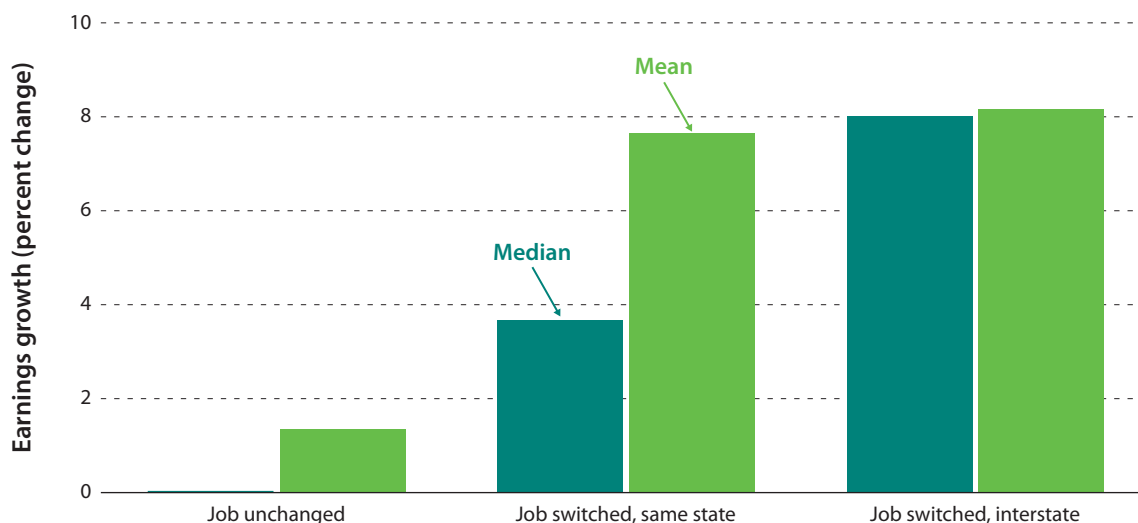
net, high-wage firms poach from low-wage firms, implying that an important part of wage growth comes from job-to-job transitions.<sup>3</sup> Other work finds that a 1 percentage point increase in the probability of job switching is associated with 2.4 to 5.0 percent higher earnings (Karahan et al. 2017).

In addition to job switching, geographic migration is considered an important facet of labor market dynamism. Interstate migration has fallen dramatically since at least the early 1980s (Molloy et al. 2016). This is potentially worrisome for at least two reasons: first, migration is one way that many workers find labor market opportunity and achieve higher wages. In 2017 about half of interstate moves were for labor market reasons (BLS 1981–2017; authors' calculations). Moreover, residential moves that correspond with interstate employer-to-employer transitions have declined by nearly half between 2000 and 2010 (Hyatt et al. 2016).

Second, migration to areas with relatively plentiful job opportunities and higher productivity has been an important mechanism by which labor markets equalize incomes across regions. In the classic view of the U.S. economy, workers leave low-wage or weak labor market regions for those with better job prospects. With declining mobility, this feature of the U.S. economy has been waning. By one calculation, the large increase in hourly wage inequality that occurred between 1980 and 2010 would have been 8 percent smaller if wages paid in U.S. regions had continued to converge at the rate they did from 1940 through 1980 (Ganong and Shoag 2017).

FIGURE 2.

## Median and Mean Earnings Growth, by Mobility Status



Source: U.S. Census Bureau 2014; authors' calculations.

Note: The sample is restricted to workers ages 25 to 54 who worked at least 35 hours per week. Earnings growth is calculated between January 2013 and December 2013.

THE HAMILTON PROJECT  
BROOKINGS

Figure 3a shows the long-run decline in the rate of interstate migration since 1981. Notably, the decline—from a peak of 3.8 percent in 1990 to 2.1 percent in 2017—precedes the Great Recession. In some cases, migration might lead to large wage gains. Figure 3b shows results from a study by Emi Nakamura, Jósef Sigurdsson, and Jón Steinsson (2017). They examine the earnings effects of involuntary migration that resulted from damage caused by a volcanic eruption in Iceland in 1973. For people 24 years old and younger (though not for older workers) who were forced to move after their houses were destroyed, later-life earnings were considerably higher than they were for their counterparts who were able to stay. The authors report that, for an 18-year-old, the net present value of lifetime earnings was roughly \$440,000 higher.

Despite the disruption caused by the volcanic eruption, and the fact that the affected town was relatively high income, wages increased when workers were compelled to seek out their comparative advantage and consider a broader array of labor market opportunities (Nakamura, Sigurdsson, and Steinsson 2017). Certainly, migration does not always lift wages. In particular, it might not do so if a person moves to an area to accompany a spouse or for some similar non-job-related reason. However, the estimates shown in figure 3b are evidence that in some cases movement by young workers helps them find higher wages.

## Demographic, Economic, and Policy Explanations for Declining Dynamism

Thus far, we have characterized some of the most important ways in which labor market dynamism has declined, examining job creation and destruction, interstate migration, and job switching. We now turn to some explanations for the decline.

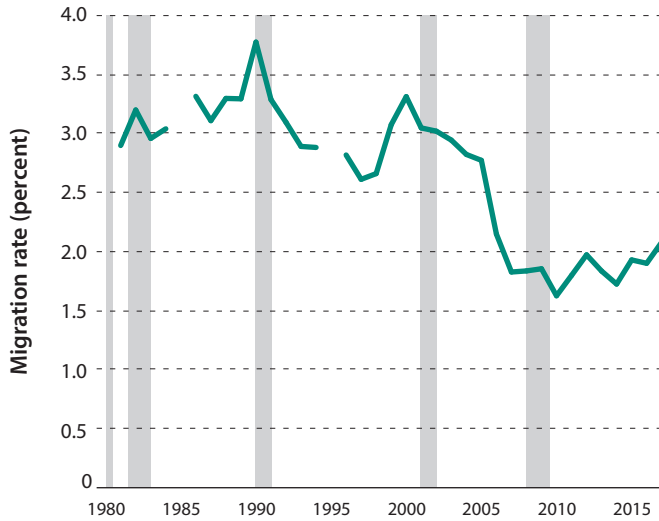
### DEMOGRAPHIC EXPLANATIONS

One important possibility is that the aging of the U.S. population was partially or wholly responsible for declining dynamism. Understanding the extent to which age and other demographic factors can account for declining dynamism is important for understanding the root causes, and, potentially, for addressing those causes.

Some of the decline in job transitions—but not the bulk of it—can be attributed to the aging of the population. Older workers are generally less likely to switch jobs or to move across state borders (Molloy et al. 2016). As these workers have become relatively more numerous, one might expect the interstate migration rate and the job switching rate to fall even if no other changes occur in public policy or the economy. Workers aged

FIGURE 3A.

### Interstate Migration Rate, 1981–2017



Source: BLS 1981–2017.

Note: Data come from the Current Population Survey Annual Social and Economic Supplement, Restricted to prime-age respondents, ages 25–54. Data were not available for 1985 and 1995. Shaded bars indicate recessions.

25 to 34 are more than twice as likely to switch jobs directly as are workers aged 45 to 54, and younger workers are more likely still (U.S. Census Bureau 2000–16; authors’ calculations).<sup>4</sup>

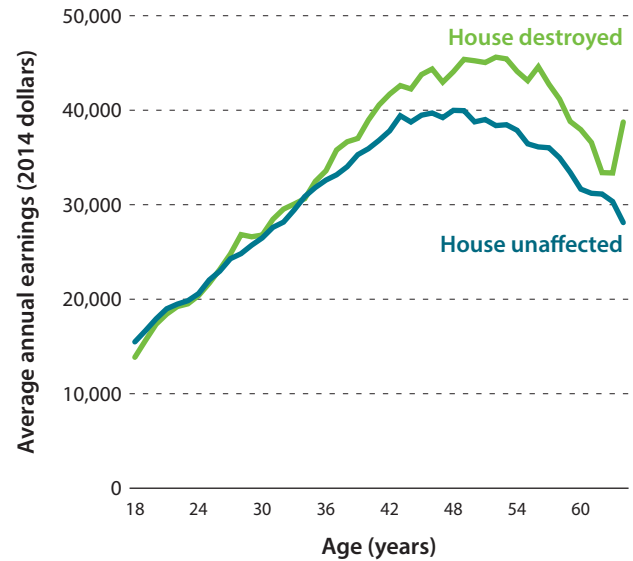
However, the aging of the population has played a limited role in driving declines in interstate migration, job switching, and similar measures (Hyatt et al. 2016; Hyatt and Spletzer 2013; Kaplan and Schulhofer-Wohl 2017; Molloy, Smith, and Wozniak 2014).<sup>5</sup> In other words, declines in these measures of dynamism have largely occurred within age groups. Other demographic changes—shifts in educational attainment, race, marital status, and presence of young children—do not appear responsible for the decline in migration or job-to-job flows (Hyatt and Spletzer 2013; Molloy, Smith, and Wozniak 2014).

### ECONOMIC EXPLANATIONS

Over the decades the structure of the economy has changed in ways that could be relevant to dynamism. One possibility is that changes in the geographic distribution of work have affected migration, though not necessarily job switching. As regions of the country became less specialized in the goods and services they produce, workers had a diminished incentive to migrate, potentially explaining around half of the decline in interstate migration (Kaplan and Schulhofer-Wohl 2017). In the past, to work in a given industry people sometimes needed to move to the city that concentrated in that industry. As the industrial

FIGURE 3B.

### Annual Earnings, by Exposure to Natural Disaster



Source: Nakamura, Sigurdsson, and Steinsson 2017.

Note: Evidence comes from the Westman Islands of Iceland, where a volcanic eruption destroyed the homes of some but not all residents. Data are for cohorts 24 years old and younger at the time of the eruption.



profile across regions has become increasingly similar, though, more options may be available in any given region, requiring fewer workers to move.

Scholars have studied a number of other possible drivers related to economic fundamentals. These include the rise of dual-earner households, which may have more difficulty migrating to reach economic opportunity; and rising homeownership rates, which could tie workers more firmly to specific locations. Perhaps surprisingly, dual-earner households did not become more common in the 2000s as compared with the 1980s. In addition, migration of renters fell alongside migration of homeowners (Molloy, Smith, and Wozniak 2014). Neither explanation appears able to account for declining migration.

Another interesting possibility is that the most productive workers are increasingly closely matched, early in their careers, with the most productive employers. This could reduce the need for job switching and migration (Molloy, Smith, and Wozniak 2014) as well as entrepreneurship (Kozeniauskas 2017). If the most productive of the large, established firms are now more likely to employ the workers who—in previous generations—would otherwise have started businesses, it may be that some or all of the innovative activities are now occurring in those established firms. These innovative workers would presumably be well matched with the firms, receiving high wages and

experiencing less incentive to switch jobs or start businesses. However, this account is difficult to square with the stagnation many workers see in early-career wages, as described in a Hamilton Project Proposal by economist Fatih Guvenen; it is also inconsistent with the fact that average within-firm labor productivity growth has been flat over the 1997–2013 period. In recent decades the largest firms have actually become less likely to generate high rates of productivity growth (Decker et al. 2017).

## POLICY EXPLANATIONS

The labor market is structured with rules and institutions created by state and federal policymakers. Many of these policies affect workers’ willingness to switch jobs or migrate, often by raising the costs to such movement. Research into these effects is still at an early stage, but some policies have been linked to diminished dynamism. Occupational licensing may have made it more difficult for a worker to continue their career in a different location (Johnson and Kleiner 2017) or to start a career where licensing restrictions are unnecessarily onerous. Other labor market regulations can raise the costs of hiring or firing in ways that may limit job transitions (Autor, Kerr, and Kugler 2007; Davis and Haltiwanger 2014). Non-compete contracts make it much harder for workers to switch jobs within a given industry or to start their own firm if that firm could be considered a competitor of their current employer (Starr, Prescott, and Bishara 2016). Finally, land-use restrictions can limit geographic mobility directly by reducing the degree to which housing supply responds to changes in demand for labor (Ganong and Shoag 2017).

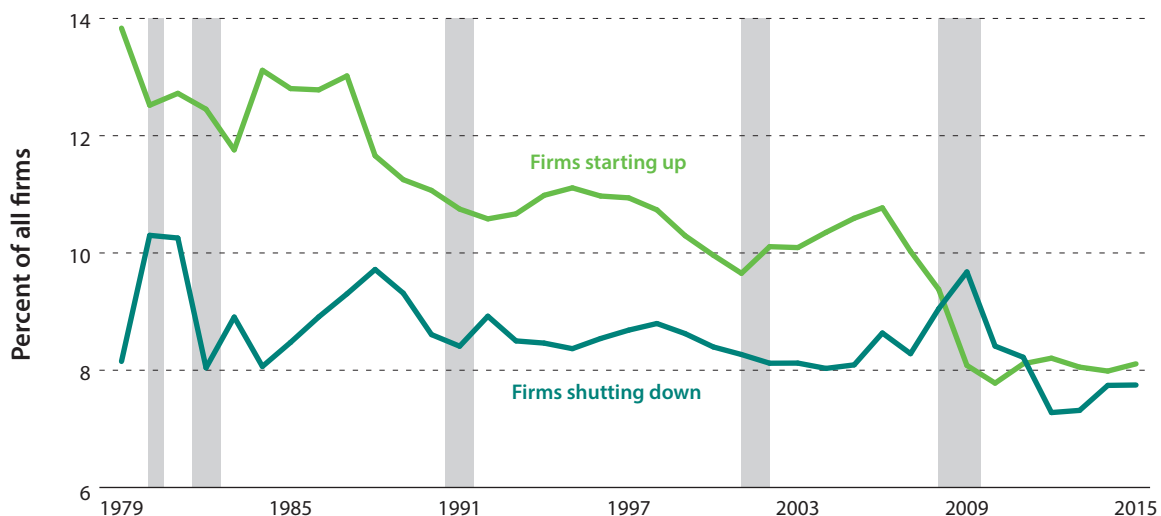
Depending on the particular measure of dynamism being considered, different policy factors are more plausible as explanations. For example, occupational licensing rules are generally defined at the state level, with little or no reciprocity across states. This impedes mobility across state lines without reducing it within state boundaries. Importantly, however, none of the potential policy explanations has been conclusively shown to account for the bulk of the decline in dynamism.

## The Fall in Start-Ups

We cannot understand worker mobility—across jobs and places—in isolation. Declining *firm* dynamism has been the other side of the labor market coin. One of the most striking examples of such decline is the fall in the firm destruction and start-up rates (Pugsley and Şahin 2015). The latter in particular has fallen quickly over the past several decades, as shown in figure 4.

The downturn in firm creation affects worker outcomes because young firms play a crucial role in generating new employment, which can in turn create better outside options for workers. This role is due in part to the up-and-out dynamics of start-ups, which drive a considerable amount of hiring. Although the median young firm generates almost no employment growth, a small fraction of young firms exhibit high rates of growth.<sup>6</sup> More than two-thirds of gross job creation is accounted for by start-ups and high-growth firms (Decker et al. 2014a).

FIGURE 4.  
Start-Up and Exit Rates for U.S. Firms, 1979–2015



Source: U.S. Census Bureau 1979–2015; authors’ calculations.

Note: Shaded bars indicate recessions. Newly created firms are defined as firms age 0 in a given year.



Overall, the decline in young firms accounts for 32 percent of the decline in job creation and 26 percent of the decline in job reallocation (Decker et al. 2014b) from the late 1980s through the mid-2000s. This is evident in the markedly reduced employment shares of firms founded after 2000, shown in figure 5. This figure is drawn from work by Ryan Decker, John Haltiwanger, Ron Jarmin, and Javier Miranda (2016). The 2000s cohort of new publicly traded firms was smaller, slower growing, and less volatile than previous cohorts. By one calculation, the most recent (post-2000) fall in dynamism has been predominantly driven by this reduced contribution of young, fast-growing firms. This post-2000 decline has been especially worrisome, given its association with falling high-tech and high-growth entrepreneurship, in contrast with earlier reductions in start-up rates that were more associated with productivity-enhancing consolidation in retail trade and services (Decker et al. 2016; Guzman and Stern 2016).

The causes of the declining firm entry rates have not been clearly established. Increasing market power of incumbent firms, shifts in demographics or risk attitudes, and policy barriers to entrepreneurship are all possibilities. Some of the decline in the start-up rate could be a direct consequence of declining population growth and labor force growth (Karahana, Pugsley, and Şahin 2016). This explanation does not rely on population aging and the lower entrepreneurship rates of older individuals. Rather, the diminished growth in the supply of labor might have reduced the scope for new businesses to start and scale up. However, this explanation

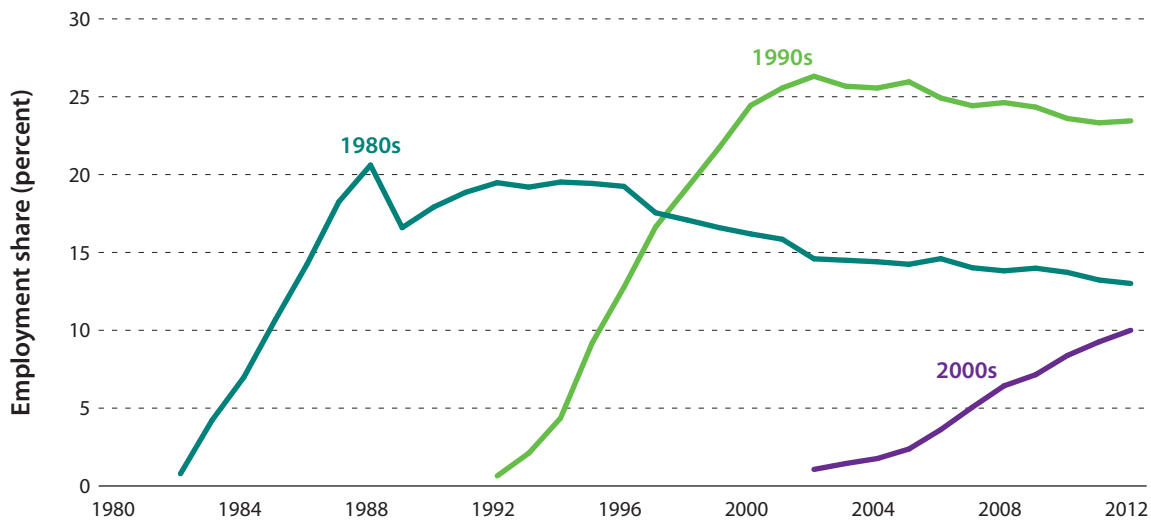
is inconsistent with the declining fraction of entrepreneurs in the population: entrepreneurs are becoming scarce even relative to available labor (Kozeniauskas 2017). Regardless of how demographic change is affecting entrepreneurship, the decline in start-ups could lower workers' wages.

### PRODUCTIVITY AND FIRM AGE

In addition to being associated with greater hiring, young firms may be associated with some of the most important innovations (Acemoglu et al. 2017) and consequently growth in economic activity. Compared to older firms, young firms experience sharply higher productivity growth. Using calculations by Titan Alon, David Berger, Robert Dent, and Benjamin Pugsley (2017), figure 6 shows the labor productivity growth associated with firms of different ages. By six to ten years after their founding, businesses generate, on average, essentially no productivity growth. At one year of age, productivity growth is around 15 percent. This age-productivity relationship was largely stable from the mid-1990s through the early 2000s (Alon et al. 2017).

It is not entirely clear what accounts for this relationship. One possibility is that entrepreneurs differ from the outset in their inclination to engage in transformational or subsistence activities, in the language of Schoar (2010). Subsistence entrepreneurs aim to support their families with a new business, but do not attempt to expand their business or hire many additional workers. By contrast, transformational entrepreneurs intend from the beginning to build a larger business, though they are only sometimes successful in this aim.

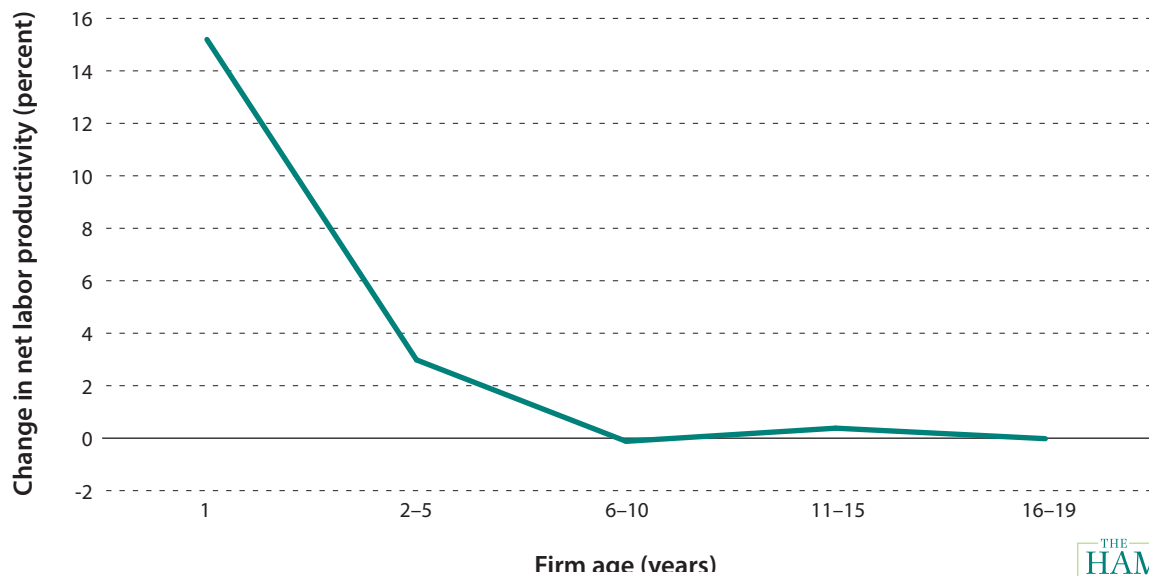
FIGURE 5.  
Employment Shares of Publicly Traded Firms, by Cohort



Source: Decker et al. 2016.  
Note: Cohorts are defined by the decade of initial public offering.

FIGURE 6.

## Net Labor Productivity Growth of Firms, by Firm Age



Source: Alon et al. 2017.

THE HAMILTON PROJECT  
BROOKINGS

Combined with the rapid exit of unsuccessful transformational start-ups, the rapid growth of successful start-ups generates high employment (Haltiwanger et al. 2017b) and productivity growth (figure 6). As the businesses age, the boost to productivity induced by creative destruction—productive firms replacing unproductive firms—diminishes quickly (Alon et al. 2017). This creative destruction is mirrored at the job level, where reallocation of jobs from less-productive to more-productive firms accounts for a large fraction of annual productivity growth (Foster, Grim, and Haltiwanger 2016).

### THE IMPACT OF THE DECLINING START-UP RATE

Given the strong association between start-ups and desirable economic outcomes, it is reasonable to be concerned that the falling start-up rate has negatively affected productivity and wage growth. One estimate is that declining start-up rates—and the implied aging of firms—lowered productivity growth by more than 0.1 percent per year from 1980 to 2014 (Alon et al. 2017).

The missing start-ups had other economic implications as well. Much of the slowdown in trend employment growth over the past three decades can be ascribed to falling firm entry (Pugsley and Şahin 2015). One additional effect of the decline in start-ups—and consequent aging of firms more generally—is reduced volatility of employment over the business cycle. For a macroeconomic shock of constant magnitude, the responsiveness of employment is now about 10 percent lower

than it was in the late 1980s (Pugsley and Şahin 2015). While this could reduce job losses in recessions, it could also contribute to the recent problem of so-called jobless recoveries.

## What Does Declining Dynamism Mean for Policy?

The search for explanations of declining dynamism is ongoing, and future research is likely to change our view of the most important factors that have driven the trends discussed in this chapter. The relative importance accorded to demographic, economic, and policy factors may vary, but the simple facts of falling start-up rates, diminishing job switching, and declining migration imply concerns about wage growth that merit policymaker attention.

Wage growth has stagnated in recent decades for a large share of workers. At the same time, declining rates of job change mean that workers are not accessing this historical engine for wage growth. Together, these trends suggest a role for public policy in raising the return to work and establishing the conditions for workers to successfully climb the job ladder and achieve career progress. Doing so entails human capital investments before and during labor market engagement.

But it also means eliminating or mitigating unnecessary policy barriers to dynamism. For example, there is no strong policy rationale for the lack of reciprocity in states' occupational licensing requirements. Rationalizing and modernizing such rules might not return dynamism to its previous levels, but it could be a part of an effective overall policy response.

More generally, policies to enhance worker mobility will promote wage growth through two channels: increased productivity associated with better worker–firm matches, and increased worker bargaining power that comes from a more credible and attractive set of outside job offers. Policies or developments in the economy that have reduced the extent to which workers

can change jobs will leave them with less ability to bargain for gains, but may also leave workers in suboptimal jobs, thereby limiting both their wages and their productivity. Thus, some policies that seem to be oriented simply toward raising worker bargaining power might in fact also raise productivity through additional mobility and better matching of workers and firms.

Many proposals in this volume could be considered in this light. Proposals that aid mobility, limit non-compete clauses, or limit employer collusion would all likely enhance workers' ability to bargain for wage gains, but they could also boost productivity growth if they help mitigate longstanding downward trends in dynamism.

## Endnotes

1. Job switches are defined as a change in main job in the second week of December from the main job held in the second week of January. Interstate moves are defined as a change in state of residence in December from the state of residence in January. A worker's main job is identified as the job from which they receive the highest weekly wage/salary earnings, conditional on having worked 35 or more hours on the job for that week. Means are winsorized at the 5th and 9th percentiles.
2. These estimates could overstate the importance of job switching if the only workers to receive outside offers were the most productive workers; in that case, their wage gains would not be representative of the benefits of switching for workers more generally. In addition, estimates for interstate job switchers were based on a relatively small number of observations.
3. These moves of workers up the wage ladder slow noticeably during recessions, supporting two ideas: dynamism rises when the economy is expanding, and wage growth is supported by full employment. See also Molloy and Wozniak (2011), as well as the contribution by Jared Bernstein in this volume.
4. Interestingly, after year 2000 younger workers in particular have become less likely to switch jobs (Molloy et al. 2016; U.S. Census Bureau 2000–16 [authors' calculations]).
5. It is important to note that there could be larger indirect impacts of population aging if firms respond by directing more of their recruiting efforts to local labor markets (Karahan and Li 2016).
6. The growth potential of start-ups is highly variable, with a small fraction of them accounting for the large majority of employment and economic growth; moreover, this growth potential differs over time and across regions (Guzman and Stern 2016).

## References

- Acemoglu, Daron, Ufuk Akcigit, Harun Alp, Nicholas Bloom, and William R. Kerr. 2017, November. "Innovation, Reallocation and Growth." Working Paper 18993, National Bureau of Economic Research, Cambridge, MA.
- Alon, Titan, David Berger, Robert Dent, and Benjamin Pugsley. 2017, September. "Older and Slower: The Startup Deficit's Lasting Effects on Aggregate Productivity Growth." Working Paper 23875, National Bureau of Economic Research, Cambridge, MA.
- Autor, David H., William R. Kerr, and Adriana D. Kugler. 2007, June. "Does Employment Protection Reduce Productivity? Evidence from US States." *Economic Journal* 117: 189–217.
- Bureau of Labor Statistics (BLS). 1981–2017. "Current Population Survey Annual Social and Economic Supplement." Bureau of Labor Statistics, U.S. Department of Labor, Washington, DC.
- . 1994–2017. "Business Employment Dynamics." Bureau of Labor Statistics, U.S. Department of Labor, Washington, DC.
- Davis, Stephen J., and John Haltiwanger. 2014, December. "Labor Market Fluidity and Economic Performance." Working Paper 20479, National Bureau of Economic Research, Cambridge, MA.
- Decker, Ryan, John Haltiwanger, Ron Jarmin, and Javier Miranda. 2014a. "The Role of Entrepreneurship in US Job Creation and Economic Dynamism." *Journal of Economic Perspectives* 28 (3): 3–24.
- . 2014b. "The Secular Decline in Business Dynamism in the U.S." Unpublished manuscript. [http://econweb.umd.edu/~haltiwan/DHJM\\_6\\_2\\_2014.pdf](http://econweb.umd.edu/~haltiwan/DHJM_6_2_2014.pdf).
- . 2016, July. "Where Has All the Skewness Gone? The Decline in High-Growth (Young) Firms in the U.S." *European Economic Review* 86: 4–23.
- . 2017. "Declining Dynamism, Allocative Efficiency, and the Productivity Slowdown." *American Economic Review* 107 (5): 322–26.
- . 2018, January. "Changing Business Dynamism and Productivity: Shocks vs. Responsiveness." Working Paper 24236, National Bureau of Economic Research, Cambridge, MA.
- Fallick, Bruce, and Charles A. Fleischman. 2004, May. "Employer-to-Employer Flows in the US Labor Market: The Complete Picture of Gross Worker Flows." Finance and Economics Discussion Series Working Paper 2004-34, Federal Reserve Board, Washington, DC.
- Foster, Lucia, Cheryl Grim, and John Haltiwanger. 2016. "Reallocation in the Great Recession: Cleansing or Not?" *Journal of Labor Economics* 34 (S1): 293–331.

- Ganong, Peter, and Daniel W. Shoag. 2017, July. "Why Has Regional Income Convergence in the U.S. Declined?" Working Paper 23609, National Bureau of Economic Research, Cambridge, MA.
- Guzman, Jorge, and Scott Stern. 2016, March. "The State of American Entrepreneurship: New Estimates of the Quantity and Quality of Entrepreneurship for 15 US States, 1988–2014." Working Paper 22095, National Bureau of Economic Research, Cambridge, MA.
- Haltiwanger, John, Henry Hyatt, Lisa B. Kahn, and Erika McEntarfer. 2017a, June. "Cyclical Job Ladders by Firm Size and Firm Wage." Working Paper 23485, National Bureau of Economic Research, Cambridge, MA.
- Haltiwanger, John, Ron S. Jarmin, Robert Kulick, and Javier Miranda. 2017b. "High Growth Young Firms: Contribution to Job, Output, and Productivity Growth." In *Measuring Entrepreneurial Businesses: Current Knowledge and Challenges*, edited by John Haltiwanger, Erik Hurst, Javier Miranda, and Antoinette Schoar, 11–62. Chicago, IL: University of Chicago Press.
- Hyatt, Henry R., Erika McEntarfer, Ken Ueda, and Alexandria Zhang. 2016, October. "Interstate Migration and Employer-to-Employer Transitions in the U.S.: New Evidence from Administrative Records Data." Center for Economic Studies Working Paper 16-44, U.S. Census Bureau, Suitland, MD.
- Hyatt, Henry R., and James Spletzer. 2013, March. "The Recent Decline in Employment Dynamics." Center for Economic Studies Working Paper 13-03, U.S. Census Bureau, Suitland, MD.
- Johnson, Janna E., and Morris M. Kleiner. 2017, December. "Is Occupational Licensing a Barrier to Interstate Migration?" Working Paper 24107, National Bureau of Economic Research, Cambridge, MA.
- Kaplan, Greg, and Sam Schulhofer-Wohl. 2017. "Understanding the Long-Run Decline in Interstate Migration." *International Economic Review* 58 (1): 57–94.
- Karahan, Fatih, and Darius Li. 2016, October 17. "What Caused the Decline in Interstate Migration in the United States?" Liberty Street Economics, Federal Reserve Bank of New York, New York, NY (blog).
- Karahan, Fatih, Benjamin Pugsley, and Ayşegül Şahin. 2016, September. "Demographic Origins of the Startup Deficit." Working Paper, Federal Reserve Bank of New York, New York, NY.
- Karahan, Fatih, Ryan Michaels, Benjamin Pugsley, Ayşegül Şahin, and Rachel Schuh. 2017. "Do Job-to-Job Transitions Drive Wage Fluctuations over the Business Cycle?" *American Economic Review* 107 (5): 353–57.
- Kozeniauskas, Nicholas. 2017, January. "What's Driving the Decline in Entrepreneurship?" Working Paper, New York University, New York, NY. Accessed November 17, 2017.
- Molloy, Raven, Christopher L. Smith, and Abigail Wozniak. 2014, April. "Declining Migration within the U.S.: The Role of the Labor Market." Working Paper 20065, National Bureau of Economic Research, Cambridge, MA.
- Molloy, Raven, Christopher L. Smith, Riccardo Trezzi, and Abigail Wozniak. 2016. "Understanding Declining Fluidity in the U.S. Labor Market." *Brookings Papers on Economic Activity* (Spring): 183–259.
- Molloy, Raven, and Abigail Wozniak. 2011. "Labor Reallocation over the Business Cycle: New Evidence from Internal Migration." *Journal of Labor Economics* 29 (4): 697–739.
- Moscarini, Giuseppe, and Fabien Postel-Vinay. 2016. "Wage Posting and Business Cycles." *American Economic Review* 106 (5): 208–13.
- Nakamura, Emi, Jósef Sigurdsson, and Jón Steinsson. 2017, July. "The Gift of Moving: Intergenerational Consequences of a Mobility Shock." Working Paper 22392, National Bureau of Economic Research, Cambridge, MA.
- Pugsley, Benjamin W., and Ayşegül Şahin. 2015, October. "Grown-Up Business Cycles." Center for Economic Studies Working Paper 15-33, U.S. Census Bureau, Suitland, MD.
- Schoar, Antoinette. 2010. "The Divide between Subsistence and Transformational Entrepreneurship." In *Innovation Policy and the Economy*, vol. 10, edited by Josh Lerner and Scott Stern, 57–81. Chicago, IL: University of Chicago Press.
- Stansbury, Anna, and Lawrence Summers. 2017, November. "Productivity and Pay: Is the Link Broken?" Paper prepared for the Peterson Institute for International Economics conference on November 9, Washington, DC.
- Starr, Evan P., J. J. Prescott, and Norman Bishara. 2016, October. "Noncompetes and Employee Mobility." Law and Economics Research Paper 16-032, University of Michigan Law School, Ann Arbor, MI.
- U.S. Census Bureau. 1979–2015. "Business Dynamics Statistics." U.S. Census Bureau, Suitland, MD.
- . 2000–16. "Longitudinal Employer-Household Dynamics." U.S. Census Bureau, Suitland, MD.
- . 2014. "Survey of Income and Program Participation 2014." U.S. Census Bureau, Suitland, MD.

## Authors

### Jay Shambaugh

*Director, The Hamilton Project; Senior Fellow, Economic Studies, The Brookings Institution; Professor of Economics and International Affairs, Elliott School of International Affairs, The George Washington University*

Jay Shambaugh is the director of The Hamilton Project and a senior fellow in Economic Studies at the Brookings Institution. He is also a Professor of Economics and International Affairs at the Elliott School of International Affairs at The George Washington University. He has spent two stints in public service. Most recently, he served as a Member of the White House Council of Economic Advisers (August 2015–January 2017) where he was involved in policy related to international economics, macroeconomics, competition policy, energy and environment policy, housing, finance, technology, as well as other issues. He also served as first Senior Economist for International Economics and then Chief Economist at the White House Council of Economic Advisers (2009–11).

Prior to joining the faculty at George Washington, Jay taught at Georgetown and Dartmouth. He is also a Research Associate at the NBER and has been a visiting scholar at the IMF. Jay received his PhD in economics from the University of California at Berkeley, MA from the Fletcher School at Tufts, and BA from Yale University.

Jay's area of research is macroeconomics and international economics. His work includes analysis of the interaction of exchange rate regimes with monetary policy, capital flows, and trade flows as well as studies of international reserves holdings, country balance sheet exchange rate exposure, the cross-country impact of fiscal policy, and the current crisis in

the euro area. In addition to his book, *Exchange Rate Regimes in the Modern Era* (MIT Press, 2009), Jay has published in *The American Economic Review*, *The Quarterly Journal of Economics*, and other leading journals.

### Ryan Nunn

*Policy Director, The Hamilton Project; Fellow, Economic Studies, The Brookings Institution*

Ryan Nunn is a fellow in Economic Studies at the Brookings Institution and policy director for The Hamilton Project. He was previously an economist in the Office of Economic Policy at the U.S. Department of the Treasury. At both The Hamilton Project and the Department of the Treasury, he has conducted work on a variety of topics including occupational licensing and non-compete policy. Nunn's research interests include labor economics and public finance, with a particular focus on labor market institutions. He received his doctorate in Public Policy and Economics from the University of Michigan, Ann Arbor.

### Patrick Liu

*Research Assistant, The Hamilton Project*

Patrick Liu is a research assistant at The Hamilton Project, where he has coauthored a paper on wage stagnation. He graduated Phi Beta Kappa from the University of Chicago in 2017 with a degree in economics. During his time there, he worked as a research assistant studying the impact of financial aid restructuring on educational attainment and student labor market outcomes.

## Acknowledgments

We are grateful to Lauren Bauer, Ryan Decker, David Dreyer, Joy Fox, Henry Hyatt, Kriston McIntosh, Riccardo Trezzi, and Abigail Wozniak for insightful comments, as well as Audrey Breitwieser, Becca Portman, and Rachel Williams for excellent research assistance. We would also like to thank Titan Alon, David Berger, Ryan Decker, Robert Dent, Bruce Fallick, Charles Fleischman, John Haltiwanger, Henry Hyatt, Ron Jarmin, Erika McEntarfer, Javier Miranda, Emi Nakamura, Benjamin Pugsley, József Sigurdsson, Jón Steinsson, Ken Ueda, and Alexandria Zhang for generously sharing their data.



## ADVISORY COUNCIL

GEORGE A. AKERLOF  
University Professor  
Georgetown University

ROGER C. ALTMAN  
Founder & Senior Chairman  
Evercore

KAREN ANDERSON  
Senior Director of Policy and Communications  
Becker Friedman Institute for  
Research in Economics  
The University of Chicago

ALAN S. BLINDER  
Gordon S. Rentschler Memorial Professor of  
Economics &  
Public Affairs  
Princeton University  
Nonresident Senior Fellow  
The Brookings Institution

ROBERT CUMBY  
Professor of Economics  
Georgetown University

STEVEN A. DENNING  
Chairman  
General Atlantic

JOHN M. DEUTCH  
Institute Professor  
Massachusetts Institute of Technology

CHRISTOPHER EDLEY, JR.  
Co-President and Co-Founder  
The Opportunity Institute

BLAIR W. EFFRON  
Partner  
Centerview Partners LLC

DOUGLAS W. ELMENDORF  
Dean & Don K. Price Professor  
of Public Policy  
Harvard Kennedy School

JUDY FEDER  
Professor & Former Dean  
McCourt School of Public Policy  
Georgetown University

ROLAND FRYER  
Henry Lee Professor of Economics  
Harvard University

JASON FURMAN  
Professor of the Practice of  
Economic Policy  
Harvard Kennedy School  
Senior Counselor  
The Hamilton Project

MARK T. GALLOGLY  
Cofounder & Managing Principal  
Centerbridge Partners

TED GAYER  
Vice President & Director  
Economic Studies  
The Brookings Institution

TIMOTHY F. GEITHNER  
President  
Warburg Pincus

RICHARD GEPHARDT  
President & Chief Executive Officer  
Gephardt Group Government Affairs

ROBERT GREENSTEIN  
Founder & President  
Center on Budget and Policy Priorities

MICHAEL GREENSTONE  
Milton Friedman Professor of Economics  
Director of the Becker Friedman Institute for  
Research in Economics  
Director of the Energy Policy Institute  
University of Chicago

GLENN H. HUTCHINS  
Co-founder  
North Island  
Co-founder  
Silver Lake

JAMES A. JOHNSON  
Chairman  
Johnson Capital Partners

LAWRENCE F. KATZ  
Elisabeth Allison Professor of Economics  
Harvard University

MELISSA S. KEARNEY  
Professor of Economics  
University of Maryland  
Nonresident Senior Fellow  
The Brookings Institution

LILI LYNTON  
Founding Partner  
Boulud Restaurant Group

HOWARD S. MARKS  
Co-Chairman  
Oaktree Capital Management, L.P.

MARK MCKINNON  
Former Advisor to George W. Bush  
Co-Founder, No Labels

ERIC MINDICH  
Chief Executive Officer & Founder  
Eton Park Capital Management

ALEX NAVAB  
Former Head of Americas Private Equity  
KKR  
Founder  
Navab Holdings

SUZANNE NORA JOHNSON  
Former Vice Chairman  
Goldman Sachs Group, Inc.

PETER ORSZAG  
Vice Chairman of Investment Banking  
Managing Director and  
Global Co-head of Health  
Lazard  
Nonresident Senior Fellow  
The Brookings Institution

RICHARD PERRY  
Managing Partner &  
Chief Executive Officer  
Perry Capital

PENNY PRITZKER  
Chairman  
PSP Partners

MEEGHAN PRUNTY  
Managing Director  
Blue Meridian Partners  
Edna McConnell Clark Foundation

ROBERT D. REISCHAUER  
Distinguished Institute Fellow & President  
Emeritus  
Urban Institute

ALICE M. RIVLIN  
Senior Fellow, Economic Studies  
Center for Health Policy  
The Brookings Institution

DAVID M. RUBENSTEIN  
Co-Founder &  
Co-Chief Executive Officer  
The Carlyle Group

ROBERT E. RUBIN  
Former U.S. Treasury Secretary  
Co-Chair Emeritus  
Council on Foreign Relations

LESLIE B. SAMUELS  
Senior Counsel  
Cleary Gottlieb Steen & Hamilton LLP

SHERYL SANDBERG  
Chief Operating Officer  
Facebook

DIANE WHITMORE SCHANZENBACH  
Margaret Walker Alexander Professor  
Director  
The Institute for Policy Research  
Northwestern University  
Nonresident Senior Fellow  
The Brookings Institution

RALPH L. SCHLOSSTEIN  
President & Chief Executive Officer  
Evercore

ERIC SCHMIDT  
Technical Advisor  
Alphabet Inc.

ERIC SCHWARTZ  
Chairman and CEO  
76 West Holdings

THOMAS F. STEYER  
Business Leader and Philanthropist

LAWRENCE H. SUMMERS  
Charles W. Eliot University Professor  
Harvard University

LAURA D'ANDREA TYSON  
Professor of Business Administration and  
Economics Director  
Institute for Business & Social Impact  
Berkeley-Haas School of Business

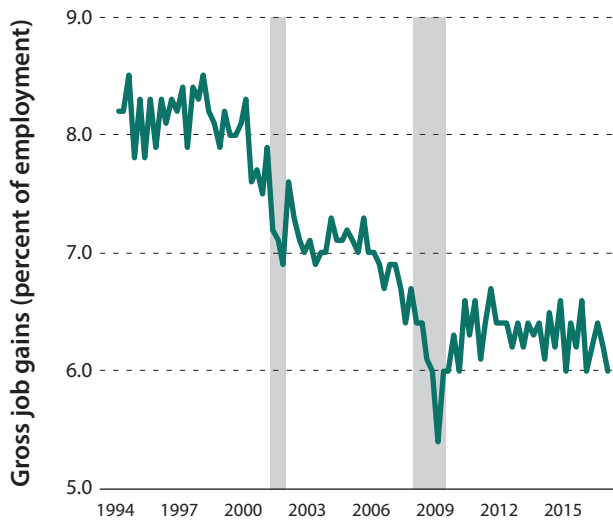
---

JAY SHAMBAUGH  
Director

## Abstract

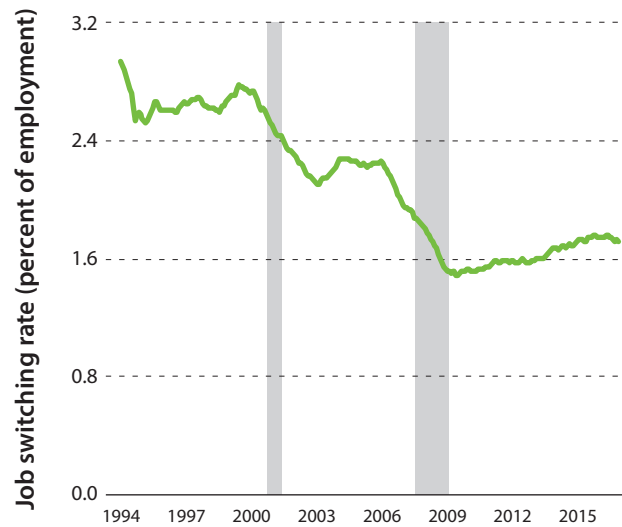
Wages have stagnated in recent decades for typical workers. While a number of economic, policy, and technological developments bear some responsibility, economists have grown increasingly concerned that declining dynamism is an important cause. The decline in dynamism encompasses the various ways in which workers and entrepreneurs have become less likely to explore new patterns of economic activity: starting new, fast-growing businesses; switching jobs; and moving across the country. As these activities diminish, both productivity growth and worker bargaining power suffer, limiting workers' opportunities and damaging wage growth. Improving the ability of workers to switch jobs could thus improve both their wages and their productivity. Declining dynamism may suggest a role for public policy in establishing the conditions for workers to successfully climb the job ladder.

FIGURE 1A.  
Private Sector Job Creation Rate, 1994–2017



Source: Bureau of Labor Statistics (BLS) 1994–2017.  
Note: Data are quarterly and seasonally adjusted. Shaded bars indicate recessions.

FIGURE 1B.  
Job Switching Rate, 1994–2017



Source: Fallick and Fleischman 2004; authors' calculations.  
Note: Data are the 12-month centered moving average of monthly employer-to-employer flows expressed as a hazard rate. Employer-to-employer transitions occur when a worker switches employment without a spell of nonemployment in between. Shaded bars indicate recessions.

THE  
HAMILTON  
PROJECT  
BROOKINGS

THE  
HAMILTON  
PROJECT

1775 Massachusetts Ave., NW  
Washington, DC 20036

(202) 797-6484

BROOKINGS



Printed on recycled paper.

WWW.HAMILTONPROJECT.ORG