

# REVITALIZING ★ WAGE ★ GROWTH

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Policies to Get American  
Workers a Raise

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*Edited by*  
**JAY SHAMBAUGH** *and* **RYAN NUNN**



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FEBRUARY 2018

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# Acknowledgments

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*The policy proposals included in this volume are proposals from the authors. As emphasized in The Hamilton Project's original strategy paper, the Project was designed in part to provide a forum for leading thinkers across the nation to put forward innovative and potentially important economic policy ideas that share the Project's broad goals of promoting economic growth, broad-based participation in growth, and economic security. The authors are invited to express their own ideas in policy papers, whether or not the Project's staff or advisory council agrees with the specific proposals. These policy papers are offered in that spirit.*

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# Foreword

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One simple question—*are wages rising?*—is as central to the health of our democracy as it is to the health of our economy. 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.

One of the best measures economists use to determine Americans' ability to achieve this dream is whether wages are rising, broadly and consistently. For the last few decades, and for too many workers, they have not. The U.S. economy has experienced long-term real wage stagnation and a persistent lack of economic progress for many workers. The median worker in 2017, for instance, earned only slightly more than in 1979.

Over the long arc of U.S. history wages have fluctuated along with the economy. Real wages are affected by inflation and by the supply and demand for labor. They can move depending on the progress of technological advances, the strength or weakness of capital investment, the size of workers' nonwage benefits, or conditions that affect labor's share of economic output.

What makes the past forty years different from earlier U.S. history are the new and more-stubborn factors contributing to the stagnation of a typical worker's pay. Wages have risen for those in the top of the distribution, but—with the exception of brief periods like the latter half of the 1990s—they have been stagnant for those in the bottom and middle. Wages have grown for women and fallen for men, while remaining much lower for people of color. Globalization and technological change are exerting downward pressure on the wages of some less-educated workers. Declines in the real minimum wage and union membership have also lowered wage growth.

Wage growth now also varies significantly by location, with wages in poor areas increasingly less likely to catch up to those in rich areas. Households have become less mobile: today's workers are less likely to move to a different state or to a different job, which intensifies the disparities among regions (Ganong and Shoag 2017). The fact that business start-ups and closings have also declined—a signal of decreased firm dynamism—has in turn likely lowered productivity growth and disrupted wage ladders in ways that have been particularly deleterious for wage growth. Even if incumbent firms increased their innovative activity, removing one concern regarding the decrease in start-ups, the smaller number of new firms reduces job switching opportunities for workers and puts downward pressure on wage growth.

Wage stagnation does more than constrain family budgets: it also leaves workers and families feeling discouraged, even disenfranchised. Working year after year without a meaningful rise in wages weakens workers' confidence in the economic system. Even more, it undermines their faith in democratic institutions to make the necessary changes in public policy to deliver a robust improvement in their standards of living. As former Treasury Secretary Lawrence Summers, a member of our advisory council, wrote in September 2017, "The central issue in American politics is the economic security of the middle class and their sense of opportunity for their children. As long as a substantial majority of American adults believe that their children will not live as well as they did, our politics will remain bitter and divisive" (Summers 2017). Stagnant wages divide us not only by income, but also by our understanding of what it means to be an American and to have our own shot at the American Dream. For this reason, with so much at stake, the task of restarting wage growth has taken on great urgency.

Hence, the decision to publish this volume. For more than a decade The Hamilton Project has offered proposals and analyses aimed at promoting economic growth, broad-based participation in growth, and economic security. Here we have assembled the evidence and analysis that detail why wages have been stagnant for so many workers, and identified public policies that could effectively contribute to the growth in productivity and wages that are core parts of improving living standards for all Americans.

Slow productivity growth and stagnant wages are complex puzzles, but are not insoluble. In the following chapters, our experts offer evidence-based policy proposals to support wage growth through increased productivity. These proposals include greater support for policies that increase human capital (education and training policies), boost worker mobility, and sustain robust labor demand.

Other experts featured in this volume propose raising wage growth by strengthening worker bargaining power. Enhanced wage transparency, modernized labor market standards and institutions, and more-competitive labor markets can all play important roles in helping workers share in the benefits of economic growth. When these policies help match workers to more productive jobs, they can raise economic growth as well.

The goal shared by each proposal is raising productivity growth and wages as engines for creating a faster-growing and more-dynamic economy that will benefit all workers over the long term. We offer the proposals with the conviction that forty years of stagnation need not presage forty more. If we are able to put in place a policy regime to reverse these long-term trends, we can restore Americans' confidence in the economy and in the American Dream.

ROGER C. ALTMAN

ROBERT E. RUBIN

# Introduction

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

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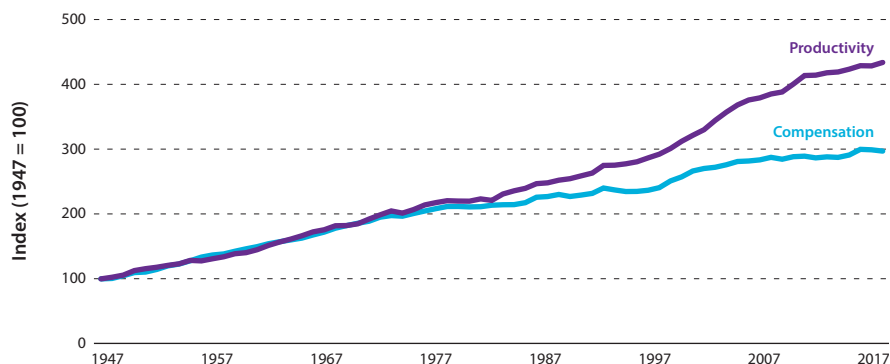
Growth in real median hourly wages of American workers has been minimal since 1979. This stagnation continues to have stark implications for the U.S. economy. It has adversely impacted both the living standards of individual Americans as well as the country's overall macroeconomic growth.

In order to get wages growing again in a sustained fashion, we first need to understand what has occurred over the past 40 years. While compensation growth for typical workers depends on a number of factors, one of the most important is growth in labor productivity (or output per hour). Labor productivity, in turn, depends on the human and physical capital used in the production process, as well as on how efficiently labor and capital are used. However, the extent to which workers benefit from productivity growth depends on how much of that growth is channeled into compensation, rather than into profits or capital income.

Figure A depicts the evolution of labor productivity and average compensation growth, showing just how much more rapidly productivity has risen than compensation for labor.

FIGURE A.

## Real Labor Productivity and Hourly Compensation, 1947–2017



Source: Bureau of Labor Statistics (BLS) 1947–2017; authors' calculations.

Note: Productivity is the indexed value of nonfarm business real gross output per hour of all persons, and compensation is the indexed value of nonfarm business average real compensation per hour. Compensation is deflated using the Consumer Price Index for All Urban Consumers Research Series (CPI-U-RS) deflator.

After tracking together fairly closely from the late 1940s to early 1970s, compensation growth slowed compared to productivity growth. From 1979 to 2017 real gross labor productivity grew close to 2 percent per year, while real average compensation grew less than 1 percent per year.

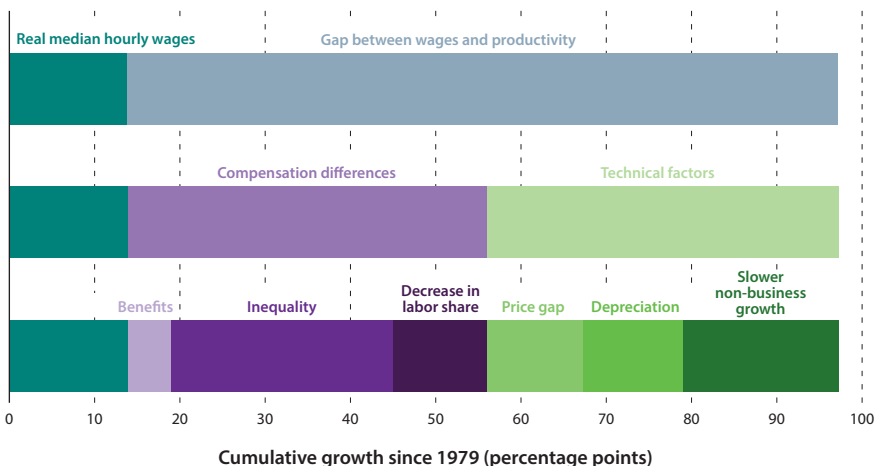
Wages are only one component of compensation, which also includes nonwage compensation such as group insurance (e.g. health, dental, and life), disability income protection, and retirement benefits. Accordingly, when these other components of compensation are taken into account, wages have grown slightly more slowly than compensation. The divergence between median and average wages—a measure of income inequality—also helps determine how well typical workers fare. As inequality has grown, median compensation has lagged productivity by even more than average compensation.

Figure B describes the various components of the gap between cumulative wage and productivity growth.<sup>1</sup> Real median wages increased by only 14 percent from 1979 to 2017, while gross productivity increased by more than 97 percent, leaving a gap of over 83 percentage points. Some of this gap can be explained by shifts in how productivity gains are split up as compensation, either through increases in nonwage benefits, gaps between average and median pay, or shifts from workers to firms. However, benefits, or the difference between median compensation and median wages, explain only 5 percentage points of the difference between wages and productivity.<sup>2</sup>

A much larger portion of the gap is due to inequality, or the difference between median and average compensation, which explains 26 percentage points of the gap.<sup>3</sup> More and more productivity gains have gone to the top of the income distribution, leading median compensation growth to fall short of productivity growth, while average compensation growth has come closer. In addition, roughly 11 percentage points of the gap can be attributed

FIGURE B.

## Factors that Explain the Wage-Productivity Gap, 1979–2017



Source: Bureau of Economic Analysis 1979–2017; BLS 2018; Current Population Survey (CPS) 1979–2017; Bivens and Mishel 2015; authors' calculations.

Note: See endnote 1 for detailed information.

to a decline in the labor share of income as total compensation to labor has fallen and the share going to capital has increased.

A number of technical factors also explain the divergence between nonfarm business sector productivity and median wage growth. Prices for U.S.-produced output (used in the calculation of productivity) have grown more slowly than consumer prices (used to calculate real wages). Thus, some of the slower growth in real wages stems from the fact that the prices used to calculate inflation-adjusted wages are growing more quickly than those used to calculate inflation-adjusted output.

In addition, depreciation—which in theory should be subtracted from the productivity growth that is available for compensation growth—now makes up a larger share of output. Finally, productivity in the overall economy—including government, the nonprofit sector, and the farm sector—has grown more slowly than productivity in the nonfarm business sector, which is typically the focus of productivity growth measurement. One would expect wages for workers overall to track total economy productivity, rather than nonfarm business productivity. While these technical factors explain some of the gap in figure A, the dual features of rising inequality and declining labor share explain a sizable amount.

For a typical American worker to get a larger raise, continued productivity growth is just the first prerequisite. In addition, the gains from productivity cannot go only to firms (decreasing labor share) or to high-income workers (increasing inequality).

Understanding the long-run divergence between productivity and wages is essential to understanding wage stagnation. Just as important, however, are labor productivity growth and the factors that have limited it in recent years. Beginning after the 1995–2004 technology boom—and worsening during the recovery from the Great Recession—productivity growth has been unexpectedly weak (Fernald 2015). Given the importance of labor productivity growth for facilitating wage growth, this slowdown in productivity growth has likely had negative effects on workers (Stansbury and Summers 2017).<sup>4</sup> Figure C demonstrates the interrelatedness of productivity and compensation growth, both of which have fallen in recent years.

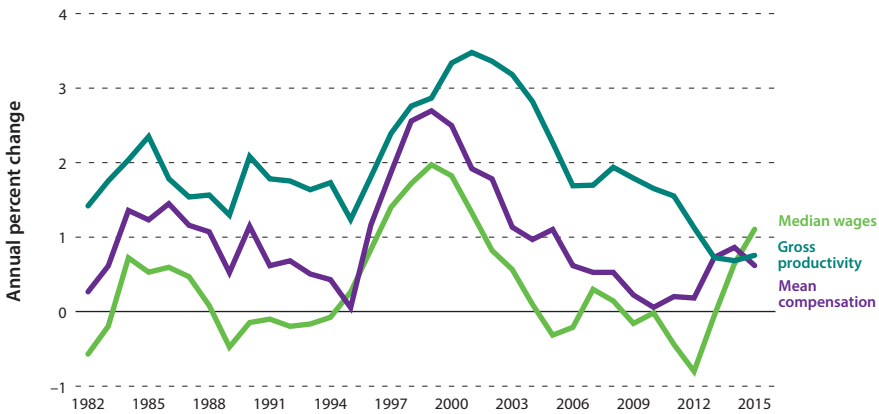
Although gross productivity, mean compensation, and median wages do rise and fall together—indicating the importance of productivity growth—wages and compensation have failed to keep up with productivity over the last few decades. In the past five years, however, growth in median wages and mean compensation began to converge with the productivity growth rate. If this trend were to continue, the shift in the labor share would begin to reverse.

In order to effectively address the problem of slow wage growth, two types of policy intervention are required: (1) reforms that increase productivity growth and (2) reforms to ensure that typical workers receive a larger share of that growth. Both investments in human capital and efforts to increase economic dynamism (e.g., the pace of new business formation and job switching), among other possibilities, can lead to enhanced productivity growth. Section I of this book explains the effect of diminished dynamism on wage growth and evaluates efforts to raise wages and productivity through human capital investments.

Section II contains three specific policy proposals that, if implemented, will contribute to wage growth through stronger productivity growth. Fatih Guvenen of the University of Minnesota proposes a set of reforms, including additional investments in education, to enhance the median worker's lifetime income. Abigail Wozniak of the University of Notre

FIGURE C.

## Annual Growth in Productivity, Compensation, and Wages, 1982–2015



Source: Labor Productivity and Costs (BLS 1979–2017); Current Population Survey (BLS 1979–2017); Bivens and Mishel 2015; authors' calculations.

Note: Gross productivity and mean compensation are for all nonfarm business. Percent changes are 5-year centered moving averages of year-over-year changes.

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Dame proposes reforms to the student financial aid system that would encourage both the pursuit of a college degree and geographic mobility, both of which contribute to economic dynamism. Finally, Jared Bernstein of the Center on Budget and Policy Priorities offers proposals that would boost labor demand and help more people find well-paying work.

Finally, Section III offers policy proposals to enhance workers' share of economic activity by strengthening their bargaining power, while mitigating income inequality. Matt Marx of Boston University proposes reforms to non-compete agreements, which firms often abuse to limit worker mobility and career progress. Alan Krueger of Princeton University and Eric Posner of the University of Chicago Law School examine the effects of employer collusion on worker opportunities and suggest limitations to collusive practices. Benjamin Harris of the Kellogg School of Management outlines proposals to enhance wage transparency, reducing workers' disadvantage in wage negotiations, and Heidi Shierholz of the Economic Policy Institute recommends a suite of labor market policy reforms that would benefit low- and middle-wage workers.

Although productivity and worker bargaining power are useful categories for separating the proposals included in this book, they are closely interrelated, and many of the outlined policies address both productivity and labor share simultaneously. For example, helping workers switch jobs more easily should relocate them to better firms and lift productivity growth while also improving workers' bargaining power and raising labor's share of income. Similarly, keeping the economy near full employment with strong labor demand could contribute to productivity growth as well as worker bargaining power. Ultimately, revitalizing wage growth will require a multifaceted approach that fuels long-term, broad-based growth for all Americans.

## Endnotes

1. Figure B was calculated based on the methodology described in Bivens and Mishel 2015. Benefits are the difference between growth in real median hourly wages and real median hourly compensation: for 2017, the 2016 compensation-to-wage ratio was used due to data availability. Inequality is the difference between growth in real median hourly compensation and real average hourly compensation (deflated using consumer prices). The decrease in the labor share is the difference between net productivity and real average hourly compensation (deflated using producer prices). The price gap shows the difference between average compensation calculated using the consumer and producer price indexes. Depreciation is the gap between gross productivity and net productivity. Slower non-business growth is the gap between nonfarm business productivity growth and total economy productivity growth, which is slowed by nonprofits and government.
2. While benefits more than doubled as a share of compensation (growing from 6.2 to 15.4 percent) between 1947 and 1979, that growth slowed between 1979 and 2016, increasing only 3.5 percentage points to 18.9 percent of compensation. Consistent with this, an accompanying chapter by Fatih Guvenen accords a larger role to benefits because it describes an earlier time period. In addition, our calculation of benefits does not adjust separately for inflation in health care costs, meaning that in terms of purchasing power, the consumer benefit may be even smaller than it appears.
3. Average hourly compensation includes wages and salaries, paid leave, bonus and incentive payments, and employer contributions to employee-benefit plans (e.g., medical and life insurance, workmen's compensation, and unemployment insurance), among other components. As of September 2017, supplemental pay (i.e., overtime pay, bonuses, and shift differentials) made up only 3.1 percent of total employee compensation (BLS 2017).
4. The link between productivity and wage growth appears to be stronger when labor markets are less concentrated and more competitive (Benmelech, Bergman, and Kim 2018).

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## SECTION ONE

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# Understanding Wage Stagnation and Its Policy Solutions

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# How Declining Dynamism Affects Wages

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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*

## 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).

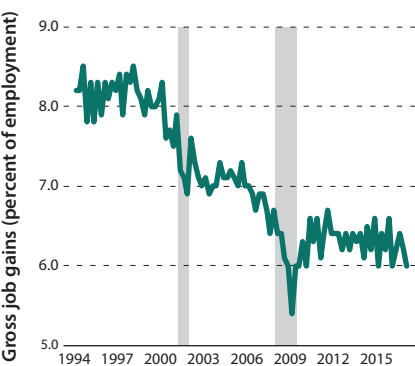
Second, declining dynamism directly reduces wages by limiting the frequency with which workers receive outside offers and make wage-enhancing job transitions (Haltiwanger et al. 2017a). Thus, the goals of increased worker bargaining power and increased labor productivity should not be viewed as in opposition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

## Declining Labor Market Dynamism

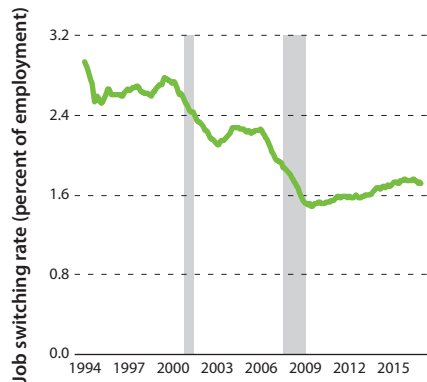
One of the most direct measures of declining labor market dynamism is the rate of job creation. Job creation combines the employment gains at new and growing establishments. While there has been some cyclical fluctuation, job creation as a share of employment has been on a long downward trend since the 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,

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



**FIGURE 1B.**  
Job Switching Rate,  
1994–2017



Source: Bureau of Labor Statistics (BLS) 1994–2017 (Figure A); Fallick and Fleischman 2004; authors’ calculations (Figure B).

Note (Figure A): Data are quarterly and seasonally adjusted. Shaded bars indicate recessions.

Note (Figure B): 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.

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.

## Wage Growth for Movers

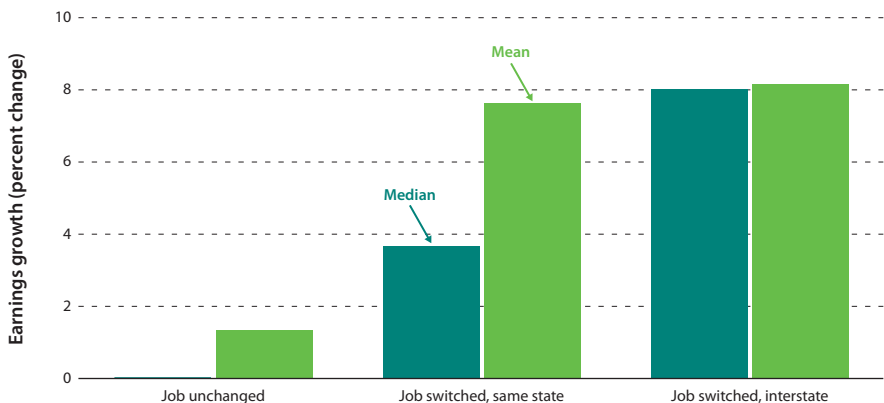
The link between dynamism and wages is apparent in the wage growth that occurs when workers switch jobs to accept a better offer. That link is also evident in the wage growth induced by more-abundant job opportunities for workers. When workers receive more job offers, employers must increase wages to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

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.

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 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

FIGURE 3A.  
Interstate Migration Rate,  
1981–2017

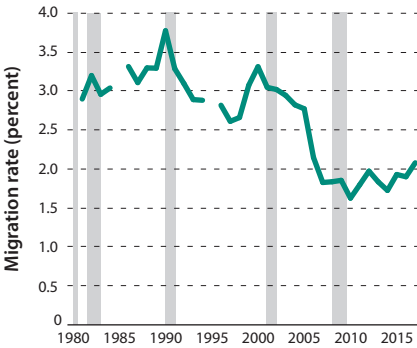
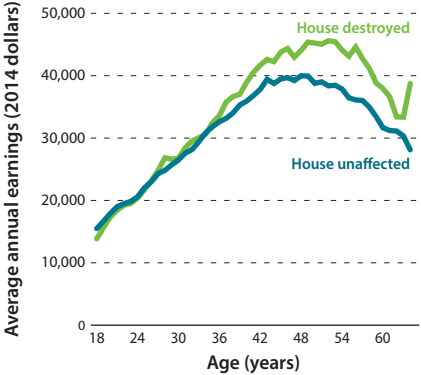


FIGURE 3B.  
Annual Earnings, by  
Exposure to Natural Disaster



Source: BLS 1981–2017 (Figure A); Nakamura, Sigurdsson, and Steinsson 2017 (Figure B).  
Note (Figure A): 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.  
Note (Figure B): 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.

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 either 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 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 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 an upcoming 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.

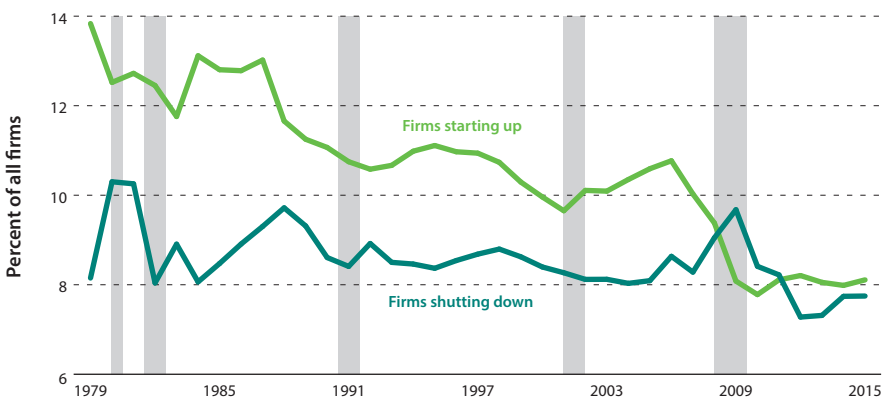
## The Fall in Start-Ups

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).

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

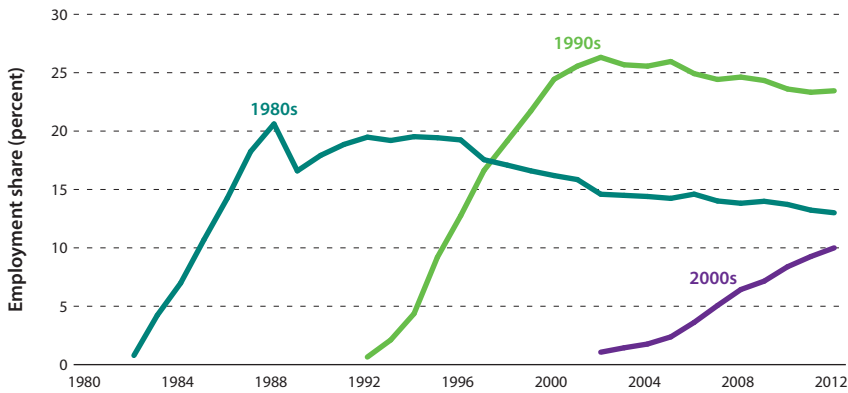
FIGURE 4.  
Start-Up and Exit Rates for U.S. Firms, 1979–2015



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.

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.

THE  
HAMILTON  
PROJECT  
BROOKINGS

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 (Karahan, 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.

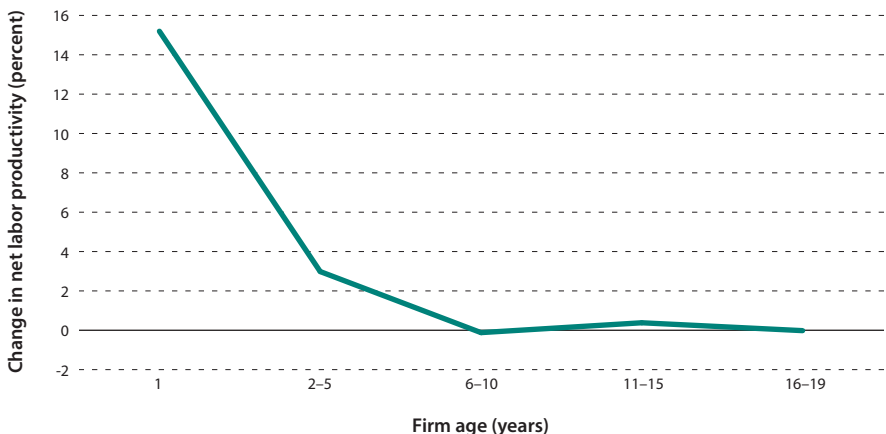
Combined with the rapid exit of unsuccessful transformational start-ups, the rapid growth of successful start-ups generates high employment (Haltiwanger et al. 2017b) and productivity growth (figure 6). As the businesses age, the boost to productivity induced by creative destruction—productive firms 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

FIGURE 6.

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



Source: Alon et al. 2017.

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).

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# Returning to Education

## The Hamilton Project on Human Capital and Wages

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### Abstract

Human capital investment is central to raising wages. This chapter describes trends in human capital investment and educational attainment. It reviews the evidence of the wage returns to educational attainment and to early childhood education, K–12 education, postsecondary education, and workforce development policies and programs. Finally, this chapter synthesizes a decade of Hamilton Project policy proposals on education and human capital around a framework of access, affordability, and quality.

### Introduction

Investing in people—human capital—lifts the productivity of workers and enhances their economic mobility. Although progress slowed in the 1980s and 1990s, levels of education have risen for each generation in the United States. Between 1950 and 2007 additional human capital provided 20 percent of increased labor productivity (Fernald and Jones 2014). At the individual level, this higher productivity leads to higher wages. As the introduction to this volume notes, productivity growth does not always translate into higher wages overall, and many other issues such as worker bargaining power are crucial to wage growth. But for wages to increase over the long term, productivity must rise. To continue to improve living standards, federal, state, and local governments should invest in and adopt policies that improve education.

This chapter looks comprehensively at how human capital develops over people’s lifetimes through early childhood education, K–12 education, postsecondary education, and workforce development. The first section reviews trends in wage premiums and human capital investment as well as the returns to educational attainment to provide context for an examination of Hamilton Project policy proposals on education in the second section.

Since its founding in 2006, The Hamilton Project has commissioned more than 50 policy proposals on education and human capital development. Each of these proposals calls on a deep body of evidence and provides specific directions for policy improvement. We review policy options for human capital development proposed in The Hamilton Project’s commissioned works, with a focus on improving access to and the affordability of quality education in the United States. Readers interested in learning more about individual

Hamilton Project education policy proposals can find them on The Hamilton Project’s website ([www.HamiltonProject.org](http://www.HamiltonProject.org)).

# Human Capital and the American Economy

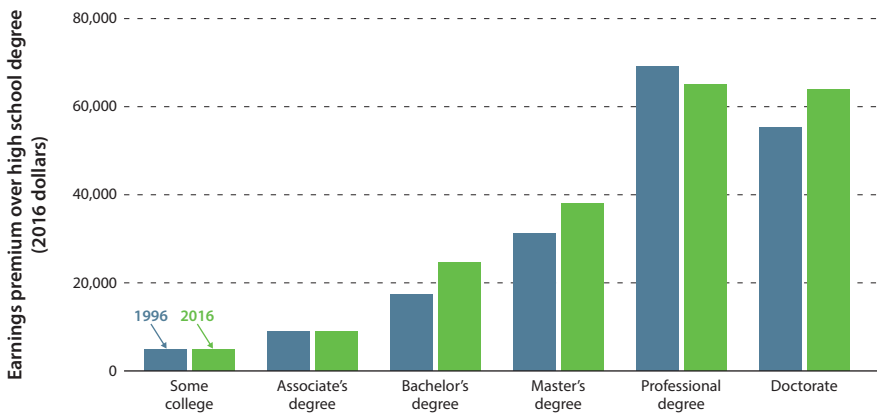
## WAGE PREMIUMS

One of the most straightforward ways to raise wages is through education. Americans with higher levels of education not only have higher wages but, for the most part, also have higher wage growth. In 1979 a worker with a bachelor’s degree earned roughly a third more than a worker with a high school education. Subsequently, the wage premium for higher-skilled workers rose considerably (Katz and Autor 1999). In the past 30 years, the gap in earnings between high-school-educated and college-educated workers has more than doubled (Autor 2014).

In 2016 those with some college but no postsecondary degree earned about \$5,000 more than those with only a high school diploma (who on average earned \$37,000 per year), while those with an associate’s degree earned \$9,000 more (figure 1). However, neither premium has grown since 1996.

Earnings premiums are progressively larger for those with more advanced postsecondary education, and these premiums have been rising. In the past 20 years the premium for a bachelor’s degree holder has increased by about 40 percent to \$25,000, the premium for a master’s degree has increased about 20 percent to almost \$40,000, and the premium

FIGURE 1.  
Annual Postsecondary Earnings Premiums, 1996 and 2016

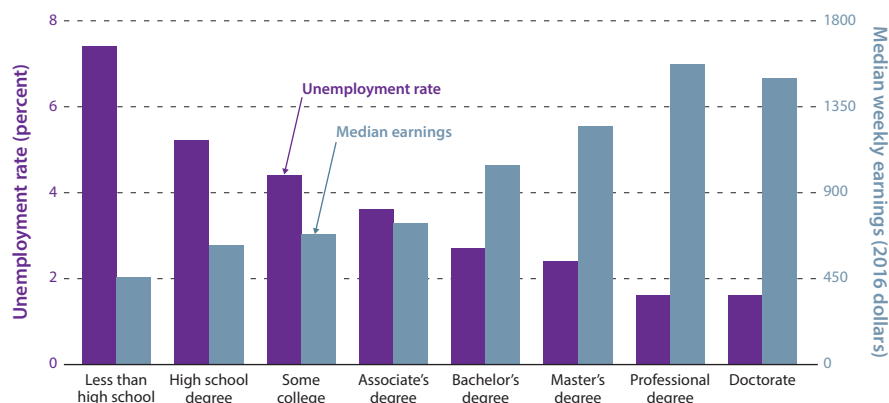


Source: U.S. Census Bureau 1997, 2017a; authors’ calculations.

Note: The “earnings premium” is median earnings minus \$37,000, which is the approximate median earnings of a high school graduate. “Earnings” are medians and are expressed in 2016 dollars, deflated using the Consumer Price Index for All Urban Consumers Research Series (CPI-U-RS). “High school degree” includes GED attainment. The population includes people ages 25 to 64 years old that work full-time and year-round.

FIGURE 2.

## Unemployment Rates and Median Weekly Earnings by Educational Attainment



Source: Bureau of Labor Statistics (BLS) 2017.

Note: Data are for persons age 25 and over in 2016. Earnings are for full-time wage and salary workers.



for a doctorate has increased by about 15 percent to \$64,000. The largest premium is for professional degree holders, though that has fallen in the past 20 years by about 6 percent from \$69,000 to \$65,000.

Some of the shifts in the college premium, and in particular the slowing growth in the premium for some levels of education, could be attributable to a changing composition of who holds what degrees: the average preparedness of both the high school and the postsecondary groups may have fallen as more students attended college. In addition, postsecondary completion rates have stagnated or declined over time, while the value of different types of postsecondary degrees and certificates also reflect varying labor market returns to different fields (Holzer and Baum 2017). Regardless, the college premium remains high, and one way to spur overall wage growth is to raise the average education level of the workforce.

Educational attainment is central not just to wage growth, but also to other critical labor market outcomes. While median wages generally rise with additional education, unemployment rates decrease, as shown in figure 2. In 2016 the unemployment rate was more than 5 percent for those with a high school degree but less than 3 percent for those with a bachelor's degree, and even lower among those with any kind of graduate degree.

The difference in unemployment rates is exacerbated during times of economic hardship. During the Great Recession, people with less than a bachelor's degree experienced a much more severe spike in unemployment rates than people with at least a bachelor's degree. From January 2008 to October 2009 individuals with less than a high school diploma, a high school diploma only, or some college or an associate's degree saw a 7.5, 6.3, and 5.0 percentage point surge in their unemployment rates, respectively, but those with a bachelor's degree or higher experienced only a 2.4 percentage point increase (Federal Reserve Bank

of St. Louis 2014). When looking at changes in employment-to-population ratios, only those with a bachelor's degree or more had returned to prerecession levels by early 2017 (Schanzenbach, Nunn, Bauer, and Breitwieser 2017). While those with less education were far more vulnerable to the economic shock, in some cases the recession might have pushed workers toward investing in education because jobs were unavailable. During the Great Recession postsecondary enrollment rates rose among the unemployed in their 20s (Turner 2017), with higher enrollment rates among job losers, as well (Barr and Turner 2015).

While the labor market return to education is generally high, that return varies by race and gender. The bachelor's degree premium for women (66 percent) is lower than for men (73 percent), and women with bachelor's degrees earn less than their male counterparts (\$1,013 versus \$1,378 in weekly earnings). The largest college premium was for Asians (95 percent), followed by whites (62 percent), African Americans (56 percent), and Hispanics (52 percent). Across educational levels, racial gaps in earnings persist, with whites earning more than similarly educated African Americans or Hispanics. For example, the median usual weekly earnings of a white male advanced degree holder were \$1,760 compared to \$1,295 for an African American male advanced degree holder (BLS 2018, table 9).

## THE EFFECT OF EDUCATION ON EARNINGS

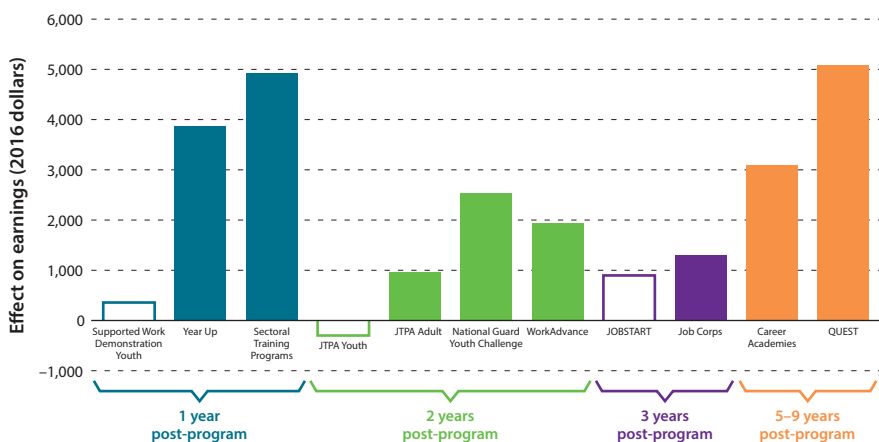
The association between earnings and educational attainment does not by itself show that more education causes higher wages for individuals. It may be that more-talented individuals both acquire more education and earn higher wages; in an extreme version of this scenario, the educational attainment itself does not affect wages. Beyond talent, people who acquire more education may have a host of other advantages that allowed them to pursue higher education degrees; those advantages might also help lift their wages even in the absence of a degree. Mindful of these possibilities, a large body of research attempts to credibly demonstrate the causal effect of education on wages.<sup>1</sup> In this section, we review evidence from well-designed studies of the effects of workforce development, and postsecondary, K–12, and early childhood education on wages.

In addition to formal education, workforce development or training programs have been carefully studied. Decades of program evaluations have yielded mixed results; for example, a meta-analysis of 15 programs in operation from 1964 to 1998 found that training results in a \$2,000 annual earnings premium for women, and that in general programs have not become more effective over time (Greenberg, Michalopolous, and Robins 2003). Some workforce development programs are more effective than others, with the best leading to improved labor market outcomes, including higher employment rates and wages. In a Hamilton Project strategy paper, Greenstone and Looney (2011) review much of the evidence summarized in figure 3 that shows the effect of a variety of workforce development programs on annual earnings. While some of the programs studied were not effective and saw earnings effects fade over time, workforce development programs serving disadvantaged youth and those that focused on specific sectors, like Quality Employment Training Through Skills Training (QUEST) (Elliot and Roder 2017) and WorkAdvance (Hendra et al. 2016), were most successful in raising wages.

Those with postsecondary degrees have the most success in the labor market; however, it is important to ascertain whether that success is caused by the degree itself or by the

FIGURE 3.

## Effects of Workforce Development Programs on Annual Earnings

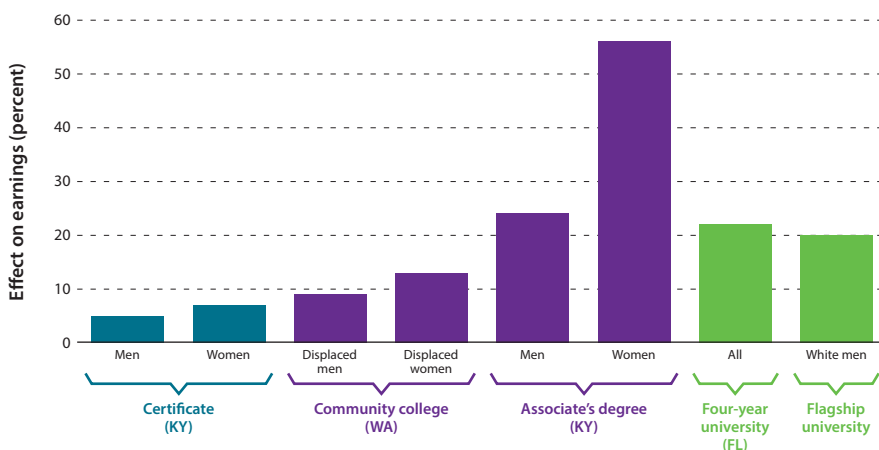


Source: Bloom et al. 1997 (JTPA Youth and Adult); Cave et al. 1993 (JOBSTART); Elliott and Roder 2017 (QUEST); Hendra et al. 2016 (WorkAdvance); Kemper, Long and Thornston 1981 (Supported Work Demonstration Youth); Kemple and Willner 2008 (Career Academies); Maguire et al. 2010 (Sectoral Training Programs); Millenky et al. 2011 (National Guard Youth Challenge); Roder and Elliott 2011 (Year Up); Schochet, Burghardt, and McConnell 2008 (Job Corps). See Greenstone and Looney (2011) for more details.

Note: JTPA = Job Training Partnership Act of 1982. Values are expressed in 2016 dollars, deflated using the CPI-U-RS. The bars indicate the earnings gain from participating in each program. Solid bars indicate results that are statistically significant at the 10 percent level and are intent-to-treat for experimental studies.

FIGURE 4.

## Effects of Postsecondary Education on Earnings



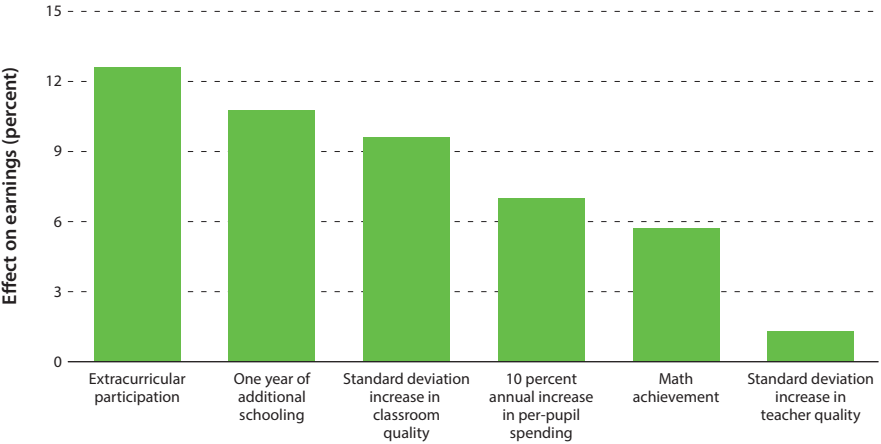
Source: Hoekstra 2009 (Flagship university); Jacobson, LaLonde, and Sullivan 2005 (Community college); Jepsen, Troske, and Coomes 2014 (Certificate and Associate's degree); Zimmerman 2014 (Four-year university).

Note: Zimmerman (2014) reported effects for men and women in dollars but not percent changes; the overall results are driven by men because there is no effect on women. Solid bars indicate results that are statistically significant at the 10 percent level.

characteristics of the degree-earning students. Figure 4 shows the effect on earnings as a result of different types of postsecondary education: certificates and degrees from two-year, four-year, and four-year flagship institutions (a state’s most selective public university). Due to differences in the outcome variables, effects are shown as percent effect sizes. Jepsen, Troske, and Coomes (2014) use administrative data from Kentucky to identify the returns to certificates and associate’s degrees. They find a 5 percent (for men) and 7 percent (for women) accretion in quarterly earnings in the fourth year after enrolling in a certificate program. For associate’s degrees, they find a 24 percent return for men and 56 percent for women. Jacobson, LaLonde, and Sullivan (2005) find similarly positive but smaller impacts for workers displaced in Washington State after their employer closed or moved out of state. Using admission cutoffs for different universities, Zimmerman (2014) and Hoekstra (2009) identify the effects of attending a four-year university and a state’s flagship university, respectively. Zimmerman finds a 22 percent return in quarterly earnings eight to fourteen years after attending a four-year university, and Hoekstra finds 20 percent growth in annual earnings after attending a flagship university among white men between the ages of 28 and 32.

Studies have also shown the importance of K–12 education. Figure 5 shows the effects of various aspects of K–12 education on annual earnings. The largest earnings premium is associated with participation in extracurricular activities, which in 1999 had a 13 percent impact on annual earnings later in life. This premium grew from 5 to 13 percent from 1979 to 1999 (Weinberger 2014). Messacar and Oreopolous (2012) use changes in compulsory schooling laws to identify the effect of additional schooling on a variety of outcomes including wages, finding that an additional year of schooling is associated with

FIGURE 5.  
Effects of K–12 Education on Annual Earnings

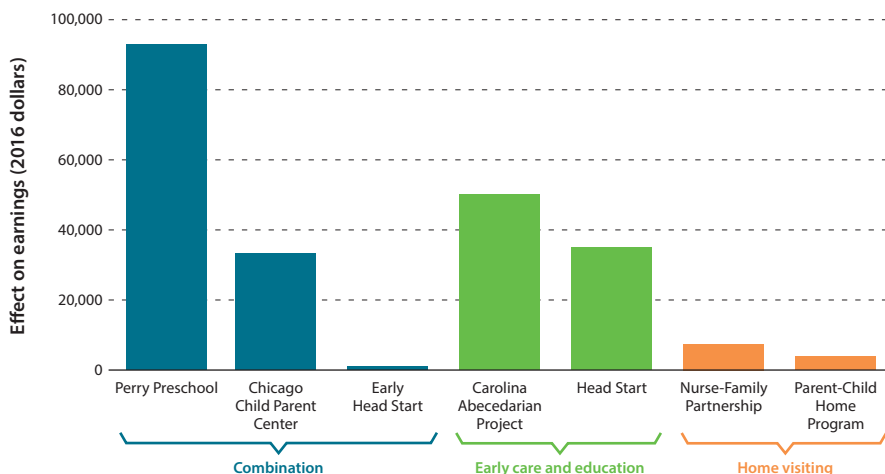


Source: Chetty et al. 2011 (Classroom quality); Chetty, Friedman, and Rockoff 2014 (Teacher quality); Jackson, Johnson, and Persico 2016 (Per-pupil spending); Oreopolous 2009 (One year of additional schooling); Weinberger 2014 (Extracurricular participation and math achievement).  
Note: Solid bars indicate results that are statistically significant at the 10 percent level.

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FIGURE 6.

## Effects of Preschool Programs on Lifetime Earnings



Source: Cannon et al. 2017.

Note: Solid bars indicate results that are statistically significant at the 10 percent level.

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a 10.7 percent rise in annual earnings. Looking at different measures of quality, a standard deviation increase in teacher quality raises annual earnings at age 27 by 1.3 percent (Chetty, Friedman, and Rockoff 2014) while a standard deviation increase in classroom quality raises annual earnings at age 27 by 9.6 percent (Chetty et al. 2011). Jackson, Johnson, and Persico (2016) look at the effects of school finance reform on the long-run outcomes of affected students and find that accumulating 10 percent annual boosts to per pupil spending leads to 7.3 percent higher annual earnings.

The importance of early childhood interventions has been convincingly demonstrated by a growing body of research. More states are now spending funds on pre-K programs alongside longer-standing federal programs such as Head Start. This chapter focuses on earnings effects, but studies of the long-term impacts of preschool education find other kinds of benefits, including improvements in health and reductions in criminal behavior (Elango et al. 2016).

Cannon et al. (2017) offer a meta-analysis of the adult earnings effects of the most prominent early childhood programs, accounting for both wages and employment rates (figure 6). They looked at programs that target home visiting, early childhood education, and those programs that maintain both a school and a home component. They find that, decades after enrollment, participants see effects on earnings. The largest gains are for the programs considered most intensive—the Perry Preschool Project (1962–67) and the Carolina Abecedarian Project (1972–85)—but for every program studied the long-term effect on earnings was positive. While there are long-term returns to early childhood education and care, there are short-term income benefits for parents as well. The literature



on the employment effects of subsidized early childhood education and care suggest that a 10 percent price reduction will raise employment among single mothers by 3 to 4 percent and among married mothers by 5 to 6 percent (Ziliak, Hokayem, and Hardy 2008).

## EDUCATIONAL ATTAINMENT

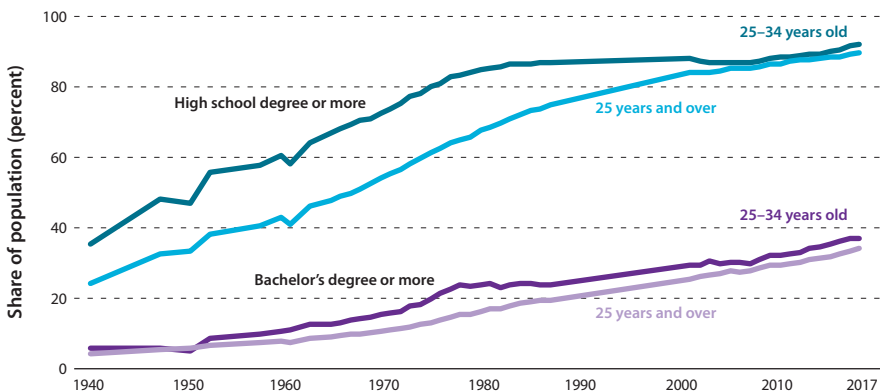
Increasing educational attainment has been a bedrock of U.S. productivity growth for decades, with growth in human capital providing 0.4 percentage points of the average 2.0 percent annualized growth rate in output per year. Figure 7 shows educational attainment of adults in the United States over the past 77 years. Driven by younger cohorts becoming ever more educated, the share of adults with at least a high school diploma rose almost fourfold and the share with at least a bachelor's degree burgeoned more than sevenfold. More recently, rising labor quality has continued to support growth, providing 0.5 percentage points of 1.8 percent growth from 2002 to 2013, but for a less encouraging reason. The shift in employment away from lower-skilled workers supported growth in the average level of human capital more than the increase in educational attainment (Bosler et al. 2016).

Over the long run, successive cohorts of Americans have become more likely to attain degrees. In 1940 only one-fourth of adults over the age of 25 had at least a high school diploma. But the youngest cohort at that time was more highly educated: 35 percent of those between the ages of 25 and 34 had at least a high school diploma. Growing levels of education were also evident for bachelor's degrees: 4.6 percent of adults in 1940 above age 25 had at least a bachelor's degree, compared with 6 percent of those between 25 and 34.

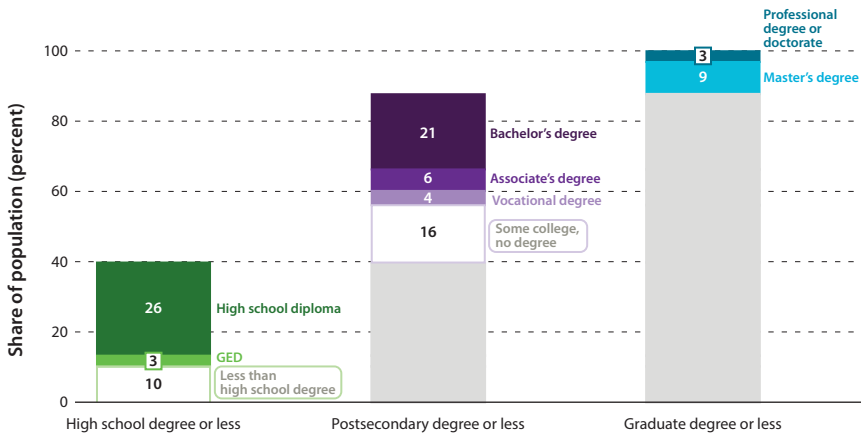
In the 1980s growth in educational attainment began to slow. For people ages 25 to 34, the percentage of the population with at least a high school diploma or at least a bachelor's degree increased in the 1970s by 1.6 and 4.5 percentage points a year, respectively. During

FIGURE 7.

### Educational Attainment in the United States, 1940–2017



**FIGURE 8.**  
**Educational Attainment in the United States**



Source: U.S. Census Bureau 2017c; authors' calculations.

Note: Values reflect highest level of education attained in 2017. Population includes civilian noninstitutionalized population ages 25 and older. In 2014 about 5 percent of the population had some graduate school but no graduate degree; changes to the questionnaire in 2015 preclude this calculation for 2017.

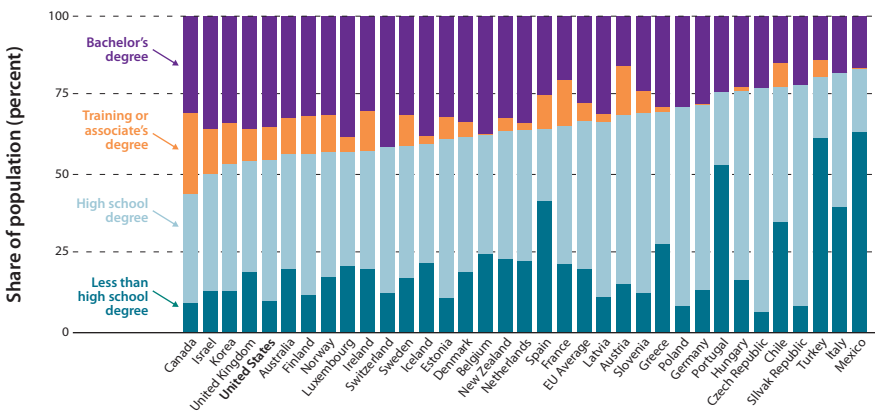


the 1980s, the equivalent annual growth rates were only 0.2 percentage points each. Since 1990 yearly growth in the share of this population with at least a high school diploma has been on average 0.2 percentage points, compared with somewhat faster 1.6 percentage point growth for those with at least a bachelor's degree. The flattening of the growth in high school attainment along with the slowdown in those gaining a bachelor's degree mean that incoming cohorts no longer have as much of an advantage in education over those retiring. If this persists, it will likely contribute to slowing wage growth in aggregate.

Figure 8 shows a more detailed account of the current educational attainment of the U.S. population. The figure's three bars show, from left to right, the share of the U.S. population with a high school diploma or less (39 percent), a bachelor's degree or less (87 percent), and a graduate degree or less (100 percent). In 2017 90 percent of adults over the age of 25 had at least a high school diploma and more than 60 percent had at least some postsecondary education. About one in ten adults had less than a high school education and 29 percent of adults had only a high school diploma or equivalent.

Figure 9 shows how the United States compares to other developed countries in educational attainment. According to the latest Organisation for Economic Co-operation and Development (OECD) data, the United States reported 35 percent with a bachelor's degree and 11 percent with a training program or associate's degree completed. This compares to 29 percent and 8 percent, respectively, for the OECD member countries, on average. The United States also has relatively few adults who have completed less than a secondary degree. Though the U.S. ranking is comparatively good, its relative standing has declined over the past few decades. An early adopter of both mandatory public high school education and expanded college accessibility, for many years the United States had a considerable

FIGURE 9.  
Educational Attainment in Selected OECD Countries



Source: OECD n.d.

Note: Data are sorted from the highest to lowest percentage of the population with at least a bachelor's degree, training completed, or an associate's degree. Japan is not included due to missing data. Switzerland training/associate's degree data are included in other categories. Portugal's training/associate's degree data are not applicable. Data are for 2016 with the exception of Chile and Ireland, which are for 2015. "High school degree" in this figure refers to the OECD category "Upper secondary and post-secondary non-tertiary education." "Less than high school degree" refers to the OECD category "Below upper secondary education."



lead on other countries in educational attainment. More recently, the OECD average has approached the U.S. average; in several categories, for example, the gap between the U.S. and OECD average shares of 25 to 34 population with postsecondary education has been cut in half since 1995 (OECD 2018).

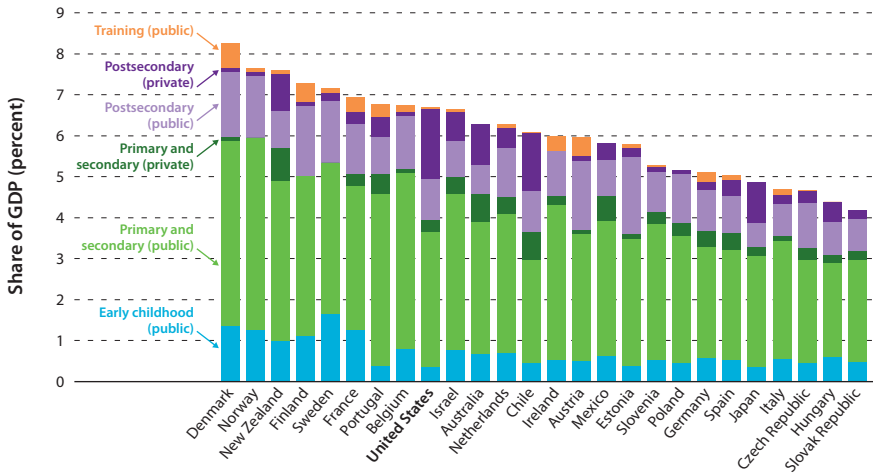
**HUMAN CAPITAL INVESTMENTS**

Another measure of educational investment is the share of a country's output it dedicates to spending on human capital. The United States spent 4.7 percent of GDP on combined public human capital investment as a share of GDP in 2013, the last year for which data were available in each of the categories (figure 10). From public resources, the United States spends roughly 0.3 percent of GDP on early childhood, 3.3 percent on primary and secondary, 1 percent on postsecondary, and 0.04 percent on training programs. The OECD also collects data on the private resources spent on primary and secondary (0.3 percent of GDP) and postsecondary education (1.7 percent of GDP) in the United States. When public and private spending are combined, the United States ranks in the top 10 of human capital spending among OECD countries, a ranking that would be substantially lower if we were to consider only public spending.

U.S. spending on education is distributed among federal, state, and local governments, as well as the private sector. The federal government provides the vast majority of public funds for workforce development and postsecondary education, while state and local governments

FIGURE 10.

## Human Capital Investment as a Share of GDP, Selected OECD Countries



Source: OECD 2013, 2017; authors' calculations.

Note: Data are sorted from highest to lowest human capital investment as a share of Gross Domestic Product (GDP). Some OECD countries not included due to unpublished data for certain categories. Early childhood spending data for Poland are from 2012, and are unavailable for Canada. Other education data for Chile are from 2014. Data for Switzerland are unavailable. All other data are for 2013.

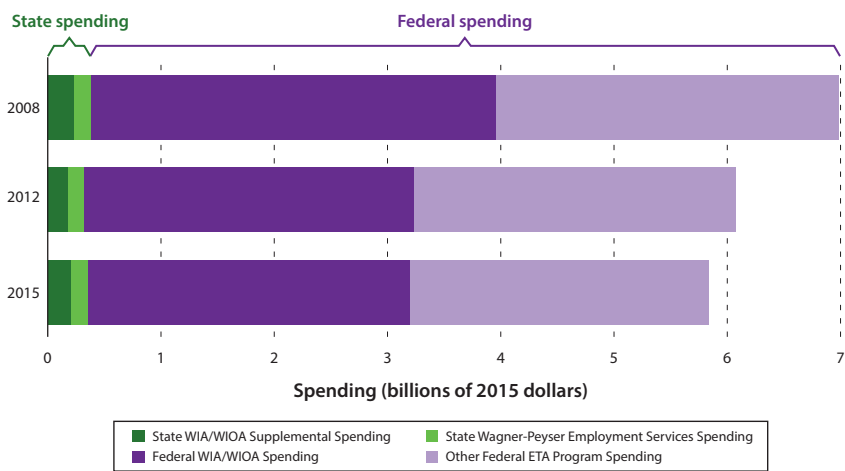
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are primarily responsible for financing K–12 education. In early childhood education, the picture is changing as states ramp up their own preschool programs; however, federal tax incentives and programs still play a major role in providing resources to pay for early childhood education.

In the United States the private sector plays a large role in training, though these efforts are targeted toward workers who are higher skilled. U.S. public spending on workforce development is both relatively small and declining. Focusing on programs for which comparable data exist over time, the data show that federal and state spending on workforce development programs decreased between 2008 and 2015. Most of this change comes from cuts in state and federal spending in the Workforce Innovation and Opportunity Act (WIOA), which President Barack Obama signed into law in 2014 as a reauthorization of the expired Workforce Investment Act (WIA). These programs support youth, adult, and dislocated worker employment activities. In contrast, other state spending (such as for employment services under the Wagner-Peyser Act) increased by 4.3 percent, and other federal Employment and Training Administration (ETA) program spending decreased by 4.2 percent (see figure 11). Given program consolidation under WIOA, as well as small training programs associated with other programs, the magnitude of the effective decline in public workforce development spending over time is unclear.

The federal government invests in postsecondary education primarily through grants, loans, and tax incentives to students and their families, investments that grew during

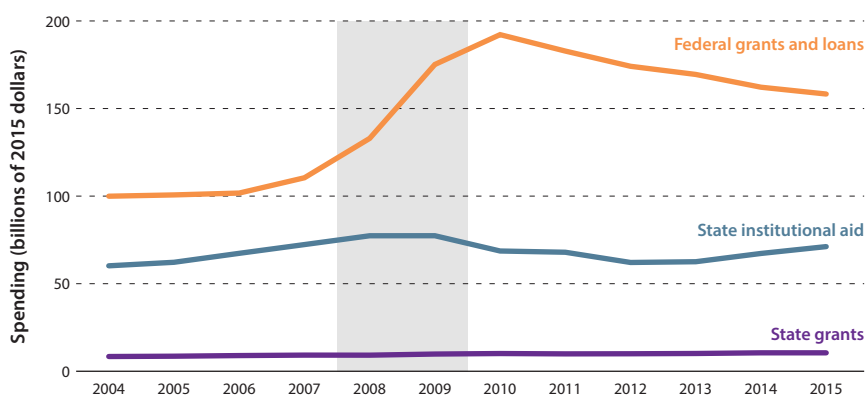
FIGURE 11.  
Federal and State Expenditures on Workforce Development Programs, Selected Years



Source: National Association of State Workforce Agencies 2017; National Skills Coalition 2008–15; authors’ calculations.



FIGURE 12.  
State and Federal Higher Education Expenditures, 2004–15



Source: College Board 2016; Federal Reserve Bank of St. Louis n.d.; State Higher Education Executive Officers Association 2003, 2009, 2015; Schanzenbach, Bauer, and Breitwieser 2017.

Note: The shaded area indicates the Great Recession. “Federal grants and loans” refers to the sum of federal grants (including Pell Grants, Federal Supplemental Educational Opportunity Grants, and benefits for veterans and active military service members), federal work-study, federal loans, and education tax benefits. “State grants” includes both need- and non-need-based aid. “State institutional aid” includes aid for independent institutions, noncredit and continuing education, and general public operations.

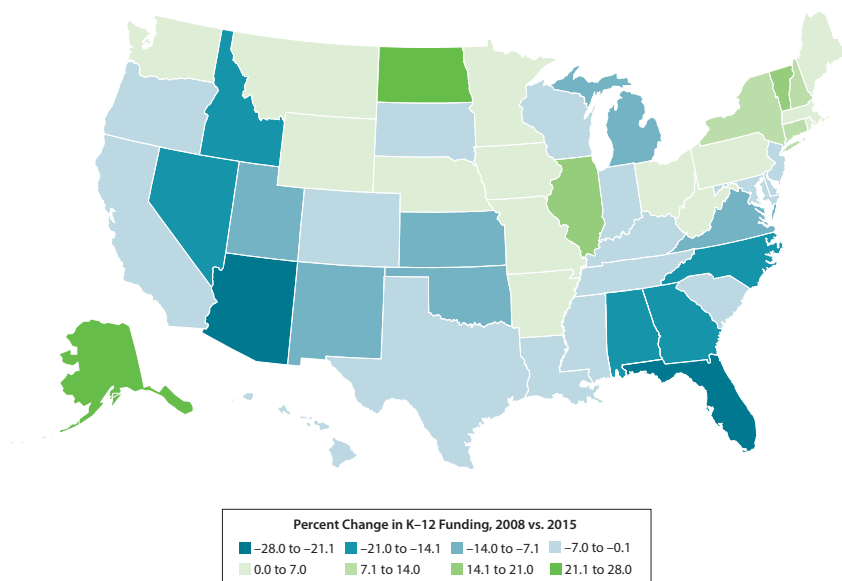


the Great Recession; direct federal support to institutions is negligible. By contrast, states primarily support postsecondary education through direct funding. This state funding declined in the wake of the Great Recession, and while recent growth means the spending is nearly back to its 2008 level, it is lower on a per capita or per student basis (see figure 12). States have more recently started to support students directly through grant programs (Baum et al. 2012; Deming and Dynarski 2009), but these programs did not fully replace the decline in state aid to public institutions from 2010 to 2013 (Dynarski and Scott-Clayton 2013). Tandberg and Griffith (2013) report that political factors, pressure on state budgets from other sectors, and state-level governance structures all help explain changes over time in institutional aid.

State and local funding currently represent more than 90 percent of money spent on public K–12 education. During the Great Recession the federal share of K–12 spending grew to 13 percent (Schanzenbach, Boddy, Mumford, and Nantz 2016) and helped to prevent even deeper state education cuts, but was not enough to make up for lost state spending. Nearly a decade later, per pupil spending had not recovered in a majority of states. Between 2008 and 2015 combined state and local funding for K–12 education fell in 29 states (Leachman, Masterson, and Figueroa 2017; see figure 13). Those states that have seen growth in per pupil spending are, for the most part, losing school-age population. Spending cuts during the Great Recession affected critical outcomes for students: a 10 percent recessionary school spending cut was associated with a 7.8 percent of a standard deviation test score reduction and 2.6 percentage point lower graduation rates if students were exposed to the cuts throughout high school (Jackson, Wigger, and Xiong 2018).

FIGURE 13.

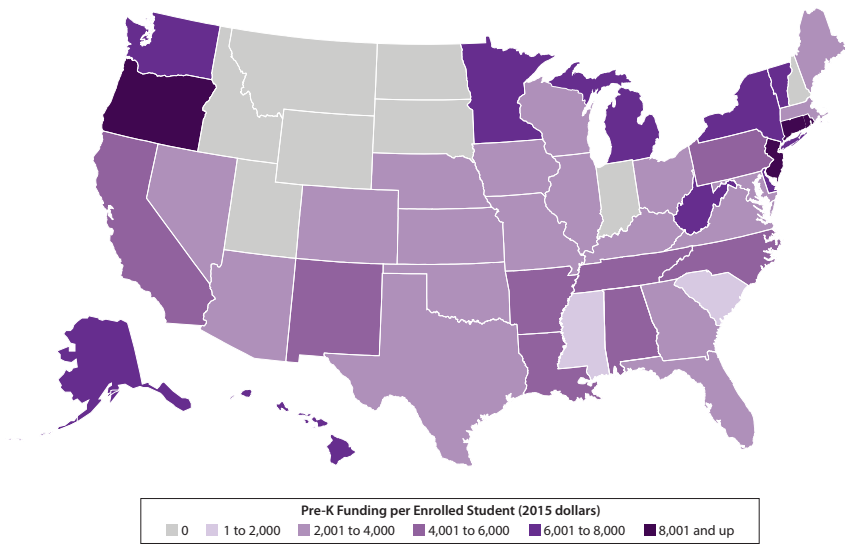
## Change in State and Local K–12 Expenditures, 2008 vs. 2015



Source: Leachman, Masterson, and Figueroa 2017.

Note: Funding levels are weighted by K–12 enrollment in each year. Dollar amounts are inflation adjusted.

FIGURE 14.  
Annual State Preschool Expenditures per Pupil



Source: National Institute for Early Education Research 2017.

Note: Data are for 2015. Funding levels are weighted by state preschool enrollment in each year. Dollar values are calculated in 2015 dollars, deflated using the CPI-U-RS. Vermont total includes local and federal spending. Value for Washington, DC is \$16,400.



Preschool spending trends have been somewhat different. Forty-two states currently offer publicly funded preschool for eligible four-year-olds (see figure 14). States vary widely in their rates of annual per pupil spending, from just under \$2,000 per student in South Carolina to more than 12,000 per student in New Jersey in 2015. Average spending among states that provide preschool for eligible four-year-olds has been stagnant, growing from about \$4,800 in 2008 to about \$4,900 in 2015. Since 2008 29 states have expanded the number of seats available in state preschool programs, but only 16 states have increased per pupil spending.

## The Hamilton Project Human Capital Policy Proposals

Human capital investment is both highly consequential and unevenly distributed in the United States. Since its inception, The Hamilton Project has commissioned numerous human capital policy proposals to improve education and support wage growth. The Hamilton Project itself does not offer proposals, but solicits policy proposals developed from the research and expertise of contributing authors.

This section reviews and synthesizes these policy proposals on human capital, beginning with workforce development and then moving in turn to postsecondary, K–12, and early childhood education. The sections organize policy ideas around building access

to education while increasing affordability and quality. For more policy specifics and the evidence guiding the recommendations, please visit The Hamilton Project's website ([www.HamiltonProject.org](http://www.HamiltonProject.org)).

## **WORKFORCE DEVELOPMENT**

### *Access and Affordability*

Building on the evidence that training programs can lift wages and other employment outcomes, a number of Hamilton Project proposals suggest boosting funding or improving the quality of training programs. Hamilton Project proposals focus on the opportunity to return to postsecondary education for those who are out of the workforce or who have been displaced from previous employment. Louis Jacobson, Robert LaLonde, and Daniel Sullivan (2011) propose a new Displaced Worker Training Program that would address targeting and Pell Grant eligibility based on recent and more-permanent labor market misfortunes. Sarah Turner (2017) proposes an Enrollment for Employment and Earnings policy that would improve the relationship between the unemployment insurance (UI) system and federal financial aid for postsecondary education. When applying for UI, beneficiaries would be informed of their eligibility for postsecondary financial aid; if interested, they would be given additional information about schools and programs of study. The proposed benefit level would allow for full-time enrollment in school and trigger a UI benefit extension.

However, postsecondary education is not the only training option, nor is it always the best option. If a worker loses her job in March, waiting to enroll at a community college the next semester is not likely to be the best course of action. Sheena McConnell, Irma Perez-Johnson, and Jillian Berk (2014) recommend allocating additional funding to the WIA Adult program; more funding in that program has been found to increase earnings among participants. While some WIA participants are working toward a postsecondary degree, there are many unemployed or low-skilled workers looking for shorter-term credit-bearing courses. These courses may eventually lead to a degree, but each course is discrete, builds skills, and can be taken on a rolling basis. McConnell, Perez-Johnson, and Berk also recommend augmenting the value of the training vouchers to allow recipients to pay for some of the ancillary costs of attendance that support success, such as high-quality child care and reliable transportation.

Apprenticeship programs are another important training option that should be strengthened. Apprentices work for an employer and earn a salary while undertaking on-the-job training, developing workplace noncognitive skills, and completing occupation-related academic work. Workers experience immediate and large wage increases after completing their apprenticeships. Robert Lerman (2014) sees roles for states and the federal government in expanding apprenticeship opportunities in the United States, including facilitating relationships between employers and training providers, and providing financial incentives to develop programs.

Identifying and supporting the most effective training programs is crucial to workers' success. Harry Holzer (2011) proposes a new federal competitive grant program to fund evidence-based training programs for implementation at the state level. With a flexible set of allowable activities by eligible applicants, resources from this grant could be leveraged to expand existing effective workforce development programs or to raise new dollars.



## *Quality*

Those returning to training programs after losing employment are often in a precarious position because of their unemployed status and their need to learn new skills in order to reenter the labor force. Engaging a guidance counselor on where to enroll, in what type of program, and in what field improves the outcomes for those in workforce development programs. In addition, preenrollment counseling makes it more likely that those looking to enroll in workforce development programs or additional education will make good choices. Holzer (2014) therefore recommends career counseling for enrolled students, possibly facilitated by the collocation of American Job Centers with college campuses.

Several other Hamilton Project proposals aim to enhance the value of training programs, building on the evidence cited in figure 3 that sector-specific training programs generate the largest wage benefits to participants. Holzer (2011) recommends that a competitive grant program support sector-specific training programs, while Jacobson, LaLonde, and Sullivan (2011) propose financial incentives to community colleges to offer more high-return courses. In a different Hamilton Project proposal, Holzer (2014) recommends that states reward schools that place students in high-demand occupations and offer technical assistance for smoothing those relationships.

## **POSTSECONDARY EDUCATION**

### *Access and Affordability*

The Hamilton Project has commissioned many policy proposals to increase the share of Americans pursuing and completing college. Several Hamilton Project proposals address ways to lower the cost of college and thereby increase enrollment. However, many studies—perhaps surprisingly—do not show an effect of student aid on enrollment (Schanzenbach, Bauer, and Breitwieser 2017). One reason that the price discount afforded by student aid programs might not translate into enrollment growth is that students and their parents lack necessary information. Consequently, other Hamilton Project proposals describe corrective policies to make it clear to applicants that financial aid is available and college is potentially affordable.

Caroline Hoxby and Sarah Turner (2013) propose growing the Expanding College Opportunities Program by working with third-party college admissions institutions to provide customized college application information and fee waivers for high-achieving low-income students. Hoxby and Turner find that in addition to increasing the number of applications, rates of matriculation at higher-quality colleges, and graduation rates, students save money due to more-generous financial aid packages at more-selective universities. In fact, the College Board has started to use the parameters outlined in this Hamilton Project proposal to provide more-personalized information to students who take their college entrance exams.

As part of the effort to increase student aid accessibility, Susan Dynarski and Judith Scott-Clayton (2007) propose streamlining federal aid into a single simplified schedule that could fit on a postcard; the FAFSA (Free Application for Federal Student Aid) process would be replaced with a checkbox on an income tax form. For the Pell Grant program specifically, Sandy Baum and Judith Scott-Clayton (2013) propose using only IRS data to make a single

eligibility determination. In addition, Baum and Scott-Clayton propose giving a bonus to students who complete their degree within a designated time frame.

While grant aid covers a high share of the cost of going to most public two- and four-year colleges, student loans are still an important part of funding college for many students and have become a larger portion of consumer debt. Recent changes to the student loan system have helped develop and increase take-up of a number of income-based repayment programs, but student loan defaults are still prevalent, especially for students who do not complete their programs. Susan Dynarski and Daniel Kreisman (2013) recommend consolidating the many distinct student loan programs into a single income-based repayment system. This would better align loan repayment with the wage benefits of higher education that tend to accrue over time. Dynarski and Kreisman also propose reforms to the private loan system: private student loans would not survive bankruptcy, loans could not be marketed as student loans if they require a credit check, and private loans would be loans of last resort.

### *Quality*

The Hamilton Project has several proposals to improve the quality of postsecondary education for students who struggle to complete a degree. Recommendations include providing more information about college quality to applicants, reforming the academic remediation process that ensnares many lower-skilled college entrants, providing additional support to low-income students, and giving schools a stake in the success of their students through financial incentives.

Some Hamilton Project proposals that focus on providing high-quality college-option information to students have now been implemented. Bridget Terry Long (2010) and Phillip Levine (2013) offer proposals to provide better information to students, including information about the costs of college and students' labor force outcomes. The U.S. Department of Education's College Scorecard, developed in part by former Hamilton Project policy director Adam Looney, provides this service.

Once enrolled in college, many students are surprised to find that they have been sorted into non-credit-bearing remedial courses. In a different Hamilton Project paper, Bridget Terry Long (2014) recommends ways to mitigate issues associated with remedial courses while enhancing program quality for students who require additional skills prior to taking on college-level work. To improve the process for placement into remedial coursework, Long recommends against using a single entrance exam. She also notes three paths for improving the quality of remediation: mainstreaming, coordinating remedial and college-level coursework, and utilizing technology-enhanced learning.

Hamilton Project proposals have also leveraged the centrality of the federal aid system to improve the quality of the college experience for low-income students. Baum and Scott-Clayton (2013) propose augmenting the Pell Grant program with support service reforms such as providing academic coaching and career counseling to eligible students.

Two Hamilton Project proposals aim to improve postsecondary quality through better alignment of students' and institutions' incentives. Tiffany Chou, Adam Looney, and Tara Watson (2017) propose that institutions for which the five-year cohort repayment rate is less

than 20 percent would be required to reimburse the government for a share of the shortfall. By making institutions share in the financial risk that students take on for tuition, institutions have an incentive to improve the labor force outcomes of their graduates. The revenue generated through this program would be used to provide grant support to institutions that serve low-income students particularly well. Such a program might also help steer students toward higher-quality programs. Likewise, Holzer (2014) would make public subsidies to public postsecondary institutions partially dependent on the labor market outcomes of students five years out.

Complementary to these approaches, David Deming (2017) argues in a Hamilton Project policy proposal that free college proposals should be paired with federal matching grants to postsecondary institutions. Specifically, he calls for a 1:1 federal match on the first \$5,000 of net per student spending in all public two- and four-year postsecondary institutions that commit to making college tuition-free for income-eligible students. Schools could spend their matching grant money on programs that are key to improving quality and rates of completion: instruction and academic support.

## **K–12 EDUCATION**

### *Access and Affordability*

Compared to postsecondary and early childhood education and care, policy challenges in K–12 schooling are not typically framed in the language of access and affordability. State constitutions guarantee every child a free primary and secondary education in public schools, although state school finance systems are regularly challenged in the courts for failing to provide equitable or adequate education for all students. Hamilton Project proposals on K-12 education have focused on a variety of mechanisms to address the quality and equity of education.

Given that the literature demonstrates wage benefits from additional education, The Hamilton Project has commissioned policy proposals that would enhance the time students spend in school through access to summer programs and reduced absences. The more time students spend in school, the less likely they are to drop out of high school; in addition, more school time leads to higher enrollment in postsecondary programs.

Alan Krueger and Molly Fifer (2006) tackle summer learning loss, which occurs when students exhibit lower performance at the start of the school year than at the end of the prior school year. Summer learning loss is in large part an equity issue because those who have the resources to pay for summer programs can avoid academic declines. Moreover, schools where remediation is necessary will spend less time teaching new information. Krueger and Fifer propose addressing this problem by providing resources to low-income students for six-week educational summer programs.

Missing days of school during the school year is also a problem. Patterns of school absence start in kindergarten, and continued absences predict lower achievement, course failures, and high school dropout. As a measure of school quality, Diane Whitmore Schanzenbach, Lauren Bauer, and Megan Mumford (2016) recommend that states hold schools accountable for reducing rates of chronic absenteeism. To reengage students in school, Derek Messacar and Phillip Oreopolous (2012), Jens Ludwig and Anuj Shah (2014), and Louis Jacobson (2017) propose developing and scaling up programs aimed at skill-building among at-risk youth.

Finally, preventing high school dropout and promoting postsecondary attendance are key to raising human capital. Messacar and Oreopolous (2012) propose to better enforce compulsory schooling laws as part of a carrot-and-stick approach to raising high school graduation rates. Going a step farther, Jacobson (2017) proposes that states hold schools accountable for students' longer-term outcomes, such as completing postsecondary coursework or obtaining career-oriented certificates or two- or four-year degrees. To avoid remediation at the outset of postsecondary coursework, Long (2014) recommends better alignment between K–12 exit and postsecondary entrance requirements.

### *Quality*

Hamilton Project policy proposals offer complementary ideas on improving K–12 teacher quality. One strand of work focuses on inducing good candidates to enter the teaching profession. Robert Gordon, Thomas Kane, and Douglas Staiger (2006) and Thomas Dee and Dan Goldhaber (2017) recommend opening up pathways to alternative certification for those who want to teach, and creating licensure reciprocity across states. Dee and Goldhaber additionally focus on the recruitment practices and student teacher placement strategies employed by school districts. They argue that both recruitment and early-career training should focus on subjects and schools where there are frequent teacher shortages; in addition, recruitment and placement should provide teaching candidates with information about what types of positions (e.g., special education or STEM) are in highest demand. For those teachers who are not performing well, Gordon, Kane, and Staiger propose assessing teacher value-added and denying tenure to the lowest-performing teachers.

Both these proposals use compensation-based incentives to retain high-quality teachers. Gordon, Kane, and Staiger (2006) support increasing the salaries paid to the highest-performing teachers as a general retention strategy. To address teacher shortages in difficult-to-staff subjects, Dee and Goldhaber (2017) propose targeting financial incentives to candidates for these positions. Brian Jacob and Jonah Rockoff (2011) propose that in their classroom assignments, principals should be thoughtful about developing each teacher's expertise in a particular grade level, as a teacher of English language learners, or as a subject-matter specialist.

Though states are responsible for most of the redistribution of funds to needier districts, about 10 percent of school district budgets comes from federal funds. A number of proposals look at opportunities afforded by Title I, federal money that goes to school districts to provide compensatory programs to assist academically challenged students. Nora Gordon (2016) makes recommendations about how to simplify and improve the targeting of the Title I grant formulas. She suggests that the U.S. Department of Education focus both on issuing clear nonregulatory guidance that matches current law and on removing old guidance as it becomes outdated, with corresponding outreach to state agencies so districts understand the considerable discretion they have over Title I funds. Jens Ludwig and Isabel Sawhill (2007) would require schools to spend their Title I dollars on effective evidence-based programs and faithful implementation of them. One such program, discussed in the Roseanna Ander, Jonathan Guryan, and Jens Ludwig (2016) proposal, would use Title I funds to scale daily in-school tutorials (one tutor to two students) to all students who are at least two grade levels behind in math.

Evidence also suggests that school organization can be improved so as to enhance student outcomes. Jacob and Rockoff (2011) propose phasing out middle schools in favor of the K–8 structure, and starting secondary schools later in the day. In a different Hamilton Project paper, Roland Fryer (2012) takes lessons learned from charter schools and suggests they be applied cross-sector. These recommendations mirror other Hamilton Project policy proposals that call for intensive tutoring, extended time, and teacher quality. Fryer also highlights the school-level role of data to drive personalization and feedback as well as school culture.

## EARLY CHILDHOOD EDUCATION

### *Access and Affordability*

Hamilton Project proposals have described a variety of policy levers that could expand access to and affordability of early childhood education and care. A policy proposal by Elizabeth Cascio and Diane Whitmore Schanzenbach (2014) provides a framework for state policymakers looking to expand early childhood education. They propose strategies for states that encompass both starting and scaling up programs. Because making progress on access requires new enrollees, they consider ways to prevent substitution or crowd-out of higher-income students who otherwise would have attended preschool.

The Cascio and Schanzenbach strategy presumes that states are the primary actors in early childhood education and care expansion, but the federal Head Start program could also enroll additional children. Ludwig and Sawhill (2007) propose what they called “Head Start on steroids” (16). To increase the number of children Head Start could serve, Ludwig and Sawhill would allow Head Start centers and elementary schools to apply for funds, jointly administered by the U.S. Departments of Education and Health and Human Services, to serve all eligible children in their area. By making the grants competitive and using a lottery to assign winners, they could embed a rapid and rigorous evaluation component into the program.

Other proposals recommend changing the tax code to make child-care provisions more generous and better targeted. Policy proposals by James Ziliak (2014) and Elizabeth Cascio (2017) recommend eliminating the Child and Dependent Care Tax Credit and replacing it with a new refundable child-care tax credit. Both proposals would target the new credit toward low-income families, limiting eligibility to households with an adjusted gross income at or below \$70,000. Cascio additionally recommends making the credit more generous for families with younger children, while Ziliak recommends doubling the size of the credit if the child is enrolled in a licensed program.

The vast majority of parents who are enrolled in school themselves are enrolled in two-year degree-granting institutions. Long (2017) makes proposals for expanding access to and the affordability of child care on postsecondary campuses. Noting that child-care costs are not factored into the FAFSA and that few campuses offer on-site or subsidized child care, Long proposes expanding and improving the Child Care Access Means Parents in School (CCAMPIS) Program. Accredited postsecondary institutions would apply for a grant to offer child care to students, and would give priority to schools that serve students with greater need. Schools could fund their own centers or subsidize enrollment in a higher-quality child-care center.

## Quality

The theory undergirding Ziliak and Cascio's proposals is that by supporting low-income families with additional resources to pay for child care, parents are more likely to switch from informal care to more-expensive but higher-quality care. Ziliak provides further monetary incentives for increased quality, doubling the value of the credit if a family enrolls a child in a licensed program. However, there are other ways to improve the overall quality of early childhood education and care beyond helping families pay for the more-expensive programs.

In order to increase the quality of existing early childhood education and care programs, Cascio and Schanzenbach (2014) and Cascio (2017) recommend that states adopt program standards for quality, such as early learning standards (including process quality); parameters for teacher education, specialization, professional development, class size and teacher-to-pupil ratios; and wraparound health and nutrition services. Adding assessments and accountability metrics, like Quality Rating and Improvement Systems and Classroom Assessment Scoring System, would keep attention focused on both providers and classrooms.

## Conclusion

Beyond the benefits to individuals' lives that education can bring, a well-educated population confers many benefits to the economy in the form of higher productivity, higher wages, and lower unemployment rates. The evidence reviewed in this paper shows that the wage returns to a wide variety of human capital inputs are substantial and that human capital investments are vital to sustaining a vibrant economy.

At each stage of human capital formation and across the life course, core concepts emerge:

*Having at least a four-year college education generates the largest wage returns to education.* A number of policies can affect college attendance and completion, such as lowering the perceived cost of college, reducing barriers to applying to high-quality colleges for low-income students, providing information and counseling to improve decision making, and providing financial incentives to schools to improve completion and workforce outcomes for students.

*It is necessary to make improvements in K–12 quality and outcomes to ensure students are adequately prepared to succeed in college and careers.* This can be achieved through a focus on key issues in K–12, including ensuring students spend more time in school and remain engaged during the summer, reducing chronic absenteeism, and preventing high school dropout. Policies to improve school quality, including improving teacher quality, supporting intensive tutoring, and making school start times developmentally appropriate, can also contribute to student success.

*A growing body of evidence suggests that early childhood education has substantial benefits to participants, including on their lifetime earnings in adulthood.* Hamilton Project proposals leverage the wide variety of policy tools available in order to ensure access to and the affordability of high-quality early childhood education and child care.

*Not all educational investments take years to bear fruit, nor do they require formal schooling—workforce development can work.* Providing access to high-quality workforce

development—such as short-term training programs to earn credits and build stackable credentials, apprenticeship programs that offer paid work and training on the job and in the classroom, and community colleges that provide occupational training in high-demand sectors—would increase wages through skill-building and re-skilling.

The United States should invest early and consistently in education. Simply expending more resources is not the entire story: a number of proposals suggest ways to improve the efficacy of spending, thereby deepening access to educational opportunities while maintaining quality. Taken as a whole, these Hamilton Project policy proposals would help to expand and improve U.S. education and human capital investment, an integral part of lifting wages over time.

## Endnote

1. There is also the possibility, that education does increase wages, but not because of an increase in human capital, rather because people pursue education to signal to employers that they are high quality employees. Evidence suggests this does not substantially explain the wage returns to education (Lange and Topel 2006)

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**SECTION TWO**

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# Policies to Boost Wages through Enhanced Productivity

**S**trong wage growth depends on steady increases in labor productivity, defined as the value of goods and services produced per hour of work. This section presents three policy proposals to stimulate productivity growth by increasing education, mobility, and demand for labor. Together, the proposed reforms would lead to a more efficient and more dynamic economy, spurring faster wage growth for American workers.

In the first proposal in this section Fatih Guvenen examines trends in lifetime incomes and finds a pattern of stagnation for the median worker. Guvenen links this stagnation to sluggish growth in entry-level earnings and a decline in earnings at the bottom end of the wage distribution for workers at large firms. The author discusses design principles for workforce development investments that would better align postsecondary training with in-demand skills, increasing workers' initial wages and raising lifetime incomes.

A productive, well-functioning economy requires that workers with widely differing skills and preferences be able to seek out the jobs that are best for them. Declining geographic mobility in recent decades could therefore have limited the overall productive capacity of the economy, and it likely has contributed to divergences in employment, earnings, and human capital between cities and across the urban–rural divide. In the second proposal Abigail Wozniak offers two reforms to the student financial aid system that would encourage geographic mobility both before and after college, leading to stronger wage growth.

In the final proposal in this section, Jared Bernstein addresses the wage impact of persistent labor market slack over the last 40 years. In particular, economic downturns have generated lasting negative consequences for the economic well-being of many workers. Bernstein offers proposals to boost labor demand through both monetary policy and fiscal policy, thereby increasing wage growth and the return to work.

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# Stagnation in Lifetime Incomes

## An Overview of Trends and Potential Causes

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### Abstract

Lifetime incomes have stagnated for the majority of American men since the cohort of workers that entered the labor market in the late 1960s. The evidence shows that those who turned age 25 after the 1960s have experienced a large decline in their starting wages relative to earlier cohorts, and did not experience faster growth in their wages over the life cycle to make up for those earlier losses, resulting in lower lifetime incomes. These trends coincided with a stagnation of educational attainment for men, as well as rising income disparities among workers with some college experience. In light of these facts, this paper presents some design considerations for human capital policies that aim to boost wage growth for younger workers by: (1) identifying promising labor market data collection practices to ensure that students are taught skills that are both valued in their local labor market and resilient to shifts in demand, and (2) providing targeted tuition subsidies for enrollment in two-year community colleges and technical colleges.

### Introduction

In the decades following World War II, real wages grew steadily and inequality gradually declined. Families across the income distribution shared in the economic gains. By 1970 the typical household lived similarly to how we live today. While they missed some of today's gadgets—flat-screen televisions, personal computers, and smartphones—they had most of the major furnishings of a modern home—refrigeration, electricity, modern sanitation, and telephones.

Starting in the 1970s, the pace of technological progress appeared to accelerate, especially in computation and communication. The transition from mainframe to desktop computers, the steady decline in the cost of computation, and the widespread availability of the internet changed the ways that firms organize their production and the ways people communicate and consume. And yet, this visible progress has been accompanied by an apparent slowdown in measured productivity growth that started around the same decade—the 1970s—and has continued since then except for a brief rebound from 1995 to 2004. Wage growth has stagnated while wage inequality has increased. The median worker who entered the workforce in the early 1980s and might now be planning for retirement has experienced virtually no real increase in lifetime earnings relative to the previous generation.

This slowdown in spite of apparent technological progress is puzzling. With the power of a 1970s supercomputer in their pockets, American workers seem more productive than ever before, and yet they are not seeing those returns through higher income. The political ramifications of a large group of citizens that do not feel connected to the rewards of living and working in an advanced society are playing out in populist movements in the United States and Western Europe that support protectionist and nationalist policies. These fears damage support for many of the traditional vehicles of economic growth, such as international trade and technological innovations.

The stagnation of lifetime wage incomes is part of a broader set of trends that collectively represent a dramatic shift in the U.S. economic landscape in the past half century. A partial list of these major trends includes the substantial rise in wage inequality, the slowdown in the growth of college attainment (with the male attainment rate virtually flat since the mid-1970s), the declining labor share of income, increasing concentration of economic activity at the largest firms, increasing segregation and sorting of workers across firms, and rising geographic segregation of households by income and education, among others. Despite decades of intensive research by economists and other social scientists, our understanding of the root causes of these phenomena and their relationship with each other remains incomplete.

Against this daunting backdrop, any single policy proposal that addresses the stagnation of lifetime wage incomes can hope to make only a modest improvement. Therefore, the primary goal of this policy proposal is to complement such efforts by providing an accurate and detailed description of the facts regarding stagnation of lifetime wage incomes—based on recent work from new and rich data. A better understanding of the underlying facts can inform more-effective policy proposals today and in the future.

Once this primary goal is accomplished, I discuss considerations relevant to the design of human capital policies that can improve wage growth, especially among younger workers. There is growing evidence that a mismatch between the skill portfolio of a worker and the skill requirements of a job is a major factor in slowing wage growth, so aligning worker skills with the demands of newer jobs can be an important step forward. I propose a new federal competitive grant to pilot data and implementation initiatives that would facilitate linkages between workforce development programs and local labor markets.

The second part of the proposal aims to improve access to technical and career focused education in a way that is effective in boosting enrollment while minimizing perverse effects (such as downgrading by individuals who would have otherwise chosen a four-year college education).

## Background

The trends in stagnating wages are often documented using survey-based cross-sectional data (i.e., snapshots of an economy at different points in time) that researchers stitch together, so to speak, to track evolution over time. While this approach—largely dictated by data availability—can provide useful insights, it can also conflate life-cycle trends with cohort effects. In other words, the evolution of earnings over the course of a worker's life (life-cycle trends) can be confused with the changes in the living standards of one generation of workers compared to another (cohort effects).

Thanks to a confluence of factors in recent years, researchers are increasingly able to access larger and richer data on earnings from both public and private sources.<sup>2</sup> These newer data sets provide many advantages: they are constructed from actual earnings records as opposed to being collected through surveys and are therefore much less susceptible to measurement error; they contain information on millions of workers, which allows fine-grained analysis while still delivering precise estimates; and perhaps most importantly, they track the earnings *histories* of each worker (often over many years, and sometimes covering the entire working life), which allows researchers to separate life-cycle trends from variation across cohorts.

One study by Guvenen et al. (2017) examined the earnings histories of millions of American workers from 1957 onward and compared the lifetime earnings of each (year-of-birth) cohort over time.<sup>3</sup> The main picture that emerges from their analysis is one of widespread *stagnation* in the living standards of many American men. In particular, from 1957 to 1967 the median male worker in each successive cohort that entered the U.S. labor market (i.e., turned age 25) saw relatively robust gains in lifetime earnings compared with his predecessors (top panel of table 1). However, these gains vanished starting with the cohort that turned age 25 in 1968 and were followed by a steady decline in lifetime earnings from one cohort to the next until the latest cohort with complete data—the 1983 cohort. The cumulative loss in inflation-adjusted lifetime earnings for the median male worker from the 1968 cohort to the 1983 cohort ranges from 10 percent to 19 percent.<sup>4</sup> This loss corresponds to an estimated lifetime cumulative loss that ranges from about \$96,000 to \$243,000 *after* adjusting for mitigating gains in non-wage benefits (employer-provided health insurance and pension contributions).<sup>5</sup>

TABLE 1.  
Change in Selected Percentiles of the Lifetime Income Distribution  
across Cohorts

| Cumulative change<br>between labor market<br>entry cohorts: | 25    | Median | 75   | 90   |
|---|-------|--------|------|------|
|   | Men   |        |      |      |
|   |       |        |      |      |
| 1957 to 1983  | −6.6  | 0.7    | 14.3 | 35.0 |
| 1957 to 1967  | 11.0  | 12.3   | 15.8 | 22.8 |
| 1967 to 1983  | −15.8 | −10.3  | −1.3 | 10.0 |
|   | Women |        |      |      |
|   |       |        |      |      |
| 1957 to 1983  | 46.8  | 58.6   | 68.3 | 83.1 |
| 1957 to 1967  | 17.4  | 19.6   | 20.9 | 22.9 |
| 1967 to 1983  | 25.1  | 32.7   | 39.2 | 49.0 |

Source: Guvenen et al. 2017.

Note: Each cell reports the percent change. Earnings data adjusted for inflation using the personal consumption expenditure (PCE) deflator.



For women, the picture is only slightly more positive (bottom panel of table 1). Although female workers experienced strong gains in percentage terms that were widespread across the earnings distribution, these gains started from very low *levels* of lifetime earning in early cohorts. As a result, though the gender gap in lifetime earnings closed quite significantly during the lifetimes of the 27 cohorts studied in their analysis, the remaining gap is still large at about 40 percent.

It is worth stressing that the decline in lifetime earnings for men occurred primarily as a result of lower earnings while working—rather than fewer years worked over the life cycle—which points to stagnant wages and rewards to working for many male workers.<sup>6</sup> In other words, the declining labor force participation rate among prime-age men—which receives a lot of attention as a sign of an anemic labor market and is a well-established fact—turns out to make only a small contribution to falling lifetime incomes among men. The median lifetime earnings of employed workers in cohorts that entered the labor force in 1983 was 7.2 percent lower than of those that entered the workforce in 1967.

One possible explanation for this decline for men is that workers are not seeing wage increases over the course of their working lives in the same magnitude as during the 1960s and 1970s; in other words, the annual raise might be vanishing. However, the life-cycle profiles of income reveal a different story. Year-over-year income increases within a given cohort remained relatively steady throughout this period. But workers entering the labor force after 1967 earned lower and lower wages at the beginning of their careers. Despite receiving similar wage increases over the life cycle, workers who entered at a lower wage were never able to catch up. The decline in lifetime income is largely accounted for by a steady decline in median income between the ages of 25 and 35, without any sufficiently large offsetting increase in earnings during later years. Importantly, this suggests that the labor market conditions during the first decade of work can have important implications for the life-cycle income of a cohort. Since we consider nearly 30 years of prime-age employment, we do not have data on lifetime incomes for workers who enter the labor force after 1983. But using the facts about life-cycle income trends, we can extrapolate based on observations of early median wages.

Since 1983 the entry wage of a median male worker has continued to decline, except for a brief period of rising wages in the second half of the 1990s. If early life incomes remain important indicators of lifetime income, this likely implies that the trend of declining lifetime incomes will continue among working men. Since 2000 the trend of entry wages of female workers has begun to mirror that of male workers, declining gradually after a sharp rise during the second half of the 1990s. This could mean that the different patterns for men and women have converged to a single trend of gradually declining lifetime incomes. Since we can only observe the first few working years of these more-recent cohorts, we cannot draw any firm conclusions. But it certainly suggests that we have not escaped the era of stagnant incomes.

Compounding the stagnation in median lifetime earnings for men was a sustained rise in inequality starting in the early 1970s. Mainly focusing on annual earnings, a vast literature has documented rising wage gaps *between* various worker groups—for example, gaps defined by education and/or experience (Card and Lemieux 2001; Katz and Murphy 1992), employer characteristics (Barth et al. 2014; Song et al. 2015), and geographical areas (Owens 2016). Furthermore, in some cases, inequality has also risen *within* the same groups, making it

harder to find simple explanations that rely on these observable characteristics that define the groups. In particular, income inequality rose substantially within college-educated workers—a fact that will turn out to be crucial for the policy proposal I describe in this paper.

A similar pattern of rising inequality is also seen in lifetime earnings, starting around the same time as the stagnation in median lifetime earnings noted above. Starting with the 1968 (or so) cohort, the bottom three-quarters of the lifetime income distribution in newer cohorts experienced almost no gains relative to their predecessors. Over the whole period, the bottom 5th percentile of the lifetime income distribution fell by 9 percent, while the 95th percentile increased by 46 percent (Guvenen et al. 2017).

### **LIFETIME INCOME TRENDS: DECLINING MALE INCOME AND INCREASING FEMALE INCOME**

The main evidence summarized here is from Guvenen et al. (2017), who examine administrative data from the U.S. Social Security Administration—a 1 percent representative sample of U.S. workers—on earnings covering 57 years, from 1957 to 2013. The analysis focuses on lifetime income as the aggregate value of inflation-adjusted labor earnings for each individual from ages 25 to 55, which allows them to compute lifetime incomes for 27 consecutive cohorts of American adults that entered the labor force from 1957 to 1983.

From the cohort of men that entered the labor force in 1957 to the cohort that entered in 1967, the *lifetime* income of the median male worker increased by between 7 and 12 percent.<sup>7</sup> This upward trend peaked with the 1968 cohort, after which median lifetime income started to decline. In particular, from 1968 on, the median male worker in each subsequent cohort experienced a lower lifetime income than his counterpart in the previous cohort, with a cumulative decline of between 10 and 19 percent by 1983 (i.e., over the next 17 cohorts).<sup>8</sup>

A well-known parallel trend is the rise in non-wage compensation, which most notably includes rising employer-provided health benefits and employer contributions to private pension plans. Although micro-level data on these benefits are not available for the full period that will allow an exact calculation of their effects, Guvenen et al. (2017) use aggregate data on benefits from the National Income and Products Accounts to estimate an upper bound for the potential lifetime gains from these fringe benefits. From the 1968 cohort to the 1983 cohort, the annualized value of the rise amounts to \$1,200 per worker per year (which amounts to a rise of \$37,200 when aggregated over 31 years for the latter cohort).<sup>8</sup>

While this rise in average benefits mitigates some of the decline in wage income, it was not nearly large enough to offset the decline for the median male worker. Even with expenditures on these benefits added in, the median male worker in the 1983 cohort earned a lifetime income that was lower than his counterpart in the 1968 cohort by an amount ranging from \$96,000 at low end to \$243,000 at the high end (depending on the inflation measure used).

Turning to women, the trends in median lifetime income follow a more complex pattern, sharing some of the slowdown observed for men after the 1968 cohort, but also reflecting increasing engagement of women in the labor force (as Goldin [2004] and others have observed).

Specifically, the median female worker experienced between a 13 and 20 percent rise in lifetime incomes over the first 11 cohorts, and another 22 to 33 percent increase from the

1968 to 1983 cohorts. While these gains appear robust when expressed in percentage terms, the absolute gains (i.e., in dollar terms) are more modest because of the very low levels of lifetime income received by the earliest cohorts. Consequently, while the gender lifetime income gap has closed considerably over the 27 cohorts we examine, the remaining gap is still sizable, at about 40 percent for the 1983 cohort.

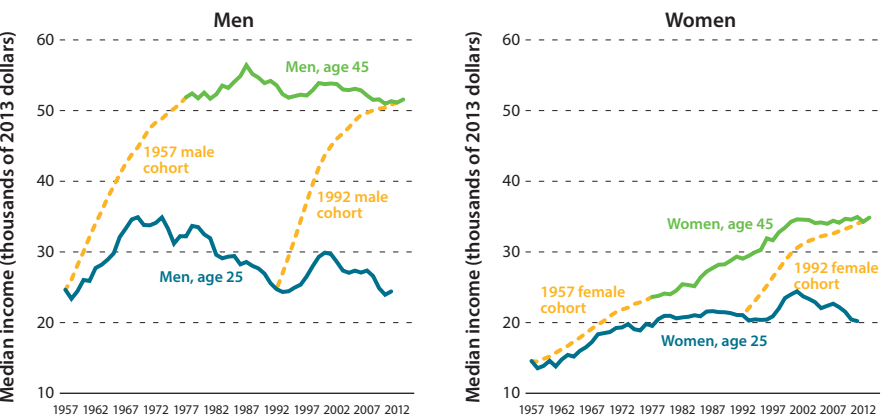
**DELVING DEEPER: WHERE IN THE LIFE CYCLE DID THE LOSSES OCCUR?**

To make progress toward understanding the drivers of the stagnation in median lifetime incomes, it is useful to locate the stages of the life cycle when newer cohorts experience a decline in incomes relative to previous cohorts. Figure 1 plots median income by age for every cohort that entered the labor force from 1957 to 2011, with the left and right panels showing data for men and women, respectively. Notice that, to shed light on how more recent cohorts are faring, this figure includes post-1983 cohorts (i.e., 27 additional cohorts) who have yet to complete their working lives.

For men, there was no overall growth in entry-level real median income from 1957 to 2012 (as denoted by the blue line), despite the fact that real GDP per capita grew threefold during this period and the real mean wage per worker rose by 80 percent. Even worse, from 1968 to 2011 the real median income at age 25 actually fell from about \$35,000 to \$25,000, a decline of 29 percent.

Of course, it is possible that newer cohorts make up for lower entry incomes by growing their earnings faster as they gain experience in the labor market. But the second takeaway is precisely that this is not happening, at least not sufficiently to make up for lower early-

**FIGURE 1.**  
**Median Real Income by Age, Sex, and Cohort, 1957–2012**



Source: Guvenen et al. 2017.  
Note: Horizontal axes show calendar year. Incomes are inflation-adjusted to 2013 dollars using the PCE deflator.

career earnings. This can be seen in the same figure, which also plots the median income at age 45 for each cohort (as shown by the green line), including some that entered after 1983 and have at least 21 years of observations. The two orange dotted lines plot median income over the life cycle for the first (1957) and last (1992) cohorts (that is observed for at least 20 years) to give a sense of wage growth for these workers as they aged.

The overall picture is not one of steeper wage growth for recent cohorts of men that makes up for their lower wages at younger ages relative to older cohorts. There is a slight catch-up between ages 35 and 45 for the newest cohorts, but the magnitudes are not large enough to make up for the losses coming from weak early-career outcomes.<sup>9</sup> For comparison, the right panel of figure 1 shows the same analysis for women, where newer cohorts have experienced a slowdown in growth (as opposed to an absolute decline) in median income at age 25, but partially made up for this slow start with faster growth between ages 25 and 45 (as seen from the steepening of the orange dashed line in the 1992 cohort).

Putting these two pieces together, the decline in median lifetime incomes for men appears to stem from the stagnant or declining entry-level wages earned when they enter the labor force, and not from weak earnings growth experienced during their working years. The key conclusion I draw from these results is that in order to understand stagnating wages, we need to understand why the labor market experiences of newer cohorts were *already* different from those of their predecessors by the time they turned 25.

To shed some light on the possible forces that shape the stagnation of entry wages, Guvenen et al. (2017) examine state-level data from the 1960s through 2014, and find that three factors are all positively correlated with the median male income at age 25: (1) the share of 25- to 30-year-olds who are college graduates in the state, (2) the population share of 25- to 30-year-olds in the state, and (3) the manufacturing employment share in the state.<sup>10</sup> Other usual suspects, such as rising trade, changes in the gender ratio, racial composition, marital status, or union coverage, do not seem strongly correlated with the decline in entry wages for men. These findings suggest that education and demographics can be important factors in understanding income stagnation as well as the decline in the manufacturing sector as a complementary trend.

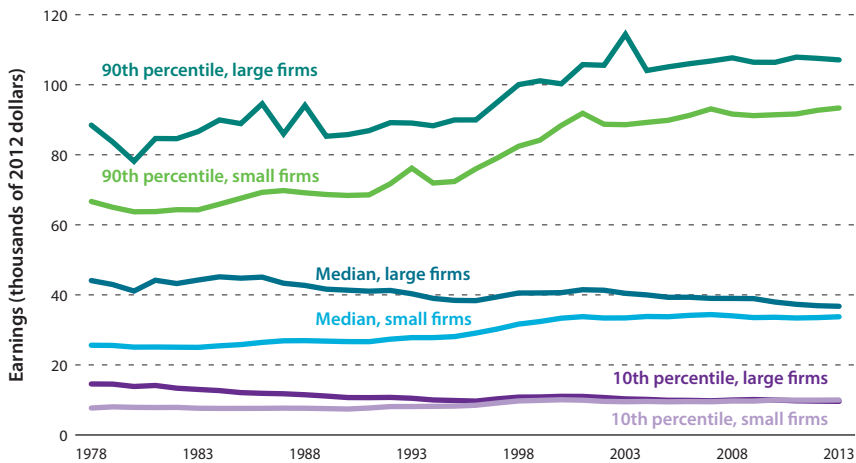
## DECLINE IN BOTTOM-END EARNINGS IN LARGE FIRMS

A different cut of the data reveals an interesting dichotomy in the stagnation of incomes and how it relates to employers and worker skills. This link can be established in several steps. First, a well-documented empirical fact is that large firms (shown by the dark blue line) pay their employees more than small firms (the light blue line) even after controlling for worker characteristics—what is often called the large-firm premium.<sup>11</sup> More-recent evidence strongly suggests that this premium might be declining significantly for low-skill workers while changing little for high-skill workers. This can be seen in figure 2, which shows the 10th percentile, median, and 90th percentile of annual income for workers employed in small firms (i.e., those with 100–200 employees) and in large firms (those with more than 10,000 employees).

A clear pattern of convergence is seen here: whereas in the early 1980s the median employee at large firms used to earn substantially more than their counterpart at smaller firms—about \$45,000 a year versus \$25,000—this gap has largely disappeared by the 2010s. The same pattern holds true at the lower end—the pay gap between small and large firms at

FIGURE 2.

## Annual Earnings by Earnings Percentile and Firm Size, 1978–2013



Source: Song et al. 2015.

Note: Small firms are defined as those with 100–200 employees in a given year, and larger firms are those with more than 10,000 employees.

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the 10th percentile of wages (the light and dark purple lines, respectively) was more than 40 percent in 1980 and is virtually zero today. For the 90th percentile of wage earnings (the green lines), the convergence seen below the median is absent. This suggests that the stagnation of wages below the median could be due to the disappearance of a certain kind of premium low-skill workers were receiving when employed by larger firms.

Bloom and coauthors (forthcoming) examine possible explanations for the decline in the large-firm premium and provide another piece of corroborating evidence that skills matter for the stagnation of wages in large firms (summarized in table 2). Using data from the CPS, they show that the large-firm premium has all but disappeared for workers with high school education or less, whereas it has held steady for workers with college education. Given the robust positive correlation between wages and education, perhaps this result should not be too surprising in light of figure 2, but it is still noteworthy given that their analysis relies on different data and measures education directly. Another result from their analysis is that the decline in the premium did not happen because of a change over time in the differential ability of low-skill workers employed by large firms. Instead, it happened because of the pure premium (what one firm pays relative to the average for the same type of worker) paid by large firms disappearing over time.

Overall, there are two main takeaways from this analysis for the stagnation in wages. First, wage growth has been weaker for workers employed by larger firms than for those employed at smaller firms. Second, the decline in the large-firm wage premium has affected middle- and low-skill workers. Together, these findings point to various factors that eroded the power and productivity of low-skill workers at large firms, such as the decline of unions (which were

TABLE 2.

## Large-Firm Wage Premium by Skill Level, 1987–2013

| Education level       | Firm size | Log wage premium over employees<br>at firms with fewer than 100 employees |           |           |
|-----------------------|-----------|---|-----------|-----------|
|                       |           | 1987–1996   | 1997–2006 | 2007–2013 |
| High school or less   | 1,000+    | 0.29  | 0.18      | 0.16      |
|                       | 100–1,000 | 0.15  | 0.13      | 0.14      |
| At least some college | 1,000+    | 0.27  | 0.21      | 0.23      |
|                       | 100–1,000 | 0.18  | 0.14      | 0.16      |

Source: Bloom et al. forthcoming.

Note: Firm size refers to the number of employees.



especially prevalent in larger firms), rising outsourcing, competition from low-cost off-shore labor, competition from automation, and so on. As many historical episodes have taught us, one of the only effective ways to overcome these challenges is for low-skill workers to obtain skills allowing them to perform tasks that cannot be easily done by machines or other low-skill workers. This is a point that is made forcefully by Goldin and Katz (2008) in their fascinating book-long treatment of the race between education and factors like technological progress that periodically made old skill redundant. In each instance, some workers rose to the challenge and reaped higher rewards provided by new skills. I will return to this theme when discussing the policy proposals in the section “A New Approach.”

## The Challenge

There are two interrelated pieces to the puzzle of stagnating lifetime incomes. The first piece is best explained through a model that helps us think about how wages are determined in a modern economy and how fundamental changes in the structure of the economy get translated into the earnings of different types of workers. One model that has shown significant potential for explaining many key trends in the labor market since the 1960s is the so-called brain versus brawn (or brain–brawn) model, referring to the distinction between cognitive and physical skills.

The second piece of the puzzle starts with the observation that the brain–brawn model can generate the observed pattern of income decline if the demand for brawn (i.e., physical skills) falls. This raises the question: what drove the decline in demand (and consequently the price) of brawn? I discuss some possibilities at the end of this section.

All else equal, the decline of the value of brawn reduces all wages but hits low-ability workers especially hard because their overall skill mix is skewed toward brawn. Similarly, the rise in the value of brain benefits everyone but to different extents: high-ability individuals gain much more because they are better at learning new and complex skills than their low-ability counterparts.

Guvenen and Kuruscu (2010, 2012) show that the combination of the three ideas discussed in box 1 yields implications that are consistent with many of the key labor market trends for male workers since the 1970s.<sup>13</sup> The model can explain the prolonged stagnation in median wages of men after the 1970s because the skill mix of the median worker was skewed toward brawn and the cost of acquiring skills was too high for such workers. In other words, the median male worker in the 1950s and 1960s had a high school degree or less and could find a well-paying job in manufacturing, mining, or transportation sectors where his brawn could be put to good use. But starting in the 1970s and continuing today, the rapid spread

#### BOX 1.

### A Brain–Brawn Model of Jobs and Workers

A simple model of what drives the major labor market trends since the 1970s is the brain–brawn theory of jobs and workers. Various versions of this framework have been studied by researchers in recent years and have been found to provide a consistent explanation for key empirical trends (Black and Spitz-Oener 2010; Guvenen and Kuruscu 2010; Rendall 2010; Yamaguchi 2012).

According to this model, each job (or occupation) requires two types of labor skills: cognitive skills, or brain; and physical skills, or brawn. Occupations differ in how much of each skill they require.<sup>12</sup> For example, a physics professor will likely need a lot of brain power but relatively small amounts of brawn to perform teaching and research, whereas a heart surgeon will arguably require just as much brain but also more brawn to be able to perform long and critical surgeries, and a construction worker needs less brain but even more brawn than either of the first two occupations. Goldin (1994) argued that one reason for lower pay to women relative to men before the past few decades was the high rewards to physical strength in manufacturing as well as mining, utilities, and construction.

The brain–brawn model rests on three key ideas. The first is that a worker can improve their cognitive skills substantially with proper investment in human capital through formal education and job training, whereas their physical skills are much harder to improve substantially over the life cycle. To simplify, suppose that brawn is fixed for a given individual, whereas brain can be improved with investment. The second idea is that workers are born with different levels of cognitive ability, which is the efficiency with which they can acquire new cognitive skills. Consequently, even when faced with the same labor market conditions (e.g., the relative prices, or wages, of brain and brawn), those with high ability will accumulate more cognitive skill because the cost of doing so is lower for them. So, at any given age, high-ability workers will have more brain relative to brawn compared to low-ability workers. Furthermore, each worker’s brain–brawn mix can vary continuously, which creates systematic differences among workers even within narrowly defined education groups. This seemingly small detail will turn out to be important when we discuss education policies below.

Third, and finally, the model assumes that there has been a secular rise in the price of cognitive skills relative to physical skills, starting in the early 1970s. This is essentially a restatement of the skill-biased technical change (SBTC) hypothesis that has been extensively studied (see Acemoglu and Autor [2011], Katz and Autor [1999], and Katz and Murphy [1992] for surveys of this literature). The standard approach in the literature is to model SBTC as a rise in the demand for high-skill labor versus low-skill labor (often equated with high versus low levels of education, or college versus high school graduates), with a given worker only able to be one of the two types. In the brain-brawn framework, SBTC is modeled as a rise in the value of brain relative to brawn, with every worker possessing both types of skills, albeit in different amounts. This apparently small distinction turns out to generate rich implications.

of automation, the decline of unions, the rise of offshoring and outsourcing, and the rise of the service sector all reduced the demand for physical labor and led to the subsequent decline in the wages of the median male worker.

This framework can also help explain the rise in wage inequality. Because workers differ in their endowments of brain and brawn, a higher value of brain relative to brawn spreads the entire distribution of wages even if workers do not change their human capital investment behavior. Of course, workers do respond to skill-biased technical change (SBTC), and they do so in a way that is proportional to their learning ability. This variation in how workers respond to technological change can explain three key facts observed in the U.S. data since the 1970s.

- **The fall and subsequent rise in the college wage premium.** Because college graduates have higher ability than high school graduates, the strong investment response by high-ability workers leads to a surprising outcome in the short run: high-skill wages *fall* even though SBTC pushes the price of cognitive skills up. This is because high-ability workers gravitate toward jobs that allow them to acquire skills, and as Gary Becker (1962) observed, when skills are general and labor markets do not feature large frictions, workers pay for their own training by accepting lower wages. As counterintuitive as this implication might seem, it is precisely what happened during the 1970s when the college premium (the average wage of college graduates relative to high school graduates) fell for about a decade. Of course, while the costs of higher investment are borne in the short run, the benefits in the form of higher skills are realized eventually, leading to much higher wages for the high-ability workers. Not surprisingly, the college premium rebounded starting in the 1980s and has continued to rise strongly, with a few brief interruptions.<sup>14</sup> Falling wages, even over a decade, are not always an indication of a problem; they could sometimes be a reflection of workers investing more in human capital through either formal education or on-the-job training, and accepting lower pay while they do so.
- **Young workers experience larger wage changes.** Because human capital is a durable asset, the benefits of investment accrue over the rest of an individual's working life.



As a result, younger workers (especially those with high ability) have more incentive to acquire new skills to enjoy those benefits. This helps explain the fact that wages for high-skill workers changed more for newer cohorts.

- **A large part of the rise in wage inequality happened within education groups.** This point is often overlooked in discussions of the rise in the college premium. I expand on this point later in this section.

So far, the discussion has focused mainly on men, following much of the earlier literature on inequality and stagnant wages. This focus was partly justified by the fact that men have had a consistently high labor market participation rate throughout this period, which avoids difficulties with movements into and out of employment. That said, arguably the largest transition in the labor market from the late 1960s to the 21st century was the rising labor force participation rate of married women. It turns out, as Rendall (2010) has shown, that the brain–brawn model is consistent with this important trend as well.

Rendall’s explanation starts with the observation that while men and women have the same levels of cognitive ability, men have higher endowments of physical strength. When brawn commanded a high wage, men had a comparative advantage in the labor market, allowing them to outcompete women for high-paying jobs in manufacturing, mining, construction, and transportation, among others. But as SBTC started to reduce the price of brawn, this comparative advantage began to disappear, drawing more women into the labor force with higher wages and allowing them to compete better with men in newer types of jobs that emphasize cognitive skills. This explanation fits nicely with the timing of the growth of the service sector, which relies less on brawn, and the decline in manufacturing during the same time female employment and earnings were rising in the United States. In a similar spirit, Black and Spitz-Oener (2010) show that a large part of the closing of the gender wage gap over this period can be explained by the rise of cognitive tasks and decline of routine tasks in jobs performed by women.

## **FACTORS DRIVING THE DECLINE IN THE VALUE OF BRAWN**

Factors leading to a declining demand for physical abilities in the labor market have been well documented. These include declining union power since the 1960s, rapid productivity growth through automation and routinization of work, outsourcing in sectors that traditionally require physical skills and low-skill labor such as manufacturing, and the corresponding rise of the service sector that relies less on physical skills, among other developments. Clearly, these driving forces are not mutually exclusive—to some extent they are interconnected—and all reflect falling demand for physical skills that increasingly face competition from new technologies, machines, and low-skill off-shore workers.

To quantify one particular factor that reduced demand for low-skill labor, Acemoglu and Restrepo (2017) focus on industrial robots (i.e., robots that can function without human operators). These robots are predominantly used in auto manufacturing (about 40 percent), followed by electronics manufacturing (20 percent); their numbers increased fourfold from 1993 to 2007. Using variation across time and locations in the use of such robots, they estimate that each additional robot per one thousand workers reduced the employment-to-population ratio by between 0.18 and 0.34 percentage points. Taking a ballpark figure

of 60 percent for the employment-to-population ratio, each robot replaced about 3.0 to 5.7 workers during this period.

The pressure from automation on low-skill jobs is likely to continue, and will probably grow further. A recent report by McKinsey Global Institute (2017) estimates that 60 percent of occupations have at least 30 percent of their activities that can be technically automated with current technology. Going forward, Frey and Osborne (2017) estimate that 47 percent of U.S. workers face a risk to their jobs from automation over the next two decades. Either way, these are large figures that should provide ample motivation to carefully study policies that can help workers prepare for the jobs of the future.

### IS EDUCATION THE PANACEA?

An important point to remember when discussing the rising benefits to education is that the simple statistics often cited obscure a very wide range of outcomes for college-educated workers. Take the college premium, for example: in 1980 the average wage for workers with at least a college degree (including those with advanced degrees) was about 40 percent higher than the average for workers with at most a high school degree, and this premium rose to about 90–100 percent by 2010.<sup>15</sup> But this fact is about the averages, which masks important variation. To illustrate this point, suppose we compare workers with at most a high school degree to those with some college or more. What fraction of workers with at least some college education earn higher wages than 75 percent of workers with at most a high school degree? In other words, what fraction of workers with some college experience earn more than the 75th percentile of the wage distribution of workers with less education?

For men in 2015, the answer is 57 percent, implying that the remaining 43 percent of workers with some college education earn less than the top quarter of workers with less education.<sup>16</sup> This is a reflection of significant overlap between the two wage distributions: attending college is not necessarily a foolproof way to earn more. What is perhaps more interesting is that despite the large rise in the college premium over time, these fractions have not moved nearly as much. For example, the 43 percent figure just quoted for 2015 was about the same—at 42 percent—in 1970. Using a higher threshold for high-skill—defining them as workers with at least a bachelor's degree—changes the levels of these statistics but not the trend: in 1970 31 percent of workers with at least a bachelor's degree earned less than the top quarter of workers with a high school degree or less, and this fraction has fallen only slightly, to 30 percent by 2015, despite a doubling of the average college premium.

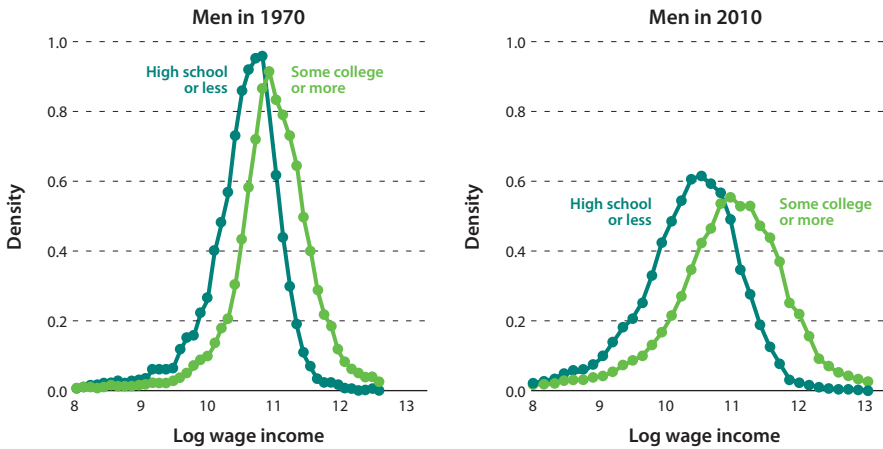
To complete the picture, figure 3 shows the annual wage earnings distributions for male workers with a high school degree or less (dark green lines) and those with some college or more (light green lines). The left panel displays data for 1970 and the right panel shows data for 2010. There is substantial overlap between the two distributions in both periods, which does not seem to change in a visible way over the 40-year period.<sup>17</sup>

## A New Approach

The stagnations of wages and of lifetime incomes discussed in this policy proposal are at the center of a series of dramatic changes in the U.S. economic landscape in the past half century. Despite decades of intensive research by economists and other social scientists,

FIGURE 3.

## Wage Distributions of High- and Low-Skill Workers, 1970 and 2010



Source: Current Population Survey 1971 and 2011; author's calculations.

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our understanding of the root causes is still incomplete. However, the analysis presented in this paper—along with economic theory and additional research on human capital investment—suggests directions for reform. In this section, I discuss design considerations for policies that address stagnant early-career wages experienced by newer cohorts over time.

The discussion focuses on two types of human capital policies. First, I describe efforts to align workforce development programs with the rapidly evolving demands of firms, thereby achieving the greatest return on educational investments. Second, I discuss how to make these workforce development programs more accessible to the students who will benefit from them the most, thereby amplifying the benefits of the first type of policy.

### TEACHING THE RIGHT SKILLS

As discussed above, some workers with at least some college experience earn less than some workers with less schooling, suggesting that not all education is created equal and that raising educational attainment is only one—certainly important—ingredient in a more complex strategy for raising wages. Recent research on education and skill acquisition emphasizes the task composition of jobs and occupations as well as the relative prices of different tasks (cognitive versus physical versus routine tasks) as key determinants of wage trends over time.

For example, Altonji, Kahn, and Speer (2014) document a large increase in wage differentials across U.S. college majors in the past 20 or so years and show that about two-thirds of this increase can be explained by changes in the value of tasks performed in the occupations associated with each major. In particular, workers with college majors

associated with abstract tasks experienced a larger rise in wages relative to those workers with majors associated with more-routine tasks. This finding is consistent with the brain-brawn theory discussed earlier. But, more importantly, it reinforces the point that not all education confers identical labor market benefits, and that those educational options with higher returns are precisely those that teach skills that are in higher demand and are better protected against competition from newer technologies, automation, and imports, among other factors. Kirkebøen, Leuven, and Mogstad (2016) find similar evidence in Norway of substantial earnings differentials across college majors, large enough to rival the college premium itself. This suggests that the fields and tasks that a student is trained in are just as important as attending college in the first place.

Another important consideration in ensuring that education confers valuable skills is being cognizant of differences in local labor demand, especially for middle- and low-skill jobs. Recent evidence shows that a major factor stunting wage growth is the mismatch between the portfolio of skills possessed by a worker and the skills required by his job (Guvenen et al. 2015; Lise and Postel-Vinay (2016). This *skill mismatch* not only leads to lower wages at a worker's current job, but also depresses wages at future jobs many years later. This long-lasting effect of mismatch seems to stem from lower skill accumulation on the job for mismatched workers, which then causes a poor match to impact a worker's entire career. Both papers report substantial wage losses—exceeding 10 percent of lifetime income—from poor skill matches between a worker and his employer. Similarly, Macaluso (2016) focuses on local skill remoteness to quantify the mismatch between local demand for and supply of skills and shows that it is an important factor in explaining wage growth in the local labor market.

These different pieces of evidence suggest that a successful workforce development program needs to teach skills that are in high demand, especially by local employers.<sup>18</sup> In order to develop up-to-date programs of study in high-return fields, workforce development programs and community colleges need detailed information about labor market demands and the flexibility and resources required to implement ongoing updates. To facilitate linkages between workforce development programs and local labor markets, I propose that the U.S. Department of Labor finance a competitive grant program to pilot innovative data and implementation alignment initiatives with sufficient resources to provide grants to several locations. The goal would be to identify best practices in (1) data collection that generates a fine-grained picture of the types of tasks and skills demanded by employers and the extent to which these are over- or under-supplied by workers in the local area, and (2) to see how design and process factors affect the speed and extent of changes to workforce development programs. Funding projects in different states (that, ideally, vary in their demographic and industrial composition) and teams that would take different and innovative approaches to the skill mismatch problem would generate actionable information about best practices in workforce development programs.

These projects would begin by collecting two types of data: (1) job postings in the local area with detailed qualifications and skill requirements, and (2) data on worker skills and training that can be obtained by local colleges, technical and community colleges, apprenticeship programs, and high schools. Grant applications would detail what additional data would be collected, how it would be processed and displayed, with whom it would be shared, and

how it would inform decision-making and reform in workforce development programs. Working jointly with the appropriate stakeholders, researchers would redesign programs to incorporate real-time labor market demand alongside other degree, curriculum, and pedagogical considerations. Additional grant funding could be made available to speed progress in the workforce development programs, such as through equipment upgrades or capital improvements.

A concrete example of such an effort is the Workforce Alignment Committee in Minnesota, which was established by a group of leaders from industry, government, and education with the goal of addressing talent shortage in the state of Minnesota. As part of this effort, the group started a pilot data project, RealTime Talent, as a public–private collaboration, with the aim of collecting and providing granular job-specific labor market data.<sup>19</sup> Although this project is still new, it holds promise for providing the kind of feedback from labor market data to educators to align resources toward the skills that are urgently needed.

A key consideration in designing such a proposal is to be cognizant of the relative *breadth* and *transferability* of the skills taught. To understand why it is critical to do so, it is important to point out that economists have long emphasized a key benefit of *general* education: it can endow students with the ability to adapt to changes, especially those brought on by rapid technical change. In other words, with general education students learn how to learn. Since the classic articulation of this hypothesis by Nelson and Phelps (1966) fifty years ago, economists have studied it extensively and generally found supporting evidence.<sup>20</sup> In fact, many authors have argued that general education is a strength of the U.S. education system and that the high and persistent unemployment experienced by European economies starting in the 1970s was partly due to the specific training that made up the core of its education policies.<sup>21</sup> In contrast, education in specific skills can yield high wages in certain jobs as long as those skills are in high demand, but workers might find it hard to retool for new careers or technologies if demand shifts. This is a very real concern that any education proposal must keep in mind. Therefore, I should make clear that the proposal does not advocate training in very narrow skills that are tied to a very particular firm or technology that has little transferability.

This raises the question of how we can operationalize the notion of narrow versus broad skills, and measure transferability across jobs (as well as across occupations, industries, and vintages of technologies). Although research on these questions is arguably still in its infancy, there are some promising recent developments that can shed light.

One idea is to use the task-based modeling approach described above and infer the breadth of a skill by the fraction of occupations in which that task or skill is used (either used at all, or used above a certain threshold). A major resource that researchers and practitioners can build on is the O\*NET project, which provides detailed and useful information on the task composition of occupations and the skills and abilities required to perform those tasks. To give a concrete example, one ability category under physical abilities in O\*NET is “Gross body equilibrium,” defined as the “ability to keep or regain your body balance or stay upright when in an unstable position.” For each occupation, O\*NET provides both an importance score and intensity score that quantifies the use of this ability in that job. As one can guess, the top occupations where gross body equilibrium is a central skill include dancers, roofers, flight attendants, and structural iron and steel workers, and occupations where this skill

is almost never used includes (among many others) chief executives, lawyers, economists, court clerks, and interior designers. O\*NET contains this sort of detailed information for dozens of skill and ability categories; it also groups occupations into families to give an idea of how readily the skills used in one occupation are transferable to similar occupations.

## IMPROVING AFFORDABILITY TO BOOST EDUCATIONAL ATTAINMENT

Despite its many advantages in providing flexibility to high-ability students, the U.S. tradition of liberal arts education provides some students with little to no specific skills that can be put to immediate use in a starting job. Technical training, vocational schooling, and apprenticeship arguably do not have sufficiently prominent places in the U.S. educational system today. Participation in career and technical education programs has declined significantly since the 1980s due to a confluence of factors—increasing course requirements for high school graduation by states, the expansion of STEM requirements, and declining funding, among others—all of which can perhaps be traced to the growing consensus that all young individuals should be encouraged to attend college (Jacob 2017). Similarly, vocational schooling is a very small part of the U.S. postsecondary education landscape compared to other developed economies. For example, only about 4 percent of Americans aged 25 to 29 have completed some form of vocational schooling in the United States in the past decade, compared to more than 35 percent in Germany (OECD 2017).

Perhaps the best-known example of a policy effort to expand access to postsecondary training is the America's College Promise proposal made by President Obama in 2015 (White House 2015), which aimed to provide community college at no cost to students. Because my proposal will share some common elements, I will use it as my departure point to illustrate some of the issues that must be considered in devising an effective policy.<sup>22</sup>

In thinking about efforts to encourage postsecondary training for low- and middle-income workers—including vocational education, apprenticeships, and career and technical education—it is important to address at least three important questions that are relevant to policy design. First, what is the cost of such a policy and how much will it increase enrollment in community colleges? Second, what types of students will enroll in response to this policy? Are they primarily high school graduates who would otherwise not have pursued any postsecondary schooling, or will some students who were planning to enroll at a four-year college now choose to enroll at a community college because its price has fallen relative to four-year colleges? How do they compare to other students in terms of income and ability? Third, what is the wage impact of this policy on (1) those who enroll at community colleges who would not otherwise enroll in a postsecondary program, (2) those who switch to a community college who would otherwise have enrolled at a four-year college, and (3) at the aggregate level?

Answering these questions is a bit harder than it first appears because we need a careful quantitative model of schooling and work choices faced by students who differ in their family incomes, abilities, and tastes for schooling, among other relevant differences. Policies will affect the behavior of both students and their parents, which can potentially crowd out (or undo) the intended effects of policy. Fortunately, researchers have developed increasingly rich models over the past two decades that can shed some light on the trade-offs and can help guide policy proposals (see, e.g., Abbott et al. [2016]). Based on what we know, we can answer the three questions as follows.

Both empirical studies (that use exogenous variations to identify causal impact) and simulation models predict a rather large increase in community college enrollment rates in response to a tuition subsidy (Dynarski 2000; Kane 1995). An important recent study on the subject is Krivorotov (2016), who builds a model where students can choose between attending four-year public colleges, four-year private colleges, or two-year colleges; or to not attend any postsecondary school. Using life-cycle income profiles for different groups of workers and allowing for heterogeneity in ability and tastes, he finds that a \$1,000 increase in tuition subsidies for two-year colleges can increase enrollment substantially—by up to 10 percentage points. However, he also finds that downgrading is a real concern for policies such as America's College Promise: in the simulation model, about one-third as many students downgrade from four-year colleges to two-year colleges as those who upgrade from high school to two-year colleges. An effective policy therefore must mitigate the incentives to downgrade while boosting the incentives to upgrade. The simulation model suggests that one way to achieve that would be by providing a modest subsidy to four-year public colleges (which provide the closest competition to the subsidized two-year colleges and are the main source of downgrading).

These estimated effects provide important guidance for policy design. In particular, a tuition subsidy targeted at community colleges would provide an important boost for enrollment, with downgrading limited by modest subsidies targeted at four-year public colleges. A specific implementation of this proposal could be as follows.

First, in light of stagnant postsecondary degree completion rates, an important policy design aspect is the existence of incentives that encourage students to complete their postsecondary programs. One way to achieve this would be by making the tuition subsidy grow as the student progresses toward graduation. For example, rather than offering free tuition from the beginning, the subsidy could be set at 50 percent of tuition in the first year, and could be free in the second year. Additionally, if the student graduates, the first year's tuition would be refunded, or a graduation bonus paid.<sup>23</sup> For students who graduate, this backloaded structure would have the same cost as offering free tuition, but it would also ensure that the subsidies go toward the students with highest ability and motivation. This is an important benefit given that an important concern with free tuition policies is their tendency of encouraging too many low-ability students without attractive options in the job market, who might be attracted to the consumption value of school life but derive little tangible benefit.<sup>24</sup>

Second, the overall cost of this graduated policy would be lower (compared to a full tuition subsidy to all) both because the first year (50 percent) tuition requirement would limit demand and because students who discontinue would not be refunded their first-year tuition. These funds could then be directed toward subsidizing four-year public colleges. One policy that would further encourage the best graduates of community colleges to continue their education would be to boost their graduation refund if it is applied toward the tuition of a four-year public college. Again, this would be a subsidy targeted at the most promising students, which is an important objective of policies of this kind.

Of course, an important consideration in implementing a policy of tuition subsidies is to ensure that adequate instructional capacity exists for two-year institutions to accommodate the inflow of students (in particular, if tuition does not cover full educational costs, a tuition subsidy might not be a sufficient investment in that capacity).

## Questions and Concerns

***1. You note that women are now experiencing faster income growth over their careers than they did in the 1960s and 1970s, while income growth for men is essentially unchanged. Is it clear why this occurred and does it matter for your policy proposals?***

Both early-career wages and subsequent wage growth have increased for women in recent decades. However, women's wages started from a very low baseline level, and their wage growth may have benefited from a reduction in labor market discrimination and other impediments. In addition, women have benefited from a shift in labor demand to tasks for which women as a group have a comparative advantage.

Maintaining and accelerating women's economic progress—while also ending the stagnation of men's early-career wages—requires well-designed human capital investments of the kind described in this proposal.

***2. As the economy changes over time, labor demand sometimes shifts unpredictably. Are you concerned about the difficulty of anticipating employer needs in your proposal to teach the right skills?***

It is certainly true that employer needs have shifted over time and will continue to change. This is why I propose to balance specificity of skills (i.e., how well-targeted they are to the immediate demands of employers) with flexibility and transferability of skills across employers and types of work. In addition, it is important to note that many workers will be better advised to pursue four-year postsecondary degrees, which confers more-flexible human capital. As discussed in the proposal, postsecondary policies should be designed to increase the accessibility and value of workforce development programs without diverting students who would be better suited for bachelor's degree programs.

***3. Critics of claims about the negative impacts of skills mismatch have argued that businesses can adjust to the preferences and abilities of their potential workforce; in other words, business needs are not immutable. Does this undermine your proposal to better align curriculum and local employer needs?***

The economic and policy discussion regarding skills mismatch has largely focused on the possible unemployment effects of mismatch, which is not the focus of this paper. Rather, I argue that wages would be higher at the beginning of many workers' careers if their postsecondary curriculum better reflected the skills that are valuable to local employers. While it is true that employers have some flexibility in how they arrange work, which allows them to set up business processes that complement the skills of their employees, this flexibility is not unlimited. When workers possess valuable skills at the beginning of their careers they can be on track for sustained success in the labor market.



## Conclusion

Beginning with the late 1960s cohorts, the lifetime median wage income of American men has stagnated from one cohort to the next. Evidence from cohorts with partial life cycle data strongly suggest that this pattern of weak lifetime wage growth has been continuing in more recent cohorts. While income growth for women has been stronger, it has also weakened, and the median woman's lifetime income remains about 40 percent below the median man's lifetime income in the most recent cohorts who turned age 55.

The income stagnation does not seem to come from changes in the life-cycle patterns of earnings (e.g., a flattening of the life-cycle profile), but rather from a lower starting wage level for newer cohorts. This suggests that the drivers of lower lifetime earnings might be already determined—to a large extent—by the time newer cohorts turned age 25. This fact suggests that successful human capital policies should be directed at individuals before they join the labor market.

I therefore propose to better align career and technical training with workers' abilities and employers' skill demands. Building on evidence of mismatch between the skill portfolio of a worker and the skill requirements of a job, the proposal calls for using big data tools (combined with empirical methods from research discussed in this paper) to aggregate and analyze the task content of job openings in local areas and compare these to the task and skill contents of the available labor force to identify the extent and types of skill shortages, which will provide guidance into types of skills that should be prioritized in technical education. I then discuss important trade-offs involved in any attempt to provide targeted, specific postsecondary instruction with immediate value in local labor markets.

In addition, I propose to improve access to postsecondary alternatives to bachelor's degrees in a way that is effective in boosting enrollment while minimizing unintended consequences, such as diversion of individuals who would have otherwise chosen a four-year college education. I then discuss research relevant to important design considerations for any such policy.

In addition to the policy options outlined in this paper, several other proposals in this volume would stimulate early-career wage growth for American workers. Abigail Wozniak describes potential modifications to the Federal Pell Grant Program to encourage relocation for both college and postgraduate career opportunities. Jared Bernstein's chapter on stimulating labor demand includes proposals for direct job creation programs, which would enhance early-career earnings for individuals who might face barriers to joining the workforce.

In the book's final section, Benjamin Harris proposes five policies that would increase wage transparency and reduce the asymmetry of information in workers' pay negotiations, directly benefiting entry-level job applicants who might have limited prior knowledge about wage levels in their industry. Finally, Heidi Shierholz offers a collection of policies to strengthen protections for low-wage workers (many of whom are entry-level workers), including increasing the minimum wage and overtime salary thresholds and boosting unionization.

## Endnotes

1. The views expressed herein are mine and do not necessarily reflect those of the Federal Reserve Bank of Minneapolis.
2. Among others, see Baker (forthcoming); Chetty et al. (2017); Chetty et al. (2014); Guvenen, Ozkan, and Song (2014, 2017); Kopczuk, Saez, and Song (2010) for recent studies using U.S. data of this sort.
3. For the ease of exposition, I label each cohort by the year they turn age 25 (rather than year of birth) to give a better idea about when each cohort approximately joined the labor force. The statistics mentioned here refer to the baseline sample in Guvenen et al. (2017) that selects workers who earned an annual income above a minimum threshold for 15 out of the 31 years from ages 25 to 55. Lifetime earnings is defined as the sum of all earnings from ages 25 to 55. Other reasonable definitions and selection criteria give qualitatively similar results.
4. The lower and upper bounds reported here are obtained using the personal consumption expenditure (PCE) and consumer price index (CPI) deflators, respectively, for inflation adjustment.
5. These findings of stagnation and decline in lifetime earnings for men complement those of Chetty et al. (2017), who document a decline in upward earnings mobility from parents to their children in the United States since the 1940s.
6. Guvenen et al. (2017) compute average annual earnings over the life cycle for years worked, which shows a substantively similar picture to what is revealed by lifetime earnings discussed here.
7. The value ranges given here reflect different assumptions about the price index used to adjust for inflation.
8. Since 1979, changes in nonwage compensation have played a much smaller role in offsetting slow wage growth. See the introduction to this volume for more details.
9. Median income at age 35 is omitted to keep the figure readable, but the data reveal virtually no catch-up between ages 25 and 35 for any cohort of men.
10. Their panel regression analysis controls for time variation in these factors at the national level over time, so they are identified from differential trends in these variables across states over time.
11. This is probably one of the oldest documented empirical facts in labor economics, going back to Moore (1911), and has been shown to hold true for most of the 20th century (see, e.g., Brown and Medoff 1989; Oi and Idson 1999; Slichter 1950).
12. This structure builds on a large literature that models occupations as a collection of tasks performed, and then groups tasks based on their similarities. It turns out that most tasks can be classified into one of three categories: (1) cognitive, (2) physical, and (3) dexterity/motor skills. The first two correspond to brain and brawn and capture the bulk of the variation across all tasks. See, among other papers, Black and Spitz-Oener (2010); Gathmann and Schoenberg (2010); Ingram and Neumann (2006); Papageorgiou (2009); Poletaev and Robinson (2008). Acemoglu and Autor (2011) is an excellent survey of task-based models and empirical evidence on the subject.
13. The model is calibrated to match the level of wage inequality and educational attainment rates in the 1970s.
14. Another popular explanation for the fall of the college premium in the 1970s is the rapid rise of the supply of college educated workers in the labor market during that time combined with a model where high- and low-skill workers are partly substitutable in the production process. In such a world a higher supply of college educated workers reduces their relative wage—or the college premium. The growth of college educated workers slowed down starting in the early 1980s, leading to a recovery and growth in their wages. The two stories are complementary and both likely contributed to the behavior of the college premium during this period.
15. Note that—because this calculation includes workers with advanced degrees—it shows a larger and continually growing premium relative to for the premium for workers with only a bachelor's degree.
16. Author's calculations from the Current Population Survey data using a sample of men between the ages of 25 and 60 who worked at least 13 weeks during the year and earned at least an annual income corresponding to 520 hours times half the minimum wage in that year.
17. One measure of overlap between two distributions is Weitzman's measure of overlapping coefficient, which measures the area below both distributions simultaneously. The overlapping coefficient measure was 0.67 in 1970, which was barely changed—at 0.68—40 years later, indicating roughly a stable two-thirds overlap between the wage distributions of the two education groups.

However, note that adjustment was not made for differences in age or other wage-relevant worker characteristics that likely differ between the two groups.

18. See Holzer (2014) for a Hamilton Project proposal that addresses similar issues.
19. See <http://www.realtimetalent.org/about/history/> for more information.
20. See, e.g., Gill (1988); Welch (1970), among others. Several papers explored the idea that in times of great technical change cognitive ability and general human capital can help workers adapt to rapidly changing conditions, including Caselli (1999), Galor and Moav (2000), Greenwood and Yorukoglu (1997), and Violante (2002).
21. In fact, in an edited volume published by the Brookings Institution in 1987 entitled *Barriers to European Growth*, the editors, Robert Lawrence and Charles Schultze, opened the discussion by pointing out this limitation of specific skills training and urged European workers to acquire “general training to adapt to new tasks,” and argued that “European education, which has encouraged apprenticeships that provide specific skills, must adapt” (Lawrence and Shultze 1987, 4–5). Krueger and Kumar (2004) build a model with specific and general training that highlights the trade-offs between flexible general education and less-flexible vocational education.
22. This policy proposal is focused on boosting early-career earnings, and as such does not specifically address the needs of nontraditional students or displaced workers who would also benefit from a better community college experience.
23. See Baum and Scott-Clayton (2013) for a Hamilton Project proposal that includes college completion bonuses.
24. This is an often-noted drawback of low or free tuition policies in many European countries.

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# Coming and Going

## Encouraging Geographic Mobility at College Entry and Exit to Lift Wages

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### Abstract

Geography is an important part of economic opportunity. This is increasingly true in the labor market for skilled workers. Due to monetary and nonmonetary costs of migration, college attendance is less likely for those who live farther from postsecondary institutions. The college educated have also become increasingly concentrated in larger labor markets, while at the same time mobility across markets is falling. I propose two modifications to the existing Federal Student Aid programs to level the playing field on these dimensions. At college entry, I propose creating large supplements to the Federal Pell Grant Program to help students who do not have access to a local college overcome the high implied costs of relocating for college. I then propose that college leavers receive extended automatic deferments to Federal Student Loan (FSL) repayment when relocating across markets to start their careers.

### Introduction

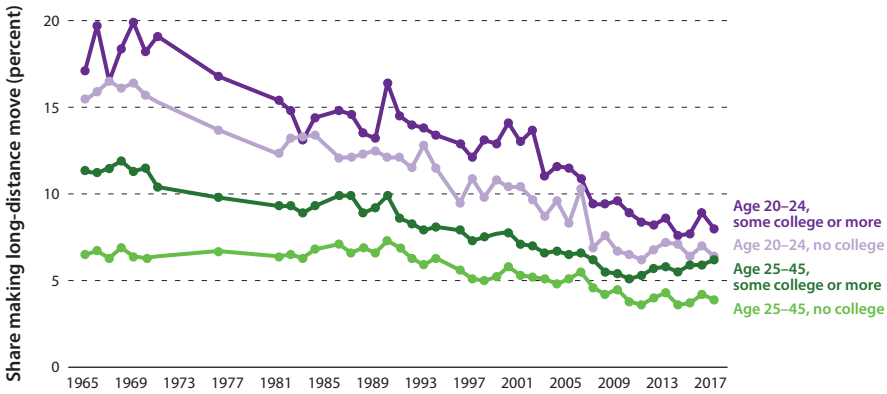
Stagnant wage growth in recent decades for middle- and lower-skill workers has been, in part, a place-based problem. Levels of employment, earnings, and human capital have diverged across U.S. localities, resulting in growing disparities in the availability of local economic opportunity. This widening gap is apparent both between cities and across the rural–urban divide.

For example, Weingarden (2017) documents a widening gap in prime-aged labor force participation between counties with and without ties to metropolitan areas. These disparities reflect a longer-run divergence across cities in terms of the skill composition of their workforces and the growth opportunities a skilled workforce creates, even for less-skilled workers (Diamond 2016; Moretti 2012, chap. 3). The widening gap in economic environments is apparent even at the state level, by some measures. For example, Ganong and Shoag (2017) show that a historical pattern of per capita income convergence across states in the postwar period had slowed dramatically by 1990.

At the same time, geographic mobility has been declining for a broad set of Americans, potentially reflecting increasing challenges for workers in accessing places with more economic opportunity. Figure 1 shows how geographic mobility has declined for two age groups that approximate new labor market entrants (ages 20 to 24) and established workers

FIGURE 1.

## Share of People Moving across State or County Lines, 1965–2017



Source: Current Population Survey 1965–2017; author's calculations.

Note: Observations with imputed migration status are omitted. "Some college" includes all workers with any postsecondary education. Points on graph represent the share of people moving in the preceding year.

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(ages 25 to 45), each with more and less education.<sup>1</sup> There have been declines in migration among each group; but absolute declines have been largest for young individuals, since they had higher initial migration rates.

I propose two ways to modify the Federal Student Aid program to generate long-run wage growth by reducing geographic barriers at college entrance and exit.

- **Part 1:** Use significantly enhanced Pell Grants to encourage college-going among students without local college access. Improving college access will raise lifetime earnings for affected students substantially. I propose an annual Pell supplement of up to \$5,000 for students from counties without a degree-granting college institution within their borders. For such students, attending college often means making a long-distance move. Current aid calculations often include an allowance for travel when students come from outside the immediate college area, but research suggests that the implied costs of long-distance moves far outstrip direct travel costs, even for young adults. The Pell supplement would increase the total aid package provided to qualifying students to address these uncovered costs.
- **Part 2:** Use deferred loan repayments to facilitate geographic relocation following college exit. Greater mobility at college exit can help workers improve their early-career job matches, leading to higher lifetime earnings. I propose that exiting college students be granted an automatic, full-year grace period on student loan repayments if they are working or seeking work in a labor market that differs from their college location. Deferring loan repayment for students who elect to start their postcollege careers after making a move would allow students to search for jobs in distant markets without the pressure to start earning quickly to meet their repayment obligations.



This approach is grounded in evidence about how geography affects college-going and how local conditions at career entry affect later earnings. College attendance is an effective instrument for increasing lifetime earnings, even for academically marginal students (Heckman, Humphries, and Veramendi 2017; Zimmerman 2014). By addressing geographic barriers to college attendance, this proposal enhances earnings opportunities for a group that has been left out of the rise in returns to skill. Moreover, disparities in local economic opportunity and declining geographic mobility are likely to have a disproportionate effect on young workers, because early-career conditions are known to have persistent effects on worker earnings (Kahn 2010; Stuart 2017; Wozniak 2010). By addressing a potential barrier to mobility for college workers who are entering the labor market, this proposal improves the odds that such workers will land the job that provides them the highest returns.

Because migration has been falling for almost all Americans, it is natural to ask why this proposal focuses only on college entrance and exit. The answer is that evidence shows larger gains to mobility both for younger and for more-educated workers. Nakamura, Sigurdsson, and Steinsson (2016) find that young workers who were forced to relocate due to a natural disaster had generally higher earnings than similar workers in the same town who were not displaced, but older workers obtained no gains from relocation. Wozniak (2010) shows that earnings effects of local market conditions fade out for less-educated migrants but not for those with at least some college experience, suggesting that early-career location is particularly important for more-educated workers. Finally, the important role of geography as a factor in college attendance implies that many otherwise qualified students are not attending simply because they lack local access. This is a clear instance of geographic misallocation. In other words, because of the broader benefits to society from college attendance, the costs of qualified students not attending college affect society overall as well as the students themselves.

## The Challenge

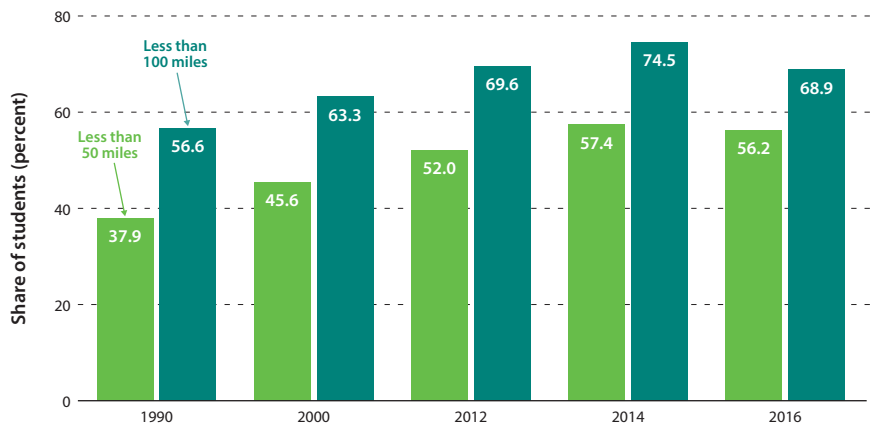
### GEOGRAPHIC ACCESS TO COLLEGE

Location is an important determinant of college attendance. According to the Higher Education Research Institute's Cooperative Institutional Research Program survey (see figure 2), the majority of current public four-year college students attend an institution within 50 miles of home, and around 70 percent attend within 100 miles of home. The data also suggest that geographic proximity to college has become more important over time: a greater share of students are attending college near home now than in 1990 or 2000.

Moreover, this relationship between college proximity and college attendance holds after controlling for ways that individuals and families who live near college are different from those who live farther away. Card (1995) finds that the presence of a four-year college in an individual's county of residence was strongly related to college attendance for young men of college-going age in the 1960s and 1970s. Most importantly, increasing local access to college increases college attendance. Currie and Moretti (2003) present a range of evidence showing that opening new two- and four-year colleges in a county generates an increase in college attainment among county residents. Most recently, Lapid (2017) finds that the opening of four new public universities in California between 1995 and 2005 significantly increased college attendance among students attending high schools near the new colleges, but not among other students.



**FIGURE 2.**  
**Share of First-Year College Students Attending Public Four-Year College Near Home, Selected Years**



Source: Higher Education Research Institute, selected years.  
Note: Estimates show the percent of first-year college students at public four-year universities that are attending school near home.



These causal impacts of college proximity on attendance imply that geography poses a barrier to college attendance. Why might this be the case? One possibility is that the costs of attending near home could be lower than the costs of attending a distant college, and financial aid might not fully compensate students for the difference. If students face credit constraints that are insufficiently addressed by current financial aid, then attending a distant college could be difficult or impossible even if the benefits exceed the costs.

A complementary consideration is that relocation itself is costly beyond the direct costs of lodging and transportation. Many studies of relocation patterns find that long-distance moves appear costly in a way that cannot be explained by direct moving costs (Kennan and Walker 2011). In general, many people are reluctant to move over long distances even when there are large financial benefits to doing so. The non-pecuniary costs of moving can include loss of social networks or location-specific information, or even general homesickness. In this respect, young adults are no different from older adults, although they are more mobile overall (Wozniak 2010).

How many U.S. high school students have limited geographic access to college? This is a difficult question to answer. The U.S. Department of Education requires that postsecondary institutions that are eligible to participate in Title IV programs report the location of their main campus and may optionally report the location of branch campuses or additional locations. In order to perform place-based policy analysis, data on the physical location of every qualifying campus would be preferable. However, I use the best available data, while acknowledging that it may underestimate access to postsecondary education at branch campuses in some locations.

Using these data, I calculate that 58 percent of counties—containing 14 percent of the U.S. population—have no college within their boundaries 2017; author’s calculations). I describe

TABLE 1.

## Select County-Level Characteristics by Access to College

|                                 | Some local college access | No local college access |
|---------------------------------|---------------------------|-------------------------|
| Share rural county (not in MSA) | 0.28                      | 0.50                    |
| Poverty rate                    | 0.14                      | 0.14                    |
| Share middle class              | 0.53                      | 0.57                    |
| Mean household income           | \$34,200                  | \$31,900                |
| Share African-American          | 0.10                      | 0.07                    |

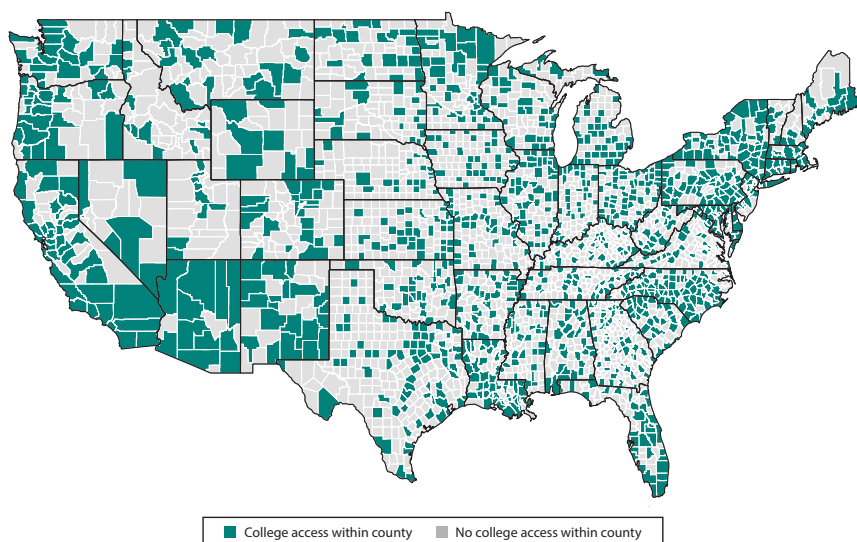
Source: Chetty and Hendren 2017; author's calculations.

Note: MSA = metropolitan statistical area. Data are for the year 2000 from IPEDS.

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FIGURE 3.

## College Access within County, by U.S. County



Source: Chetty and Hendren 2017.

Note: Local college access defined as per capita number of degree-granting, Title IV institutions using county population and institutions data for 2000. Data is based on institutions separately reporting locations to the Department of Education via IPEDS. Please see text for more details.

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such counties as having no local college access. As shown in figure 3, counties with no local college access are widespread. These counties are more likely to be rural, but many are located within larger metropolitan areas: 50 percent of counties with no local college access are rural, while only 28 percent of those with some access are rural. However, counties with and without local access to college are quite similar in terms of poverty rates and household income (see table 1). These modest differences mean that Americans in all walks of life are affected by limited local access to college.

## MIGRATION AFTER COLLEGE

There is growing evidence that college-going, and educational attainment more generally, enhances geographic mobility (Malamud and Wozniak 2012; Parey and Waldinger 2011; Rauscher and Oh 2017). This causal relationship seems to operate through general skill increases rather than differentially for those attending distant colleges (Malamud and Wozniak 2012). This implies that the causal benefits to college include greater geographic mobility and accrue independently of distance traveled to college. In spite of their higher levels of geographic mobility, those with some college education or more have seen their migration rates fall in recent decades, as shown in figure 1.

Related to this, increasing concentration of college graduates in high-performing urban areas is a clear trend in recent decades (Diamond 2016). Less is known about how migration choices generate this concentration, but as with long-distance migration generally, it is likely that relocating after college is more difficult than staying put. Relocation is an investment in one's future, and, as with any investment, it entails risk. This risk is likely higher for those considering a move without a job lined up in their destination. Current Population Survey data for the 2000s show that 14 percent of young, long-distance movers with some college education move to a new county or farther with a job in hand, but fewer than 2 percent move to look for work (BLS n.d.).

The combination of declining mobility and diverging outcomes across geography suggests that location choices for young workers matter more now. Differences across labor markets in growth prospects are now bigger, which means finding the right match can require a more time-intensive search across markets. And declining mobility means that adjusting for a false start could be more difficult than it was for earlier generations. Helping young workers find their best job out of college can require more search time, but by putting these workers into more-productive cities and firms, it could also raise aggregate productivity of the economy more broadly.

## A New Approach

I propose using existing federal policy levers related to college financing to enhance geographic mobility at college entry and exit. My proposal aims to raise wages through increased college access and better job market matching after college.

### **USE THE PELL PROGRAM TO ENCOURAGE COLLEGE-GOING FOR APPLICANTS FROM COUNTIES WITHOUT LOCAL COLLEGE ACCESS**

Divergent growth trends across cities mean that young adults in cities without a major college or university have access to fewer local economic opportunities than their peers who are raised elsewhere. College-going provides a means of equalizing these opportunities by raising expected lifetime earnings and enhancing geographic mobility, which in turn provides access to markets with greater economic opportunity.

To help address these disparities, I propose encouraging college attendance among youth from counties without local college access by offering enhanced Pell Grants to qualifying students. I recommend providing a flat \$2,500 supplement annually to assist students in overcoming the substantial implied costs of distant college-going. This would be increased by up to \$2,500 in

additional support depending on college characteristics. Qualification for the supplemental Pell Grant would be based on two factors: (a) students must be Pell-eligible dependents, and (b) they must reside in a county with no local college at the time of application.

As mentioned previously, current datasets do not comprehensively include branch campuses. To facilitate accurate place-based analysis, the National Center for Education Statistics should mandate that main campuses and each branch campus be separate reporting entities. Policymakers could also consider targeting geographic units other than counties. One disadvantage of targeting counties is that they vary in size: for example, Warren County, Pennsylvania has an area of 899 square miles while San Bernardino County, California has an area of 20,105 square miles. Lack of college access in a large county may be more damaging than lack of access in a small county with college access just outside the county borders. Other geographic units, such as straight-line distance or driving distance to the nearest postsecondary institution, could be investigated as metrics for determining eligibility for the Pell supplement.

The supplemental Pell Grant is designed to encourage attendance in more-intensive college programs. Distance per se is not encouraged as part of the program, because there is no evidence that attending college at longer distances has any greater mobility or earnings benefits than attending college at all (Malamud and Wozniak 2012). However, there is evidence for substantial earnings gains for four-year college completion over two-year completion (Jepsen, Troske, and Coomes 2014; Zimmerman 2014). Education at a more selective college has also been shown to raise earnings for students on the margin of attendance at such colleges (Hoekstra 2009).<sup>3</sup> The add-ons to the supplement are designed to encourage students to attend four-year degree programs at more-selective institutions. Specifically, I propose that \$1,500 in additional support be provided for students attending a four-year, as opposed to a two-year, college. Attendance at a selective institution (all of which are four year), would be awarded a further \$1,000 supplement. Thus, a student from a county without local college access would qualify for a maximum \$5,000 annual supplement if she attended any selective, four-year college.<sup>4</sup>

The proposed supplement is substantial compared to the maximum Pell Grant for 2017–18, which was \$5,920. A fairly large supplement is motivated by evidence that even among a younger population, the implied costs of a long-distance move are quite large (Kennan and Walker 2011; Lapid 2017). Although research does not provide a method for estimating implied moving costs for prospective college students, the maximum amount of \$5,000 is motivated by two considerations.

First, the maximum supplement roughly approximates annual housing expenses for a full-time college student.<sup>5</sup> Evidence from a very different context—post-disaster recovery—suggests that grants in the amount of replacement housing costs result in relocations for less than half the affected population.<sup>6</sup> Encouraging migration among some (but far from all) of a qualifying population is desirable, because those students with the most to gain from college-going will be served by the program. Second, the design of the supplement is straightforward and easy to understand. In conjunction with appropriate advertising, this could help to encourage college take-up among the qualifying population, which is particularly important given that college-going has been shown to be largely unresponsive to standard Pell Grants (Turner 2017).

This proposed supplement bridges an important gap in traditional financial aid calculations: students without local college access are provided with aid that is unlikely to meet their full needs. Traditional aid calculations often include travel costs for students applying to colleges at some distance from their home as part of the cost of attendance (COA) estimate, but these allowances are typically modest and designed to defray direct travel costs only. As already noted, available evidence suggests that implied costs to a long-distance move far outstrip the direct travel costs. This means that current COA estimates are unlikely to reflect the true COA for students who must relocate over a long distance to attend college. For these reasons, it is critical that the Pell supplement result in a true increase in total grant aid. It must be designed so that colleges cannot easily offset it by reducing other types of aid.<sup>7</sup>

Administering this grant as a supplement through the existing Pell program has several advantages. Colleges are extremely familiar with the Pell program and could fold the additional supplement into their existing aid process. Pell already identifies students for whom college is a financial challenge. The only additional burden in terms of identifying qualified students is verifying a home address in a qualifying county. Requiring that students be Pell-eligible ensures that this program targets students without financial resources that would likely enable them to attend college regardless of aid. The additional focus on dependent students keeps the program targeted to young workers and minimizes the potential for gaming of the program through initial residential choices. Finally, Pell has academic criteria for continuing to qualify for aid from year to year, and as a supplement, this program could easily be governed by the same requirements.

## **DEFER FEDERAL STUDENT LOAN REPAYMENT FOR COLLEGE LEAVERS WHO MIGRATE**

The second part of this proposal is designed to increase geographic mobility among recent college graduates. The specific reasons for declining geographic mobility in the United States remain unknown, but evidence points to an important role for the labor market in general and the process of making new hires in particular (Molloy et al. 2016; Molloy, Smith, and Wozniak 2018). These trends imply that settling on one's first employer after college is an increasingly important decision. Enhancing geographic mobility will increase the chances that a new graduate finds the best location and employment match in which to start a career. Starting out in a better employment situation will have long-lasting impacts on earnings (Kahn 2010; Wozniak 2010).

To address the greater challenges to job search among workers who must relocate, I propose an extended grace period for Federal Student Loan (FSL) recipients who move to start careers. Specifically, I propose extending the time to first FSL payment to one full year from college exit for qualifying students. To qualify for this one-year deferral, students entering FSL repayment would need to demonstrate residence or employment in a local labor market other than that in which their college is located.<sup>8</sup>

The goal of this deferment is straightforward: to enable longer job searches by those who choose to relocate for work. Both "search" and "relocate" are defined broadly in order to allow graduates to take advantage of the many possible ways that moving after college could improve their employment outcomes. Relocation includes any move to a location distinct from one's college residence. Notably, this would help students from smaller

metropolitan or rural areas to return to their home towns and make an extended search for skilled employment. Employment in a new location is not required, because residence would be taken as evidence of good faith effort to search.<sup>9</sup> But search could also include taking a distant job about which one is uncertain in order to see if it is a good fit. Under the proposed FSL deferments, graduates for whom such jobs do not work out could leave them and search again before repayment starts.

FSL policies allow students to defer or adjust their repayment schedules in certain circumstances, but currently no guaranteed avenue (mandatory forbearance) exists for students who want to explore employment in a distant labor market.<sup>10</sup> Faced with required monthly loan payments that begin shortly after college exit, new graduates are allowed to opt for the less risky options of pursuing employment locally or in a known, dense labor market. However, as with the proposed modifications to the Pell program, the proposed extension of FSL grace periods is easy for borrowers to understand and straightforward for lenders to implement. Both factors mean the program is likely to meet its maximum potential for impact with low administrative costs.

For all elements of the proposal, adequately informing the public is key to a successful implementation. Here again, building on existing programs is an advantage. For example, informing students that they can now defer FSL payments longer if relocating is easy to highlight as an addition to a list of guaranteed forbearances and deferments, which currently include military service, Peace Corps work, or graduate study.

## Costs and Benefits

Following the two-part structure of the proposal, I separately discuss the potential costs and benefits of each recommendation.

### THE PELL SUPPLEMENT

This part of the proposal would provide a generous annual supplement to qualifying students, but the total cost of the program is moderated by the fact that such students are a modest share of the college-aged population. I roughly estimate the total annual cost of providing the Pell supplement to qualifying students at \$340 million, or 1.2 percent, of recent Pell budgets.

This cost estimate is calculated as follows. About 14 percent of the U.S. population lives in counties without local college access, as defined using IPEDS data, and I assume the share among graduating high school seniors is the same. The National Center for Education Statistics (2017) estimates that 3.6 million students will graduate high school in 2018, which implies about 512,000 students graduating without local college access. Income and poverty levels in counties with no local college access are similar enough to those in other counties that it is reasonable to assume for this rough estimate that these students will qualify for Pell Grants at the average rate.<sup>11</sup>

It is difficult to know how many households are eligible for Pell since not all households file a FAFSA, but the College Board estimates that 33 percent of the entering college class of 2015–16 received some form of Pell Grant. If target students qualify at this rate, then about 170,000 high school seniors would qualify for the proposed Pell supplement in the next

academic year. Not all students attend postsecondary institutions, and not all Pell-eligible individuals claim the grant. Adjusting for these factors would further reduce the likely cost of the program. If we assume that 70 percent of eligible graduating seniors matriculate in a postsecondary institution (to match the national rate of post-high school matriculation) and that three-quarters of these claim their grant, then about 88,000 qualifying high school seniors might take up the program. Total costs will ultimately depend on the level of supplement awarded, but if one-third of students receive funding at each of the three levels, the estimated annual cost is approximately \$340 million. This translates to 1.2 percent of the \$28 billion total Pell budget for 2015. Costs will be higher if the program attracts qualifying individuals who are not currently claiming Pell at a higher rate than that used in the estimate. However, since such students would likely not have attended college in the absence of the program, this also leads to larger social benefits of the program.

The benefits of this program depend on how many target students it attracts to colleges. If none of the 88,000 seniors in the estimate above are currently going to college but all those seniors attend college in response to the program, then all supplement beneficiaries would reflect new college enrollment.<sup>12</sup> The earnings gains from induced college attendance or completion are substantial, and would outstrip the direct costs of total Pell Grant aid within a few years of a college leaver entering the labor market. However, it is unclear whether the Pell supplement will induce college attendance that would not otherwise have occurred. Some, and perhaps even much, of the Pell supplement could go to students who are already attending a postsecondary institution. However, the program might still generate social benefits if students use the grant to attend a stronger program (as is encouraged by the stepped-up benefits) or to complete more years of postsecondary schooling. Denning, Marx, and Turner (2017) find that an additional dollar of Pell aid to current recipients improves college and labor market outcomes even for those who would otherwise attend college, and pays for itself in higher tax receipts.

## **GUARANTEED FEDERAL STUDENT LOAN DEFERMENT**

Beneficiaries of the one-year deferment on FSL repayments do not receive further direct support, so costs for this portion of the proposal derive only from delayed loan payments and administrative burden. Administrative burden should be low, because it consists of verifying residence or employer addresses against a database, then automatically granting a deferral. However, take-up could be large.

A rough estimate of take-up is calculated as follows. In 2013, 3.8 million students entered repayment in the Federal Student Aid system from public or private two- or four-year institutions (Federal Student Aid 2017).<sup>13</sup> A rough estimate shows it might be reasonable to assume that 30 percent of college leavers would qualify if the program substantially boosts early-career moves among this group.<sup>14</sup> This equates to 1.14 million borrowers qualifying for a one-year deferment. Choices about program eligibility would have large impacts on these numbers. The number would be about one-third lower if only students leaving four-year institutions qualified for deferment. This might be a reasonable restriction if many two-year programs are targeted to local employer needs; geographic mobility is less valuable for former students of those programs.

Although it is difficult to gauge costs of this piece of the proposal, it is important to note that it might also generate savings or improve repayment rates.<sup>15</sup> This might be the case if graduates who currently choose to search in distant markets are more likely to default because of the greater risk entailed in such searches. The proposed deferment might also displace other, more administratively burdensome types of repayment adjustment, such as forbearances or income-driven repayment.

Benefits from this program, as noted above, are more difficult to quantify than costs, but they have the potential to be substantial.<sup>16</sup> The returns to starting a career in a better local market are large, and evidence suggests that the levels of current migration in response to variation in local opportunities are insufficient to equalize differences across places (Kahn 2010; Wozniak 2010).

The proposed deferments also act as a subsidy to a more extended job search. This could be beneficial given that workers are changing jobs less frequently, meaning that any particular job is more important to their overall earnings (Molloy et al. 2016). Moreover, any benefits from improving early matches will accumulate over the working life of a graduate.<sup>17</sup> Finally, an advantage of the proposal is that it is likely to be self-correcting; it allows new entrants to relocate more easily but does not constrain them to do so in any particular way.

## Questions and Concerns

### *1. Would the Pell supplement accelerate brain drain from rural communities?*

While many rural counties would qualify as not having local college access, the relationship is far from one for one. The proposal would allow more residents of rural counties—in addition to others who lack local college access—to benefit from the high returns to postsecondary education.

Importantly, the proposed guaranteed one-year FSL deferment would allow natives of qualifying rural counties to return after college with a longer period over which to find settled employment. Workers who might otherwise stay near their postsecondary institution, or migrate to dense urban labor markets where jobs are easier to find, would now have the time to conduct a longer job search in other locations.

### *2. Would the Pell supplement proposed in this paper incentivize families to move to areas without access to college?*

The Pell supplement, with its annual maximum of \$5,000, is indeed significant for a prospective college student, but it is likely not large enough to outweigh moving costs for an entire family. Moreover, the Pell Grant is available only to students for whom college is a financial challenge, so these moving costs would likely be even more of a burden for families eligible for the Pell supplement. It is therefore unlikely that this supplement alone would cause eligible families to move to areas far from colleges and universities.

### *3. Why not restrict FSL deferment to those who have not yet secured employment?*

This could create undesirable incentives for college leavers to not accept employment. For example, a person might not want to accept a part-time job to pay for living expenses while they look for another, more-permanent position, if it meant that they had to immediately



begin repaying their student loans. By extending the FSL deferment to movers regardless of employment status, the policy provides maximum flexibility in job search for young adults in their first year out of college.

#### ***4. Why not extend Pell supplements to students from counties with limited, but not zero, college access?***

The proposed Pell supplement has clear potential for extensions, and this would be one. However, this extension would require making harder decisions about qualifying geographic areas and could substantially increase costs. More importantly, the reasons for nonattendance in an area where some—but limited—higher education options are available locally might differ from barriers for students without a local college. As such, other programs could be better suited to serving these students. For example, students could have limited local college access because only one postsecondary institution is located in their county. But depending on the type of institution, the reasons for nonattendance can be very different. A student with one selective liberal arts college in her county might have very different reasons for nonattendance (or barriers to attendance) than a student with one large, nonselective two-year college with a strong transfer program.

## **Conclusion**

This proposal contains simple but effective extensions to federal college aid programs, intended to boost earnings by encouraging college attendance and facilitating access to better labor markets at college exit. The design of the proposal relies on a wide-ranging body of evidence regarding determinants of geographic mobility, benefits to college-going, and returns to starting work in a high-wage market. Moreover, this proposal combines person-based and place-based policy levers in a way that uses the best of both approaches.

## **Endnotes**

1. Current Population Survey data show larger declines in geographic mobility than other sources, but the down-trend is economically substantial across data sources (Molloy, Smith, and Wozniak 2011).
2. College is defined broadly here and includes any degree-granting institution qualifying for Title IV funds. This includes public, private, and two- and four-year institutions. For an alternative definition of local college access and more-detailed analysis of where this occurs in the United States, see Hillman and Weichman (2016).
3. Dale and Krueger (2002) find no role for college selectivity in their sample, but they do find that attending a better college as measured on other dimensions, like per student expenditures, improves later earnings.
4. “Selective colleges” would need to be defined. Higher education researchers often use a group of 200 to 250 colleges in the highest selectivity tiers from *Barron’s Guide to the Most Competitive Colleges*, but broader definitions could be considered. For further discussion of selectivity, see Leonhardt’s summary (2013).
5. The College Board (2017) estimated total annual room and board expenses for a student at a non-commuter institution as \$10,800 for 2017–18.
6. Nakamura, Sigurdsson, and Steinsson (2016) find that 42 percent of Icelandic homeowners who faced a destroyed home following a volcanic eruption relocated using a government grant up to the replacement value of their property. The Road Home Program following Hurricane Katrina made grants up to replacement value if the homeowner was returning to New Orleans or Louisiana, but reduced such grants by 40 percent if the homeowner was not returning to Louisiana; initial take-up of such grants was less than 10 percent (Gregory 2014). The Relocation Assistance Program

introduced in Kentucky provided up to \$900 in 1998 dollars to cover direct relocation-related expenses to welfare recipients, equivalent to about one and a half months of full-time work at the minimum wage. Fewer than one-third of moves in this program were over a long distance, and overall take-up of the program was low (Briggs and Kuhn 2008).

7. While the proposed supplement is generous, there are prominent examples of place-based college aid (below the geographic level of the state) that is much more so. This includes the University of Kentucky Robinson Scholars program (formerly the Appalachia Program), the Promise Programs in cities like Kalamazoo, Syracuse and Pittsburgh, and the Buffett Scholarships in Nebraska (Angrist et al. 2016).
8. The Office of Management and Budget maintains a designation of metropolitan and micropolitan areas, and the counties that they consist of, that could easily be used to define eligible moves. Commuting zones or labor market areas, also defined by federal agencies, offer additional options for defining cross-market moves.
9. However, steps should be taken to ensure that students from smaller areas do not use the deferment to simply move home and delay repayment. Options for discouraging such behavior include requiring recipients to show residency using a lease or deed with their name on it, or using proof of employment if they cannot. Respondents not demonstrating either initially could also recertify at six months and enter repayment then if they cannot demonstrate independent residence or employment in a qualifying market.
10. The options for such adjustments are income-driven repayment and case-by-case applications for forbearance. Neither is a convenient fit for recent graduates seeking to undertake a longer job search: income-driven repayment policies are designed for graduates who accept lower-paying employment—and hence exclude those who are unemployed—and applications for forbearance require extenuating circumstances.
11. The preceding statement is based on author's calculations from Equality of Opportunity Project data.
12. This would also generate indirect costs of the program by a factor equal to the average Pell Grant amount.
13. I exclude proprietary school students from this calculation, because they are particularly likely to be in programs designed to address needs of the local labor market, and therefore relocation is less likely to be an appropriate choice.
14. Calculations from the Current Population Survey show that about 14 percent of young (age 20 to 24) individuals with some college education move over a long distance to take a job. Another 1 to 2 percent move to look for work, and about 4 percent say they moved to attend or leave college. The 30 percent estimate assumes that the share of this group moving without a job would double from about 4 percent to 8 percent (assuming only half of the attend/leave college group are leavers), and that the share moving with a job and claiming the deferment represents no more than a 50 percent increase over the current level of 14 percent. This yields a total qualifying share of borrowers of  $14 + 7 + 8 = 29$ , rounded up to 30 percent.
15. According to projections by the U.S. Congressional Budget Office (CBO; 2017, tab. 3), the total administrative costs of the FSL program in 2017 are estimated at \$3.5 billion. The proposed extension could be expected only to increase total administrative costs by a fraction of this amount. For example, if 30 percent of borrowers take up the extension and the extension increases per borrower administrative costs by 10 percent (both conservative assumptions), total administrative costs will only rise to \$3.6 billion.
16. It is possible that increased migration of new college leavers might not translate into improved average earnings for this group, although it is important to stress that mobility is unlikely to reduce earnings. Rather, mobility could benefit some workers at the expense of others, leading to no net earnings gains. The program would need to be monitored to determine whether general earnings gains arise. A program evaluation design to adequately evaluate this would be challenging, but recent research provides some guides (Crepon et al. 2013).
17. Equilibrium benefits to the national market are the most difficult to assess, but economic theory suggests that downside risk on this dimension is unlikely.

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# The Importance of Strong Labor Demand

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Jared Bernstein, *Center on Budget and Policy Priorities*

## Abstract

By conventional measures, the U.S. job market has suffered some degree of slack for about 70 percent of the time since 1980. The absence of persistent, strong labor market demand has a significant negative impact on wages and incomes, with these costs falling disproportionately on the least advantaged. In this paper, I offer a four-part proposal to increase labor demand along with earnings and employment opportunities: (1) reform our monetary policy framework to accommodate more monetary stimulus and reduce the risk of hitting the zero lower bound, (2) develop a Full Employment Fund to reduce labor market slack, (3) support direct job creation programs to boost labor demand, and (4) design international trade policies to safeguard aggregate demand and mitigate the negative effects of trade deficits.

## Introduction

It is a remarkable fact that since 1980, by one conventional measure, there has been slack in the labor market far more often than not. That is, there has often been insufficient demand for labor, putting downward pressure on job opportunities and wage growth.

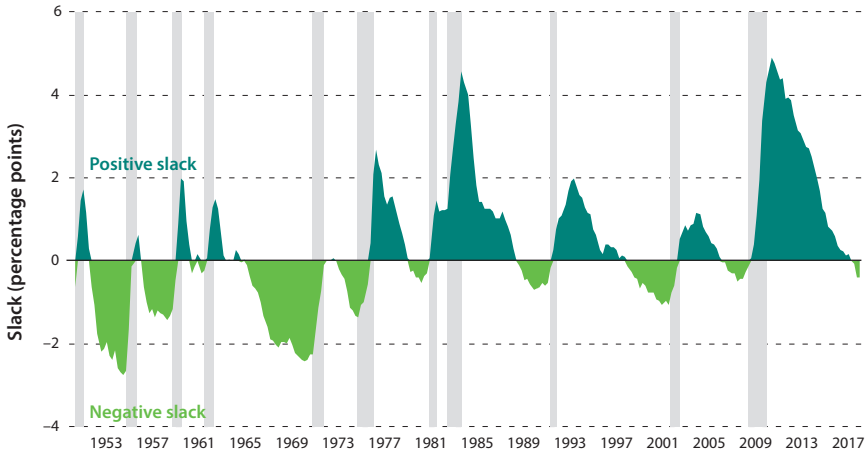
Figure 1 shows the difference between the unemployment rate and a frequently used estimate by the Congressional Budget Office (CBO) of the so-called natural rate of unemployment, or the rate economists believe to be the lowest jobless rate consistent with stable inflation. Though this paper critiques this concept of a reliably identifiable natural rate, by this broadly accepted measure, the U.S. job market has been slack about 70 percent of the quarters since 1980, compared to just about a third of the quarters from 1949 to 1980.

This fact of persistent slack might not be viewed as remarkable by many Americans stuck in places where gainful employment opportunities have long been elusive. But for economists relying on models that assume full employment, as many models do, the fact that the U.S. economy has been at full employment less than a third of the time since 1980 is an awfully inconvenient truth.

It is also the case that many of the troubling trends in our economy, including wage and income stagnation, along with the rise of inequality, occurred largely after 1980. Of course,

FIGURE 1.

## Labor Market Slack, 1949–2017



Source: Current Population Survey 1949–2017; CBO 2017.

Note: Labor market slack is defined as the difference between the actual unemployment rate and the natural rate of unemployment: a positive slack value indicates elevated unemployment. 2017 values are based on the first three quarters of the year.

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the absence of full employment is only one factor in those outcomes. Expanded trade and technological advances have contributed to slower wage and employment growth for certain groups of workers. In addition, the loss of union power, the erosion of labor standards (e.g., minimum wage levels and the overtime salary threshold), and corporate consolidation and greater market power of large firms have all tilted the playing field against less-advantaged workers. These factors help to explain the set of adverse wage and income outcomes for workers over the past few decades.

But weak aggregate demand—the total demand for goods and services throughout the economy—is an especially pervasive problem with unique characteristics. By definition, it suggests resource underutilization, which implies some degree of market failure, thus warranting a policy response. Similar to falling unionization, weak demand erodes the ability of many in the workforce to bargain for higher compensation. Even in the absence of unions, strong demand leads employers to bid up their wage offers to get and keep the workers they need if they are to meet consumer demand. In slack labor markets, such wage pressures abate.

Persistent slack has also been shown to lead to lasting (as opposed to temporary) negative effects on the supply side of the labor market and the broader economy. Even temporary shocks can cause permanent damage if workers' skills erode or if spells of long-term unemployment lead them to give up and permanently leave the job market. A recent, rigorous look at these effects in the labor market finds that workers in areas with relatively large unemployment shocks during the Great Recession had significantly lower employment and earnings years later (in 2015), relative to similar workers in places with milder upticks in unemployment (Yagan 2017). These impacts were particularly damaging

for lower-wage workers, presaging results shown later in this paper on the relative impact of slack at different wage levels.

Other research shows the long-run impact of demand shortfalls on potential and actual gross domestic product (GDP), though economists remain uncertain how much of that loss is truly attributable to persistently weak demand. DeLong, Summers, and Ball (2014) argue that much of the post-2007 gap between earlier and later vintages of CBO's estimates of potential GDP—in other words, the decline in CBO's estimate of potential GDP in a given year—can be attributed to transitory shocks becoming permanent. In the second quarter of 2017, that difference amounted to just over \$2 trillion, which is the difference between the 2007 projection of potential GDP in 2017Q2 and the 2017 calculation of potential GDP in 2017Q2. It amounts to a loss of about \$6,500 per capita.

Even if only a part of that amount is attributable to the impact of persistent slack, weak aggregate demand is clearly a costly problem, suggesting the need for policies to address it. Moreover, unlike many of the factors that dampen wage levels and growth, including eroded labor standards, arguments in favor of strong aggregate demand do not tend to provoke partisan rancor; in principle, policymakers generally agree on the need for strong demand. That said, policymakers have not yet taken adequate steps to keep the economy at full employment, as is evident from figure 1. Clearly, the problem of inadequate demand is not deemed sufficiently urgent by enough policymakers, perhaps because, as I show in the section on labor market tightness and wage growth, its downsides are concentrated among the least well-off.

Precisely what steps would ameliorate the problem of excessive labor market slack is the subject of much debate. Because there is no consensus about how to solve the slack problem, partisans often argue for their favorite solutions—tax cuts recommended by conservatives or infrastructure build-outs suggested by progressives—with insufficient evidence and economic rationale. To improve this discussion, I first examine the relevant evidence and economic theory, then propose policies to boost aggregate demand that are rooted in that assessment.

I propose a four-part policy response. First, the monetary policy framework should be reformed to reduce the risk of hitting the zero lower bound (ZLB) and to ensure that the central bank has the ability to support the economy during a downturn. Second, we must expand our thinking about fiscal policy and aggregate demand beyond recession-fighting to encompass sustained fiscal policy during weak expansions. I therefore propose a mandatory Full Employment Fund (FEF) that expands and contracts with need. Third, as a complement to this fund, I propose measures providing for direct job creation. Finally, I note that in the presence of the ZLB, persistent trade deficits can constitute a drag on aggregate demand, and I propose policies to both restore lost demand and reduce the trade deficits themselves.

This proposal begins with an analysis of the historical extent of economic slack—the persistent absence of strong aggregate demand—and then turns to an analysis of the impact of economic slack on wages and incomes. I then develop a policy agenda intended to significantly raise the amount of time during which the U.S. labor market is at full employment.



## The Challenge

### A BRIEF HISTORY OF SLACK AND OUTPUT GAPS IN THE U.S. ECONOMY

Any efforts to identify the extent of slack quickly run into measurement challenges. Estimating slack requires either a calculation of the natural rate of unemployment or the output gap between actual and potential GDP, in which case we are invoking variables that we cannot directly observe (see box 1). Moreover, both of these capacity measures have come under scrutiny in recent years, leading to portentous questions about their value as policy guideposts.

Figure 2, for example, plots the estimate of the Federal Reserve's (Fed's) natural unemployment rate against actual unemployment, wage growth, and both actual and targeted inflation rates. As the unemployment rate fell sharply from 10 percent to almost 4 percent (the January 2018 unemployment rate of 4.1 percent is the lowest since December 2000), inflation has not accelerated at all, and nominal wage growth increased only slightly. Such dynamics suggest various possibilities, including a low responsiveness of inflation to unemployment and/or that there is more slack in the labor market than suggested by the unemployment rate. If that is the case, then the slack suggested in figure 1 could be underestimated. That is, if the natural rate is lower than typical estimates suggest, the actual unemployment rate minus the natural rate would yield larger slack estimates than shown in figure 1.

#### BOX 1.

### Measuring Slack in the Labor Market

Two estimated variables are typically used as benchmarks for calculation of labor market slack: first, the so-called natural rate of unemployment; and second, potential GDP. These variables are not directly observed, but must be inferred from other data in the context of a particular economic model.

The natural rate of unemployment is the hypothetical lowest jobless rate at which price growth (inflation) would remain low and stable. If actual unemployment stays below this level for a while, we would expect inflation to accelerate. Conversely, when actual unemployment is above the natural rate, we would expect inflation to remain subdued and workers to suffer weak labor demand.

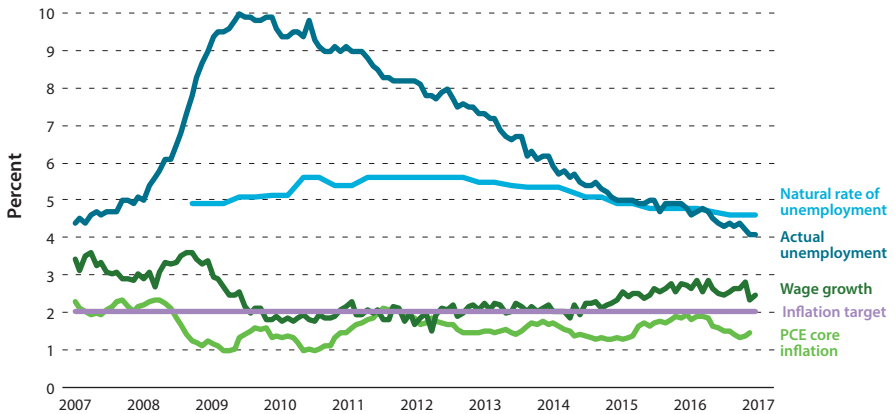
Potential GDP, also referred to as potential output, is the level of economic output that is possible at a given time if labor and capital are fully utilized. When actual GDP falls below potential—that is, when there is slack in the economy—not all available resources are being utilized.

Both potential GDP and the natural rate of unemployment are unobservable variables that must be inferred from other, observable relations, such as the correlation between inflation and unemployment. Because these correlations change over time and across place, estimates of potential GDP and the natural rate of unemployment are subject to considerable uncertainty.

In fact, the difficulty in finding a trustworthy measure of the natural rate of unemployment is evident in figure 3, which shows the evolution over time of both point estimates of the natural rate and confidence intervals surrounding it (note that these estimates differ from those shown in figure 2). Over the past 20 years the natural rate has moved around a bit, but more importantly, our ability to estimate it with the degree of accuracy necessary for policymakers

FIGURE 2.

## Unemployment, Wage Growth, and Inflation, 2007–17



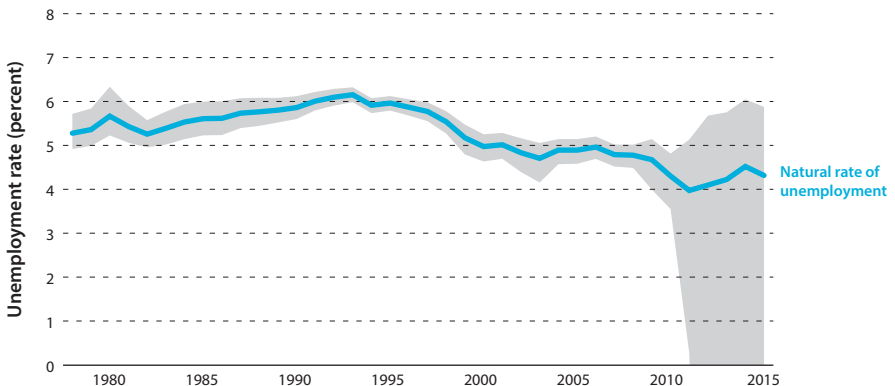
Source: Bureau of Economic Analysis (BEA) 2017; Current Population Survey 2007–17; Federal Open Market Committee (FOMC) n.d.; author's calculations.

Note: PCE is the personal consumption expenditures price index. 2017 values do not include December. Data for natural rate of unemployment are only shown starting in 2009.

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FIGURE 3.

## Estimates of the Natural Unemployment Rate, 1978–2015



Source: Council of Economic Advisers 2016.

Note: Shaded gray areas indicate 50 percent confidence intervals.

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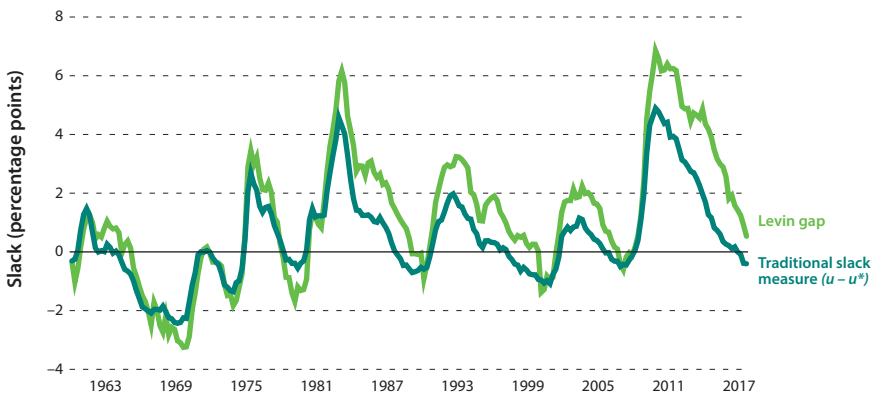
has collapsed. This decreasing precision follows from the diminished correlation between unemployment and inflation, which is the traditional basis for calculating the full employment rate. As such, the declining precision reflects the dynamics shown in figure 2, with inflation becoming less responsive to changes in slack.

Figure 4 compares a more comprehensive slack measure, derived by economist Andy Levin (2014). His gap measure comprises three equally weighted parts: the gap between the unemployment rate and the natural rate, the gap between the labor force participation rate and its expected value at full employment (as per CBO), and the hours-weighted share of the workforce that is underemployed (i.e., involuntary part-time workers). Note that since around 1980 the Levin gap is larger than the standard gap measure; this difference was relatively large during the Great Recession and subsequent slow recovery. This was driven by both additional factors in the Levin measure: labor force participation was low relative to expectations, and the share of underemployed workers was notably elevated in this business cycle relative to past cycles.

Potential GDP—the level of output at full resource utilization—and the output gap between real and potential GDP are also estimated with uncertainty (see box 1). Turning to the output gap, figure 5 shows three quite different estimates of potential GDP since just before the Great Recession, along with actual GDP. Two of the lines track CBO estimates of potential, derived from a combination of trend extraction and a bottom-up aggregation of estimates of production factors and productivity at full employment. The critical aspect of these estimates is that they are designed to capture lasting, structural changes in supply-side variables, including the stock of human and physical capital in the economy; and total factor productivity (innovation), as opposed to temporary demand shocks. Recent research by Coibion, Gorodnichenko, and Ulate (2017) finds that such measures often conflate supply and demand shocks.<sup>1</sup>

FIGURE 4.

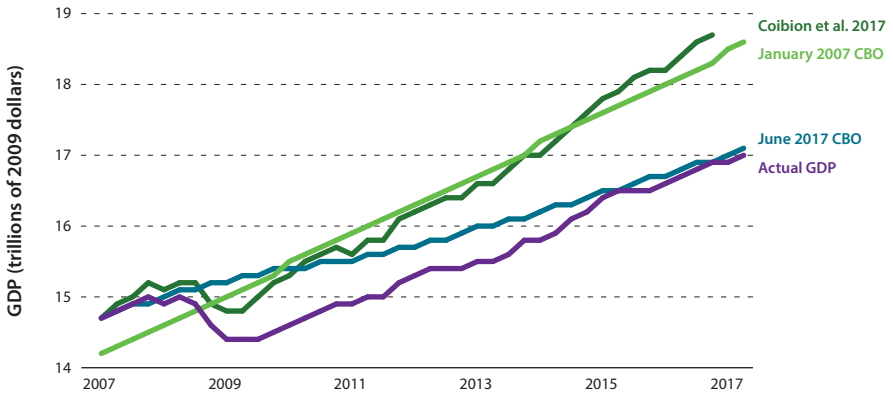
## Labor Market Slack by Measurement Method, 1960–2017



Source: Andrew Levin (personal communication); Current Population Survey 1960–2017; CBO 2017.

Note: 2017 values are based on the first three quarters of the year. The traditional slack measure is the unemployment rate minus the natural rate of unemployment.

**FIGURE 5.**  
Actual GDP vs. Potential GDP, 2007–17



Source: BEA 2007–17; Coibion, Gorodnichenko, and Ulate 2017; CBO 2007, 2017; author's calculations.

Note: 2017 values are based on the first two quarters of the year. January 2007 and June 2017 CBO numbers are based on 2007 and 2017 Congressional Budget Office estimates of potential GDP; Coibion et al. 2017 shows potential GDP as estimated in Coibion, Gorodnichenko, and Ulate (2017) using an econometric technique developed by Blanchard and Quah (1989).

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The implications of these figures are at least twofold. First, and most importantly, the U.S. labor market has been slack more often than not, as shown, for example, by the comparison of the actual unemployment rate to CBO's estimate of the natural rate. Such persistent slack puts downward pressure on wage growth, both nominal and real, which motivates a key theme of this chapter: implementing aggregate demand-side policies to get to and stay at full employment is instrumental in boosting wage and income growth, especially for less-advantaged or lower-wage workers.

Second, economists cannot, within a policy-relevant confidence interval (i.e., an interval that could reliably drive policy decisions), accurately calculate the extent of slack in the job market or broader economy. Absent clear signs of utilization constraints, and weighing both the macro and micro costs of weak demand against the risks of inflation, policymakers seeking to address wage stagnation, high levels of inequality, and weak worker bargaining power would be advised to aggressively apply the policies discussed later in this proposal.

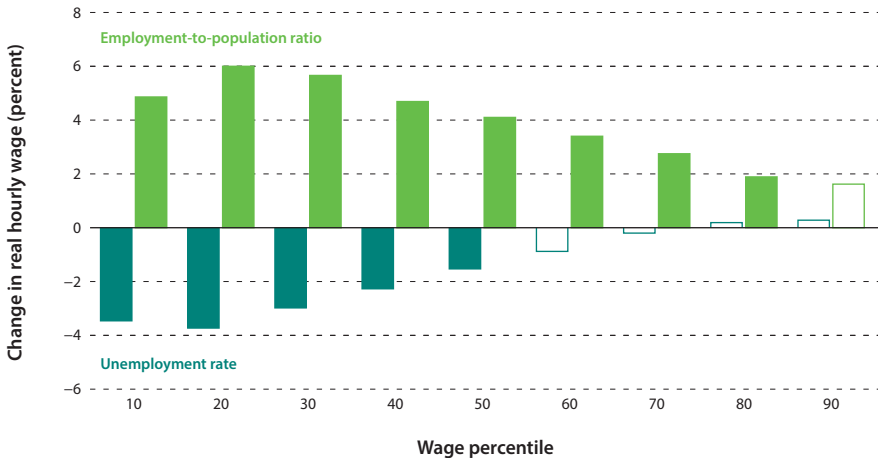
## LABOR MARKET TIGHTNESS AND WAGE GROWTH

The first part of this section establishes that slack has been common in the U.S. labor market. This section shows the impact of slack on wages and incomes, with a focus on the distributional impacts. These findings reveal economically and statistically significant negative impacts of slack on real wages and incomes. Moreover, these costs fall disproportionately on the least advantaged; in fact, correlations between slack and high wages tend to be statistically indistinguishable from zero.

The first set of results (figure 6) is derived from a state-level analysis of how wages respond to changes in either unemployment rates or employment-to-population ratios.<sup>2</sup> As expected, increases in employment lead to increases in wages, and increases in the unemployment

FIGURE 6.

## Wage Differences Associated with Increases in Unemployment Rate and Employment-to-Population Ratio



Source: Current Population Survey 1979–2015; Economic Policy Institute 2017; author's calculations.

Note: Bars in the charts show the impact on wages of a one-standard-deviation increase of a labor utilization variable over the 1979–2015 period. Hollow bars indicate coefficients that are not statistically significant at the 5 percent level.

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rate lead to decreases in wages. Notably, the impact is much larger on low-wage workers, and, in fact, for high-wage workers slack and wages appear to be unrelated.

The magnitude of the impacts is economically meaningful. For example, as the U.S. job market moved to full employment during the 1990s, the jobless rate fell from 7.5 percent in 1992 to 4 percent in 2000. Over that period the 20th percentile of real wages grew 10 percent and median real wages grew 4 percent, implying that about 70 percent of each increase is associated with the unemployment decline.

This relationship between slack and hourly pay has long been understood in economics, particularly with respect to nominal pay. In addition, wage curve analysis has uncovered relationships like those shown in figure 6, all implying substantial wage gains when slack is lower. But there is another favorable effect of diminished slack, one that can be even more dramatic in terms of its impacts on the income of working families: the way low levels of slack can increase labor supply.

For working families, annual income can be simply defined as earnings plus nonlabor income. The earnings term can be usefully decomposed as follows: Annual income = earnings per hour  $\times$  hours per week  $\times$  number of weeks + annual nonlabor income.

Slack does not matter only for hourly earnings: significant relationships similar to those shown in figure 6 exist between slack and both hours per week and the number of weeks worked. Bernstein, Spielberg, and Bentele (forthcoming) examine these relationships for low-wage workers over the 1979–2015 period, focusing on the role of stronger demand

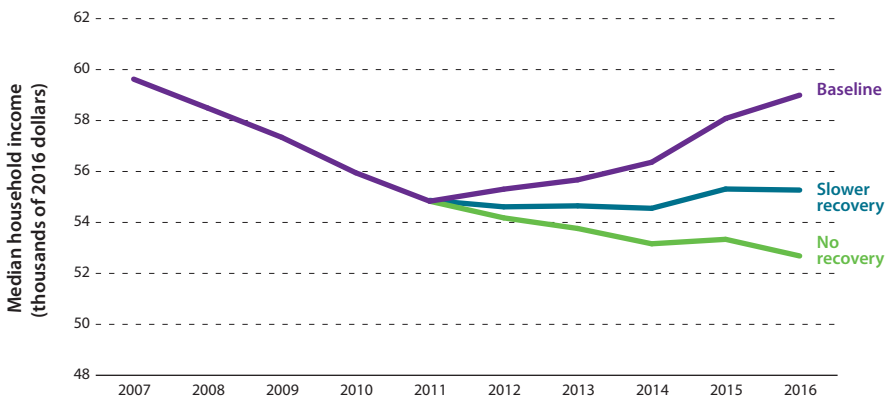
(low state-level unemployment) in generating higher earnings and incomes through increased labor supply. For all low-wage (bottom quintile) workers, the impact of falling unemployment on labor supply raised annual earnings by about 20 percent. For single mothers, lower unemployment raised earnings through the labor supply channel by 54 percent; for African Americans, 43 percent (Bernstein, Spielberg, and Bentele forthcoming).

In other words, while stronger labor demand puts upward pressure on wages, it also adds to annual earnings through increased labor supply. Another way to see this is to build a time-series model of median income growth as a function of inflation, employment, hourly wages, and slack (measured as the gap between the unemployment rate and the natural rate of unemployment). A simple model as described explains about 80 percent of the variance in nominal median household income.<sup>3</sup>

Using this model, I simulate the evolution of real median household income under the assumption of no post-2010 improvement in employment. I also conduct a similar simulation in which employment is assumed to grow half as quickly and unemployment fall half as fast as actually occurred (shown in figure 7). Even though I allow hourly wages to grow exactly as they did over 2007–16, real median incomes either fall or stagnate under the two simulations, revealing the importance for middle-class incomes of having more work. That is, much of the recent improvement in real median household income has come not from wage gains, but from increases in hours and employment rates.

To be sure, more work at stagnant hourly earnings is costly to families in terms of reduced time for leisure and family responsibilities. Given the real hourly wage stagnation for low- and middle-wage men in the 1980s and both men and women in the 2000s, to the extent that incomes rose during those periods, those increased incomes were largely a result of

**FIGURE 7.**  
Simulated Real Median Household Income by Rate of Jobs Recovery, 2007–16



Source: Current Population Survey 2007–17; CBO 2017; author's calculations.

Note: "Baseline" shows the actual level of median household income, "Slower recovery" shows a simulation in which employment is assumed to grow half as quickly and unemployment fall half as fast as actually occurred, and "No recovery" shows household income with no post-2010 improvement in employment.

more work. Hourly wage stagnation is, in other words, far from costless. But the record also shows that strong labor demand raises incomes through increases in both employment and hours worked.

## A New Approach

The preceding analysis shows that, by various commonly used metrics, the economy does not quickly return to full employment after recessions, labor market slack is common, and this slack is costly, especially to less well-off families. For this reason, we need a policy agenda that will squeeze more slack out of the U.S. job market. The rest of this proposal explores such an agenda.

These proposals fall into four general categories: monetary, fiscal, direct job creation, and international trade/finance policies (though direct job creation is a specific application of fiscal policy). Since the goal of this agenda is to not only get to, but also to stay at full employment, I also consider financial regulatory policies to be highly germane because, in recent decades, financial bubbles have been a potent enemy of maintaining tight labor markets. However, in the interest of brevity I say little about these issues here. Also, while the focus is mostly on demand-side policies, I envision but do not discuss a role for training and apprenticeships within direct job creation programs. Updating and maintaining strong labor standards—including minimum wages, labor unions, and overtime pay rules—are key to a progressive wage agenda, but my focus here is more narrowly on policies to boost aggregate demand.

I propose that the following national policies be enacted to reduce labor market slack and raise labor demand:

- *Monetary policy:* Change inflation targeting at the Federal Reserve to both accommodate more monetary stimulus and reduce the risk of encountering the zero lower bound (ZLB) to interest rates. ZLB risk is at the core of all the proposals: the trade deficit, for example, poses a greater threat to labor demand when interest rates are near zero.
- *Fiscal policy:* Develop an automatic Full Employment Fund (FEF) that expands and contracts with changes in the business cycle.
- *Direct job creation:* Design the FEF so it will support direct job creation programs, from subsidized employment to public service jobs.
- *International policies:* Implement policies to ensure that changes in global demand are not a drag on aggregate demand within the United States, especially when there is already persistent slack in the U.S. labor market.

### **MONETARY POLICY: TIME TO TRY SOMETHING NEW**

Monetary policy is carried out by the U.S. Federal Reserve, which has a well-known dual mandate of maintaining full employment at stable prices. Thus, the work of the Fed is at the heart of maintaining strong aggregate demand. My focus is, of course, on the employment side of the Fed's mandate, but understanding the role of price pressures in pursuit of tight labor markets is critical to achieving and maintaining full employment. As I argue next, countercyclical fiscal policy must of course be part of the response to temporary demand contractions, but the first line of defense is typically monetary easing by the central bank.

The Fed faces two significant challenges in terms of maintaining strong aggregate demand. First, as suggested in the preceding two sections, the Fed does not have reliable guideposts as to what constitutes full employment or potential GDP. If the Fed sets the natural rate too high or potential GDP too low (as Coibion, Gorodnichenko, and Ulate [2017] suggest to be the case), that action creates a risk that it will wield interest rate policy in ways that keep the economy from achieving sufficient aggregate demand to tap the benefits for less-advantaged workers shown in the next section.

The second challenge for the Fed is that when short-term nominal interest rates have been reduced to zero, the central bank can no longer stimulate the economy through its most powerful weapon: lowering the interest rate it controls, thereby reducing the cost of borrowing and investing. While some central banks have reduced interest rates slightly below zero, the U.S. Fed has heretofore not gone this route and Fed officials have not suggested that this is a tool they would readily use (Irwin 2016). Economists discuss this problem of the effective lower bound on the policy interest rate as the zero lower bound (ZLB). While lowering the rate it controls is not the sole tool in the Fed's toolbox, it is widely agreed that hitting the ZLB is a serious constraint on generating more aggregate demand.

#### BOX 2.

### Why Is the Zero Lower Bound Important?

The main policy tool of most central banks is to set an overnight borrowing rate that banks use to borrow and lend to one another. By adjusting this benchmark rate, central banks have impacts on a wide range of interest rates that help determine economic activity, such as car and mortgage loans. If there is a large enough negative shock to the economy, the central bank may reduce that rate to zero. In that case, it can provide no additional stimulus to the economy via rate cuts. Given the current structure of our economy and financial system, zero becomes a boundary: if interest rates were substantially negative, depositors could remove money from banking systems and hold cash instead. If a shock is large enough that zero is not a sufficiently low interest rate to restore demand in the economy and move the economy toward full employment, the economy is said to be stuck at the zero lower bound (ZLB).

There are other tools the central bank can use to influence the economy even if it is at the ZLB. For example, it can make promises regarding how long it will keep rates low to try to lower long-term interest rates. Alternatively, it could buy long-term government bonds or mortgage-backed securities to try to directly change key interest rates. The Fed has used a variety of tools in the past decade, ranging from direct buying (often referred to as quantitative easing) to making commitments about future rates (i.e., forward guidance). The impact of these tools is widely debated, but most economists agree that central banks' ability to provide monetary stimulus is constrained when their policy rate is at the ZLB.



While the focus of this proposal is on longer-term weakness on the economy's demand side, current events are instructive of the longer-term challenge. Look back at figure 2. Clearly, unemployment has fallen below the Fed's natural rate (4.6 percent as per its latest projections), and yet core inflation has decelerated (FOMC 2017). Nominal wage pressures have also remained subdued.

This has led to arguments against preemptive tightening that could prevent the benefits of tight labor markets from reaching many who have heretofore been left behind in this and prior expansions. But even sympathetic members of the Fed, including former Chair Janet Yellen (a strong advocate of full employment), worried that the Fed could get behind the curve and that inflation would become de-anchored; such fears push the Fed toward raising rates.

One way to ensure that the Federal Reserve uses policy in a way to maintain sufficient aggregate demand while addressing a number of changing macroeconomic realities and growing risks, particularly ZLB risk, is for the Fed to raise its inflation target. Better yet, the Fed should shift to targeting the *level* of a key variable, like inflation, nominal GDP, or the nation's wage bill. While any such changes would be large and potentially disruptive, they could be helpful in more reliably sustaining aggregate demand.

One key impact of a higher inflation target would be to provide the Fed more weaponry against ZLB risk, as well as demand contractions. Extensive research finds that interest rates have declined structurally across advanced economies in recent years, and many monetary economists, including those at the Fed, argue that the economy's equilibrium interest rate—the interest rate consistent with full employment—has fallen as well (Williams 2017). Some researchers, including Larry Summers as part of his reintroduction of what he calls the secular stagnation problem, argue that persistently weak demand is partly responsible for the decline in interest rates, as savings have outpaced investment. (A contributor is the savings glut problem associated with countries with persistent trade surpluses—explored in the final section of *A New Approach*.)

These facts imply that hitting the ZLB, as occurred in the Great Recession, is a greater risk going forward than it has been in the past. It is hard to overstate the downsides of this risk. Though some banks have set rates below zero, the ZLB remains a threatening constraint that could be increasingly worrisome if the equilibrium interest rate remains historically low. By setting a higher inflation target, equilibrium nominal interest rates would be higher, making it less likely that the central bank would reduce interest rates to zero.

Targeting a higher inflation rate or level has other useful attributes. Particularly in a period like the present, with a tightening job market amid weak price pressures, a higher target would lead to a more patient Fed, one that would allow the benefits of full employment to be felt more broadly before it acted to slow the economic expansion.

In a recent review of these issues, Binder and Rodrigue suggest that “in terms of reaching full employment, price-level targeting may be more effective than inflation targeting.” They argue, for example, that a “central bank using price-level targeting would reduce the output gap more aggressively than a bank using inflation targeting, thus keeping employment more stable” (Binder and Rodrigue 2016, 12–13). In periods of weak price growth, like the current one, this effect is mechanical in the following sense: Suppose, after some period of inflation below its

target, inflation reverted up to its target rate. The Fed would wash its hands and declare its stimulative work to be complete.

But under a level target, the Fed would be committed to allowing prices to rise more quickly than the target rate, in order to close the gap between the actual level and the targeted level that developed over the period of weak inflation. This is because the level target, unlike the rate target, must make up for past misses. This difference implies that under a credible, level-targeting central bank, periods like the past few years create expectations of faster inflation, which in turn produce expectations of lower real interest rates, and thus greater demand.

Former Fed chair Ben Bernanke (2017) agrees that level-targeting is preferable to targeting a higher rate, and argues the latter is too costly in that “it forces society to bear the costs of higher inflation at all times, instead of only transitorily after periods at the ZLB.” He proposes an interesting hybrid: keep the 2 percent inflation target in normal times, and switch to temporary 2 percent price-level targeting when rates are at the ZLB. This creates a lower-for-longer rate regime by the Fed’s interest rate setters, because they must make up for persistent misses on inflation. This would have been relevant to the most recent business cycle, given that core PCE inflation has been below the 2 percent Fed target for much of the past decade.

Binder and Rodrigue—in addition to many others—argue that targeting an economic aggregate like nominal GDP is an even better idea for maintaining aggregate demand (Brookings Institution 2018). After all, if the ultimate problem we are trying to solve is inadequate income or wage growth, why not directly target the level of those variables? Since nominal growth is real growth plus inflation, either slower real growth or slower inflation would induce looser monetary policy. Again, these targets are especially attractive in periods of protracted weakness (like much of the current recovery), during which the Fed would signal that its goal was not just to get back to some target growth rate, but to make up for lost ground by surpassing that growth rate for as long as was necessary.

Recently, some Federal Reserve officials, including former Chair Yellen (Glassman 2017), former Vice Chair Fischer (Robb 2017), and San Francisco Fed president John Williams (Harrison 2017), have all signaled some interest in these ideas. However, the statements and musings of influential central bankers are always amplified, and sometimes misinterpreted, by markets and investors, making it difficult for the Fed to explore innovative monetary policy ideas, and consequently subjecting the bank to a massive status quo bias.

Also, while academics often suggest that the Fed should adjust its inflation target, as if this was merely a technical issue, in the real world it is surely difficult to change market expectations. People and markets appear to have firmly internalized the current target rate and thus have come to expect the Fed to anchor inflation at either 2 percent or—more realistically—around the level it has been for a long while. Both the Bernanke and Yellen Feds worked very hard to convey this message, because they reasonably view anchoring to be a key determinant of stable prices. Add this to the fact that the Fed has been undershooting its price target for a number of years, and we must admit that convincing the public of a change in the Fed’s inflation target will be very challenging.

A more deliberative approach would be to organize a process by which central bankers along with outside advisers and stakeholders can explore these issues—both that of the ZLB and unreliable macro-guideposts—in a climate that is not fraught with market

and political risks.<sup>4</sup> The Fed should set up a time-limited commission—say, a year-long process—tasked with considering whether a change to its current framework regarding inflation—its 2 percent target—is warranted, and, if so, recommend a different framework.

To maintain a substantively and politically contained process, the commission should accept the premise of the dual mandate. Accepting that premise obviates legislative changes: the commission should discuss tools, not goals (the results of the commission would thus be advisory to the Fed, and would not be legislatively mandated). Careful consideration should be taken to ensure representation by those with the most at stake from the persistent slack shown in the beginning of this proposal, such as advocacy groups for minority and low-income workers. The commission's meetings, findings, and papers should be made public, which would help to prepare markets and the broader public for a regime switch, if that is what is forthcoming. To avoid political risks, this process should be run by the Fed itself, and not by Congress. However, to achieve political buy-in, staffers from committees that deal with monetary policy (e.g., the Senate Banking Committee and the House Financial Services Committee) should also participate in the process.

Given that the most recent few economic expansions fell victim to imploding asset bubbles, the Federal Reserve's macroprudential role—its oversight of the banking system—is also germane to this agenda. The key policy recommendation is to use regulatory, and not interest rate, policy to push back on potential bubbles and underpriced risk. That is, if financial markets become too effervescent, it is important to employ regulatory interventions (e.g., rules that reduce leverage ratios), rather than interest rate hikes, as countervailing measures. Former Chair Yellen (2014), along with macroeconomists Blanchard and Summers (2017) have recently underscored the benefits of this approach, and Lars Svensson (2017) provides empirical evidence in support of it.

## **SUSTAINED FISCAL POLICY THROUGH A FULL EMPLOYMENT FUND**

In 2013, when the U.S. economy had already been expanding for about four years, Fed chair Bernanke stressed the importance of countercyclical fiscal policy in his congressional testimony: “Although monetary policy is working to promote a more robust recovery, it cannot carry the entire burden of ensuring a speedier return to economic health. The economy's performance both over the near term and in the longer run will depend importantly on the course of fiscal policy” (Bernanke 2013).

In fact, especially in recessions and weak recoveries, monetary and fiscal policy can interact to boost aggregate demand. The Fed's firepower is diminished in periods of low equilibrium interest rates, and recent research suggests that fiscal policy is particularly effective at the ZLB (Auerbach and Gorodnichenko 2017). Unfortunately, the challenges faced by the Fed in raising demand at the ZLB were exacerbated by austere fiscal policy from 2011 through 2015, when policymakers engaged in fiscal consolidation rather than the needed expansion. (This very dynamic was the reason for Bernanke's quoted comment above.) Moreover, recent research suggests a relationship between austerity measures, weaker growth rates (Blanchard and Leigh 2013; Shambaugh 2012), and even long-run impacts of weak demand on supply (Ball 2014; Summers 2014), suggesting a very steep cost to such fiscal policy mistakes (see also figure 7). With that context in mind, this

section offers proposals designed to avoid the damaging bouts of fiscal austerity that have contributed to persistent slack in the U.S. economy.

Fiscal policy—tax, transfer, and spending policy by governments—can play at least three roles in boosting and maintaining aggregate demand. The first is the well-known, though sometimes disparaged, Keynesian role, wherein government spending temporarily ramps up to offset a demand contraction. The second role, and the one most relevant to this paper, is the use of fiscal policy to offset excess slack in recoveries characterized by weak aggregate demand. Third, through public investment in physical and human capital, fiscal policy can boost the supply side of the economy, raising potential growth and generating more labor market opportunities.

Following the Great Recession, research on both the U.S. and European economies has strengthened the case against austerity and the case for stimulative fiscal policy. For example, fiscal contractions have been shown to correlate with negative output outcomes (Blanchard and Leigh 2013), and research has shown that the positive impact of fiscal stimulus in weak economies is larger than previously thought. Other work (e.g., DeLong and Summers 2012) shows that the existence of even minimal, negative long-run impacts of demand shocks can increase the benefits of fiscal stimulus in economies with output gaps, and thus is associated with lower rather than higher future debt-to-GDP ratios. In a recent paper, Ben Spielberg and I suggest various ways to make Keynesian stimulus more effective, including increasing the role of automatic stabilizers, such as the Supplemental Nutrition Assistance Program (SNAP), extending the duration of unemployment insurance benefits, and increasing state fiscal relief (Bernstein and Spielberg 2016).

These findings are all particularly relevant to boosting aggregate demand during recessions. However, it is also important for fiscal policy to squeeze out the residual slack during expansions, and the next section expands on this idea. The idea behind what economist Jason Furman (2016) calls sustained fiscal policy is that the related phenomena of weak recoveries and low interest rates, specifically interest rates below growth rates, create the need and opportunity for policymakers to make demand-strengthening public investments in recoveries. Furman writes, “Sustained fiscal policy may be necessary because the global economic climate may be showing symptoms of persistently inadequate demand dragging on growth and inflation” (11).

When the national economy is in recession, most—though not all, of course—economists accept the role of temporary fiscal stimulus. The idea of sustained fiscal stimulus is that, even in recovery, there are places and groups of people that have been consistently left behind, such that recessionary conditions can prevail in some parts of the country even when national unemployment is low.

In addition, as long as the economy’s growth rate surpasses the interest rate—as has long been the case in the United States and even more so recently—debt servicing costs should remain manageable (Kogan et al. 2015). We find this dynamic not only in U.S. data, but also in most advanced economies (Furman 2016).

In this way, insufficient aggregate demand creates the necessary conditions for sustained fiscal stimulus. The lowered propensity for private investment, higher global savings, and, in the U.S. case, capital inflows all combine to push interest rates below growth rates. This leaves us with weakened demand, the pervasive absence of full employment, the potential for

permanently damaging supply-side impacts, and low borrowing costs. The obvious solution is sustained fiscal investments targeting the people and areas where demand is weakest.

As discussed in the next section, these investments can take various forms, including subsidized or direct job creation, infrastructure investment, or environmental investments. To fulfill this role, the federal government should build up a Full Employment Fund (FEF) that can ramp up and down as needed.

In principle, the FEF could be scaled to the output gap, which, as shown in figure 5, persists in recent expansions. More realistically, the FEF should be funded like other contingency or emergency programs, meaning it would be treated as mandatory funding and would not be subject to sequestration or other such budget rules. To maximize its effectiveness, the FEF should be triggered on and off by above-average increases in or high levels of slack variables. Spielberg and I (Bernstein and Spielberg 2016) make a similar argument regarding improved triggers for the extended unemployment insurance benefits program. There, we argue for triggers based on either levels or changes in the underemployment rate (U-6 in the monthly employment report), which includes involuntary part-time workers, making it closer to the Levin measure shown in figure 4. Thus, either a high underemployment rate, or one that is rising quickly relative to past values, would trigger FEF outlays.

The importance of an automatic trigger for the FEF cannot be overstated. If its operations were instead at the discretion of Congress, political forces would be sure to undermine its responsiveness to the business cycle. Though there are many options for suitable triggers, the underemployment rate is an appealing choice due to its status as a broad measure of labor market slack. The Bureau of Labor Statistics (BLS) currently calculates underemployment rates on a quarterly basis at the state level. Sub-state estimates would be much preferable for triggering the FEF, but might be infeasible due to data limitations.<sup>5</sup>

Given the uncertainty in estimating labor market slack, a relatively small amount of resources—less than \$10 billion a year—should initially be devoted to the FEF to test the capacity of the channels noted above and the programs discussed next, and to gauge the effectiveness of those programs. When the fund’s trigger turns on—when underemployment either hits a trigger level or is quickly rising—FEF funds would be deployed, for example, to support some form of direct job creation.

In recessions, neither FEF nor any other countercyclical stimulus spending should be offset with payfors (i.e., tax increases or spending cuts used to pay for new spending), because these actions would dampen the impact of the stimulus. In expansions, targeted FEF spending should be offset with payfors, but Congress must be cautious not to tap payfors that hurt one group of vulnerable workers to help a different group. Thus, a good way to provide long-term funding for the FEF would be a dedicated, progressive tax source.<sup>6</sup>

Of course, the Federal Reserve must view these dynamics in the way presented here, recognizing the need for fiscal intervention when aggregate demand is weak. Otherwise, it could offset the impact of FEF expenditures and reduce any potential demand multiplier effects. A selling point in this regard is the geographically targeted nature of the FEF. By definition, the fund is targeting an area with above-average slack, and should thus be viewed as unlikely to contribute to overheating in the overall economy.

## DIRECT JOB CREATION

Most economists have little trouble accepting the Federal Reserve as the lender of last resort when credit markets fail, as was the case in the financial crisis of 2008. In this section, I argue that the persistent absence of full employment in the U.S. and European labor markets creates a role for the government. This role might not be as an employer of last resort, but the government should at least engage in some form of direct job creation. Surely, the same standard for credit markets should apply to the job market: banks facing credit constraints are no more economically important than the significant numbers of workers facing labor demand shortfalls.

Direct job creation policy exists on a continuum from least to most interventionist. At the less interventionist end are policies wherein the government subsidizes wages for a set period in public or private-sector jobs, including nonprofits. Dutta-Gupta et al. (2016) recently completed an exhaustive review and evaluation of 40 years of experience with subsidized employment programs. Their review stresses the role of fiscal policy targeting job creation not just during downturns, but during expansions as well:

While aggregate labor demand policies—both fiscal and monetary—are essential to helping low-income workers secure and maintain sufficient employment, *additional policies and programs would be valuable throughout the business cycle for those with serious or multiple barriers to employment*. Subsidized employment programs and policies are underutilized, potentially powerful tools for lifting up workers in or at risk of poverty and deep poverty in the United States. These job programs can provide income support, an opportunity to engage in productive activities, and, in some cases, labor market advancement opportunities. They can also offer a platform for connecting people to other needed services, resources, and networks. [emphasis added] (Dutta-Gupta et al. 2016, viii)

Such programs often include a training component; the most effective training programs coordinate with local employers to ensure that participants are training for in-demand occupations. These programs are often directed at particularly disadvantaged workers facing steep barriers to labor market entry associated with basic skill deficits, minor physical or cognitive disabilities, long-term unemployment, discrimination, or criminal records.

During the most recent recession, the federal government implemented a successful program from this model through the Temporary Assistance for Needy Families (TANF) emergency fund. As Pavetti (2014) stresses, the TANF program was really a funding stream to states and localities that could be used to subsidize employment. She notes that 39 states tapped into the program, using \$1.3 billion to place around 250,000 low-income people in jobs in less than two years. While employers typically received the subsidy for relatively short periods (less than a year), participants often remained in the job market afterward. One careful study from Florida's version of the program found that, relative to a control group, participants' work and earnings went up not just during the program, but after it as well, suggesting lasting benefits (Roder and Elliott 2013).

At the other, far more interventionist end of the continuum, Paul, Darity, and Hamilton (forthcoming) propose that the federal government provide public service jobs for which it pays salary and benefits. The program creates a National Investment Employment Corps (NIEC) that provides employment grants to state and local government projects that are

“designed to address community needs and provide socially beneficial goods and services to communities and society at large.” Infrastructure, energy efficiency, community development, education, elder care, art, and other projects could all receive funding through the NIEC. Individuals taking advantage of the NIEC would have the opportunity for promotions, and Paul, Darity, and Hamilton estimate that the mean salary would be about \$32,500. They scale their program to eliminate involuntary unemployment and substantially reduce poverty, leading to an annual cost of nearly \$600 billion, which is close to what we currently spend on defense.

That is a highly ambitious plan, but as aggregate labor demand has long been insufficient to provide gainful employment opportunities to all who seek them, achieving full employment may well require some degree of direct job creation. Dutta-Gupta et al.’s (2016) review reveals a good track record for well-designed programs as well as empirical evidence suggesting that, once policy helps disconnected workers find their way into the labor market, many will try to stay there.

### **THE TRADE DEFICIT AND ITS ROLE IN WEAK AGGREGATE DEMAND IN THE PRESENCE OF THE ZERO LOWER BOUND**

In an accounting sense, a trade deficit contributes negatively in the classic, expenditure-side GDP decomposition ( $GDP = \text{private consumption} + \text{gross investment} + \text{government spending} + \text{exports} - \text{imports}$ ). However, that simple equation shows that other GDP components can offset the drag from a trade deficit. Moreover, the trade balance is a function of exchange rates, relative demand conditions between trading partners, trade relations, technologies that affect the logistics of trade, and more.

In periods of truly full employment, trade deficits can expand because a faster-growing economy attracts more imports. In that context, imposing balanced trade or even reducing the trade deficit would often be a mistake, because it would prohibit the nation from investing more than its own savings rates allow. Dean Baker and I point out that this dynamic described the demand story in 2000, when the American economy had an unemployment rate of 4 percent and a trade deficit of about that same magnitude (Bernstein and Baker 2016).

But in the next expansion the trade deficit’s role was more negative, as an overvalued dollar contributed to a sharp increase in our goods deficit with China (this is the period of the “China Shock” documented by Autor, Dorn, and Hanson [2016]), and the deficit peaked at almost 6 percent of GDP in 2005 and 2006, a historically large imbalance. As Baker and I wrote, “In this context, the trade deficit was subtracting from demand in the domestic economy.”

Thus, it is equally important not to lean too far in the other direction: trade deficits are not always benign. For one, as shown in the first section of this paper we are often not at full employment, and in periods of weak demand trade deficits are not being sufficiently offset by other components of growth.<sup>7</sup> Research has shown how some countries attempt to manage their savings rates and currencies to maintain trade surpluses, and, since global trade must balance, to impose trade deficits on other countries. Prominent mainstream economists, including Ben Bernanke (2005, 2015) and Lord Mervyn King (2017), have articulated how these imbalances can reduce demand in deficit countries, because surplus countries essentially export excess savings and import product and labor demand. These impacts on demand become especially important at the aggregate level when the economy is at the ZLB. As long



as the Fed has ample room to lower interest rates, monetary authorities can help to offset the negative demand impact of the trade deficit. But as the risk of encountering the ZLB has gone up, so has the risk that trade deficits exacerbate the problem of weak aggregate demand.

From a policy perspective, this analysis suggests two types of interventions. In periods when trade deficits and slack coexist, as in the jobless (and initially wage-less) recovery of the 2000s, monetary policy interventions (when the economy has not encountered the ZLB) and fiscal policy interventions are effective. This is particularly the case for fiscal policy responses targeted at places where diminished net exports are clearly taking a toll on employment and earnings opportunities. In fact, classical trade arguments maintain that whereas trade does create so-called losers (e.g., production workers in richer countries), the gains of trade are such that winners can compensate losers and still come out ahead. When import competition reduces labor demand in particular areas, safety net programs, including supply-side and demand-side programs (e.g., training/apprenticeships for a subsidized or guaranteed job), are warranted. These are precisely the intended uses of the FEF.

At the ZLB or in a global recession, though, it becomes more important that demand be supported by policies abroad as well as at home. Lord King calls for a new Bretton Woods (i.e., a global agreement for countries to work to move their economies toward balance) that would nudge high-savings countries like Germany to invest their excess savings more internally, thus reducing capital flows to deficit countries. The U.S. government should encourage agreements that help ensure sufficient demand abroad and clarify their importance via diplomatic channels. Failing that, countries can push back against currency manipulation and excess savings through ideas like Bergsten and Gagnon's "countervailing currency intervention" (2012, 1), wherein the United States announces "that it would offset the effects of currency manipulation through equal purchases of the intervening country's currency. This is intended to deter any return of the practice and, like any deterrent if credible, probably would not have to be used much if at all" (Peterson Institute for International Economics 2017).

## Questions and Concerns

### *1. Given the increased difficulty of measuring labor market slack in recent years, is it possible that slack could be overestimated?*

The fact that policymakers cannot reliably gauge some of the key metrics in this space, including the natural rate or the output gap, does not necessarily imply that more-accurate measures would always reveal more slack. In fact, in the late 1970s policymakers overestimated potential GDP, which led to high and damaging levels of inflation and unemployment. These relationships and these variables are dynamic, and economists must allow for biases in both directions.

### *2. Is it likely that the FEF and direct jobs creation programs will be effectively implemented?*

Ideas like the FEF or direct jobs creation depend on a functional government sector that can efficiently implement such programs. For example, if, under a direct job creation program, employers simply substitute subsidized for nonsubsidized workers, there is no addition to aggregate demand. For this reason, it is always a good idea to try new programs on a pilot basis before taking them national.



***3. Slack in the U.S. labor market appears to be very limited in early 2018. Does this undermine the case for your proposals?***

It is true that the U.S. economy in early 2018 is quite clearly closing in on full employment; the unemployment rate is well below the natural rate as estimated by various agencies like the CBO and the Federal Reserve Board, though the absence of wage and price pressures suggests that we have not yet reached full capacity. This may lead some readers to question whether we have already solved the aggregate demand problem! Of course, that would be a mistake. My point is not that the U.S. economy never achieves sufficient levels of demand: it is that periods like the present are too infrequent, and policymakers need an aggressive agenda to implement when labor market slack is much greater than it is today.

***4. If the Fed increases the rate of inflation, won't that just increase nominal wages, but provide no improvement in real wages?***

Typically, higher inflation does pass through to higher nominal wages, which is one reason we should not expect a higher inflation target to hurt workers' real earnings. The goal of this policy, however, is to avoid the ZLB or insufficient aggregate demand more generally, where too many workers are unemployed and face stagnant real wage growth.

***5. Won't your proposals for more aggressive fiscal policy cause larger deficits and debt levels?***

I am clearly calling for more spending both during downturns—through more responsive automatic stabilizers—and during expansions (“sustained fiscal policy”). These proposals need not have a large impact on long-run deficits or debt levels. First, Congress already provides discretionary fiscal support during most recessions. The goal of one of my proposals—an FEF that is triggered by need—is to ensure that the fiscal impetus is both timely and well-designed rather than delayed or distorted by extended periods of political bargaining. In addition, by shrinking the amount of time the economy is below full employment, the policies should both boost revenue and lift the denominator (GDP) in debt-to-GDP ratios. Finally, I recommend raising more revenues as needed, preferably through progressive tax policies.

***6. You suggest adding non-experts in monetary policy—specifically, advocates for low-wage and minority workers—to your proposed process led by the Federal Reserve that would evaluate and revise the monetary policy framework. Won't that both slow the process and make it needlessly more contentious?***

It may or may not have these impacts. Progressive groups like “Fed Up,” while critical of some Fed actions, have developed good and useful relationships with the central bank. But such additions are absolutely essential for broad public agreement about the outcome of the framework evaluation process. Moreover, the workers represented by these groups are often the ones most affected, for better or worse, by Fed policies, and they therefore very much deserve to play a role in shaping those policies.

## Conclusion

Among the many assumptions made by economists, one of the most empirically indefensible is that the U.S. economy is generally at full employment. It is also an assumption with the capacity to do tremendous damage to people and communities who, because of inadequate demand and thus limited economic opportunities, face stagnating

living standards. Conventional measures reveal persistent slack in recent decades, and this slack disproportionately hurts those with the fewest economic resources.

I have suggested a four-part policy response. First, given the diminished correlation between unemployment and inflation, along with the increased risk of hitting the zero lower bound (ZLB) on the federal funds rate, the monetary policy framework should be reformed to reduce the risk of hitting the ZLB and ensure that the central bank has the ability to support the economy during a downturn. Second, we must expand our thinking about fiscal policy and aggregate demand beyond recession fighting to encompass sustained fiscal policy during weak expansions. I therefore propose a mandatory Full Employment Fund that expands and contracts with need. Third, as one use for this fund, I propose measures providing for direct job creation. Finally, because persistent trade deficits in the presence of the ZLB can constitute a drag on demand, I propose policies to both restore lost demand and reduce the trade deficits themselves.

These four responses represent a small start in addressing this critically important market failure. Much more research is needed to identify the extent of weak aggregate demand. We must improve our measurement of output gaps and labor market slack, investigate the factors explaining the absence of full employment, explore geographical variation in slack, and examine other policies that can play a role in explaining labor market slack. But the first step is recognizing the problem and working toward its solution.

## Endnotes

1. Using an econometric technique developed by Blanchard and Quah (1989) to separately identify supply and demand shocks, they derive the potential GDP series shown in the figure. By the end of their data, while CBO's current estimate of potential GDP is coincident with the actual value, Coibion, Gorodnichenko, and Ulate's (2017) measure is 11 percent, or about \$2 trillion higher. Interestingly, that is about the same difference between CBO's 2007 prediction of potential GDP today and the most recent estimate for 2017Q2. Ball et al. (2014) come to a similar conclusion as Coibion, Gorodnichenko, and Ulate.
2. The estimates come from fixed effects panel regressions for the period from 1979 to 2015 that regress the log real hourly wage on the slack measure, where the slack measures are logged and lagged one year.
3. The model is run with data from 1968 to 2016 and regresses the percentage change in nominal median household income on lagged inflation (CPI-U-RS), the percentage change in wages, employment, and the unemployment rate gap. The R-squared in such a regression is 0.8.
4. This idea is somewhat like the Bank of Canada's five-year reviews of its monetary policy framework, though I am suggesting a process that is considerably more inclusive than the Bank of Canada's (as I understand it), and involves no direct government involvement.
5. However, BLS often uses modeling procedures to develop sub-state estimates (e.g., in the BLS Local Area Unemployment Statistics program), which could be applicable here as well.
6. One option is a small financial transaction tax, as other authors and I have described (e.g., Bernstein 2015, 2016; Burman et al. 2015).
7. Deficits at the sectoral level may be important as well, separate from their implications for aggregate demand. If production is concentrated geographically (as with some types of manufacturing) deficits can have important impacts at the community level.

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## SECTION THREE

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# Policies to Boost Wages through Strengthened Worker Bargaining Power

Even when productivity growth is strong, policy interventions are sometimes necessary to ensure that workers benefit from economic growth. This section includes four proposals to strengthen labor market institutions that protect worker interests. Together, these proposals would enhance worker bargaining power and allow economic growth to be more widely shared.

In two proposals—one by Matt Marx, and one by Alan Krueger and Eric Posner—the authors offer proposals to restrict employer practices that limit economic opportunity for workers. To address the increasing use of non-compete agreements by firms, Marx proposes limitations on their use and suggests alternative, less-damaging mechanisms to protect employer interests. In response to evidence of collusion between firms that impairs wage growth, Krueger and Posner propose to prohibit no-poaching agreements between firms as well as non-competes for low-wage workers. These reforms would establish a more level playing field for workers, thus promoting stronger wage growth.

The final two proposals in this section outline a suite of practices intended to increase the amount of information and leverage available to workers. Benjamin Harris argues that increases in wage transparency—brought about through employee protections and required firm disclosures—would enhance workers' position in pay negotiations and lead to sustained wage gains. Finally, Heidi Shierholz offers a collection of policy reforms that would benefit workers, including stronger protections for unions and enhanced labor standards enforcement, among others.

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# Reforming Non-Competes to Support Workers

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Matt Marx, *Boston University*

## Abstract

This report describes evidence from empirical research on non-compete agreements and recommends policies to balance the interests of firms and workers. Firms use non-competes widely in order to minimize recruiting costs, safeguard investments, and protect intellectual property more easily than is achieved via non-disclosure agreements. But these benefits come at a cost to workers, whose career flexibility is compromised—often without their informed consent.

## Introduction

The American Industrial Revolution arguably saw its inception in Pawtucket, Rhode Island, at the Slater Mill on the Blackstone River. This was the first place in the New World where cotton was spun into thread by machine. Samuel Slater, founder of the eponymous mill, had emigrated from England where he had worked on the Arkwright spinning machine (Simonds 1990). However, Slater's homeland had taken steps to prevent him from developing his business in the United States.

Among the reasons underlying England's rapid rise to industrial power was its aggressive policy of recruiting skilled laborers by granting national monopolies (i.e., an exclusive right to produce goods using a particular technology) to those who pirated technologies from other countries (Ben-Atar 2004). At the same time, England adopted restrictions that forbade skilled artisans—including those who had imported stolen technologies—from leaving the country. Essentially, Samuel Slater was subject to a ban on leaving the country to practice his profession in any other country: he was not allowed to *compete* against England. Fortunately for Slater, his slight stature enabled him to disguise himself as a young farm boy and slip past emigration controllers in 1789 to board a ship for the New World.

Although revered in the United States as the father of the American Industrial Revolution, Slater is often referred to in the United Kingdom as Slater the Traitor for having purloined British textile technology. Had England's restrictions successfully bound him to his home country, the American Industrial Revolution would surely have been delayed. The Slater story highlights several controversial aspects of laws that seek to prevent workers from leaving their current workplace to take their expertise elsewhere. Almost certainly,



Slater would have led a less distinguished career if he had remained bound by England's prohibition against the departure of skilled artisans. Moreover, it seems that America's gain was England's loss.

When considering the state enforcement of barriers to the mobility of skilled workers, similar trade-offs apply today between the interests of workers, incumbent firms, and new or even not-yet-founded firms. The balance between these interests is not straightforward, which could explain why, at least in the United States, states have taken very different approaches regarding post-employment covenants not to compete (hereafter, non-competes).

### **WHAT ARE NON-COMPETES AND HOW OFTEN ARE THEY USED?**

A non-compete is a section of an employment contract in which the worker pledges not to join or found a rival company for a certain period of time after leaving the company. The use of non-competes dates back to 1414, when a former apprentice was sued for having set up shop in the same city despite having promised not to do so after his training was complete. The judge in the case is said to have not only thrown out the lawsuit but also to have threatened the plaintiff with jail time. The recent decimation by bubonic plague of the northern England labor supply had motivated the passage of the Ordinance of Labourers, which essentially outlawed unemployment for the able-bodied (Marx and Fleming 2012). However, this legal approach did not last in most jurisdictions, and today non-competes are widely used in a variety of industries.

Non-compete agreements between employers and their employees limit workers' labor market opportunities after leaving a firm. Although the details of non-compete contracts—as well as their enforceability under state law—vary considerably, they generally prohibit exiting workers from either joining or founding a business that competes with the previous employer. This prohibition is time-limited, and is typically also limited by region and industry, though the scope of the contract is sometimes quite broad.

In an increasingly knowledge-based economy, the most important assets of firms are not property, plant, and equipment. Rather, they are lodged in the minds of workers who walk out the door every night. Firms must either win or force workers' loyalty, lest they incur the time and costs of replacing those workers. Moreover, ex-employees who found or join a rival firm pose additional problems for their former employer. If the former employer has in effect prescreened qualified workers who are then poached by rivals, those rivals have lowered the cost and risk of their own recruitment. To the extent that the former employer increased those workers' value by investing in their training, that investment is lost. And if the ex-employee were granted access to confidential information, this information could leak to the new employer.

Today, non-competes are widely used in a variety of occupations, especially among knowledge workers and executives. Prescott, Bishara, and Starr (2016) estimate that 18 percent of respondents to an online survey across a broad set of occupations had signed a non-compete for their current job. Looking specifically at engineers, Marx (2011) finds that 43 percent of workers had signed a non-compete in the past 10 years. Executives were even more likely to have signed: Garmaise (2011) finds that at least 70 percent of senior executives in public companies were bound by a non-compete.

## THE CHILLING EFFECT

Another way to study the role of non-competes is to count lawsuits. If one assumes that non-competes are meaningful only insofar as employers seek injunctive relief against ex-employees, then counts of lawsuits ought to be a useful metric for understanding their impact. Jay Shepherd of the Shepherd Law Group reports that there were 1,017 published non-compete decisions in 2009 (Shepherd 2010). The Bureau of Labor Statistics (BLS) reported that there were 154,142,000 workers in the United States in that same year (BLS 2009). If the effect of non-competes were limited to the courtroom, simple math would suggest that 0.0007 percent of workers were affected by non-competes, according to this definition. Given the high fraction of workers who are asked to sign non-competes, the effect of these contracts is unlikely to be limited to judicial proceedings alone.

Rather, non-competes exert a chilling effect on workers even in the absence of a lawsuit. None of the interviewees in Marx's (2011) study who altered their career direction due to a non-compete were sued. Some received threatening letters or phone calls from their ex-employers, however, including one woman whose former boss called her for months to ask where she was working. Others, even if they were not directly threatened, assumed that if they were sued, they would lose due to the expense of defending themselves. Additional evidence for a chilling effect can be found in the estimate from Prescott, Bishara, and Starr (2016) that non-compete agreements are signed at roughly the same rate in the few states where they are unenforceable as in states where they can be upheld in court. Although part of this pattern could be an artifact of standardized, nationwide human resource policies whereby multistate firms require every employee in any state to sign, it is also possible that single-state firms hope to capitalize on the chilling effect for their employees who are unaware of state policy.

## SUMMARY OF POLICY RECOMMENDATIONS

The benefits of non-competes accrue primarily to employers and at the expense of employees. Moreover, the process by which these parties agree to such contracts only rarely includes a true negotiation. Rather, employees are routinely strong-armed into signing the contract without carefully considering its implications, suggesting five avenues for reform:

1. End abusive practices including ambushing employees by not informing them about the requirement to sign a non-compete until after they have accepted the job offer and possibly turned down other offers, thus losing their negotiation leverage.
2. End the widespread practice whereby firms are not required to compensate existing employees in any way for signing a new or revised non-compete. (Rather, continued employment is said to be sufficient consideration for the requirement to sign.) Workers should have the right to refuse to sign an updated contract without retaliation.
3. End the non-compete enforcement practice whereby, rather than rule that a non-compete is valid or invalid according to state law, a judge can rewrite an overbroad or egregious contract to bring it in line with state guidelines.
4. Empower state attorneys general via unfair-employment-practice statutes to obtain settlements with firms that require workers to sign predatory, unenforceable non-competes. This is particularly important given that much of the impact of non-competes

is attributable not to lawsuits but instead to the chilling effect of both enforceable and unenforceable contracts.

5. Institute mechanisms to make non-disclosure agreements (NDAs) easier to enforce, allowing them to better substitute for non-competes.

## The Challenge

### **EVIDENCE ON THE ANTECEDENTS AND CONSEQUENCES OF NON-COMPETE AGREEMENTS**

Although legal scholars have discussed the potential impacts of post-employment covenants not to compete, empirical work on the impacts of non-competes has been scarce until recently. In the past fifteen years several scholars have attempted to link non-competes to outcomes for workers, firms, and regions. Much of this work falls into two general categories:

1. Surveys that collect data on workers who have signed non-competes. These surveys offer insight into the prevalence of non-competes and the process by which employers get employees to sign them. Some studies take an additional step by providing correlations between presence of a non-compete and other outcomes of interest, although this analysis cannot identify the causal impact of non-competes on such outcomes. But an understanding of how non-competes are used is critical to assessing their costs and benefits, including implications of non-competes for the careers of individual workers and their effects on businesses.
2. Analyses based on state-level differences in whether and how non-competes are enforceable. These studies typically leverage changes over time in laws or court decisions. They do not incorporate survey data on who has or has not signed an agreement, data that are currently only available at a single point in time. However, these studies can help answer questions about the likely consequences of state policy reforms, including effects on regional productivity, entrepreneurship, and economic growth.

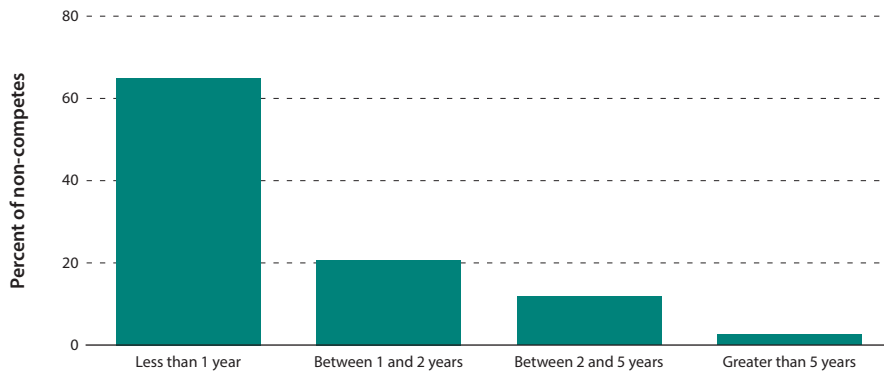
These types of studies have been conducted in four general areas. First, how and how often are non-competes used and among which types of employees; moreover, what is the process by which employee signatures are obtained? Second, what are the implications of non-competes for individual careers? Third, do firms benefit from non-competes? Fourth, and abstracting from employers and employees, what are the more general implications of non-competes for regional productivity, entrepreneurship, and economic growth?

### **PREVALENCE AND PROCESS**

Four papers have gathered data regarding the prevalence of non-compete agreements. First, Schwab and Thomas (2006) reviewed employment contracts from 865 respondents to a survey of chief executive officers (CEOs) from the S&P 500, S&P MidCap 400, and S&P SmallCap 600. Of those executives, 67.5 percent of respondents had a non-compete. The majority of those agreements were two years in duration (31.5 percent); 21.3 percent of them were one year. These results closely parallel the 70.2 percent rate of non-competes in the employment contracts of Execucomp executives found by Garmaise (2011).

Of course, CEOs represent only a tiny segment of the labor market and are moreover a unique subset of employees. Marx (2011) conducted a broader survey of the Institute of Electrical and Electronics Engineers (IEEE), with 1,029 of 5,000 randomly selected members responding. Of these engineers working in several industries, 43.3 percent said that they had signed a non-compete within the past 10 years. Most survey respondents indicated that their non-compete lasted no longer than one year, but more than one-third of respondents claimed that the non-compete they signed was longer than one year (see figure 1).

**FIGURE 1.**  
Share of Non-Compete Agreements, by Duration

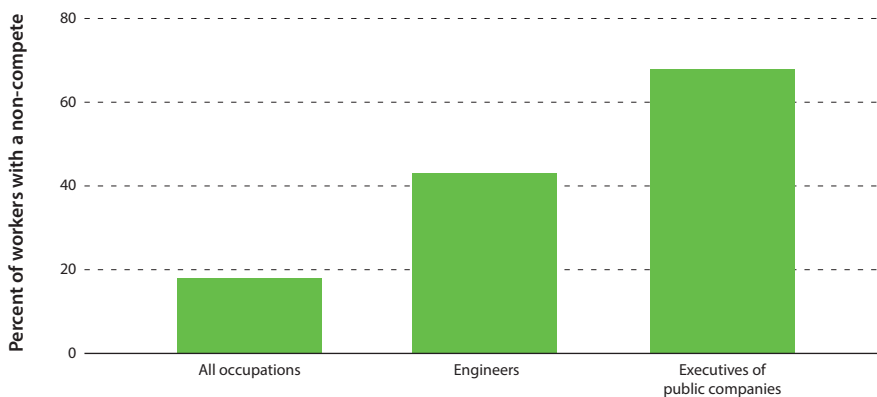


Source: Marx 2011.

Note: Results are from a survey of the Institute of Electrical and Electronics Engineers with 1,029 respondents.

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**FIGURE 2.**  
Share of Workers with a Non-Compete Agreement, Selected Occupations



Source: Marx 2011; Prescott, Bishara, and Starr 2016; Schwab and Thomas 2006.

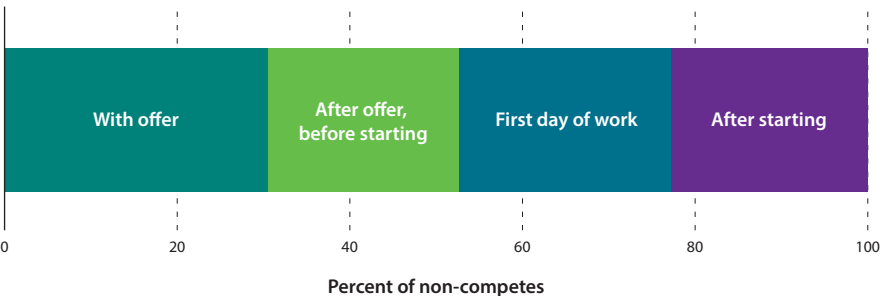
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Though more numerous than CEOs, engineers also constitute a small, highly educated segment of the labor market. In 2014 Prescott, Bishara, and Starr (2016) conducted an online survey of more than 700,000 people registered to fill out online surveys. Their 1.5 percent response rate yielded 11,505 responses. Approximately 15 percent of respondents replied that they were currently subject to a non-compete, and it is estimated that an additional 3 percent of respondents who were not sure whether they had signed a non-compete probably had, for a total of 18 percent of all workers. During their entire career, 43 percent said that they had signed one, similar to the result in Marx’s survey, but for a much wider variety of occupations. These estimates are shown in figure 2.

For those workers who are bound by non-competes, the process by which employers obtain signatures from employees is potentially very important. One key finding is that this process bears little resemblance to “negotiat[ing] contracts of mutual benefit,” as some have sought to portray it (Regan 2014). In Marx’s (2011) survey of engineers, more than two-thirds of respondents who signed a non-compete (69.5 percent) reported that the request for them to sign a non-compete came after the offer letter. Note that after accepting an offer of employment (and turning down other offers, if any), the new hire loses negotiating leverage. Nearly one-quarter of respondents (24.5 percent) were asked to sign the non-compete on their first day at work (see figure 3). The lack of notice contributes to the fact that only one in ten (12.6 percent) of those who signed a non-compete sought legal advice before doing so; in fact, fewer than one in twenty (4.6 percent) of those who signed the non-compete on their first day of work sought legal advice. Of those who did not seek legal advice, nearly half reported that they felt time pressure to sign or that they were told the non-compete was nonnegotiable.

The disadvantages to workers during the signing process are exacerbated for those who are younger or less experienced. Younger workers are less than one-third as likely as their more-experienced counterparts to seek legal advice on their non-compete, perhaps due in part to the fact that they receive a non-compete with a job offer even less often than more-senior colleagues. They are less than half as likely to refuse to sign a non-compete, whether measured by age (11.2 percent of older workers refuse, compared with only 3.7 percent of younger workers) or years of experience (10.4 percent of more-experienced workers versus 5.0 percent of less-experienced workers).

FIGURE 3.  
Share of Non-Compete Agreements, by Time of Signing



Source: Marx 2011.  
Note: Results are from a survey of the Institute of Electrical and Electronics Engineers with 1,029 respondents and restricted to workers who have signed a non-compete agreement.

## WORKERS

Non-competes are common and the circumstances of their signing are often troubling. What effects do these non-competes have on workers? Three important questions include how non-competes affect mobility, wages, and on-the-job motivation.

### *Mobility*

Perhaps the most well-established effect in the non-compete literature is that such employment agreements discourage workers from changing jobs. Fallick, Fleischman, and Rebitzer (2006) were the first to show suggestive evidence along these lines: they found much higher levels of job mobility among workers in the California computing industry. That said, the authors were careful to note that the correlations they noticed might be explained instead by differences in culture or other factors between California and other states. Other scholars have built on this work by exploiting state-level changes in non-compete policy—looking at the same places over time—to identify the causal effects of non-competes and non-compete enforceability on job-hopping.

Marx, Strumsky, and Fleming (2009) leverage an inadvertent change in Michigan’s non-compete policy, showing that Michigan’s unexpected switch from a California-style ban to allowing non-compete enforcement resulted in a drop in job mobility of 8.1 percent. Moreover, this result is not driven by Michigan’s large automotive industry. Furthermore, non-competes have differential effects on workers, with larger impacts on those who have specialized skills.

Garmaise (2011) also finds non-competes to be a brake on mobility. He takes advantage of non-compete policy reversals in Florida, Louisiana, and Texas to show that executives at large, publicly traded corporations are materially less likely to change jobs when those states tighten enforcement of non-competes. When they do change jobs, moreover, they are more likely to move to a different industry.

Marx (2011) also finds evidence of such career detours among 52 randomly sampled interviewees in the speech recognition industry. During these career detours, interviewees reported lower compensation because they were unable to use some of their skills. One worker observed that the non-compete was particularly damaging to her because it precluded use not only of training from the firm where she signed the agreement, but also of all her prior relevant expertise: “I’ve been in this industry for 20 years. I have a PhD in the field. I walked in the door with an enormous amount of experience, and while I worked there for a year in a half they added maybe, what, 2 percent to that? And now they want to prevent me from using any of what I know?” (Marx 2011, 705).

To some extent, the findings regarding non-competes and mobility are unsurprising. If employers are asking employees to covenant not to join a rival after leaving the firm, the two principal implications of that request are that workers change jobs less often and, when they do, they tend to go to non-rivals. However, if one were to assume that non-competes have their impact primarily via lawsuits, the results are surprising: with only a small number of non-compete lawsuits, the observed mobility impact of non-competes should not occur. This observation reinforces the view that a non-compete chilling effect is important.

### *Wages*

If non-compete agreements discourage workers from changing jobs, this restriction circumscribes the effective market for their skills. With fewer firms to bid for their labor, they might receive fewer and less-attractive job offers. Although workers bound by non-competes could be more valuable to their employer than other workers, whether their employer rewards them for that increased value might depend on the existence and credibility of external offers from other companies. Captive employees with limited outside options—even those with high value to their employers—might be paid less than others.

To date, the only published paper to investigate the impact of non-compete agreements on wages is Garmaise (2011). He finds that executives are paid less in states that have adopted stricter non-compete policies. Garmaise compares compensation in Florida, Louisiana, and Texas before and after non-compete policies were changed. Unfortunately, the literature currently has less evidence to offer on the impact of non-competes on the wages of lower-ranked employees. Although it would seem that similar arguments should apply to those who do not hold executive positions—perhaps more strongly, in fact—this is a topic of ongoing investigation.

### *Motivation*

If non-compete agreements constrain mobility and wages—and if they do not provide clear benefits for workers—one might wonder whether such contracts adversely affect employee performance and/or motivation. That said, the potential effect is ambiguous. On the one hand, employees might be demoralized by the constraint represented by non-competes. On the other, if their only job option using their current skillset is with their existing employer, they could be highly motivated to perform well and avoid termination (especially because some non-compete agreements continue to bind workers who are fired).

These opposing effects might help to explain the results of Buenstorf et al. (2016). Recognizing that it is difficult to obtain data on employee motivation, they instead conduct a laboratory experiment in which two subjects are told that one will employ the other to work on an uncertain innovation project. In one treatment, the worker is not allowed to quit and take his or her skills to another firm; in the control, the worker is allowed to move to another firm. The experiment yields no difference in effort between the treatment and control, perhaps suggesting that non-competes do not influence workplace motivation. Of course, there could be substantial differences between the laboratory setting and the workplace.

### **FIRMS**

Given the deleterious effects of non-competes on workers, it might follow that firms benefit from non-competes. Two papers indicate that this is the case. First, Younge and Marx (2016) examine how non-competes affect Tobin's  $q$  (i.e., the market value of assets divided by their replacement cost). They find that, compared to states where non-compete laws did not change, the ability to block employee mobility increased Tobin's  $q$  by 9.75 percent after Michigan abandoned its ban on non-compete agreements. The effect is larger in more highly competitive industries and is somewhat attenuated by patent protection.

Conti (2014) also finds that firms can profit from non-competes, as measured by the ability to pursue riskier research and development (R&D) projects. He finds that a 1996 tightening

of non-compete laws in Florida increased both positive and negative extreme R&D outcomes (defined as patents with either zero forward citations or patents with citations in the top 1 percent), whereas the loosening of non-compete laws in Texas during 1994 decreased extreme outcomes.

Moreover, the ability to retain staff and pay them less, as described in the previous section, also benefits firms. One might claim that it is difficult to operate a business and invest in R&D without employee non-compete agreements, yet one need look no further than California's Silicon Valley or San Diego biotech cluster for counterexamples to the notion that a thriving innovation system cannot exist without non-competes. If non-competes were truly essential to R&D, one would have long since expected an exodus of technology firms from California. Furthermore, some of the most vigorous opponents of non-compete reform maintain extensive operations in California (Borchers 2014). Thus, although non-compete agreements may confer an advantage to existing firms, it certainly cannot be said that they are essential to the operation of firms.

## REGIONS

Non-competes might have important implications for overall regional development, in addition to their effects on worker and firm outcomes. Key regional considerations include the flow of knowledge and talent as well as entrepreneurial activity. These channels potentially allow for substantial non-compete effects on overall economic growth.

### *Flows of Knowledge and Talent*

As previously discussed, talent flows less *within* states with tighter non-compete laws. Researchers have also examined labor flows across states. Marx, Singh, and Fleming (2015) find that Michigan's rule change providing for enforcement of non-compete agreements resulted in a brain drain of talent out of the state. Specifically, technical workers left for other states with less-strict enforcement of non-competes.<sup>1</sup> Worse, this brain drain due to non-compete agreements is greater for the most highly skilled workers.

To the degree that knowledge is not always codified (as in a patent), but often resides in the minds of workers, it follows that circumscribed mobility of workers might likewise impede the flow of knowledge. Belenzon and Schankerman (2013) analyze the diffusion of knowledge from the academy to industry, examining citations to both university patents and also to academic papers. Although their primary finding is that the diffusion of academic discoveries is constrained by state borders, they find that this is especially true in states that have tighter non-compete laws. This suggests that non-compete agreements may hamper the flow of information.

Although the restricted flow of talent and information likely serves the interests of existing firms, throttling information flow could have negative externalities for entrepreneurs and a negative impact on overall economic performance. For example, as discussed in the next section, it might be more difficult for business start-ups to emerge and succeed.



## *Entrepreneurship*

Non-competes act as a brake on entrepreneurial activity, both by blocking the emergence of new companies and by making it harder for them to grow. To the former point, Stuart and Sorenson (2003) show that the spawning of new start-ups following events like IPOs or acquisitions is attenuated where non-competes are enforceable. Samila and Sorenson (2011) follow up this study to show that a dollar of venture capital goes further in creating start-ups, patents, and jobs when spent in states that do not strictly enforce non-compete agreements. Venture capital creates two to three times as much growth in regions where non-competes are unenforceable. Their finding is not just a Silicon Valley effect, but also holds when Silicon Valley is excluded entirely from the analysis. Starr, Balasubramanian, and Sakakibara (2017) likewise find that non-competes act as a brake on entrepreneurial entry, although this effect is limited to intra-industry spin-offs in which employees of one company leave to found a rival in the same industry. Workers founding start-ups in different industries are unaffected.

Non-competes not only make it more difficult to start a company, but also make it harder to grow a start-up. Once the company is incorporated, the founders must hire employees with relevant skills to expand the business. Unless sufficient workers can be found among fresh college graduates or the unemployed, existing firms are a primary source of potential hires—especially for firms with specific expertise needs. Yet start-ups could find themselves at a disadvantage in labor markets where non-competes are prevalent, both because they might lack the legal and financial resources to defend themselves and also because potential hires' mobility could be chilled by non-competes they have signed. One of the randomly selected interviewees with a non-compete in Marx's (2011) article stated that they were unlikely to accept a job offer at a small firm: "I consciously excluded small companies because I felt I couldn't burden them with the risk of being sued. [They] wouldn't necessarily be able to survive the lawsuit whereas a larger company would."

Ewens and Marx (2017) show the deleterious effect of non-competes on start-up performance. Investigating venture-capital-backed start-ups founded from 1995 through 2008 and tracking their performance through the first quarter of 2017, they find that the success of start-up companies often requires the hiring of new executives. Although some founders remain as the CEO for decades, in many cases founders are seen as incapable of leading the company as it scales beyond the start-up phase. Enforceable non-compete agreements make it more difficult to find replacement executives with relevant talent, which limits venture-capital-backed start-ups' ability to succeed.

Interestingly, there is one respect in which non-competes can facilitate the market for start-up acquisition. Younge, Tong, and Fleming (2015) show that acquisition activity was accelerated in Michigan after non-compete laws tightened. They credit this effect to the ability of acquiring firms to count on employees of the target firm to stay on, given that employment contracts are typically (but not always) acquired along with the purchase of the firm. If this effect on acquisitions also applies to smaller companies—which were not examined in this research—then non-competes might help start-ups through this channel.

Given these findings, it is not difficult to see why established companies generally implement non-competes when they are allowed to do so. Non-competes make it easier to

retain employees and to pay them less, and they reduce the threat from new entrants within the industry. Moreover, when acquiring start-ups incumbent firms more easily hold on to talent. Yet these benefits to firms come at the expense of workers and start-ups.

## A New Approach

The debate over employee non-compete agreements often centers around whether and how such contracts should be enforced. A starting point for these discussions is often California's longstanding refusal to enforce non-competes, based on its Business and Professions Code 16600: "Every contract by which anyone is restrained from engaging in a lawful profession, trade, or business of any kind is to that extent void" (Gilson 1999, 616). Michigan's Public Act 321 of 1905 instituted an enforcement regime similar to California's, which endured until March of 1985, when the state's policy became more aligned with most other states. Hawaii adopted a California-style policy in 2015 for the information technology industry, rendering non-competes unenforceable for that sector. Table 1 summarizes recent changes in state law.

TABLE 1.  
Selected Recent State-Level Policy Changes

| State    | Date        | Details  |
|----------|-------------|--|
| Illinois | August 2016 | The Illinois Freedom to Work Act bans the use of non-competes for workers earning less than the \$13.50 minimum wage, and states that any such term in an employment agreement is void (Illinois Freedom to Work Act 2016).  |
| Idaho    | March 2016  | House Bill 487 stipulates that key employees (among the 5 percent most highly paid) "must show that [they have] no ability to adversely affect the employer's legitimate business interests" or else a non-compete of up to 18 months in duration is presumptively enforceable (Idaho House Bill 487 2016, para. 5). |
| Utah     | March 2016  | The Utah Post-Employment Restrictions Act restricts non-competes to one year and requires an ex-employer whose non-compete suit is not upheld to pay its ex-employee's legal expenses (Utah Post-Employment Restrictions Act 2016).  |
| Hawaii   | June 2015   | Hawaii Act 158 voids any "non-compete clause or a non-solicit clause in any employment contract relating to an employee of a technology business" (Hawaii Act 158 2015, sec. 2 (d)).   |

Determining the ideal enforcement policy is hardly straightforward. Non-competes might help existing firms, but they do so at the expense of workers and would-be entrepreneurs. Thus policymakers are tasked with balancing the interests of these parties, some of whom are more vocal than others. In Massachusetts, for instance, firms as well as trade associations have spent nearly six figures lobbying state legislators against reforming non-compete governance (Borchers 2014). Workers, by contrast, do not have organized representation in these debates. Almost by definition, start-ups not yet founded do not have a voice, except perhaps to the extent that venture capitalists can advocate for their interests. Even with all interests represented in the policy discussion, different states could come to different conclusions regarding the ideal enforcement policy. States that choose to enforce non-competes can do so more or less strictly, as explained in box 1.

**BOX 1.****What Are the Different Ways Non-Competes Are Enforced?**

Non-competes are enforced according to state laws—usually the common law but sometimes statutes—that vary considerably across states. Under the most stringent, business-friendly type of enforcement, courts can rewrite unreasonable provisions in a non-compete agreement so that the contract conforms to standards, then enforce the modified contract. A related enforcement doctrine allows courts to strike the unreasonable terms of a non-compete agreement and enforce the remainder of the contract. In either case, businesses have a diminished incentive to be cautious in the drafting of their non-competes, because they face little prospect of having an overly broad agreement invalidated during a legal proceeding.

So-called red-pencil doctrine is less strict from a worker's perspective. Courts implementing red-pencil doctrine will neither revise nor eliminate any provisions—rather, courts will nullify the entire non-compete agreement if any provision does not comply with state law. Under this standard, employers have a stronger incentive to write non-compete contracts so as to comply with state law and avoid overbroad provisions.

Of course, a few states do not enforce non-competes, generally speaking. California is the most notable example, having eliminated the enforcement of non-competes according to its Business and Professions Code 16600 in 1872 (Gilson 1999). Figure 4 shows how non-compete enforcement varies across the states.

However, whether courts should enforce non-compete agreements is not the only—and not necessarily the most important—aspect of non-compete governance. Below, I propose a series of reforms to both the use and the enforcement of non-competes.

**NOTICE AND NEGOTIATION**

Apart from enforcement policy, the process by which employees sign non-competes deserves careful examination. Because a non-compete is a contract between an employer and an employee, employers must obtain signatures from employees. Ideally, workers would bargain over the terms of a potential non-compete with various potential employers at the same time that salaries and other terms of employment are negotiated. Workers would have access to the terms (or even text) of the proposed agreement and obtain the advice of legal counsel.

However, as described previously, the process by which employees covenant not to compete with their employers frequently resembles an ambush more than a negotiation. Most employees are not asked to sign until after they have accepted the job offer, and often not until they have started the job. Having already turned down other job offers, workers lack leverage

by which they can productively negotiate the terms of their non-compete. They are frequently told that the contract is nonnegotiable or that they must sign quickly (thus not allowing time for legal review of a document they might not fully understand without counsel).

I propose that employers—in advance of hiring—be required to inform workers that they intend to seek a non-compete agreement as is currently required in Oregon. A reasonable amount of time must be provided for workers to adequately review the proposed contract.

## COMPENSATION

A related issue with the timing and transparency of non-competes concerns their use with employees who have long since been hired. In some states it is permissible for employers to require existing employees to sign afterthought non-competes. That is, as a condition of retaining their existing job, employees must sign a (revised) non-compete without obtaining any compensation or other consideration for doing so. Although workers are free to quit their job rather than sign the new non-compete, doing so can be financially destabilizing, and it may be less advantageous to look for a new job once unemployed. All of these practices are contrary to the notion that employees should be bound by employment agreements that they enter into willingly and to mutual benefit.

I therefore propose that, in exchange for current employees signing a new or revised non-compete, firms be required to compensate those workers in some manner beyond simply continuing their employment. In addition, current employees should have the right to refuse to sign an updated contract without retaliation, including loss of employment.

## JUDICIAL MODIFICATION

In the summer of 2010 citizens of Georgia were asked to vote on a constitutional amendment with the following wording: “Shall the Constitution of Georgia be amended so as to make Georgia more economically competitive by authorizing legislation to uphold reasonable competitive agreements?” (Georgia House Resolution 187 2010, section 2).

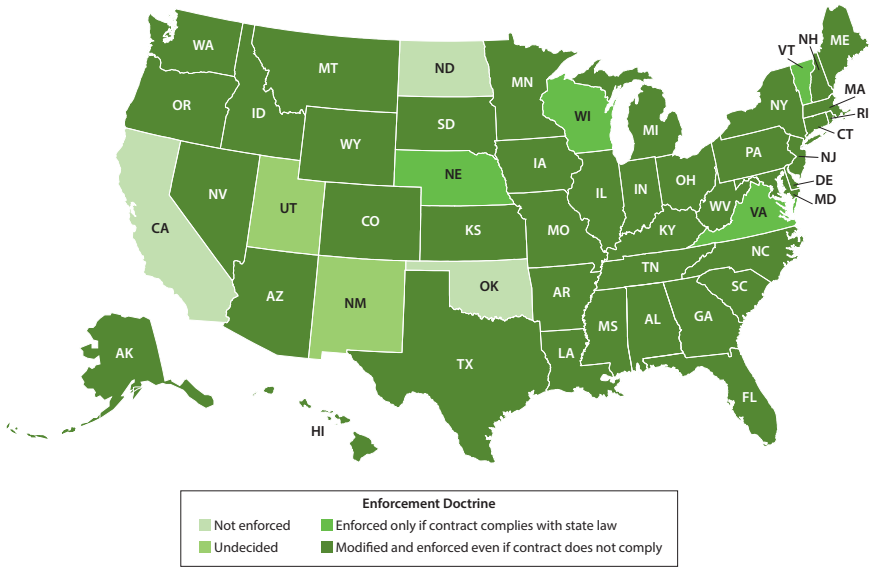
The proposed amendment passed with 68 percent of the popular vote.<sup>2</sup> Little did voters realize that they were voting to authorize a practice that gives firms additional control in their use of non-competes. Georgia’s provision enables judges to *change* the terms of a non-compete contract, rather than invalidate it entirely, when the original terms are found to be unenforceable under state law.

For instance, if state law restricted non-competes to a duration of one year, and the contract in a particular case specified a two-year term, a judge would previously have been required to strike down the contract. Under Georgia’s new enforcement regime, a court can simply rewrite the contract to be one year in duration and then enforce the modified contract. A majority of states (41 out of 50) currently allow some degree of modification by the courts, as shown in figure 4.

Modifying a non-compete might seem to be a boon for employees, but in fact the opposite is the case, for three reasons.

1. The practice of judicial modification enables non-competes to be enforced that would otherwise be struck down (albeit with reduced scope).

FIGURE 4.  
Non-Compete Enforcement, by State



Source: Beck Reed Riden LLP 2017; author's calculations.

Note: The type of enforcement in which courts can rewrite terms of contracts is often called the rule of reformation. When courts can delete provisions but cannot insert new text, the enforcement doctrine is often called blue pencil. These two types of enforcement are combined in the figure category, "Modified and enforced even if contract does not comply."

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2. The ability of judges to fix non-competes could encourage negligence on the part of firms, which would otherwise be more careful in drafting non-competes that would be struck down if they do not conform to state law.
3. Firms might even intentionally draft non-compete contracts with broader scope than is permitted by law. Even if the non-compete is too broad—say, two years instead of one—the worst that can happen is that a judge could reduce the scope and then enforce the contract. But in the absence of a lawsuit, the employee might continue to believe that the non-compete would be enforced as written (even with its overbroad terms, the legality of which the employee might not fully comprehend).

I therefore propose that states abandon the practice of allowing judges to modify non-compete agreements. Under this doctrine, courts would throw out non-competes that contain one or more unenforceable provisions under state law.

### THE CHILLING EFFECT

The possibility for employer negligence and abuse afforded by courts' ability to modify and enforce non-competes is another opportunity for deployment of the chilling effect. As noted above, very few non-compete lawsuits are even filed. This suggests that the effect

of non-competes is experienced less through the courtroom and more through workers' expectation that they might be sued. This chilling effect has been documented in interviews with workers who either remained in their jobs or took career detours due to a non-compete they had signed (Marx 2011).

If non-competes have a chilling effect even in the absence of a lawsuit, then non-compete reforms that only limit the behavior of a judge in a courtroom might have insufficient effect. Workers might avoid breaching their non-compete even if their employer were unlikely to sue them to enforce the contract. For example, a worker might avoid pursuing a job opportunity at another company for fear that they might be sued, even if such an opportunity was not clearly in violation of the contract. Even in California, someone asked to sign a non-compete who does not know that the contract is unenforceable under state law might be reluctant to change jobs for fear of retaliation. As long as firms can *use* non-compete contracts, the chilling effect will obtain because there appears to be little downside to firms asking workers to sign non-competes.

In implementing its 2016 non-compete reform for low-wage workers, Illinois not only rendered such contracts unenforceable but also banned firms from using such contracts at all: "No employer shall enter into a covenant not to compete with any low-wage employee of the employer" (Illinois Freedom to Work Act 2016, sec. 10 (a)). The ban on using non-competes for low-wage workers, in combination with the state's Consumer Fraud and Deceptive Business Practices Act, empowered Attorney General Lisa Madigan to bring legal action against noncompliant firms that allegedly required low-wage workers without proprietary or confidential information to be bound by non-competes (Channick 2017).

Note that the Illinois provision does not ban all non-competes but rather those that are unenforceable on their face. Given this provision, workers can report violations (and can do so anonymously) for the state attorney general to investigate. Public investigations, declaratory judgments, injunctions, and civil penalties would surely reduce the abuse of non-compete agreements by firms. Currently, companies have little to lose by aggressively using non-competes, especially in states that allow modification and enforcement of overbroad non-competes.

I propose that state attorneys general be empowered through unfair-employment-practice statutes to eliminate non-competes that are unenforceable on their face. The threat of legal action could yield a reverse chilling effect to partially counteract the deleterious effects on workers.<sup>3</sup>

## **NONDISCLOSURE AGREEMENTS**

Non-competes are just one option that employers can pursue to protect their legitimate interests. Non-disclosure agreements (NDAs) are another option, but these agreements can be difficult and costly to enforce: the former employer must show that the ex-employee divulged trade secrets or other proprietary information. By comparison, it is much simpler to verify whether a non-compete has been violated: one need only establish that the ex-employee is working at a rival firm. From an employer's perspective, a non-compete is a less costly way of protecting confidential information. Moreover, an NDA cannot guard against the use of nonproprietary training, whereas a non-compete blocks the ex-employee from deploying that training elsewhere and thus increases the value of the investment to

the employer. As the peer-reviewed literature shows, firms are advantaged by the ability to use non-competes (Conti 2014; Younge and Marx 2016).

At the same time, although an NDA does not specifically block the worker's career flexibility—only the sharing of proprietary information—a non-compete by definition limits subsequent career opportunities for the worker. Bound to their current employer, they might fail to capture the same compensation they would if they could test their value on the open market. Indeed, workers subject to non-competes are less likely to leave their employer; when they do leave, they tend to also leave their industry or their current geographic region (Garmaise 2011; Marx 2011; Marx, Singh, and Fleming 2015; Marx, Strumsky, and Fleming 2009).

Policymakers might therefore want to explore legal instruments for the protection of trade secrets that are at once more reliable than NDAs and less impactful on workers than non-competes. These instruments would be substitutes for non-competes and could diminish their harmful effects.

One possible approach is that adopted in the settlement of IBM's lawsuit to block ex-employee Mark Papermaster from joining Apple. The term of Papermaster's non-compete was reduced in exchange for his agreement to certify in writing at three-month intervals that he had abided by his NDA. In this way, IBM's trade secrets were more tightly protected without blocking Papermaster from taking a new job (Elmer-Dewitt 2009).

## Questions and Concerns

### *1. Is trade secret litigation too slow and too costly to rely on as a replacement for non-competes?*

Surely it is easier to prove violation of a non-compete ("Is the ex-employee now working at a rival?") than to prove violation of an NDA ("Did the ex-employee divulge trade secrets?"). But the non-compete is a blunt instrument with which to compel adherence to the spirit of an NDA. Non-competes have many negative implications for individual workers, including those workers who are abiding by their obligations regarding confidential information.

### *2. In general, mutually agreed-on contracts are considered beneficial. Why are non-competes different?*

One might claim that government should refrain from interfering with contractual relations between consenting employers and employees and avoid artificially restricting the set of possible employment relationships. Brad MacDougall, vice president of government affairs at the Associated Industries of Massachusetts, gave voice to this perspective when he claimed, "The non-compete issue is really about choice for both individuals and employers, who should be free to negotiate contracts of mutual benefit" (Regan 2014).

However, the experience and analysis of non-competes suggests that non-competes are often not mutually agreed on. The research highlighted in this chapter shows that the process of getting workers to sign non-competes often resembles less a negotiation than

it does an ambush. In addition, workers often cannot refuse to sign the non-compete lest they lose their job.

### *3. Are non-competes really an important issue outside of a few high-level executive jobs?*

It is true that non-compete usage is highest among executives, but they are also widely used among nonexecutives. Nearly half of engineers have signed a non-compete, and about a fifth of workers in the overall population are currently subject to a non-compete. Moreover, non-competes are relatively common among both low-skilled and high-skilled workers.

## Conclusion

Employee non-compete agreements remain a controversial topic, as evidenced by wildly varying policy across states. This policy variation could be due to differences in how state policymakers think about the interests of workers, existing firms, and would-be entrepreneurs. Research provides insight into these interests, suggesting that non-competes discourage mobility and depress wages among workers while promoting stock market performance among publicly traded firms. Non-competes make it harder to start new companies and also act as a brake on their performance by making it more difficult to attract experienced talent.

Balancing these interests is a delicate matter and probably rightfully left to states to decide. However, the process by which employers obtain signatures from employees should be standardized to ensure that workers are not ambushed but instead have the ability to negotiate such contracts and receive legal advice. Moreover, modifying and enforcing non-competes that were originally unenforceable only serves the interests of firms at the expense of workers. Given that non-competes rarely achieve their impact via lawsuits but much more often via a chilling effect, states should regulate not only enforceability in a courtroom but also whether firms are allowed to compel employee signatures. Finally, state attorneys general should be empowered to sanction firms that engage in abusive non-compete practices.

## Endnotes

1. This finding is not simply an artifact of the automotive industry or general westward migration; in fact, it is robust to a variety of tests including pretending that the policy change happened in Ohio or other nearby, mid-sized Midwestern states that would have been similarly affected by general migration patterns.
2. As described by Pardue (2011), the text summarizing a constitutional amendment in Georgia does not have to resemble the actual bill.
3. I am especially grateful to John Bauer of Lawson & Weitzen for discussions on this point.



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## Appendix

APPENDIX TABLE 1.

### Summary of Peer-Reviewed Findings on Non-Compete Agreements

| Level of Analysis | Findings   |
|-------------------|--|
| Individual        | Workers subject to non-competes are 8 to 47 percent less likely to change jobs, depending on their role. Executives subject to non-competes enjoy 8.2 percent less growth in compensation (Garmaise 2011; Marx, Strumsky, and Fleming 2009).   |
| Firm              | <p>Public companies enjoy a short-term boost of 10 percent in Tobin's q from being able to enforce non-competes (Younge and Marx 2016).</p> <p>Firms are 7 to 15 percent more likely to pursue riskier R&amp;D projects when they are able to enforce non-competes (Conti 2014).</p> <p>Non-competes promote a somewhat more robust market for acquisitions, approximately 3 percent more acquisitions following Michigan's abandonment of a non-compete ban (Younge, Tong, and Fleming 2015).</p> <p>Venture-backed start-ups are less likely to achieve attractive liquidity events when subject to non-competes because it is more difficult to bring in experienced executives to replace the founders (Stuart and Sorenson 2003).</p> |
| Region            | <p>Non-competes create a brain drain as top talent leaves states that allow non-compete enforcement. Inventors overall are twice as likely to leave the state, and highly prolific inventors are three times as likely to leave (Marx, Singh, and Fleming 2015).</p> <p>Non-competes mute the flow of knowledge (Belenzon and Schankerman 2013).</p> <p>Non-competes discourage would-be entrepreneurs from starting new companies in their industry (Starr, Balasubramanian, and Sakakibara 2017).</p> <p>Venture capital is less effective in creating companies, jobs, and innovation where non-competes can be enforced (Samila and Sorenson 2011).</p>  |



# A Proposal for Protecting Low-Income Workers from Monopsony and Collusion

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## Abstract

New evidence that labor markets are being rendered uncompetitive by large employers suggests that the time has come to strengthen legal protections for workers. Labor market collusion or monopsonization—the exercise of employer market power in labor markets—may contribute to wage stagnation, rising inequality, and declining productivity in the American economy, trends which have hit low-income workers especially hard. To address these problems, we propose three reforms. First, the federal government should enhance scrutiny of mergers for adverse labor market effects. Second, state governments should ban non-compete covenants that bind low-wage workers. Third, no-poaching arrangements among establishments that belong to a single franchise company should be prohibited.

## Introduction

In recent decades, rising income inequality and stagnating wages among all but the highest-paid workers have raised alarms about the health of the U.S. labor market and its capacity to provide workers with the means to adequately support themselves. Alongside the familiar explanations, including automation and foreign competition, a new and perhaps surprising one has emerged: monopsonization of, or collusion in, labor markets. As firms have grown in size, they have become capable of dominating local labor markets—a phenomenon referred to as monopsonization—and of using their market power to suppress wages.<sup>1</sup> There is also evidence that some firms have colluded, entering into no-poaching and similar arrangements that restrict workers' choices among employers. Various impediments to perfect competition, including reluctance among many workers to relocate to change jobs, have added to this problem.

The problem has been serious enough to draw the attention of the U.S. government. In 2016 the White House and the Department of Treasury issued reports critical of non-compete agreements (U.S. Department of the Treasury 2016; White House 2016). In the same year, the Department of Justice (DOJ) and the Federal Trade Commission (FTC) together issued a guidance document advising human resource professionals that it is illegal under the antitrust laws for rival firms to agree not to hire each other's workers or to compete on wages (DOJ and FTC 2016). DOJ has brought lawsuits against firms that have allegedly

engaged in such arrangements, including a hospital association in Arizona, and technology companies, including Apple and Google. The FTC has brought cases against firms that tried to collude in the labor market for nurses and fashion models (FTC 1995).<sup>2</sup> In 2017 DOJ noted that it was conducting several investigations of labor market collusion that might lead to criminal prosecutions (Nylen 2017).

But given the scale of the problem and burdens of litigation, ad hoc legal interventions based on existing antitrust law will not be enough to solve it. To prevail in litigation, plaintiffs must offer proof about complex economic phenomena, such as the scope of markets and the relationship between wages and market power, which can be difficult to evaluate. Furthermore, antitrust authorities have limited resources. For these reasons, new approaches are needed for protecting workers from wage suppression and similar anticompetitive behavior.

We focus on three types of business behavior that have contributed to the current problems in the labor market. First, a combination of several decades of mergers and growth in industries where network effects tilt toward one dominant firm have created massive employers who apparently enjoy market power in various labor markets (Autor et al. 2017). While it is illegal for firms to merge for the purpose of dominating a labor market, the government does not focus on labor market effects when it screens mergers under the Horizontal Merger Guidelines (DOJ and FTC 2010). We propose a beefed-up screening procedure that alerts regulators of the risk that a merger will create anticompetitive effects in labor markets.

Second, it has recently become clear that firms use non-compete agreements to suppress labor market competition among low-wage workers. In a non-compete agreement (also called a covenant not to compete), the worker agrees that he or she will not work for competing employers for a period of time after termination. In principle, a non-compete agreement could violate antitrust law if it is used to enhance or exploit market power, but non-compete agreements are almost never the subject of antitrust litigation.

There are limits to the enforceability of non-compete agreements in the common law. If a non-compete agreement is not “reasonable” in the light of legitimate business goals—such as recovering the cost of training or preventing the disclosure of trade secrets—then a court will refuse to enforce it.<sup>3</sup> The practical effect of this rule is that if a worker knows his or her legal rights, or can afford a lawyer to explain them and defend him or her in court, then the non-compete agreement may not be harmful, and could enhance efficiency.<sup>3</sup> For example, the risk of turnover can result in insufficient investment in firm-specific training. But with non-competes a worker and firm can jointly reach a bargain in which the firm pays the cost of industry-specific training and shares some of the return from that investment in exchange for the worker agreeing to refrain from moving to another firm in the industry. The problem is that, typically, only high-level executives and professionals can afford a lawyer to review such agreements and ensure that the worker’s interests are fully represented. And even in these cases, there is a concern that in “thin” labor markets for critical talent, an employer can use non-compete agreements to bind workers and discourage competitors from entering the market because they will face a scarcity of available labor. Many employers use non-competes for low-wage jobs (Starr, Prescott, and Bishara 2017), where workers do not know their rights, cannot afford lawyers, receive little training, and are susceptible to threats from their former employers. Accordingly, we

propose that non-compete agreements involving low-wage workers be banned or heavily restricted. A handful of states have recently been considering such actions.

Third, new evidence suggests that franchise companies have used no-poaching agreements to suppress labor market competition. In a no-poaching agreement, two or more employers agree that they will not hire each other's employees. When these agreements are made between independent companies, they clearly run afoul of the antitrust laws, as DOJ and FTC guidance makes clear. However, in recent years no-poaching agreements have increasingly been included in franchisors' contracts with their franchisees, where antitrust law is harder to enforce. When a franchisor requires the different franchisees within its chain not to poach each other's workers, a claim can be made that the antitrust laws do not apply because the rules are internal to a single organization, while antitrust laws apply to the relationships among independent firms. However, if more than one franchisee exists in a single labor market, and those franchisees are collectively a dominant employer in that labor market, the no-poaching agreement is anticompetitive, and will tend to suppress the wages of workers. We argue that no-poaching agreements in franchises should be banned.

## The Challenge

### THE ECONOMICS OF LABOR MARKET MONOPSONIZATION AND COLLUSION

Under perfect competition, workers are paid the value of their contribution to output. A perfectly competitive labor market requires that workers can move freely to seek the most desirable opportunities for which they are qualified, and that neither employers nor employees have the ability to set pay. If employers have market power, however, they can pay workers less than the value of their contribution to output. The Joan Robinson (1969) variant of monopsony occurs when there is a single employer in a labor market. In this situation, the employer faces the market supply curve for labor, and must pay a higher wage to hire additional labor. The profit-maximizing decision for such a monopsonist is to hire less than the quantity of labor that would be hired under perfect competition, and pay workers below the value of marginal product of the last worker hired. A monopsonist makes do with unfilled jobs, which typically appear as vacancies; it is unable to find workers at the low wages it offers and unwilling to raise pay to attract more workers.

Burdett and Mortenson (1998), Manning (2003), and others show that a similar situation arises even if there are many small employers competing for labor in an otherwise competitive market, to the extent that labor market frictions—for example, from turnover and recruitment costs—cause employers to face a rising cost of labor.

These forms of monopsony power arise by natural forces, and are not a legal cause of action, much as a firm that achieves monopoly pricing power in the product market because of scale economies is not in violation of antitrust laws. Historically, labor unions played a greater role in counterbalancing such monopsony power, but with only 7 percent of private sector workers unionized, unions play a much smaller role today.

Employers can exert monopsony power through deliberate means, however, by restricting competition for labor or by colluding with other employers to suppress pay or benefits below the competitive level. These cases are of much greater concern for the law. The notion that

employers have an interest in manipulating the labor market and restricting competition is hardly new. In *The Wealth of Nations*, for example, Adam Smith (1776, 81) observed, “[Employers] are always and everywhere in a sort of tacit, but constant and uniform combination, not to raise the wages of labour above their actual rate.” If employers act in concert to suppress wages below the prevailing level, then they jointly act as a monopsonist, which reduces pay and employment for workers. Likewise, if employers restrict their employees’ outside options by pressuring or deceiving them to sign non-compete clauses, they can reduce worker mobility and suppress wages below the competitive level. If a labor market is already concentrated, non-compete agreements between incumbent firms and workers may deter new firms from entering the market and bidding up wages by depriving those firms of a ready source of labor. And agreements among employers to not hire or recruit from other employers—so-called no-poaching agreements—are a form of collusive behavior that restricts competition and suppresses pay and employment opportunities.

## EVIDENCE

### *Collusion and Monopsonization in the Labor Market*

Until recently economists assumed that labor markets are fairly competitive. The company towns of the past are long gone, and the vast majority of workers live in urban areas where employers are plentiful. But recent events—including agreements among technology companies not to poach engineers and among hospitals not to poach nurses—have led many economists and government officials to question this assumption (Council of Economic Advisers [CEA] 2016). Of course, such cases are hardly new, but legal scrutiny of them remains relatively rare. We have found fewer than two dozen cases since 2000 where courts have considered allegations of improper use of labor market monopsony power or collusion, most of them involving specialized settings such as sports leagues.<sup>5</sup>

However, the most powerful evidence for increased monopsony power relates to broad changes in the labor market. CEA (2016) provides a thorough summary of evidence regarding monopsony power in the labor market. Among the evidence that CEA cites are these: (1) Firm concentration has increased in recent years. (2) Labor market dynamism and geographic mobility have trended down in recent decades, enabling noncompetitive wage differentials to persist with less external pressure from worker mobility. (3) Other forces that tend to counteract monopsony power and collusion are weaker than has historically been the case in the United States, due to the decline in the real value of the minimum wage and the decline in the fraction of workers represented by labor unions. (4) And, in the current recovery, wage growth has not been stronger in industries that have experienced greater job openings. Next we provide evidence on two types of contractual practices that support employer monopsony power: non-compete agreements and no-poaching agreements.

### *Non-Compete Agreements*

Non-compete agreements are contracts or clauses in contracts that prohibit an employee from working for a competitor after the employee separates from the employer. In an employment contract, a non-compete clause may prohibit the employee from working for a rival firm when employment terminates (i.e., the employee quits and/or is fired). An employee might also sign a non-compete agreement at the time of termination in return

for consideration such as money. A typical non-compete specifies the relevant industry in which the employee is prohibited from finding employment, the time period during which the noncompetition obligation remains in effect, and the geographic scope of the noncompetition obligation. For example, a non-compete for a salesperson who specializes in business software might specify that the person may not work as a salesperson for firms that sell business software, for a period of one year, and in the area in which the employer operates, such as a county or state. The scope of non-compete clauses varies significantly from industry to industry, and even within industries, and from place to place. Some are written narrowly and some are written broadly.

Until recently, academic and policy discussion about non-competes presumed that they were used only for high-skill workers. But in 2014 it was revealed that Jimmy John's, a fast-food franchise, required low-level employees to sign contracts with non-competes that prohibited them from taking jobs at any business that obtained more than 10 percent of its revenue from "selling submarine, hero-type, deli-style, pita and/or wrapped or rolled sandwiches" within two (later extended to three) miles of any franchise, anywhere in the United States (Jamieson 2014). The non-compete covenant extended for two years. Its effect would have been to prevent a worker from obtaining a new job as a sandwich maker in large areas, including the entire city of Chicago.

Anecdotal evidence suggests that Jimmy John's practice—since discontinued—is not uncommon (Dougherty 2017a). And survey data reported in a recent paper by Starr, Prescott, and Bishara (2017) indicate that 12 percent of low-income workers—those lacking a college education with incomes less than \$40,000 per year—were subject to non-competes in 2014. Over all income levels, Starr, Prescott, and Bishara estimate that one in five workers was bound by a non-compete clause.

To supplement these findings, we contracted with Survey Sampling Inc. (SSI) to conduct a short internet survey of 919 workers in February 2017 to assess the extent to which workers are covered by non-compete clauses. After deleting responses by self-employed individuals, we have a sample of 795 employees. We derived sampling weights for respondents based on their income, race, sex, education, and age to make the weighted sample representative of the U.S. workforce. Specifically, workers were asked, "Does your employment relationship restrict you in any way from taking another job, such as through a non-compete clause or no-raid pact?" If they answered in the affirmative, they were asked whether a non-compete clause, no-raid pact, or other arrangement was the source of the restriction.

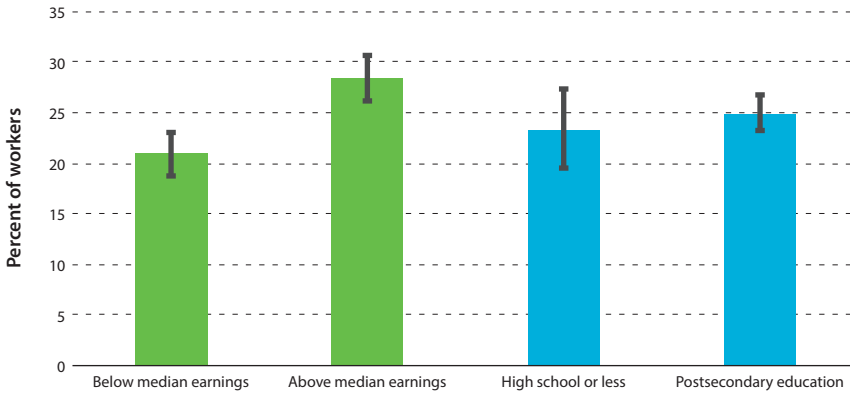
In the weighted sample, 15.5 percent of workers responded they were currently covered by a non-compete clause. This figure is similar to Starr, Bishara, and Prescott's (2017) estimate before they made an adjustment for underreporting. The percentage of workers who said they were covered by a non-compete clause was slightly higher for those with a high school diploma or less (17.5 percent) than for workers with post-high school education (14.6 percent), on average.

For those who responded that their employment relationship does not restrict them in any way from taking another job, we asked, "Have you ever worked for a company that restricted where you could work after you left that company because of a non-compete clause or some other reason?" Taking into account previous employment as well as current employment, 24.5 percent of the workforce is bound by a non-compete restriction on their



FIGURE 1.

## Share of Workers Covered by a Non-Compete Agreement in Current or Former Job, by Weekly Earnings and Education



Source: Authors' calculations based on SSI survey; see text.

Note: The length of the error bars indicate the standard errors of the respective estimates.

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current job, or was bound by a non-compete from a previous job. Figure 1 displays the proportion of workers who are restricted by a non-compete agreement in their current job or have been so restricted in a former job, disaggregated by earnings (above or below the median weekly earnings) and education (high school or less versus some postsecondary education or more). As one would expect, higher-income workers are more likely to be covered by non-compete agreements, but a remarkably high 21 percent of workers who earn less than the median salary are currently or have been restricted by a non-compete agreement. And workers with a high school diploma or less are almost equally likely to be covered by a non-compete agreement in a current or former job as are workers with some postsecondary education.

### Franchise No-Poaching Agreements

Like non-competes, no-poaching agreements went unnoticed by many labor market observers until recently. There was little evidence that companies used them, and in any event no one challenged that they were illegal. But in 2017 employees of McDonald's sued the company under the antitrust laws for subjecting its franchisees to a no-poaching arrangement.<sup>6</sup>

Since at least 1987 until early in 2017, McDonald's has included the following no-poaching clause in its standard franchise contract:

*Interference With Employment Relations of Others.* During the term of this Franchise, Franchisee shall not employ or seek to employ any person who is at the time employed by McDonald's, any of its subsidiaries, or by any person who is at the time operating a McDonald's restaurant or otherwise induce, directly or indirectly,

such person to leave such employment. This paragraph 14 shall not be violated if such person has left the employ of any of the foregoing parties for a period in excess of six (6) months.<sup>7</sup>

This clause was dropped from McDonald's franchise contract in early 2017, around the time that CKE Restaurants Holdings was sued for having a similar clause in its Carl's Jr. franchise contract.

By examining franchise disclosure documents for 156 franchisors with more than 500 franchise units operating in the United States in 2016, Krueger and Ashenfelter (2017) show that 56 percent of major franchisors have no-poaching agreements in their franchise contracts. They provide an illustrative calculation indicating how no-poaching agreements within franchisors can greatly increase the effective Herfindahl-Hirschman index—a measure of industry concentration used to evaluate market competitiveness—and create employer market power over workers. In essence, if all units of a franchise chain act as if they are one company in terms of hiring practices, then an otherwise competitive labor market can become much more concentrated.

To determine whether this practice has increased or decreased over time, we obtained franchise disclosure documents filed in 1996 for the 45 largest franchisors in 2016 that were in operation in 1996 from the same source used by Krueger and Ashenfelter (2017). Figure 2 reports the share of these franchise chains with a no-poaching agreement in 1996 and in 2016. Over the past 20 years the share of major franchise companies that included a no-poaching covenant in their standard franchise agreement increased from just over one-third to slightly more than half.<sup>8</sup> An example of a chain that added a no-poaching clause in the past twenty years is the International House of Pancakes, which currently requires the following of its franchisees:

*Non-Solicitation.* During the Term of this Agreement and for one year following the expiration or termination and each Assignment, Franchisee shall not, without the prior written consent of Franchisor, directly or indirectly: (a) employ or attempt to employ any person who at that time is employed by Franchisor, an Affiliate of Franchisor, or any other Franchisee or area developer of Franchisor, including, without limitation, any manager or assistant manager; (b) employ or attempt to employ any person who within six months prior thereto had been employed by Franchisor, an Affiliate of Franchisor, or any other Franchisee or area developer of Franchisor; or (c) induce or attempt to induce any person to leave his or her employment with Franchisor, an Affiliate of Franchisor, or any franchisee or area developer of Franchisor.<sup>9</sup>

In all likelihood, the proliferation of no-poaching agreements has increased franchise companies' monopsony power over workers in recent decades.

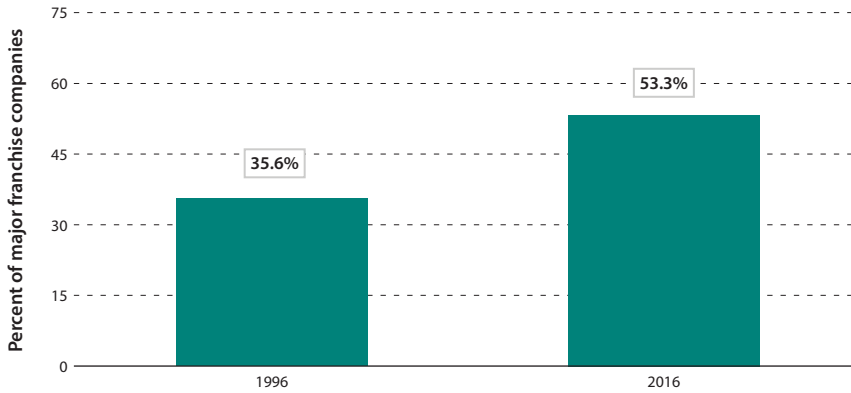
## THE LIMITS OF THE LAW: WHY A NEW APPROACH IS NEEDED

### *Collusion and Monopsonization*

Labor market concentration poses a difficult challenge to antitrust enforcement. A firm that enjoys monopsony power over a labor market and uses that power to pay its workers

FIGURE 2.

## Share of Major Franchise Companies with a No-Poaching Clause, 1996 and 2016



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Source: Based on data provided by FRANData (frandata.com); and Krueger and Ashenfelter 2017.

below the competitive rate is not liable under the antitrust laws, as long as the firm did not take intentional actions to obtain that power. For example, if a large factory dominates the labor market of a small town because other factories in the area have shut down, the factory owner is free to pay below-market wages without violating antitrust laws.

In contrast, when firms achieve labor market power through mergers or collusion—such as through no-poaching agreements—they do violate the antitrust laws. Firms obtain labor market power through merger when two employers who compete for workers combine into a single entity. If the labor market is already relatively concentrated or the firms are large employers, the increase in labor market power may be significant. Firms can obtain market power even without merging by agreeing to not compete over labor. They can do this in many ways—for example, agreeing not to hire away each other's workers, agreeing to draw from different pools of labor, coordinating on wages and benefits, sharing information, and so on.

Firms that obtain labor market power in these ways violate the antitrust laws. The problem lies in enforcement. Firms accused of violating the antitrust laws can defend themselves by arguing that apparently anticompetitive behavior allows them to lower prices by exploiting economies of scale. Anticompetitive behavior can result from hard-to-prove, and not always illegal, tacit coordination rather than explicit agreement. Thus, even when firms do not enter no-poaching agreements, firms may be able to coordinate wages without entering into explicit agreements, for example, through sharing of information about compensation, or adopting parallel practices of not raiding each other's workforce (DOJ and FTC 2016). When firms engage in these more ambiguous types of activities, plaintiffs will have trouble persuading courts that their actions are illegal.

An additional hurdle to antitrust enforcement is the cost of bringing lawsuits. Individual employees will almost never have the resources or incentives to sue employers for antitrust violations because of the vast cost of an antitrust suit along with the relatively small sums at stake. Private wage suppression suits therefore require a class action, which imposes considerable costs and risks on law firms. While the government can bring such suits, and has in a few cases, it faces a similar problem of limited resources and high risk. In contrast, product-market antitrust claims are often brought by large firms that are harmed by the alleged anticompetitive practices.

### *Non-Compete Agreements*

#### **Common Law**

In the common law, courts make an exception to the principle of freedom of contract and refuse to enforce non-compete agreements that are “unreasonable.”<sup>10</sup> To determine whether a non-compete clause is unreasonable, a court typically asks whether the clause is broader than necessary to protect the employer’s legitimate business interest. Accordingly, a court might determine that the geographic scope of a non-compete clause is too broad if the employee works in a much smaller area, or the industry scope is too broad if not all employers within the designated industry actually compete with the employer in question.

Employers usually argue that the clause is needed to protect trade secrets, such as client lists, or to protect their investment in the employee, who may have received training. The worry is that if employees are permitted to work for rivals of their employers, then they will be able to transfer information to those rivals, which would discourage employers from sharing information with employees, force them to use elaborate firewalls and other protections, or refuse to invest in trade secrets in the first place. Employers might also underinvest in their employees if employees can take their new skills to rivals.

While the courts’ approach to non-compete agreements may provide some protection to low-income workers, it is plainly inadequate. First, employees frequently do not read or understand employment agreements because they are long and complex, and the workers do not have the means to hire a lawyer to interpret the contract for them. Poorly educated workers who can command only low wages are at a greater-than-usual disadvantage. In some cases, employees may be first informed of the non-compete clause after they begin work or when they quit. Second, the remedy for an unreasonable non-compete clause is generally either nonenforcement or reformation of the clause so that it is less broad; the employer is not penalized or forced to pay damages to the employee. This means that employees threatened with a lawsuit if they try to work for a rival firm will not be able to attract a lawyer to defend them. Lawyers must be paid, and low-wage workers cannot afford to pay lawyers; since they will not receive damages, lawyers cannot be paid out of any recovery. Given the frequency of the practice, employers appear to understand that they face no sanction if they insert unenforceable non-compete clauses in contracts even if the clauses enable the employers to intimidate the employees. Finally, because of the vagueness of the legal standard that governs non-compete clauses, it is always possible that an employee will lose a case. This will further deter an employee from seeking legal relief, and a lawyer from helping him or her.

Another problem with the common law approach to noncompetition agreements is that these agreements might have significant anticompetitive effects even when they are permissible. Imagine that a monopsonistic employer requires all employees to sign non-competes as a condition of employment. The non-competes may be deemed reasonable under the common law because of their limited scope and duration, but nonetheless deter other employers from entering the market for labor because they fear that they will not be able to find enough employees to run their businesses. From a social standpoint, it may be optimal to prohibit such non-competes because of their collective anticompetitive effect even though they are individually reasonable.

### Legislation

In most states, non-compete agreements are mainly governed by the common law only. But in California, North Dakota, and Oklahoma, non-competes are generally prohibited by statute.<sup>11</sup> In recent years several state legislatures, including those of Hawaii, New Mexico, Oregon, and Utah, have considered or passed legislation that puts limits on non-competes (Lohr 2016). Notably, in 2016 Illinois passed a law banning non-competes for low-wage workers, defined as those who earn no more than \$13 per hour or the relevant legal minimum wage, whichever is higher.<sup>12</sup>

Maine, Maryland, Massachusetts, and New Hampshire are currently considering legislation to restrict non-compete clauses, particularly with respect to low-wage workers (Beck 2017; Quinton 2017). The bills vary greatly, but some of them entail fairly sweeping changes. For example, one bill being considered in Massachusetts tightens the common law analysis of all non-compete agreements, while also prohibiting their use for low-wage workers (nonexempt workers under the Fair Labor Standards Act, who are lower-income and paid on a wage basis). For all non-competes, the bill requires employers to give workers notice of non-competes, to supply additional consideration when non-competes are created after employment begins, to review the agreement with the worker every three years, and to notify the worker of the agreement at termination. It also tightens the common law limits on duration, geographic scope, and industry scope.<sup>13</sup> Going in the other direction, Idaho recently passed a law that makes it more difficult for employees to challenge a non-compete (Dougherty 2017b).

Overall, the legal regime is insufficient to address the antitrust problems posed by non-competes for several reasons. First, the common law and much of the statutory law do not address problems of market power in an adequate way. When employers enjoy monopsony power, this type of law offers no protection to workers who must either accept unfavorable terms or do without wages. Second, the remedies are too weak. Even when non-competes are illegal, the normal remedy is simply nonenforcement. This means that employers have nothing to lose from inserting non-competes into contracts. Since employers may be able to deter workers from quitting and finding new jobs in the same industry simply by pointing out the existence of the clauses in the contracts, the law does nothing to deter employers from using the clauses. Third, while some states have taken strides to restrict non-competes for low-wage workers, these types of agreements remain lawful nearly everywhere. Fourth, while non-competes can be challenged under the antitrust laws, which provide for significant remedies, defendants can often avoid liability by showing that the non-competes serve a reasonable business purpose.<sup>14</sup>

### *No-Poaching Agreements within Franchises*

When firms are independent, no-poaching and related agreements are clear violations of antitrust law.<sup>15</sup> Antitrust law forbids independent firms from agreeing not to compete, and in a no-poaching agreement firms agree not to compete for workers.

However, no-poaching agreements remain common and have grown in usage in franchise contracts, as we show above. The difference is that typically a single franchisor enters an agreement with each individual franchisee under which the franchisee promises the franchisor that it will not poach employees from other franchisees or company-owned units. This type of arrangement does not as clearly run afoul of antitrust law for two reasons. First, the components of a franchise may be considered a “single economic entity,” in which case antitrust law does not apply. Second, the agreement in the franchise setting is technically a “vertical” rather than a “horizontal” agreement, which is evaluated under a more generous standard in antitrust law. In *Williams v. I. B. Fischer Nevada*, a court recognized both of these issues in the course of holding that a no-poaching agreement between the Jack in the Box franchise and each of its franchisees did not violate section 1 of the Sherman Act.<sup>16</sup> It is unclear whether this holding remains good law after the Supreme Court narrowed the definition of a “single economic entity” in 2010, making it easier for courts to see franchisees as independent companies that may enter conspiracies in violation of the Sherman Act.<sup>17</sup>

Nonetheless, franchisors who enter no-poaching agreements with franchisees face little risk of antitrust liability. The law remains unsettled; even if it becomes clear that the single economic entity rule has been relaxed for franchises, it will remain difficult for victims of no-poaching agreements to win cases because of the complexity of the rule-of-reason analysis applied to vertical agreements. As in the case of non-competes, workers who seek to vindicate possible legal claims face fundamental logistical problems. Because antitrust cases are complex, expensive, and risky, and no-poaching agreements may be secret, it may not be worth the time and money to bring lawsuits. Class actions remain possible but they, too, pose considerable risk to the lawyers who bring them.<sup>18</sup> In addition, in recent years the Supreme Court has erected new barriers to class actions by workers against employers.<sup>19</sup>

## A New Approach

### **HORIZONTAL MERGER GUIDELINES**

DOJ and the FTC review mergers between large firms under the Horizontal Merger Guidelines (DOJ and FTC 2010). The Guidelines focus on the problem of product market competition, and provide rules that help regulators determine whether a merger will have anticompetitive effects in such markets. While the Guidelines acknowledge that regulators should also be on guard against mergers that enhance market power for buyers vis-à-vis suppliers, they do not address the special issues that arise when those suppliers supply labor rather than other inputs (DOJ and FTC 2010). This omission needs to be corrected.

The Guidelines (DOJ and FTC 2010) should include a new section that directs the government to screen mergers based on their likely effects on labor markets. Such an analysis can be based on the normal approach to analyzing the effects of mergers on product

markets. First, the agency should define the labor activity—for example, sandwich maker, waiter, barista, or retail clerk. It may be appropriate to use very broad definitions in some cases (e.g., unskilled labor). The frequency of movements of workers between occupations—which is informative about the similarity of tasks involved in various occupations—could be a useful guide for defining the scope of labor activity.

Second, the agency should identify the various labor markets affected by the mergers. These are geographic areas that encompass the commuting range of workers of the relevant skill level. Some labor markets are national in scope (e.g., skilled professionals) and some are more limited.

Third, the agency should assess the effect of the merger on concentration in the labor market. Specifically, the agency would calculate the premerger and postmerger Herfindahl-Hirschman index levels of the labor market, and recognize a presumption against a merger if the postmerger absolute level of concentration and/or the increase indicate too high a risk of wage suppression.

Fourth, merging firms should be allowed to rebut this presumption by showing special characteristics of the labor market, such as high worker mobility, or evidence that the merger will create significant benefits—economies of scale, for example—that sufficiently offset any losses to workers.

Under our proposal, the regulators would be on guard against effects on both product market competition and labor market competition. The two are obviously different. Imagine that two manufacturers seek to merge, and that they both sell goods into a national market in which many other competitors are involved. The merger would pass the Guidelines as currently written. But imagine that the factories of the two competitors are located in the same town, and those factories are the largest employers of the town's low-skill workers. The merger should be blocked because of its negative labor market effects unless the merging companies can show that the labor market will remain competitive or that there are other significant benefits from the merger.

Because this proposal may require more analysis by the Antitrust Division at DOJ, we also suggest that the resources of this department be expanded, with special attention to hiring labor market economists. This would also provide more capacity to investigate wage collusion or no-poaching agreements.

## **NON-COMPETE AGREEMENTS**

Non-compete agreements may be justified when employers heavily invest in training employees, or trust them with valuable information, including trade secrets, but this is rarely the case with unskilled or low-skilled workers. In these cases, the most plausible explanation for non-competes is their anticompetitive value for employers. Moreover, because many low-income workers rarely read and understand their employment contracts, the risk of harm is far greater than in other contexts. Accordingly, we believe that states should pass laws, modeled on Illinois' laws, that flatly ban non-competes for workers earning less than \$13 per hour. Specifically, we propose that non-competes be uniformly unenforceable and banned if they govern a worker who earns less than the median wage in her state.

It is possible to argue that such an approach is too crude. Some low-income workers are given significant training, and some are entrusted with trade secrets. It could be argued that

employers should be allowed to use non-competes—if not too strict in terms of geographic scope, industry definition, and duration—when they can show the non-compete advances these interests. But this would just duplicate current law, which is plainly inadequate, and in any event trade secrets are protected by another area of the law that we would leave undisturbed. Experience in California, where Silicon Valley flourishes despite (or perhaps in part due to) the unenforceability of non-competes, suggests that the strong claims made on behalf of the value of non-competes are greatly exaggerated (Fallick, Fleischman, and Rebitzer 2005; Gilson 1999). Accordingly, we believe that the best approach is a flat ban of the kind we describe.

A further problem needs to be addressed, which is the deterrent effect of even unenforceable non-competes against workers who lack the resources and sophistication to challenge them in court. To address this problem, states should pass laws that require firms to delete from employment contracts non-competes that are legally unenforceable; and to pay penalties if the firms incorrectly tell employees that they are governed by non-competes and threaten to sue them if they quit and accept jobs elsewhere in the industry. The latter types of action can be likened to fraudulent conduct and business torts that are already illegal. The regulation we advocate can also be seen as akin to the type of disclosure rules that require employers to inform workers of their employment and labor rights.

## **NO-POACHING AGREEMENTS**

Employers sometimes defend no-poaching agreements on the grounds that they allow employers to protect their investments in employees. This is simply not an accepted view in antitrust law. There are more-efficient ways to protect investments—for example, by offering employees bonuses if they stay with the employer—that do not pose such a significant risk to labor market competition.

The same logic holds for no-poaching agreements between franchisors and franchisees. While franchisors sometimes argue that within-franchise no-poaching agreements lead to more-specific training, that training would not be lost to the franchise if no-poaching agreements were illegal; there is even less economic justification for a no-poaching agreement among franchisees in the same chain than among other unrelated employers.

Accordingly, we propose a *per se* rule against no-poaching agreements regardless of whether they are used outside or within franchises. In other words, no-poaching agreements would be considered illegal regardless of the circumstances of their use.

## **Questions and Concerns**

*1. Are problems with non-competes really a matter of inadequate information (e.g., Marx and Fleming 2012) rather than a problem of labor market concentration? If so, isn't the appropriate remedy a disclosure rule?*

The problem with disclosure rules is that they rarely work as intended, likely because of information overload. In the context of consumer protection, study after study shows that consumers ignore or misunderstand information that is disclosed as a result of legal mandates (Ben-Shahar and Schneider 2014). This problem is especially acute for people with little education and who are often desperate for work.



***2. Isn't market power more of a problem with high-skill and hence high-income workers than with low-skill workers?***

Sandwich makers might be indifferent between taking a job at another sandwich shop and at any other employer of low-skill workers, e.g., a warehouse or factory. If so, the non-compete that is limited to the sandwich industry will not prevent them from switching jobs. In contrast, computer programmers whose skills and training are specific to that industry might have trouble finding new positions if they are subject to a non-compete.

We focus on the case of low-income workers because it has been overlooked and the hardship is greater. If labor markets for low-wage workers are at least somewhat disconnected from each other, then restricting mobility will suppress low-wage workers' ability to move to higher-paying jobs. Moreover, even if all employers offered low-wage workers the same pay, non-competes could depress the entire wage scale by crowding low-wage workers into certain sectors. The fact that employers at Jimmy John's and other franchises use (or have used) non-competes suggests that they think that it increases their market power over workers. In addition, low-skilled workers are less likely to move across geographic boundaries than high-wage workers, which gives employers local monopsony power over low-wage workers. Finally, if monopsony power and anticompetitive practices suppress pay, low-wage sectors may, in fact, be a manifestation of such features of the labor market.

***3. Are there less-aggressive, more-tailored measures to address the problems we identify (including disclosure rules, as discussed above)?***

There may be, but it is important to note the considerable confusion over whether non-competes are enforceable, as well as widespread employer abuse of the practice. We argue that a simple, easily understood rule, such as an outright ban of non-competes for workers earning less than the state median wage, is likely to be effective and ultimately more efficient than a more tailored approach that in principle could be economically efficient, but in practice would be very complicated to administer and follow. The fact that some states, like Illinois, have begun to ban non-competes is a sign that political economy forces are aligned behind this approach, because of its simplicity, popularity, and efficacy.

***4. Is there a federal remedy for problems of employer wage collusion, non-competes, and no-poaching agreements?***

If states do not adequately regulate non-competes and no-poaching agreements, then the federal government should step in. Congress could pass laws that ban these practices. In addition, under its existing legal authority, the FTC could likely ban non-competes and no-poaching agreements as unfair trade practices. While federal regulation can be applied only to "interstate commerce," that term has been interpreted broadly by the courts, so that a federal intervention would likely be valid and effective.

***5. If these proposals are implemented, won't employers find other ways to exercise monopsony power?***

Even if non-competes and no-poaching agreements are prohibited, and mergers are subjected to greater scrutiny, employers likely will seek out new ways of extending and exercising monopsony power. But it is doubtful that these other methods are equally

effective substitutes for the practices that we seek to constrain. In any event, we advocate additional research and, if appropriate, legal regulation to address these other practices.

## Conclusion

The problems we have focused on—mergers, non-competes, and no-poaching agreements—are part of a much larger problem: employer concentration and market power within labor markets. While the exact contours of the problem remain obscure, there is little doubt that shifting market power has contributed to income inequality, wage stagnation, and sluggish economic growth. Even if our solutions are adopted, we expect that labor market concentration and unequal bargaining power will continue to be a problem as employers find new ways to enhance their market power.

We hope, then, to stimulate reflection on this larger problem. There seem to be three general avenues for future research and policy. First, it may be necessary to strengthen and reorient antitrust law so that it is more usable for labor market concentration than it currently is. Merger screening is only one part of this process. There may be other commonly used practices—like information sharing, coordination of hiring through headhunters and networks, and so on—that facilitate coordination on wages and hiring, or enable monopsonists to extend their market power.

Second, researchers should also evaluate anew employment regulations that may enhance workers' bargaining power. While a great deal of attention has been devoted to minimum wage laws, other laws that control aspects of the employment relationship—including hours, working conditions, and benefits—may have desirable competitive effects by offsetting unequal employer bargaining power. Contract terms (beyond non-competes) that reduce worker mobility also may be a matter of concern.

Third, there are broad public-policy strategies that might meaningfully improve the bargaining power of workers. These include public infrastructure, which can increase the size of labor markets by reducing commute times; education; immigration policy; and union regulation.

## Endnotes

1. For evidence on the effect of employer concentration on wages, see Azar, Marinescu, and Steinbaum (2017). For evidence on growing firm concentration in the labor market, see Autor et al. (2017).
2. See also *U.S. and State of Arizona v. Arizona Hospital and Health Care Association & AzHHA Service Corp.*, No. CV07-1030-PHX (D. Ariz. Final Judgment filed September 12, 2007), [www.justice.gov/atr/case/us-and-state-arizona-v-arizona-hospital-and-healthcare-association-and-azhha-service-corp](http://www.justice.gov/atr/case/us-and-state-arizona-v-arizona-hospital-and-healthcare-association-and-azhha-service-corp).
3. States vary substantially in terms of what they consider to be a reasonable non-compete agreement, and how they approach the enforcement of non-competes more generally. For example, some states will allow a court to enforce a modified version of a contract that is otherwise unenforceable, while other states do not permit this.
4. Non-competes can nevertheless still be damaging for workers with adequate legal representation and knowledge, as the examples in Dougherty (2017a) suggest.

5. For some notable cases involving more general settings, see *Todd v. Exxon*, 275 F.3d 191 (2d Cir. 2001) (petrochemical companies shared salary information of certain employees); *Nobody in Particular Presents, Inc. v. Clear Channel Commc'n*, 311 F.Supp. 2d 1048 (D. Co. 2004) (DJs); *Jung v. Ass'n of Am. Med. Coll.*, 300 F.Supp.2d 119 (D. D.C. 2004) (physicians); *In re Animation Workers Antitrust Litig.*, 123 F.Supp.3d 1175 (N.D. Cal. 2015) (animation workers).
6. Class Action Complaint, *Deslandes v. McDonald's USA, LLC et al*, No. 1:17-cv-04857 (N.D. Ill. filed June 28, 2017).
7. *Deslandes v. McDonald's USA*, 18.
8. The 18-percentage-point increase in the share of major franchise chains with a no-poaching restriction over the past two decades was unlikely to have occurred by chance; a paired *t*-test of no change has a *p*-value of 0.004.
9. Section 16.16 of the International House of Pancake 2017 Franchise Agreement, registered with the Wisconsin Department of Financial Institutions, <https://www.wdfr.org/apps/FranchiseSearch/details.aspx?id=615829&hash=177165780&search=external&type=GENERAL> on January 1, 2018.
10. There is considerable variation in the relevant common law across states. The discussion abstracts away from the many differences in law.
11. Cal. Business & Professions Code § 16600; N.D. Cent. Code § 9-08-06; OK Stat. § 15-219A.
12. Illinois Public Act 099-0860 (2016).
13. H.2366, 2017 Gen. Court, 190th Sess. (Mass. 2017).
14. 15 U.S.C. § 1–2. Under standard antitrust analysis, plaintiffs can prevail either by showing that the non-compete was the result of a conspiracy (§ 1) or that it furthered an effort to monopolize (or monopsonize) (§ 2). But an ordinary non-compete clause is not a conspiracy, because it involves an agreement between the employee and the employer, who are not competitors, rather than between two firms. And Section 2 can usually be enforced only against firms that achieve or attempt to achieve significant market dominance, and not in the case that concerns us, where common usage of non-competes across firms create labor market frictions that enhance employers' bargaining power without giving them full-blown monopsonies. For an attempt to challenge a fairly significant non-compete arrangement that failed because a court was persuaded that it served legitimate business purposes, see *Eichorn v. AT&T Corp.*, 248 F.3d 131 (3rd Cir. 2001).
15. In 2010 Adobe Systems, Apple, Google, Intel, Intuit, and Pixar entered a consent decree after the government accused them of entering no-poaching agreements in violation of antitrust law. *United States v. Adobe Sys., Inc.*, No. 1:10-cv-01629 (D.D.C. filed Sept. 24, 2010); *United States v. Lucasfilm Ltd.*, No. 1:10-cv-02220 (D.D.C. filed Dec. 21, 2010); DOJ 2010.
16. 999 F.2d 445, 447–448 (9th Cir. 1993).
17. *Am. Needle, Inc. v. Nat'l Football League*, 560 U.S. 183, 186–187 (2010). For a discussion, see Lindsay and Santon (2012).
18. See e.g., *Weisfeld v. Sun Chem. Corp.*, 84 Fed.Appx. 257 (3rd Cir. 2004), which provides a vivid illustration of the difficulties that lawyers face in constructing a class of workers. To obtain class certification, a plaintiff must show that the alleged wrongful conduct affected all members of the class in a similar way. The Court held that the plaintiff could not make such a showing because of variation among putative class members, including:  
     whether a covenant not to compete was included in a particular employee's contract; the employee's salary history, educational and other qualifications; the employer's place of business; the employee's willingness to relocate to a distant competitor; and [employees'] ability to seek employment in other industries in which their skills could be utilized (e.g., pharmaceuticals, cosmetics).  
     Id., citing *Weisfeld v. Sun Chemical Corp.*, 210 F.R.D. 136, 144 (D.N.J.2002).
19. *Wal-Mart v. Dukes*, 564 U.S. 338 (2011).

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# Information Is Power

## Fostering Labor Market Competition through Transparent Wages

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### Abstract

Lack of competition in the labor market is gaining attention as a source of wage stagnation in the United States. One component of this challenge is asymmetric information on wages, whereby employers have superior knowledge of the distribution of wages relative to workers. This asymmetry of information is potentially suppressing wage growth as it limits workers' ability and inclination to negotiate for higher pay. This paper advances a five-part proposal to improve wage transparency as a strategy for improving worker bargaining power, and ultimately, raising wages across the income distribution.

### Introduction

Despite steadily increasing productivity, most workers in the United States have experienced stagnant wages over the past four decades. Aside from a brief period of rapid wage gains at the end of the 1990s, strong and persistent wage growth has proven elusive since at least the Nixon administration. Excluding top wage earners reveals a particularly stark trend: the bottom 90 percent of workers have seen cumulative real wage gains of just 15 percent since 1979 (Mishel, Gould, and Bivens 2015).

Labor economists have developed several theories to explain this continued stagnation—and each has merit. One favored explanation has been unequal returns to skilled and unskilled labor owing to advances in technology (dubbed by economists as skill-biased technological change [Autor, Levy, and Murnane 2003]). An attendant cause for a subset of occupations has been pressure from low-wage foreign workers, especially related to Chinese firms' growing access to markets following China's accession to the World Trade Organization in 2001 (Autor, Dorn, and Hanson 2013). Labor economists have also cited the deterioration in pro-labor institutions (e.g., union membership and the federal minimum wage) that has eroded worker bargaining power and pushed down wage growth (DiNardo, Fortin, and Lemieux 1996; Lee 1999).

Recently, economists and others have recognized a fourth explanation for stagnant wages: lack of competition in the labor market. In a competitive labor market, workers' pay is set by the economic value of their work, and not by the firm's bargaining position. A firm that pays a wage below this level will lose all its employees, and firms have no incentive to

pay above the market rate. Conversely, a noncompetitive labor market where the firm has power to set wages—called a monopsony—leads to lower levels of employment, depressed wages, and higher firm profits.

Monopsony power can arise for a host of reasons, ranging from lack of other employers to hiring barriers to informational advantages. Many of these barriers have been addressed in other Hamilton Project policy proposals such as a paper by Seth Harris and Alan Krueger (2015) on modernizing labor laws, and a proposal in this volume by Alan Krueger and Eric Posner (2018) on no-poach agreements within franchises. This paper addresses another specific factor impacting labor market competition: lack of wage transparency.

In the U.S. labor market, information on wages and compensation is decidedly asymmetric. Employees frequently do not know how their pay compares to comparable workers, either within or outside their firm, and are reluctant to seek this knowledge out of fear of retaliation, social norms, or general inertia. In stark contrast, many employers use compensation surveys to know precisely where their workers fall in the distribution of wages. In other markets characterized by asymmetric information, the entity with more complete information maintains a distinct advantage (Hart and Holmström 1987); the U.S. labor market is likely no different.

Policymakers at all levels are increasingly taking action to address the problem of information asymmetry, both in terms of making wages more transparent and in banning punitive pay secrecy practices. Between 2000 and 2014 several states passed laws protecting workers who discuss pay levels with their colleagues. In 2014 President Obama issued both an executive order that banned federal contractors from retaliating against employees who discussed wages, and a presidential memorandum calling for contractors to submit summary wage data by sex and race. In 2016 the Equal Employment Opportunity Commission (EEOC) furthered this agenda by calling on large employers to report summary pay data by demographic characteristics. And in the U.S. Congress, lawmakers have proposed the Paycheck Fairness Act (2017), which builds on the Equal Pay Act of 1963 by addressing gender-based inequities in the labor market.

This paper puts forth an aggressive agenda to promote better wage transparency through a five-part proposal. The first two pillars aim to ensure wage information is available to workers. The first pillar of the proposal advocates for states to adopt comprehensive laws, such as those found in Michigan, both to protect workers from employer retaliation for discussing wages, and to discourage employers from asking workers to waive their right to disclose pay. A portion of these laws overlap with the federal protections provided by the National Labor Relations Act (NLRA) and other legislation, but the proposal would provide an extra layer of protection for workers seeking to gain more information about how their pay compares to that of their coworkers.

The second pillar of the proposal addresses the interrupted progress of a 2016 action by the EEOC that would require large companies to more comprehensively report their compensation data. The action, initiated at the end of the Obama administration and halted by the Trump administration, would have required companies with more than 100 workers to report aggregated wage data by demographic characteristics. Designed to help combat racial and gender discrimination in compensation, the order would also have empowered workers across the economy by enhancing the aggregate pay data collected by the EEOC.

The third and fourth pillars of the proposal are designed to level the playing field with respect to wage transparency by providing workers the same wage information afforded to employers. The third pillar amends an antitrust safe harbor created by federal regulators concerning the sharing of compensation information with competing firms. The proposal would reform the safe harbor guidelines, which protect firms from claims of wage collusion, to require that companies share any commissioned compensation survey data with workers. Such a change might encourage companies to share the results of compensation surveys with workers, but could also lead to lower take-up of these surveys. Either way, workers and firms would have more equal access to wage data.

The fourth pillar explicitly prohibits employers from asking about prior pay levels during the hiring process unless they provide data on the pay of comparable workers. This pillar would either discourage companies from asking about prior pay levels, or help workers form an accurate perception of their standing in their firm's pay scale.

The fifth pillar concerns evaluation of policy efforts to promote wage transparency. The proposal calls for Congress to appropriate a small amount of funds for the U.S. Department of Labor (DOL) to study the impact of wage transparency on compensation levels. If the findings suggest that disclosure can have a marked impact on wage trends, federal and state policymakers should redouble their efforts to foster a more competitive labor market by eliminating any informational disadvantage.

## The Challenge

Wage growth since the 1970s has been defined by stagnation and unequal growth. Put simply, most workers have experienced lackluster wage growth in almost all years since that time, while a select share of workers saw sustained gains. The Economic Policy Institute calculates that cumulative real wage growth for the bottom 90 percent of workers amounted to just 15 percent since 1979, compared to real cumulative growth of 138 percent for the top 1 percent of workers (Mishel, Gould, and Bivens 2015). A recent Hamilton Project analysis found similar trends, with the bottom quintile actually seeing falling real wage growth (−0.98 percent), a marked discrepancy from the 27 percent cumulative real increase enjoyed by the top quintile (Shambaugh et al. 2017).

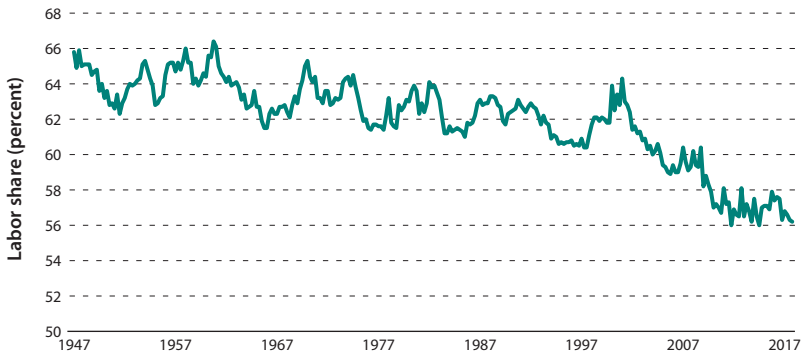
Wage stagnation has been accompanied by a falling share of labor income. This share, which measures the amount of income captured by labor compared to capital, was on a general downward trend between the late 1970s and late 1990s. Around 1997, when labor markets were exceptionally tight and wages grew at their fastest rate in the postwar era, the labor share shot upward from around 60 percent to just above 64 percent. However, beginning with the 2001 recession, labor again began losing out to capital, and the labor share has been falling quickly since then (figure 1).

These trends are all subject to plenty of caveats, such as the finding that some of the decline is due to measurement issues (Elsby, Hobijn, and Şahin 2013).<sup>1</sup> But, caveats aside, the basic trends remain: most workers are seeing limited gains and labor has been losing to capital for almost two decades without relief.



FIGURE 1.

## Labor Share of Income, 1947–2017



Source: Bureau of Labor Statistics 1947–2017.

Note: Elsby, Hobijn, and Sahin (2013) calculate that self-employed workers made up 4.8 percentage points of the labor share in the first quarter of 2013.

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Over the past several decades, three primary explanations for these trends have emerged. First, skill-biased technological change has changed the relative demand for highly skilled workers.<sup>2</sup> Automation, which can be considered a corollary to this factor, has also contributed to unequally distributed gains for skilled and unskilled workers. Although these developments have been a net positive for highly skilled workers, low-skilled workers at the bottom end of the wage distribution have fared worse.

A second factor contributing to wage stagnation is exposure to trade. In the 1970s, as lower transportation costs and free trade regimes led to a steep rise in trade intensity, a subset of American workers were increasingly in competition with lower-cost alternatives—especially with workers in less-developed economies. This situation intensified after China joined the World Trade Organization in late 2001, which led to reduced trade barriers with that country.<sup>3</sup> It is worth noting, however, that increased trade intensity also lowered goods prices throughout the U.S. economy, reducing inflation and raising real wages for all workers.<sup>4</sup> From this perspective, increased trade likely had marked net negative impacts on workers and communities that were heavily invested in some types of manufacturing, but had a positive net impact on the rest of the country.

A third type of explanation relates to declines of pro-labor institutions, notably including the real minimum wage and union membership. The federal minimum wage has fallen by more than 25 percent since 1986 in real terms, depressing the wages of workers even well above the minimum wage threshold itself.<sup>5</sup> However, recent legislative actions in states and localities have boosted the effective minimum wage faced by many workers. Declining union membership has also played a major role in wage trends: union membership in the United States has been falling steadily since the 1960s, and today just 6.5 percent of private sector and 34.4 percent of public sector workers belong to a union (Bureau of Labor Statistics [BLS] 2018).<sup>6</sup>

Other factors might be playing a role, too, although their impact is less supported by empirical evidence. Perhaps the most contentious and high profile of these factors is immigration, which studies generally find has a small impact on wages, with some studies finding both positive and negative impacts.<sup>7</sup> A shifting Federal Reserve focus away from full employment, an aging workforce, declining labor force mobility, and job-lock owing to employer-provided health insurance are all potential factors holding down wages.

## LABOR MARKET COMPETITION

A fourth explanation for continued wage stagnation has been gaining traction in the past several years and is the focus of this paper: lack of competition in the labor market. The central hypothesis is that firms have gained market power over workers through a number of strategies, enabling firms to increase their profits above what would be expected if the labor market were more competitive. In a labor market monopsony—the labor market equivalent of a monopoly in the product market—firms set wages that will maximize their profits, leading to fewer employees (less employment), lower wages, and lower economic efficiency.<sup>8</sup> The alternative to a monopsony is a perfectly competitive labor market, where firms simply take the market wage as given and workers receive the full market value of their labor.

Firms can gain monopsony power in a variety of ways. Perhaps the most obvious way is for them to acquire market power in a particular labor market by becoming one of a few employers for a given occupation in that area. Alternatively, if there are high costs to workers transferring between firms, companies can pay less than the market rate because employees' costs of switching outweigh potential wage gains. Just as the only carpenter in a town can charge higher-than-market rates due to his monopoly power, a house-building company that is the only employer of carpenters could offer low wages because the workers have no other plausible options.

Other strategies that firms can use to gain a bargaining advantage include non-compete agreements (agreements in labor contracts prohibiting workers from accepting employment with a competitor), mandatory arbitration clauses (labor contract provisions requiring workers to forgo their right to settle disputes in court, and instead engage in arbitration), implicit wage collusion (tacit agreements between employers to pay workers less or to offer lower raises), and no-poaching agreements between franchise owners to not hire workers from other franchise locations. Several Hamilton Project papers, published previously or in this volume, have addressed these issues.

There is growing evidence that some labor markets in the United States exhibit monopsony-like qualities.<sup>9</sup> First, market concentration is increasing: between 1997 and 2012 many sectors saw substantial gains in the revenue share captured by the 50 largest companies. For example, in the retail sector the share of revenue realized by the 50 largest firms rose from 25.7 percent to 36.9 percent; other sectors saw similar patterns (see table 1). In addition, there is evidence that today's workers are less mobile geographically, with interstate mobility falling steadily since at least the 1980s (Molloy, Smith, and Wozniak 2014). This decline has possibly weakened worker bargaining power relative to employers.<sup>10</sup>

TABLE 1.  
Change in Market Concentration by Sector, 1997–2012

| Industry   | Revenue earned by 50 largest firms, 2012 (billions of dollars) | Revenue share earned by 50 largest firms, 2012 | Percentage point change in revenue share earned by 50 largest firms, 1997–2012 |
|--|--|--|--|
| Transportation and warehousing                   | 307.9  | 42.1   | 11.4   |
| Retail trade                                     | 1,555.8  | 36.9   | 11.2   |
| Finance and insurance                            | 1,762.7  | 48.5   | 9.9  |
| Wholesale trade                                  | 2,183.1  | 27.6   | 7.3  |
| Real estate rental and leasing                   | 121.6  | 24.9   | 5.4  |
| Utilities  | 367.7  | 69.1   | 4.6  |
| Educational services                             | 12.1   | 22.7   | 4.2*   |
| Professional, scientific, and technical services | 278.2  | 18.8   | 2.8*   |
| Arts, entertainment, and recreation              | 39.5   | 19.6   | 2.5*   |
| Administrative/support                           | 159.2  | 23.7   | 1.6  |
| Health care and assistance                       | 350.2  | 17.2   | 0.8*   |
| Accommodation and food services                  | 149.8  | 21.2   | 0.1  |
| Other services and nonpublic administration      | 46.7   | 10.9   | −0.2*  |

Source: Furman 2016.

Note: Concentration ratio data is displayed for all North American Industry Classification System (NAICS) sectors for which data are available from 1997 to 2012. Asterisk (\*) indicates that the percentage point change is calculated using only taxable firms in that industry.



WAGE TRANSPARENCY

Lack of wage transparency plays a role in helping employers to gain bargaining power relative to workers. For example, workers are less likely to search for a new, better job if they have incomplete information about their current pay relative to a prospective or anticipated raise. At the extreme, in a perfectly competitive labor market workers leave a firm if they are paid any amount below the market rate. But if the market rate is unknown, or is obscured by firms, workers are less likely to leave for a new firm to secure a competitive wage. In addition, when the market value of some fringe benefits (such as health insurance) is known only to the employer, workers are at a disadvantage when attempting to compare their total compensation to the market rate.

The problem of limited wage transparency is also likely exacerbated by the decline in unionization. When a union negotiates on behalf of workers, it has access to better information than that known by any individual worker. It knows the wages and compensation of all

workers covered by the union, and—depending on the circumstances—probably has better information about the distribution of wages in the particular industry and labor market. Whereas the union-employer bargain is not characterized by complete information—unions might not know firm profitability, for example—familiarity with the distribution of wages in a given market puts workers in a stronger position during negotiations.

In the absence of unions, workers can turn to certain public sources of information on wages, including national wage surveys such as the National Compensation Survey, the Occupation Employment Statistics Survey, and the Current Population Survey.<sup>11</sup> These survey data are published by the Bureau of Labor Statistics and show aggregate averages by occupation and/or location—with no additional qualifiers such as years of education, required skills, or seniority. In recent years, websites like Glassdoor have published user-reported wage and compensation levels. And some sectors have legal requirements that wages (and compensation levels) must be published. For example, nonprofits must publish the salaries of their highest-paid employees in tax-filing forms, publicly traded companies must disclose how much their top executives are paid, and in some states public employee salaries are a matter of public record.

These data sources all have considerable weaknesses when it comes to gaining a precise understanding of prevailing wages. Consequently, employers often obtain wage data that are more fine-grained through compensation surveys (also referred to as salary surveys). These surveys are typically either commissioned by individual firms or conducted by human resources consulting companies, and generally provide detailed information on the various components of compensation for a particular job, including the distribution of base pay, fringe benefits, and bonuses. Information on employer characteristics is often collected so that survey users can accurately match data on compensation to their particular circumstances. Although it is difficult to assess the prevalence of such compensation surveys, the practice of conducting such surveys is likely widespread among employers. In 2016 PayScale surveyed 7,700 firms—primarily in the United States and Canada—on their compensation practices, and found that more than half of firms (53 percent) had completed a market study of compensation in the prior year (PayScale 2017).

Firms often justify these market studies or salary surveys on the grounds that their human resources departments are seeking to set wages at a competitive level. Firms worry that if they set wages too low, they will either fail to attract new workers or lose valuable employees to competitors. By better understanding the distribution of wages in a given industry, firms can set wages and compensation competitively. From this perspective, the use of compensation surveys could be considered a pro-competitive instrument that facilitates the setting of wages at market levels.

However, the information provided by these surveys is generally not available to individual workers, giving firms a distinct advantage over employees in pay negotiations. Workers, unaware of the distribution of wages, must accept at face value a firm's statement that it offers competitive compensation.

In other examples of markets characterized by asymmetric information, the participant with the informational advantage achieves a better outcome. Since George Akerlof's (1970) seminal paper on the market for used cars, studies of the impact of information asymmetry abound. Sadler and Sanders (2016) show that asymmetric information between NBA team

owners and players improved the owners' bargaining position during lockout negotiations, Aboody and Lev (2000) explore how insider knowledge of research budgets can lead to large stock gains, and Sufi (2007) reveals how asymmetric firm-specific knowledge leads lenders to change how they structure corporate loans.

Although those studies unambiguously find advantages accruing to possessors of asymmetric information, other studies find that effects of wage disclosure are less clear. In a study of the impact of a 2010 California mandate that public manager salaries be disclosed to the public, Alexandre Mas (2017) shows that such disclosure has led to downward pressure on public salaries and a steep increase in resignations—findings he attributes to public perceptions about high government salaries, and that might not be generalizable to a private sector context. Mas (2016) also studied the impact of a Depression-era mandate regarding disclosure of executive salaries, finding that executive salaries generally ratcheted up as a result of such disclosure: lower-paid CEOs within an industry saw their wages increase. Pay disclosure can also impact more than just wage levels: an experimental study (Card et al. 2012) found that workers with relatively low pay reported diminished satisfaction and higher rates of job seeking after learning about their pay relative to others, whereas workers with higher pay reported greater satisfaction and no increase in job seeking.

These studies focused on the impact of legally mandated disclosure of current wages, but individuals can also be sources of their own wage history during pre-employment interviews. Due to social norms or perceived pressure from the interviewer, prospective employees often surrender their informational advantage in the form of their own earnings history. Indeed, roughly half—47 percent—of all workers reported that the interviewing firm knew their wage history before making an offer (Hall and Krueger 2012). Some research suggests that this voluntary wage history disclosure leads to lower initial wage offers. For example, Barach and Horton (2017) found that restricting employers from accessing wage histories boosted the initial wage offer by 9 percent.

In sum, the stagnant wage growth over the past several decades can be attributed to a host of factors, including lack of competition in the labor market. Diminished competition itself could be due to a variety of factors, but lack of wage transparency appears to play a role in shifting bargaining power toward employers. In the next section I present a series of policy remedies aimed at equalizing access to wage data and improving competition in the U.S. labor market.

## A New Approach

Laws to promote widespread wage disclosure are gaining popularity. An increasing number of states are passing antiretaliation laws that prohibit employers from punishing workers for discussing pay. The Obama administration took a series of steps to collect wage data more effectively as a strategy for combating gender and race discrimination. In 2017 Germany passed a law that empowers workers to request data on the compensation of their peers, and that offers arbitration if the worker believes her compensation to be below her economic value. And in the U.S. Congress, lawmakers have proposed the Paycheck Fairness Act to prohibit employer retaliation against workers who share wage information.

This paper contains five distinct policy proposals for improving wage transparency in the United States. The overarching goal is to create the conditions for a more fully competitive labor market. The guiding principle of these proposals is to promote symmetric information: data on wages available to firms should also be available to workers. Whereas recent policies have seen wage transparency as an antidote to discrimination in the labor market, this paper takes the view that wage disclosure is an antidote to lack of competition.

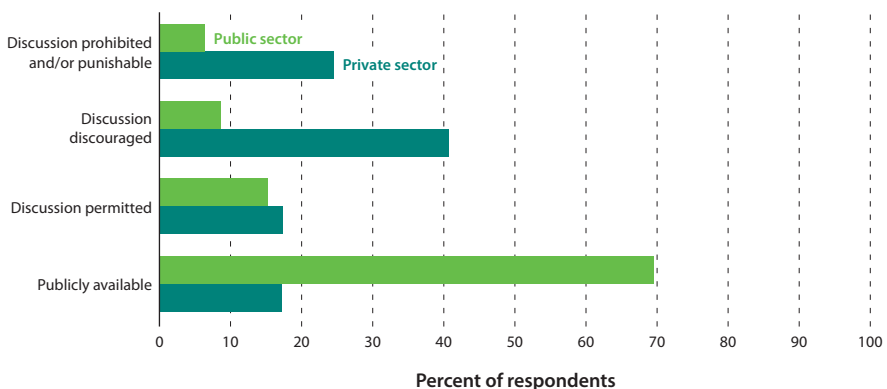
## PILLAR ONE: ENACT STATE LAWS TO PROTECT WORKERS WHO DISCUSS PAY

Discussing pay is one way for workers to determine if they are being paid fairly. The right to discuss pay is partially protected by the NLRA of 1935, which states that workers are allowed to engage in “concerted activities for the purpose of collective bargaining or other mutual aid or protection” (Section 7), and Title VII of the Civil Rights Act of 1964. Yet the protection is not absolute. Supervisors, independent contractors, agricultural workers, and public sector workers are among those not covered by the law. More importantly, employers who violate the law are typically subject only to minor fines and penalties.

Perhaps due to the lack of strong incentives to comply with the law, many workers report pressures in the workplace discouraging an open dialogue about pay. In a 2010 survey conducted by the Institute for Women’s Policy Research and the Rockefeller Survey of Economic Security, nearly two-thirds of private sector respondents reported they were subject to pay secrecy at their job (Hayes and Hartmann 2011). 24.6 percent of private sector respondents said that discussion of wages was formally prohibited, while 40.6 percent said discussion was discouraged by managers. Just 17.3 percent indicated that they worked at a company where wages were public, and the remaining 17.4 percent reported that discussion was permitted (see figure 2).

FIGURE 2.

### Access to Wage and Salary Information, by Employment Sector



Source: IWPR/Rockefeller Survey of Economic Security 2010.

Note: Calculations based on responses from 879 wage and salary workers. The sample was weighted using a post-stratification weight constructed to match the distribution of the U.S. population observed in the American Community Survey. 57 nonresponses were excluded from the total when calculating percentages.

States have tried to address the disconnect between the protection provided by the NLRA and workers' reports of mandatory pay secrecy. As of this writing fifteen states and the District of Columbia have laws that explicitly prohibit employers from retaliating against workers who discuss pay. In 1982 Michigan was the first state to enact a pay secrecy law, prohibiting retaliation against workers for discussing pay and prohibiting employers from requiring workers to waive their right to discuss pay. California passed a similar law in 1985. Since then, twelve additional states including Colorado, Connecticut, Illinois, Louisiana, Maine, Maryland, Minnesota, New Hampshire, New Jersey, New York, Oregon, and Vermont, as well as the District of Columbia have passed wage secrecy laws (DOL 2016).

The scope of the various state antisecrecy laws vary. All these laws carry antiretaliation provisions that restrict employers from punishing, by firing or otherwise, workers who discuss compensation for the purpose of achieving equal pay. For example, the relevant statute in Maine states, "An employer may not discharge or discriminate against any employee by reason of any action taken by such employee to invoke or assist in any manner the enforcement of this section. An employer may not prohibit an employee from disclosing the employee's own wages or from inquiring about another employee's wages if the purpose of the disclosure or inquiry is to enforce the rights granted by this section" (Maine Legislature 2009). States vary in how much worker protection they offer. For example, some states—such as Colorado—restrict their protection to workers covered by the NLRA, while

#### BOX 1.

### New York State's Protections for Workers Who Discuss Pay

New York State recently became one of a growing number of states to pass laws protecting workers from retaliation for discussing pay. In 2015 the New York state legislature amended its equal pay law to provide broad protection for any worker who discussed their pay, or pay of coworkers, in the workplace (New York Consolidated Laws 2015). Under this amended law, almost all workers in New York can—within reason—talk with each other about pay during working hours. (The law permits employers to draft policies partially limiting this right, including limiting rights of employees who have access to confidential information, such as human resources managers, and reasonable restrictions on the time and place of the discussions.) The 2015 law also increased the penalty for firms that violate workers' rights to 300 percent of damages, up from the 200 percent level offered under federal law.

Workers already receive protection under federal statute, although it is somewhat limited. Under the NLRA, managers and supervisors can still face retaliation for discussing pay, and employers can prohibit workers from discussing pay if that discussion jeopardizes a business interest that outweighs the interests of the employee. These loopholes have permitted companies to draft policies that effectively prohibit discussions of pay by formally claiming that compensation information represents a confidential business interest, or that comparisons of employee wages can disrupt workplace cohesion and productivity.

other states do not make this distinction. In addition, several states prohibit employers from contractually limiting wage transparency. For example, Michigan's law states that employers are not permitted to require employees to sign a nondisclosure clause regarding compensation or require that employees waive their right to disclose wages.

The proposal here is straightforward: state legislatures that have not yet adopted laws protecting workers from employer retaliation for pay disclosure should do so. Laws should be broadly written along the lines found in Michigan's statute, such that workers are protected from retaliation and employers are prohibited from requiring that workers sign clauses restricting pay disclosure.

These state-level strategies are still being evaluated. If they eventually prove less effective than had been hoped, a potential extension of the proposal would be for states to adopt laws explicitly prohibiting employers from including anti-disclosure clauses in contracts, rather than simply requiring that workers be permitted to decline to sign the clauses without loss of employment. Such an extension would nearly eradicate the practice of employers exerting pressure on workers to withhold wage information, but could lead to adverse consequences for industries and occupations with legitimate need for nondisclosure of compensation.

## **PILLAR TWO: REQUIRE LARGE FIRMS TO DISCLOSE PAY TRENDS TO THE EEOC**

In January 2016 the EEOC and the DOL announced plans to begin collecting wage data by gender, race, and ethnicity from large employers. The change would have required employers with more than 100 workers to submit aggregated wage and hours data across job categories, pay bands, and demographic characteristics. The announcement built on a 2014 presidential memorandum calling on the secretary of labor to investigate new strategies for requiring federal contractors to report similar data. The revised form would have gone into effect with a March 2018 filing deadline, and was estimated to impact more than 63 million workers. The EEOC would have collected these data through a revision to the EEO-1 form, an annual filing requirement for a subset of private sector firms to report employment data by race, gender, and ethnicity; the revised form would collect data on pay, in addition to employment. To be clear, the revision to the EEO-1 forms would not have revealed individuals' wages, or even average wages at specific firms. But the action, coupled with the earlier requirement of federal contractors, would have represented an important shift in the reporting of wages.

In August 2017 the Trump administration effectively halted the move when the Office of Management and Budget (OMB) issued a stay against the implementation of the revised form. In the memorandum from Neomi Rao, administrator of the Office of Information and Regulatory Affairs, the Trump administration stated that "OMB is concerned that some aspects of the revised collection of information lack practical utility, are unnecessarily burdensome, and do not adequately address privacy and confidentiality issues" (OMB 2017, 2). In effect, the Trump administration took the position that the benefits of additional transparency for employees were not worth the regulatory burden on employers.

OMB should lift the stay on the revision to form EEO-1. Revising the form would have three distinct impacts on wages. First, the revised data-collection process would have provided companies with an opportunity to address gender and racial inequities themselves. The



oft-cited example is the company Salesforce, which—along with other companies—signed a White House–initiated pledge to address gender pay inequities (White House 2016). Salesforce regularly reviews its compensation structures to identify inequities, and in recent years has twice adjusted its pay levels to account for glaring discrepancies. The aspiration of President Obama’s executive order was to induce similar reviews at other companies.

Second, the development would also have better enabled the EEOC to undertake reviews of companies that exhibited evidence of pay disparities. Although discrimination based on gender, race, and ethnicity is illegal under the Equal Pay Act of 1963, Title VII of the Civil Rights Act of 1964, and subsequent legislation, the mechanisms for identifying disparities are weak and often based on reports from workers about discrimination. (In fiscal year 2016, the EEOC received roughly 92,000 charges of workplace discrimination [EEOC 2016].) The challenge, of course, is that workers might not know when they face discrimination if they do not have detailed information about their company’s compensation practices. The newly collected aggregated data would have been a useful first screen for the EEOC to investigate wage disparities.

Third, the revised EEO-1 form would have furthered a growing shift in workplace culture toward more transparency about worker pay. The evidence here is simply anecdotal, but there appears to be a growing number of companies willing to publicly unveil their compensation data. For example, the tech start-up company Buffer openly posts every employee’s salary, along with title, location, and start date. This voluntary transparency is further complemented by growing datasets of self-reports by individuals on websites such as Glassdoor and PayScale. Importantly, a revised EEO-1 form would allow researchers, advocates, and workers to access wage data in aggregate form, providing increased aggregate pay transparency. The revised form would also increase employer familiarity with reporting wages for reasons other than tax purposes. If the ultimate goal is information about wages that is more equally available, this action would have been a small but important step in that direction.

### **PILLAR THREE: AMEND THE SAFE HARBOR FOR COMPENSATION SURVEYS**

Competition policy in the United States is largely regulated by the Sherman Antitrust Act of 1890 and the body of cases stemming from that legislation. Acts of collusion among competitors are generally prohibited, although there are many gray areas that have been addressed in the 127 years since the legislation was passed. One such gray area is the sharing of information on compensation and costs.

To help clarify the boundaries of legal behavior, in 1995 the U.S. Department of Justice (DOJ) and Federal Trade Commission (FTC) jointly issued a statement establishing an antitrust safety zone, or a safe harbor, for exchanges of price and cost information between firms (DOJ and FTC 1995). This statement related specifically to the health-care industry, but the guidance for sharing compensation information is applicable to other industries, as well.

The DOJ and FTC safe harbor states that sharing of written compensation information will not be challenged by the agencies if the following three conditions are met:

1. The survey is managed by a third-party (e.g., a purchaser, government agency, health-care consultant, academic institution, or trade association);

2. The information provided by survey participants is based on data more than 3 months old; and
3. There are at least five providers reporting data upon which each disseminated statistic is based, no individual provider's data represents more than 25 percent on a weighted basis of that statistic, and any information disseminated is sufficiently aggregated such that it would not allow recipients to identify the prices charged or compensation paid by any particular provider (DOJ and FTC 1996). The DOJ/FTC statement notes that the safe harbor was constructed to balance the need to protect competition in labor and product markets, while also allowing firms to use market data to make business decisions. The agencies specifically designed the safe harbor to discourage coordination between firms. The statement notes that for information sharing that does not meet these criteria, any information sharing that related to future prices, or that is used to coordinate prices, will likely be considered illegal—regardless of the market impact.

There is currently no aspect of the safe harbor that encourages firms to share data on market wages with workers. The DOJ and the FTC should amend the safe harbor to facilitate information symmetry in the labor market.

To better encourage information sharing, the fourth part of the safe harbor requires that compensation surveys be made available to workers. That is, in order to gain regulatory assurance that information sharing does not violate the Sherman Antitrust Act, the DOJ and FTC should require that if companies use compensation surveys in any capacity, they must share the information with workers. Appropriate safeguards could be put in place to limit workers' ability to make the information public beyond the firm, including stipulations that employers can limit or prohibit electronic transmission of the documents.

This addition to the safe harbor could have two distinct effects. First, employers could reduce their use of compensation surveys. This result seems unlikely, because human resources departments have come to rely on compensation surveys to benchmark wages, and there is no comparable source of information that would fill this need. Second, firms could begin sharing the results of compensation surveys with workers, providing employees with a better understanding of where their pay falls in the distribution of comparable jobs.

The impact might follow that of previous experiences of increased pay transparency, whereby relatively higher-paid workers experienced gains in reported happiness and lower-paid workers reported decreased satisfaction and higher quit rates. The cost of paying workers in the lower part of the wage distribution would rise, incentivizing employers to increase salaries. Mobility might rise as well, with relatively lower-paid workers engaging in increased job search.

A potential downside is diminished productivity owing to lower morale, as exhibited in the Card et al. (2012) experiment, and suboptimal responses by employers to mitigate the attendant impacts. Highlighting these concerns, Todd Zenger (2016) notes that better disclosure "fuels perceived inequities prompted by inflated self-perceptions," and that employers could respond to these perceived inequities by either flattening pay, segregating workers by pay grade, or outsourcing occupations that increase the variance of pay. These are certainly valid concerns, but they need to be considered against the negative impacts of noncompetitive labor markets and longstanding wage stagnation.

## **PILLAR FOUR: CHANGE STATE LAW TO FACILITATE RECIPROCAL PRE-HIRING WAGE DISCLOSURE**

Advocates of gender pay equity have intensified calls for a ban on discussions of wage history prior to hiring. Led by Massachusetts, which passed a ban in summer 2016, a handful of states and cities—including California, New York State, and Philadelphia—have recently followed suit. Moreover, a nationwide ban is one of the central tenets of the Paycheck Fairness Act.

Advocates of these bans rightly point to the role of pre-hiring wage discussions in perpetuating prior racial and, in particular, gender biases. Research has shown that these biases begin early in a worker's career, with female college graduates earning salaries that are 7 percent below their male counterparts' one year after graduation (Corbett and Hill 2012). The wage effects of initial biases can then persist long into a worker's career.

And although job applicants are also under no obligation to answer questions about their pay history—many interviewees do in fact refuse to answer the questions—refusing to discuss prior pay could negatively impact workers. In an online survey of visitors to its site, PayScale found that 43 percent of respondents reported being asked about their salary history; roughly one-quarter of those who were asked refused to answer. Importantly, PayScale also found uneven responses by gender, with women who refused to discuss pay history seeing a 1.8 percent drop in compensation, compared to a 1.2 percent boost for men.

However, a wholesale ban on discussions of wage history presents drawbacks, because there could be several legitimate reasons for employers to know a potential worker's prior wages. Employers might reasonably want to learn about a worker's productivity, and prior wages can be informative. Employers might also want to offer potential hires an attractive wage relative to a worker's wage history. In addition, banning discussions of wage histories does not guarantee that gender and racial biases will fade away. Ultimately, the goal is for all parties to have complete information, rather than to exacerbate the asymmetry on either side.

A superior approach is to provide workers with a more complete understanding of their wage offer relative to other workers, helping to create a more level playing field with regard to wage negotiations. Under this framework, prospective workers could trade information regarding their most recent wage history in exchange for companies revealing their own information about their wage distribution. Specifically, states should amend their bans on discussions of wage history to require reciprocity: asking prospective workers about their wage history would be permitted, but only if the employer in turn provided an average wage of comparable positions within the company. Under this proposal, firms could choose between either forgoing any discussion of prior pay levels (for both the firm and prospective worker) or fully disclosing pay of comparable workers.

Such a reform has some precedent in Germany, which enacted a law in early 2017 providing incumbent employees the right to know the typical salary of comparable workers (Federal Ministry of Justice and Consumer Protection 2017). Under the law, German workers at firms with more than 200 workers can request the gender-specific median compensation of a comparison group of employees, insofar as at least six employees with comparable duties can be identified. If the worker believes gender-based discrimination exists, she can request specific compensation criteria from the company. Although the law is too new to be

evaluated, the prospective power in the German law lies in its transparency. By providing workers the right to know the compensation of comparable peers, the law either provides hard evidence to victims of discrimination, or gives companies an incentive to pay equal wages in the first place. Of equal importance is the potential benefit to all workers, who could use the additional information to better negotiate for higher pay.

## **PILLAR FIVE: ALLOCATE FUNDS FOR THE DEPARTMENT OF LABOR TO STUDY TRANSPARENCY**

The DOL has been a leader in creating the infrastructure to evaluate the impacts of key programs within its purview. In 2010 the agency established the Chief Evaluation Office, charged with directly studying and funding evaluations of issues and programs related to labor policy in the United States. In 2017 its studies ranged from the impact of trade adjustment assistance to the efficacy of state workforce training centers.

Funding for the Chief Evaluation Office comes from one of two sources: funds that were directly appropriated for departmental evaluations, and program set-asides. Set-asides are funds allocated, at the discretion of the secretary of labor, to evaluate particular programs; these can amount to up to 0.75 percent of the program's cost. In fiscal year 2016 the DOL had \$10 million and \$30 million, respectively, for these two funding sources for evaluation.

Congress should allocate \$1 million in annual appropriations for the DOL to evaluate the impact of pay transparency on worker compensation. This funding—which would increase the DOL's evaluation budget by 2.5 percent—should constitute an increase in the departmental evaluation budget, rather than a reallocation of existing funding. Potential areas of study could include the impact of state and city bans on discussing pay history, the impact of new public sources of wages (such as Glassdoor) on pay levels, and an investigation of international reforms. A better understanding of the impacts of pay transparency will inform policymakers as they seek to increase competition and ensure that workers receive pay commensurate with their economic value.

## **Questions and Concerns**

### *1. Why don't you call for firms to disclose every employee's wages?*

Universal disclosure is an appealing notion on many levels. Under full disclosure, any gender or racial discrimination would be on full display, allowing regulatory agencies to more effectively address any inequity. Workers would have better information with which to negotiate for higher initial salaries and annual raises. Employers' informational advantages in pay setting would be mitigated or eliminated. There would be other benefits, as well: for example, college students could make choices about majors and career paths with a better understanding of potential compensation later in their career.

There is some precedent for universal disclosure. Norway, for example, discloses all taxpayers' total income and taxes paid, although it stops short of disclosing the wages tied to a specific job. In addition, some companies have begun publicly releasing the pay of every worker at the company.

However, the costs of universal disclosure could outweigh the benefits. In some circumstances, worker compensation is considered a trade secret, whereby the public release of data could adversely affect legitimate business purposes (apart from maintaining monopsony power). Furthermore, some workers might have legitimate reasons to choose jobs where their wages remain private. Ultimately, the biggest drawback to universal wage disclosure is that the impacts of such a dramatic reform are unknown, and it would be better to study the impacts of more marginal reforms before making sweeping changes.

***2. If symmetric information means that companies have to pay more for workers, won't they respond by hiring fewer employees?***

In a competitive labor market, if wages rise relative to the price of capital we would expect to see firms substitute toward capital. But this is not the case in a labor market characterized by monopsony, where employers keep wages low by hiring fewer workers.

Firms might, however, engage in costly maneuvers to avoid revealing pay. For example, they might outsource certain occupations, such as custodians and administrative support, or contract with independent workers, in both cases accelerating trends that have already begun. Firms could also switch to a compensation model that is more reliant on bonuses, which could have mixed effects depending on the model used to determine the bonus amount.

These strategic responses are all speculative, because there is exceptionally limited data on firm reactions to pay transparency. However, it is difficult to argue that, on net, workers are better off not knowing how their pay compares to that of other workers.

***3. Can't workers just use publicly available information about salaries?***

Publicly available information can be helpful in guiding job seekers during their job search or wage negotiations, but those data are incomplete. Wage data published by the Bureau of Labor Statistics get high marks for accuracy, but are not sufficiently refined, with data available only at the city and/or occupational level. Conversely, data published by job disclosure sites that rely on anonymous user-submitted data raise questions about accuracy, but are often tied to a specific position at a given firm.

For the purpose of wage negotiations, specific and accurate information is key. Employers frequently pay high fees for access to compensation surveys because they value this information; job seekers would similarly benefit. There is simply no substitute for such data.

***4. Isn't the real issue behind wage stagnation slow productivity growth, not transparency?***

Not necessarily. Economic theory dictates that compensation should equal the value of a given worker's production. For example, if having an additional factory worker on the production line produces an additional \$15 worth of goods per hour, the company should pay \$15 in wages and benefits for every hour of work. Economics textbooks note that if workers are paid less than the value of their production, companies can boost profit by hiring more workers. If workers are paid more than this value, companies can raise profits by shedding workers.

However, this theory applies only if labor markets are competitive—meaning that the market, not the firm, sets the level of compensation. If labor markets are not competitive,

a different theory must be used. Both compensation and employment are lower than they would otherwise be, and workers are paid less than their economic value.

The key point is that in imperfect labor markets, the link between compensation and productivity is weakened. This has dramatic implications for policies designed to boost wages. In addition to investing in education and training, workers' wages can rise when labor market institutions are strengthened and pro-competitive reforms are implemented.

## Conclusion

Stagnant real wage growth has plagued the U.S. economy for decades. Various explanations have been provided for the phenomenon, ranging from changing returns to schooling to globalization pressures, to a decline in pro-labor institutions. All these explanations have merit, but the story is incomplete without a discussion of the conditions that facilitate competitive labor markets.

One of the most underappreciated insights from modern economics is that labor markets are characterized by frictions—including lack of pay transparency—that reduce the markets' competitiveness. When labor markets are not fully competitive, the link between worker productivity and compensation is weakened. Traditional policy solutions, like boosting public investment in education and training, could have a more limited impact.

The factors impairing labor market competition are complex and varied. Noncompetitive labor markets can arise from geographic isolation, explicit or tacit collusion by employers, or market concentration. This paper addresses the role of asymmetric information and wage transparency.

Workers and employers often enter wage negotiations with dramatically different information. Due to the prevalence of compensation surveys and firms' knowledge of their own wage structures, companies often have an informational advantage when it comes to negotiating pay. As with an array of other situations characterized by information asymmetry, this imbalance provides an advantage to the market participant with better information.

This paper contains five policy proposals to increase wage transparency and level the playing field with regard to wage negotiations. The proposals are directed at various levels of government, and include passing legislation to protect workers who discuss pay, implementing an EEOC action calling for better wage reporting by large employers, changing the safe harbor for companies that use compensation surveys, enacting state-level reforms to encourage companies to share their wage data with prospective hires, and allocating funding for the DOL to study the effect of pay transparency.

Combined, these reforms could markedly improve workers' bargaining position and lead to sustained wage gains. But unlike other potential reforms—such as raising the minimum wage—wage transparency has been relatively less studied, which is why this paper calls for providing more evaluation funding to the DOL to study the impact of transparent pay on compensation trends. Reforms that make wage information more widely available, coupled with a better understanding of the role of pay secrecy in holding down wages, could help solve the puzzle of wage stagnation and boost wages for workers across the labor market.

## Endnotes

1. In particular, the authors find that about one-third of the decline in labor share is due to the likely incorrect assumption that self-employed wages are comparable to wages of payroll employees; this assumption overstates labor's share in the 1980s (and thus obscures trends since then).
2. For example, David Autor (2014) finds that the return to a college education approximately doubled between 1979 and 2000, although this skill premium has mostly stagnated since then. Similarly, Claudia Goldin and Lawrence Katz (2010) find that the bulk of wage inequality since the 1980s has been driven by changes in the return to education, especially postsecondary degrees.
3. Autor, Dorn, and Hanson (2013) find that increased trade with China cost the U.S. economy roughly 1 million manufacturing jobs, although the net effect on employment was smaller because former manufacturing workers found jobs in alternative sectors. Along these same lines, Ebenstein, Harrison, and McMillan (2015) find that trade with China, including employment shifts due to offshoring, led to marked wage declines, especially for manufacturing workers who see an average wage decline of 4 percentage points when they shift from manufacturing to another occupation.
4. For example, Lawrence Edwards and Robert Lawrence (2013) find that by 2008 increased trade with China was worth about \$250 annually to each American consumer.
5. A Hamilton Project analysis finds that nearly one-third of the workforce would be impacted by a higher minimum wage (Kearney and Harris 2014).
6. Several studies have documented the strong relationship between unionization and wage rates—not just for union workers, but also for nonunion workers. For example, Rosenfeld, Denice, and Laird (2016) find that private sector, nonunion wages for males would be roughly 5 percent higher if union density had remained constant since 1979. This link is also borne out in international evidence: an International Monetary Fund (IMF) staff paper finds that a 10-percentage-point decline in union density leads to a 5-percentage-point increase in the income share of the top 10 percent (Jaumotte and Buitron 2015).
7. The bulk of studies find that low-skilled immigrants work in jobs that Americans do not want—such as low-paying, physically taxing agricultural jobs—and that more immigration at all skill levels helps American-born workers raise their own pay by becoming more productive. However, a handful of studies find that immigration can drive down wages in local labor markets. Perhaps the most famous of these perspectives comes from economist George Borjas, who in a series of studies finds that wages of lower-skilled U.S. workers take a substantial hit when low-skilled immigration rises (e.g., Borjas 2017).
8. Azar, Marinescu, and Steinbaum (2017) present evidence that monopsony is substantial in many labor markets, and that monopsony is associated with lower wages.
9. Alan Manning (2003) made popular the theory of monopsonistic markets arising from labor market frictions in his book *Monopsony in Motion: Imperfect Competition in Labor Markets*.
10. For a complete discussion of potential factors driving a decline in labor market competition, see Council of Economic Advisers (2016).
11. In addition, BLS produces Modeled Wage Estimates, which are annual statistical estimates of various mean wage levels in locality by broad occupation groups and by other worker characteristics, such as union membership and full-time versus part-time status.

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# Strengthening Labor Standards and Institutions to Promote Wage Growth

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## Abstract

For most of the period since the 1970s the United States has suffered from two trends: stagnant wages for most workers, and rising inequality. While these trends have a number of causes, nearly all involve reductions in the relative economic leverage, or bargaining power, of low- and moderate-wage workers. This paper focuses on one particular set of factors: the erosion of labor standards, institutions, and norms. I show how this erosion has been facilitated by and has exacerbated the problem of low worker bargaining power, and propose a suite of remedies to help strengthen worker bargaining power and increase wages. These remedies include increasing the real value of the minimum wage and the overtime salary threshold, passing fair scheduling laws, boosting unionization, supporting joint employer standards, passing paycheck transparency laws, passing laws that make W-2 the default employment status, limiting the use of non-competes, banning the use of mandatory arbitration for statutory labor and employment claims, ensuring immigrant workers have full labor rights, boosting enforcement of labor standards, and leveraging procurement dollars to boost compliance.

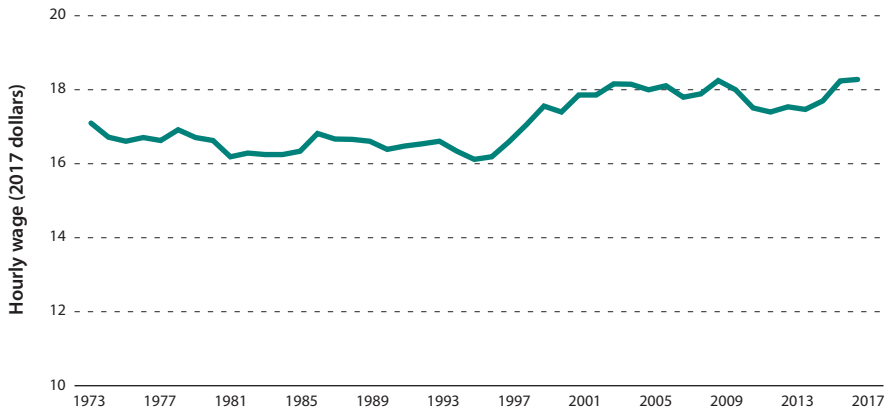
## Introduction

For most of the past four and a half decades, the United States has suffered from stagnant wages for most workers. Figure 1 shows the real median hourly wage (including both hourly and salaried workers) from 1973 to 2017. The median hourly wage is arguably the best summary measure of how American workers are benefiting from work, and the current level is not impressive. The typical worker in our labor market earns \$18.28 an hour. For a full-time, full-year worker, that hourly wage translates into around \$38,000 a year. Moreover, the median wage has grown very little since the early 1970s. In 1973 it was \$17.10 in inflation-adjusted terms, so it has grown just 6.9 percent over this period—less than 0.2 percent per year on average.

There is no one cause of this wage stagnation, but the declining relative economic leverage, or bargaining power, of low- and moderate-wage workers is common to the various causes. This paper focuses on one particular set of factors: the erosion of labor standards, institutions, and norms. In what follows, I first describe the nature of wage stagnation and rising inequality in more depth, then show how the erosion of labor standards, institutions, and norms has contributed to those trends. Finally, I propose a suite of remedies.

FIGURE 1.

## Real Median Hourly Wage, 1973–2017



Source: Bureau of Labor Statistics (BLS) 1973–2017; Economic Policy Institute analysis.

Note: Population is all workers, including both supervisory and nonsupervisory and both hourly and salaried workers.

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## The Challenge

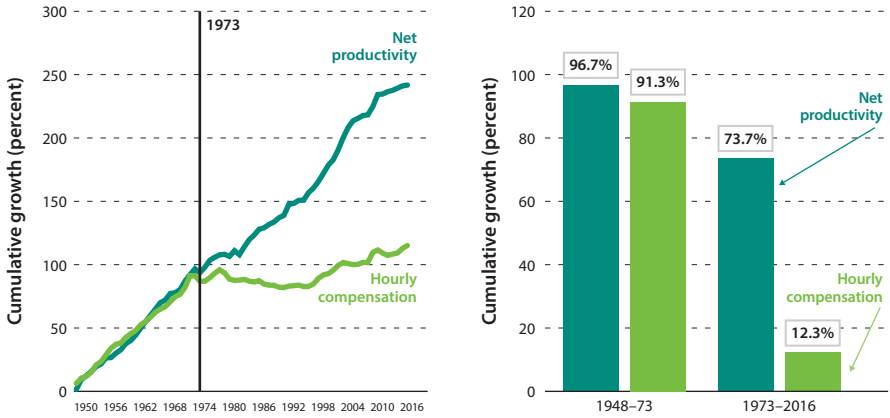
One could look at figure 1 and wonder if median wage stagnation constitutes a problem, given that wages are not falling. However, merely holding steady is counter to typical middle-class aspirations, in which each successive generation does *better* than the one that came before it. That used to happen, but is not happening anymore. In fact, the early baby boomers were the last cohort to have higher incomes than preceding cohorts (Mishel et al. 2012, fig. 3A).

In addition, productivity growth over the last forty years was substantial; had that growth been broadly shared, the median worker would have seen significant improvement in their earnings. Figure 2 shows growth in net productivity and hourly compensation (including wages and benefits) over time.<sup>1</sup> Between 1973 and 2016 productivity grew six times as fast as compensation for the typical worker. That gap between economy-wide productivity growth and increases in the typical worker's pay is the footprint of an economy in which the benefits of growth are largely being captured by those at the top of the income distribution, leaving most workers behind (Bivens and Mishel 2015). Importantly, this was not the economy of the 1948–73 period, when net productivity and wages for typical workers increased by similar amounts.

These trends are also evident in rising wage inequality. Figure 3 shows the cumulative percent change from 1979 to 2016 in real annual wage and salary earnings of workers at various levels of the earnings distribution. It illustrates how the growing gap between productivity and compensation of most workers is largely accounted for by rising inequality of wages.<sup>2</sup> The wages of the top 1 percent grew nearly 150 percent over this period, while the average of the entire bottom 90 percent of workers grew just over 20 percent. Furthermore, a worker must be well into the top 10 percent of the wage distribution to see wage growth that even matches economy-wide net productivity growth.

FIGURE 2.

## Cumulative Growth in Net Productivity and Average Hourly Compensation of Nonmanagerial Workers, 1948–2016



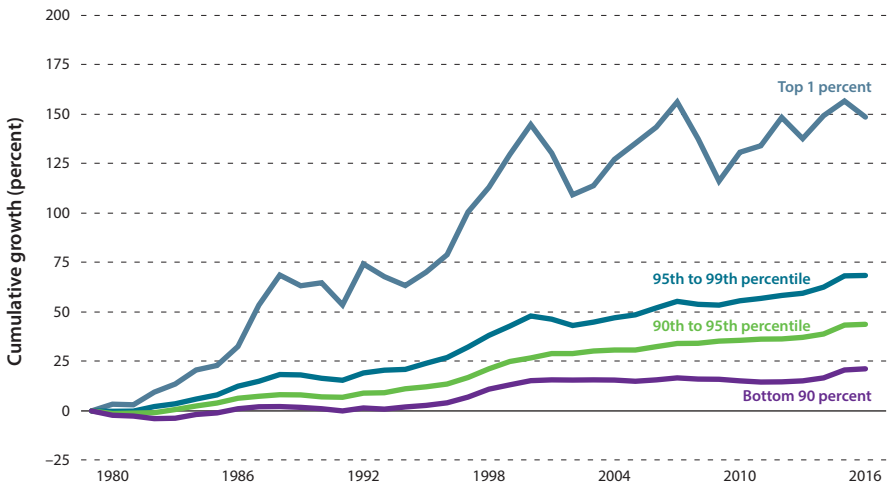
Source: Bivens et al. 2014; author's calculations.

Note: Data are for compensation (wages and benefits) of production and nonsupervisory workers in the private sector and net productivity of the total economy. Net productivity is the growth of output of goods and services less depreciation per hour worked.

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FIGURE 3.

## Cumulative Growth in Real Annual Wage by Percentile, 1979–2016

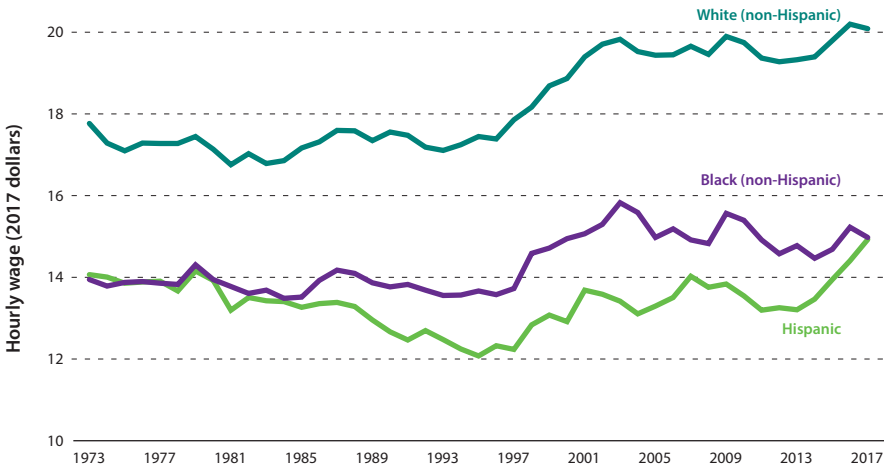


Source: Kopczuk, Saez, and Song 2010; Social Security Administration n.d.; Economic Policy Institute calculations.

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FIGURE 4.

## Real Median Hourly Wage by Race and Ethnicity, 1973–2017



Source: BLS 1973–2017; Economic Policy Institute calculations.

Note: Race/ethnicity categories are mutually exclusive.

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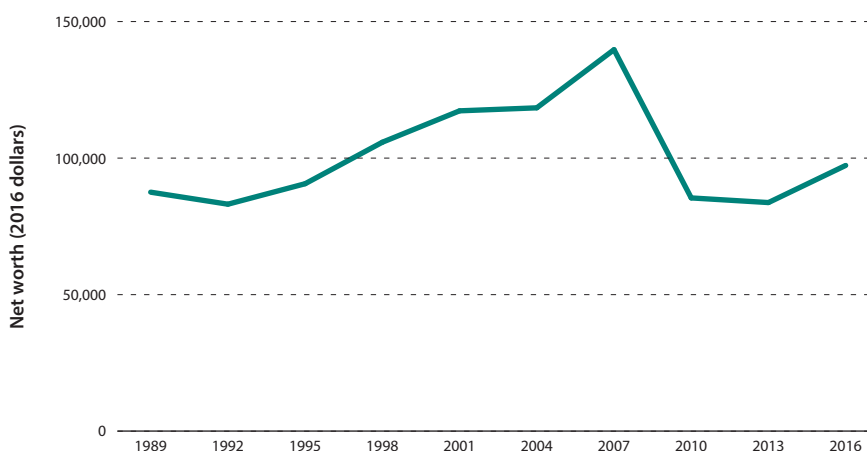
Although net productivity grew 64.2 percent between 1979 and 2016, figure 3 shows that the wages for the 90th–95th percentiles of the wage distribution grew just 43.8 percent over that period. This means there was an enormous transfer from the bottom 95 percent to the top few percent over this period. When typical workers are essentially treading water, but the top is pulling away, the economy is not working for most families.

An additional core problem in our labor market is that wages remain very unequal by race, ethnicity, and gender. Figure 4 shows one aspect of these disparities—differing median hourly wages by race and ethnicity—for the 1973–2017 period. In 2017 the median wage for white non-Hispanic workers was \$20.10, which translates into less than \$42,000 for a full-time, full-year worker. For black workers and Hispanic workers, hourly wages were about 25 percent less, at \$14.99 and \$14.94, respectively—a little over \$31,000 for a full-time, full-year worker.

One consequence of relatively low wages for most workers is that a large share of families do not have sufficient savings to access for unanticipated expenses and to build retirement wealth. The relatively low wages most workers receive mean typical families struggle to meet everyday expenses, and they are unable to meaningfully save. Figure 5 shows that median wage stagnation is mirrored by median net worth stagnation. The typical family's entire net worth—the total value of all assets (house, car, stocks, retirement accounts, cash value of life insurance, etc.) minus all debts (mortgage, car loans, credit card debt, student debt, etc.)—was only \$97,300 in 2016.

FIGURE 5.

## Real Median Family Net Worth, 1989–2016



Source: Board of Governors of the Federal Reserve System 1989–2016; Economic Policy Institute calculations.

Note: The Board of Governors conducts the Survey of Consumer Finances every three years.

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The problem with stagnant wages is not just about day-to-day living standards, but also workers' ability to save for retirement, children's college education, or an emergency. In other words, it is about families' economic security. The problem with low net worth, and the economic insecurity that goes hand in hand with it, is not going to be solved without policies that begin to generate meaningful wage growth for typical workers. Thus, in what follows, I will not focus further on wealth or net worth, but will instead return to a focus on wages and compensation.

Prior to the 1970s wages rose for typical workers (see figure 2), and not just for a thin slice of workers at the top of the distribution. This earlier period was certainly characterized by huge economic disparities, including those along race and gender lines. But a key dynamic was different during that period: low- and moderate-income families saw real gains as the economy grew. What changed starting in the 1970s?

## THE CAUSES OF WAGE STAGNATION AND RISING INEQUALITY

As mentioned previously, rising inequality and wage stagnation have many causes, but nearly all entail deterioration in the relative economic leverage of low- and moderate-wage workers. For example, one cause of rising inequality is that the labor market experienced excessive unemployment for much of this period. High unemployment reduces worker bargaining power because one main point of leverage that workers have is the implicit threat that they can leave their job and work somewhere else. When workers have fewer outside options, employers can pay lower wages and still recruit and retain the workers they

need. Research shows that this effect on wages is larger for middle-wage workers than it is for high-wage workers, and larger still for low-wage workers (Mishel et al. 2012).

Globalization has also contributed to rising inequality because it has been managed in a way that shifts leverage away from lower-paid workers as firms have expanded their ability to source inputs or production from countries with plentiful lower-cost workers (Autor, Dorn, and Hanson 2013; Bivens 2017; Feenstra and Hanson 1999). And changes in taxes (both lowering top marginal rates and changing the tax treatment of corporate executive pay) have incentivized capital owners and corporate managers to claim a larger share of firms' output relative to moderate-wage workers (Balsam 2012; Piketty, Saez, and Stantcheva 2014).

Another category of factors underlying or related to the shift in economic leverage from workers to employers is the erosion of labor standards, institutions, and norms. In the remainder of this section, I will describe core examples of this erosion.

### **THE DECLINE OF THE MINIMUM WAGE**

Minimum-wage workers are almost by definition the workers in the economy with the least bargaining power. These workers depend on minimum wage statutes to offset a lack of individual bargaining power and so achieve fairer pay. But at \$7.25 per hour, the federal minimum wage is more than 25 percent below where it was in real terms in the late 1960s. The erosion of the federal minimum wage has been a substantial drag on wage growth for low-wage workers and has increased wage inequality in the bottom half of the wage distribution, expanding the 50/10 wage gap (Autor, Manning, and Smith 2016). The erosion of the minimum wage is primarily due to the failure to increase it during the 1980s, followed by relatively modest increases in the 1990s and 2000s after this decade of neglect. Furthermore, at \$2.13 per hour the tipped minimum wage has not been increased for more than a quarter-century.<sup>3</sup>

### **THE EROSION OF OVERTIME PROTECTIONS**

The minimum wage affects the low end of the wage distribution. A labor standard that affects—or should affect—more middle-wage workers is overtime pay protection, which ensures that employees who lack bargaining power can avoid working long hours without fair compensation. The overtime pay provisions of the Fair Labor Standards Act (FLSA) are designed to ensure that most workers who put in more than 40 hours a week get paid 1.5 times their regular pay for the extra hours they work. Almost all hourly workers are automatically eligible for overtime pay, but workers who are paid on a salary basis are automatically eligible for overtime pay only if their earnings fall below a certain salary threshold. Above that level, workers are eligible for overtime protections only if they are *not* a bona fide executive, administrative employee, or professional employees.

However, as inflation accumulated, the real value of the salary threshold was allowed to decline so dramatically that, at \$455 per week, or \$23,660 for a full-time full-year worker, it is lower than the poverty threshold for a family of four. The overtime salary threshold is now too low to serve as a useful line of demarcation between those who do and those who do not have enough bargaining power with their employer to need overtime protections. Millions of low- and moderately-paid workers are currently not benefiting from overtime protections.

## IRREGULAR AND UNPREDICTABLE SCHEDULING

The U.S. labor market continues to see an elevated share of workers who want full-time jobs but have had to settle for part-time employment. In 2017 there were 5.3 million involuntary part-time workers, or 3.6 percent of all employed workers. This was down from its highest annual value during the Great Recession of 6.6 percent in 2009, but still elevated above 3.1 percent in 2007 and 2.5 percent in 2000. If the rate of involuntary part-time work were 2.5 percent today, there would be 1.6 million fewer involuntary part-time workers.

Not only are involuntarily part-time workers scheduled for fewer hours, days, or weeks than they prefer, but the daily timing of their work schedules can often be irregular or unpredictable, imposing significant costs on those workers. Irregular and unpredictable work schedules affect more than involuntary part-timers, however. Evidence suggests that at least 10 percent of the workforce is assigned to irregular and on-call work shift times. With the addition of the roughly 7 percent of the employed who work split or rotating shifts, about 17 percent of the workforce has unstable work shift schedules (Golden 2015).

These scheduling practices do not just complicate the daily lives of affected workers—particularly those trying to navigate multiple jobs and/or responsibilities such as caregiving or schooling—they also lead to irregular and unpredictable earnings. The employer practice of assigning unstable work hours means employers are benefiting economically not just from employees' hours worked but also from their mandatory flexibility. This practice is facilitated by affected workers' lack of bargaining power while also further eroding it; for example, when employers can punish workers with undesirable work schedules, it reduces workers' ability to bargain for wages.

## DECLINING UNIONIZATION

The spread of collective bargaining that followed the passage of the National Labor Relations Act (NLRA) in 1935 contributed to decades of broadly shared economic growth that persisted until the 1970s. Since the 1970s, though, declining unionization has fueled rising inequality and stalled economic progress for the broad American middle class. The decline in unionization—fueled by dramatically increased employer aggressiveness in fighting unions, and an absence of new labor laws to provide countervailing leverage to organizing efforts (Bivens et al. 2017)—has been a major force in the stagnation of middle-class wages over the past four and a half decades.

There are three main channels through which unions boost pay and benefits of typical workers (and therefore through which the decline in unionization hurts pay and increases inequality). First, unions boost compensation for those who are in unions relative to similar workers who are not in unions, so a smaller share of workers in unions hurts workers' wages directly. Second, in a given occupation or industry, unions help workers in that occupation or industry who are not in unions by helping set standards: nonunion employers might have to increase pay to get and keep the workers they need. When a smaller share of the workforce is unionized, this spillover effect is diminished. Third, the union pay boost is largest for low-wage workers, larger at the middle than at the highest wage levels, larger for black and Hispanic workers than for white workers, and larger for those with lower levels of education. Union pay premiums for these groups help narrow wage inequalities (Bivens et al. 2017).



## **FISSURING OF THE WORKPLACE**

In recent decades business employment practices have evolved such that many businesses contract out for services that are not a core competency of the business, instead of directly employing people to do that work (e.g., janitorial work, payroll, accounting, human resources, security, and facilities maintenance). Often, companies that win the contracts then subcontract to smaller businesses, which provide the workers. This dynamic is known as the fissuring of the workplace (Weil 2017). This fissuring leads to substantially reduced bargaining power of affected workers, as evidenced by the fact that earnings for workers doing contracted-out work tend to be much lower than they were when these jobs were performed by employees of the main firm (Goldschmidt and Schmieder 2017).

Once a firm contracts out for services, it is no longer directly setting the wages of the workers who perform those services—the wages are now being set by contractors who are competing on price with other firms providing the same services. Since a large share of the overall costs of these services tends to be labor, there are enormous pressures to cut wages, reduce benefits, and even violate labor standards. This includes not just wage and hour standards, but also health and safety standards, particularly as the responsibility to provide a safe workplace becomes murkier (Occupational Safety & Health Administration 2015). Also, because these workers' pay is set outside the firm, considerations like within-firm equity or sharing economic rents no longer apply, allowing larger wage gaps to develop (Appelbaum 2017).

## **INCREASE IN WORKER MISCLASSIFICATION**

Independent contracting appears to have grown markedly over the past decade; one estimate finds it has risen from 6.9 percent of employment in 2005 to 9.6 percent in 2015 (Katz and Krueger 2016). As independent contracting has risen, so has misclassification, which is the classification of workers as independent contractors when they should be classified as payroll employees, with all the rights and protections that status entails.

A worker who is classified as an independent contractor is not covered by some of the most basic labor standards like the minimum wage and overtime protections, the requirements of the Occupational Safety and Health Act, and the opportunity to be represented by a union under the NLRA. These workers are also not covered by important social safety net protections like unemployment insurance and workers' compensation. The increasing practice of employers misclassifying workers is facilitated by workers' lack of bargaining power and can lead to the underpayment of wages, the absence of benefits, and workers being increasingly exposed to a variety of risks. It also leads to a race to the bottom: employers who misclassify workers are at a competitive advantage relative to responsible employers who comply with labor standards and responsibilities.

## **SIGNING AWAY RIGHTS AS A CONDITION OF EMPLOYMENT**

As a condition of employment, workers are increasingly asked to sign away their rights through contracts like non-compete agreements and mandatory arbitration agreements with class action waivers.

Recent studies find that nearly one in five U.S. workers is covered by a non-compete agreement; these agreements limit workers' ability to move from one employer to another

(U.S. Department of the Treasury 2016). Importantly, the data suggest that non-competes are not limited to workers who have access to trade secrets: 14.3 percent of workers without a four-year college degree are currently bound by a non-compete agreement and 13.5 percent of workers earning less than \$40,000 a year have non-competes (Starr, Prescott, and Bishara 2017). Given that one of the most important points of leverage nonunionized workers have is the implicit threat that they can quit and work somewhere else, non-competes meaningfully reduce worker bargaining power, which can lead to a reduction in pay.

In addition, a recent survey found that 56 percent of private sector nonunion employees are subject to mandatory arbitration agreements. Among those, 41 percent were also required, as a condition of employment, to waive their right to be part of a class action claim (Colvin 2017). Mandatory arbitration takes away a crucial labor standards enforcement mechanism. To successfully pursue a claim against a corporation, nonunionized workers typically need a way to join together. Employment class actions have helped to combat race and gender discrimination, including sexual harassment, and are fundamental to the enforcement of wage and hour and safety standards. Furthermore, without the ability to aggregate their claims, it is difficult if not impossible for workers to find legal representation in employment matters because individual claims are typically not economically feasible to pursue. In all these ways, forcing workers into individual arbitration shifts leverage from workers to employers.

It is worth noting that although mandatory arbitration for individual nonunionized workers is a drain on worker leverage, arbitration clauses in collective bargaining agreements are not. Arbitration in a union setting is a bilateral system jointly run by unions and management that deals with the enforcement of a contract they privately negotiated, whereas mandatory employment arbitration is a process that is unilaterally defined by employers—right down to picking the arbitrator—and deals with employment laws established in statutes. In addition, arbitration procedures in a union setting typically do not bar employees from bringing statutory employment claims separately through the courts (Stone and Colvin 2015).

## **IMMIGRATION POLICIES THAT CREATE LAWLESS ZONES IN THE LABOR MARKET**

The weight of the evidence suggests that immigration has a positive impact on the economy and little impact—likely slightly positive—on the wages of most workers in the United States, including most low- and moderate-wage workers (National Academies of Sciences, Engineering, and Medicine 2017). In particular, permanent immigrants who have the full rights and workplace protections of U.S.-born workers likely have a meaningfully positive impact.

What is a problem are the lawless zones of the labor market where immigrant workers have few rights in practice. This hurts not just their bargaining power (and thus their wages and working conditions), but also the bargaining power of other workers who work alongside them. This is true in the case of undocumented immigrants who, because their status makes them and their families so vulnerable, are much less able to speak out when faced with an unsafe workplace or when their employer violates wage and hour regulations. Recent estimates put the number of undocumented workers at 8 million—roughly 5 percent of all workers—in the U.S. labor market (Krogstad, Passel, and Cohn 2017).

Temporary guestworker visas create another zone in the labor market where workers have limited rights. Temporary guestworkers are foreign-born workers who are in the

United States on work visas for a limited time period. Recent estimates put their number at roughly 1.4 million, about 1 percent of all workers in the U.S. labor market (Costa and Rosenbaum 2017). A key issue is that these guestworkers are typically tied to one employer, meaning that if they are mistreated or not paid what they are worth, they cannot change jobs because they would lose their visa and be deported. This means they have essentially zero bargaining power. Furthermore, loopholes in the regulations related to the wage requirements of temporary guestworkers mean that in many cases these workers are significantly underpaid, putting downward pressure on the wages of permanent immigrants and U.S.-born workers who are in the same occupations (Costa and Rosenbaum 2017).

## A New Approach

The previous section showed how our labor market has been affected by the erosion of standards and institutions that support workers. Worker bargaining power has suffered with developments like the decline in the real values of the minimum wage and the overtime salary threshold, the decline in union coverage, and the increase in temporary guestworkers who have few rights. The previous section also showed how our labor market has seen changes in employer norms and practices that both capitalize on the lack of worker bargaining power and further reduce it, including increased misclassification, changes in scheduling practices, increased incidence of non-competes and mandatory arbitration agreements, and workplace fissuring. Each of these trends has adversely affected workers, contributing to the dynamic of rising inequality and stagnant wages for most workers. But, as the rest of this section shows, these trends also provide a roadmap for policies that will help halt and reverse that dynamic.

### **INCREASE THE MINIMUM WAGE AND ELIMINATE THE TIPPED MINIMUM WAGE**

The minimum wage is now more than 25 percent below where it was in real terms in the late 1960s, lowering the wage floor for those workers with the least bargaining power. Furthermore, this erosion has occurred despite substantial productivity growth over this period. Productivity data for low-wage workers alone are not available, but economy-wide net productivity has nearly doubled since the late 1960s. Thus, even if low-wage workers have experienced productivity growth that is significantly lower than the rate of economy-wide productivity growth, it is likely that minimum-wage workers receive a smaller share of their output than they did half a century ago and that there is room for the minimum wage to be higher in real terms than it was at that time.

Any effort to meaningfully increase the minimum wage beyond the 1968 inflation-adjusted value will require proposals substantially bolder than the increases legislated in the 1990s and 2000s. The Raise the Wage Act of 2015 would have increased the minimum wage to \$12.00 by 2020 and indexed it to growth in the median wage thereafter, along with gradually eliminating the subminimum tipped wage. More recently, the Raise the Wage Act of 2017 was introduced, and referred to committee. If passed, it would raise the federal minimum wage gradually to \$15.00 per hour by 2024, and index it to the median wage thereafter; it would also gradually phase out the tipped minimum wage. Given inflation expectations, \$12 in 2020 would be \$11.21 in 2017 dollars, while \$15.00 in 2024 would be \$12.74 in 2017 dollars (Congressional Budget Office [CBO] 2017; author's calculations).

These two proposals would place the minimum wage 13 and 29 percent above its 1968 value in real terms, respectively.

Is 29 percent above the inflation-adjusted 1968 value of the minimum wage an appropriate level for the minimum wage in 2024? One gauge is whether net productivity for low-wage workers will have grown 29 percent between 1968 and 2024. Unfortunately, as mentioned above, data on productivity growth for low-wage workers does not exist. Assuming that economy-wide net productivity growth continues at the same pace of the past 10 years, net productivity will have increased a total of 106 percent between 1968 and 2024, considerably more than the increase in the minimum wage envisioned. Ultimate employment effects would depend on specific productivity paths as well as the substitutability of capital for labor in the work performed by affected workers.

The weight of the academic literature shows that the more-modest increases in the minimum wage in the 1990s and 2000s did not lead to substantial employment declines (Schmitt 2013). That means that policymakers could have implemented larger increases that further benefited low-wage workers. Importantly, researchers should move beyond measuring and describing the effect of higher minimum wages exclusively in terms of employment versus nonemployment, and put more focus on a broader cost-benefit analysis. Similarly, it is important for policymakers to move beyond “no employment effect” as a litmus test for whether a particular minimum wage is good policy. In fact, if there is no employment decline in response to a minimum wage increase, that is evidence that the increase was not as large as it could have been to help boost low-wage earnings.

A distinguishing feature of the low-wage labor market is the high degree of churn of workers into and out of employment. As many as 10 percent of the lowest-paid workers move from employment to nonemployment or from nonemployment to employment each month (Economic Policy Institute analysis of Current Population Survey data). Thus, a measured employment decline as a result of a minimum wage increase does not necessarily mean that any individual worker sees a reduction in annual earnings. Given the high level of churn, an employment decline could instead take the form of more workers working fewer annual hours (e.g., workers spending somewhat more time looking for work in between jobs, or working one job instead of two), but with few if any workers experiencing a decline in annual earnings due to the increased hourly pay they receive. It is important to move beyond a focus on annual employment levels in assessing minimum wage policy and instead conduct a much more comprehensive assessment of the costs and benefits received by low-wage workers.

Due to both the lack of action on the minimum wage at the federal level and the fact that even if there were a strong federal floor, higher-wage states and localities could sustain higher minimum wages, many states and localities have moved independently to increase their minimum wages. These moves can and should continue. Furthermore, given the wide range of state and local minimum wage increases in recent years, more evidence will accumulate on how minimum wage increases affect a range of workers, providing more evidence for a national minimum wage increase.

## INCREASE THE OVERTIME SALARY THRESHOLD

A 2016 federal rule would have boosted the pay of many low- and moderate-wage low-level supervisors who have little bargaining power. In particular, the rule would have raised the salary threshold below which workers are automatically eligible for overtime pay from \$23,660 to \$47,476 per year for a full-year worker, and would have automatically updated the threshold every three years, giving millions of workers either the right to overtime pay when they work more than 40 hours in a week, or a pay increase to the new threshold. The increase in the overtime threshold would have been large, but the size of the increase was entirely a function of how far the threshold had been allowed to erode. In 1975 more than 60 percent of full-time salaried workers were under the salary threshold and hence automatically eligible for overtime, but by 2016 that share had dropped to less than 7 percent. The 2016 overtime rule would have partially restored that share, bringing it to 33 percent. If the threshold had simply been adjusted for inflation since the 1970s, it would be well over \$50,000. In other words, the threshold increase in the 2016 rule was in fact quite modest relative to history. However, a district court in Texas determined that the rule was invalid, and the Trump administration Department of Labor has signaled its intent to undertake a new rulemaking process that will likely set the threshold at a much lower level—one that would leave millions of workers unprotected. The overtime salary threshold should be set to *at least* the level of the 2016 rule.

## IMPLEMENT FAIR SCHEDULING POLICIES

Unpredictable scheduling can be addressed with policies that include the following principles: (1) a right to request (i.e., giving employees the right to make scheduling requests without retaliation), (2) advance notice of scheduling, and (3) extra compensation for on-call scheduling or other schedule changes that occur without sufficient warning. These kinds of standards provide protections to workers who lack the bargaining power that would otherwise keep employers from assigning unpredictable work hours with no regard to the impact such assignments have on workers. In a similar spirit to time-and-a-half for overtime hours, extra compensation when schedules are changed without reasonable lead time shifts leverage to workers. Extra compensation would give employers skin in the game when they make decisions that add chaos to workers' lives, in addition to helping workers defray the impact with extra compensation. It also increases worker leverage by removing employers' ability to punish workers with bad schedules if they try to organize or bargain for higher wages.

## BOOST UNIONIZATION

Federal labor law guarantees most private sector workers' rights to join together to improve their wages and working conditions. However, the decline in unionization in recent decades has shown that, in the face of increased employer aggressiveness in fighting unions, current protections are no longer strong enough to ensure these rights. Policies should be enacted to do the following:

1. *Ensure that workers who want to form a union are able to do so free from employer intimidation and retaliation.* This would include substantial civil penalties for employers who commit unfair labor practices, something the law does not currently provide. It would mean tripling the backpay that employers must pay to workers if they illegally fire them or retaliate against them, regardless of the workers' immigration status. It would

mean providing a process to immediately return fired workers to their jobs. It would mean that, as long as a majority of employees had signed authorization cards within the previous 12 months, the National Labor Relations Board would be allowed to issue a bargaining order if it finds that an employer prevented a free and fair election. It would mean providing workers with a private right of action to bring suit to recover monetary damages and attorneys' fees in federal district court (just as workers already can do under other worker protection statutes like the FLSA).

2. *Ensure that when workers join a union they are able to successfully reach a first contract* by creating a mandatory mediation and arbitration process to ensure the parties reach a contract.
3. *Ban right-to-work laws.* Federal law requires that unions provide equal representation to all workers whether or not they are members of the union. Twenty-eight states have passed right-to-work laws that prohibit unions from charging fees to nonmembers for the costs of these required services. These laws are intended to starve unions by allowing workers to get all the benefits of being in a union without paying for their operations.

## **SUPPORT JOINT EMPLOYER STANDARDS**

Joint employer standards help offset the impact of workplace fissuring and the erosion of worker bargaining power that comes with it. Under the FLSA, the NLRA, and the Occupational Safety and Health Act, employers who share control over working conditions with their contractors are also allowed to share accountability as joint employers for any violations of workers' rights. When two or more businesses codetermine or share control over a worker's terms of employment (e.g., pay, schedules, and job duties), then both (or more) businesses may be considered to be employers of that worker, or joint employers.

Consider a common employment arrangement in which a staffing agency hires a worker and assigns her to work at another firm. The staffing agency determines some of the worker's terms of employment (hiring and wage rate), but the other firm directs her daily tasks and sets her schedule and hours. Because both entities codetermine and share control over the terms and conditions of her employment, both businesses could be found to be joint employers. Joint employers are responsible, both individually and jointly, to employees for compliance with worker protection laws. This is particularly important as workplaces become fissured, which creates an environment that is ripe for the violation of labor standards as the lines of responsibility for complying with standards become murkier. Under joint employment—when both the main firm and the contractor are held responsible when violations occur—there is likely to be much better oversight of working conditions and compliance with labor standards.

Joint employer standards are also crucially important for unions. Without joint employment, firms could retain influence over the terms and conditions of the employment of the contract workers in their firm without being required to bargain with the workers' union as their employer. This would mean that it would be much more difficult for contract workers to bargain over the terms and conditions of their jobs. In other words, without joint employment firms could retain a great deal of control over the conditions of work but avoid the bargaining table by contracting out for services.

## **ENHANCE PAYCHECK TRANSPARENCY AND MAKE W-2 THE DEFAULT STATUS**

Paycheck transparency helps reduce worker misclassification and other violations of labor standards by reducing the noncompliance that results from employers being able to more easily hide violations. It also increases worker leverage by providing employees with necessary documentation to pursue a claim in the event of a violation, which can lead to higher wages. All employers should be required to provide workers with a statement of pay that includes worker status (including whether the worker is an employee or an independent contractor and, if an employee, whether they are exempt or nonexempt from the overtime protections of the FLSA) and clear rationale for their classification, name of legal employer(s), rate of pay, hours worked, and all deductions from pay.

In addition to paycheck transparency, an approach that holds promise for reducing misclassification of workers as independent contractors is to make payroll employment status the default status. Under such a policy, workers would be assumed to be payroll employees, providing them with baseline leverage. Employers who want to assert that a particular worker is an independent contractor would have to provide the worker with an affirmative attestation to that effect (e.g., a signed affidavit or notarized document).

## **BAN NON-COMPETES EXCEPT IN LIMITED CASES, AND BAN MANDATORY ARBITRATION OF STATUTORY LABOR AND EMPLOYMENT CLAIMS**

The use of non-compete agreements should be banned, with very limited carveouts for highly compensated workers who have access to trade secrets. Non-competes are addressed in more detail in a proposal by Matt Marx, as well as a proposal by Alan Krueger and Eric Posner, both of which are part of this volume. In addition, the FLSA should be amended to make it a violation of the Act for an employer to ask an employee to agree to arbitrate statutory labor and employment claims or to waive the latter's right to class actions.

## **ENSURE THAT IMMIGRANT WORKERS HAVE FULL RIGHTS**

To address the loss of bargaining power faced by groups of immigrant workers who have few rights (namely unauthorized immigrants and temporary guestworkers), and the associated loss of bargaining power of other workers who work alongside them, a path to citizenship for undocumented immigrants should be created. In addition, temporary guestworkers should be provided with full job mobility, employment rights, and strong protections against being underpaid.

## **BOOST ENFORCEMENT AND LEVERAGE PROCUREMENT DOLLARS TO BOOST COMPLIANCE**

Of course, labor standards are only as strong as their enforcement. Employers steal billions from workers' paychecks each year by misclassifying workers, paying less than legally mandated minimums, failing to pay for all hours worked, and not paying overtime premiums. All of these actions substantially reduce the economic leverage that labor standards effectively provide to workers. Recent estimates find that minimum wage violations alone are likely on the order of at least \$15 billion per year (Cooper and Kroeger 2017). Penalties and remedies for violations of labor standards should be increased, protections against retaliation should be enhanced, and additional resources should be



devoted to enforcement efforts and the recovery of wages and damages owed to workers. Efforts to collect and analyze data to identify gaps and strategically target enforcement efforts should also be increased.

Federal procurement is another policy lever that can boost the effectiveness of labor standards. Every year the federal government spends hundreds of billions of dollars on contracts for everything from building interstate highways to serving concessions at national parks. Currently, there is no effective system to ensure that taxpayer dollars are awarded only to contractors who abide by basic labor and employment laws. The federal government awards billions of dollars in contracts to companies that harm workers financially and endanger their health and safety (Warren 2017). This creates a race to the bottom on labor standards by rewarding employers who cut corners with workers' pay and with their health and safety, thereby putting responsible firms at a competitive disadvantage.

One approach to addressing this situation was embodied by the 2016 Fair Pay Safe Workplaces rule, which required that companies vying for federal contracts disclose previous workplace violations and that those violations be considered when awarding new contracts. However, Republicans struck down the rule in early 2017 by deploying the Congressional Review Act (CRA)—a law that gives Congress the power to fast-track the reversal of regulations. New legislation that would accomplish the goals of the Fair Pay Safe Workplaces rule is needed. Importantly, this legislation should go farther than the Fair Pay Safe Workplaces rule to boost workers' economic leverage by also giving preference in awarding contracts to unionized firms.

## Questions and Concerns

### *1. How much would these proposed policies cost?*

The solutions presented here to strengthen labor standards, institutions, and norms are intended to enhance worker bargaining power and discourage some of the worst outcomes of weak employee leverage. If implemented, they would help typical workers to strike a better bargain. Apart from the proposal to increase resources for the enforcement of labor standards, the policies proposed here would not meaningfully increase government spending, but would all provide a meaningful boost to workers' wages.

### *2. If the policies proposed here are not enacted at the federal level, could they be implemented at the state or local level?*

An attractive feature of most of the policies presented here is that they can be implemented at the state and local levels, in addition to the federal level. States and localities can increase their minimum wage, increase their overtime threshold, pass fair scheduling laws, adopt joint employer standards, pass paycheck transparency and W-2-as-default-status laws, limit non-compete agreements, boost enforcement, and leverage procurement dollars to boost compliance. The only policies proposed here that require federal action (due to preemption by federal statutes) are those banning mandatory arbitration and boosting unionization.



*3. Won't strengthening nonwage standards (e.g., advance notice of schedules) put downward pressure on wages? Similarly, if employers must provide extra compensation for last-minute schedule changes, won't that mean employers will reduce base wages?*

With proper planning and worker input, advance notice of scheduling would not have to be significantly costly to employers, and any increased cost could be largely recouped in other ways. For example, advance notice of schedules could lead to reduced turnover, thereby lowering employer costs. To the extent there is any downward pressure on wages, it would underscore the need for the labor standards described here to work in tandem. In particular, strong minimum wage laws and overtime standards would minimize the extent to which employers could reduce wages in response to bolstered nonwage labor standards.

In addition, we can appeal to evidence on overtime protections, since overtime pay for hours worked more than 40 hours in a week is similar in spirit to extra pay if schedules are changed at the last minute. Research on how businesses respond to overtime pay regulations finds that businesses do reduce base wages somewhat in response to overtime protections, but not enough to fully offset the increased pay from the extra compensation. Thus, workers end up with greater take-home pay on net when overtime protections are in place (Barkume 2010; Trejo 1991). Assuming similar results obtain for extra compensation for last-minute schedule changes, this implies that while there might be some downward adjustment of base wages, workers would still be better off with strong fair scheduling laws.

## Conclusion

Rising inequality and ongoing wage stagnation for the broad middle class has afflicted the U.S. labor market for most of the past four decades. While there is no one cause for these trends, declining economic leverage, or bargaining power, of low- and moderate-wage workers is a central part of the challenge. In this paper I have focused on one broad category of solutions: strengthening labor standards, institutions, and norms. These are not the only policies needed to improve wage growth. Nevertheless, the policies described here represent important steps toward closing the productivity-pay gap and boosting typical workers' wages.

A final consideration is important when implementing these policies: even if all of the proposals described here were to be implemented, employer practices would almost surely continue to evolve in new and creative ways to shift bargaining power away from workers and to increase executive pay and profits. An ongoing commitment to new policymaking that counterbalances these efforts is a vital part of maintaining worker bargaining power.

## Endnotes

1. Net productivity is output of goods and services less depreciation per hour worked. Since depreciation is essentially the output that must be dedicated to simply preventing erosion of the nation's capital stock, it cannot be passed on to either workers' paychecks or corporate profits. It is thus excluded from productivity in this context.
2. In fact, rising inequality in compensation is not the only way the growing gap between pay and productivity plays out on the ground. Another factor is the decline in labor's share of income—the share of income in the economy received by workers in wages and benefits, rather than by owners of capital. For more on this, see Bivens and Mishel (2015).
3. The tipped minimum wage was last increased in 1991. Federal law and all but seven states allow employers to pay a subminimum wage to workers who earn tips. States' subminimum wages for tipped workers vary, but almost all are well below the full federal minimum wage of \$7.25 per hour. Employers are required to ensure that workers' wages equal at least the full minimum wage after tips are included, but that does not always happen (Cooper and Kroeger 2017).

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Becca Portman is a Senior Research Assistant for the Hamilton Project. She holds a BS in Social Policy from Northwestern University and an MA in Quantitative Methods in the Social Sciences from Columbia University. As a graduate student, she contributed to research on international tax reform. She previously interned with the Center on Budget and Policy Priorities and worked in the Research & Insights department at The Advisory Board Company.

## Eric Posner

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Eric Posner is Kirkland and Ellis Distinguished Service Professor of Law, University of Chicago. His research interests include financial regulation, international law, and constitutional law. His books include *Radical Markets* (Princeton, forthcoming) (with Glen Weyl); *Last Resort: The Financial Crisis and the Future of Bailouts* (University of Chicago Press, forthcoming); *The Twilight of International Human Rights* (Oxford, 2014); *Economic Foundations of International Law* (with Alan Sykes) (Harvard, 2013); *Contract Law and Theory* (Aspen, 2011); *The Executive Unbound: After the Madisonian Republic* (with Adrian Vermeule) (Oxford, 2011); *Climate*

*Change Justice* (with David Weisbach) (Princeton, 2010); *The Perils of Global Legalism* (Chicago, 2009); *Terror in the Balance: Security, Liberty and the Courts* (with Adrian Vermeule) (Oxford, 2007); *New Foundations of Cost-Benefit Analysis* (with Matthew Adler) (Harvard, 2006); *The Limits of International Law* (with Jack Goldsmith) (Oxford, 2005); *Law and Social Norms* (Harvard, 2000); *Chicago Lectures in Law and Economics* (editor) (Foundation, 2000); *Cost-Benefit Analysis: Legal, Economic, and Philosophical Perspectives* (editor, with Matthew Adler) (University of Chicago, 2001). He is a fellow of the American Academy of Arts and Sciences and a member of the American Law Institute.

## 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.

## Heidi Shierholz

*Senior Economist and Director of Policy, Economic Policy Institute*

Heidi Shierholz leads EPI's Perkins Project on Worker Rights and Wages, a policy response team that tracks the Trump administration's wage and employment policies. She also heads EPI's efforts to advance a worker-centered policy agenda. Throughout her career, Shierholz has educated policymakers, journalists, and the public about the effects of economic policies on low- and middle-income families. Her research and insights on unemployment insurance, on workers "missing" from the labor force, on income and wealth inequality, on young workers, and on many other topics routinely shape policy proposals and inform



economic news coverage. Her work has been cited in many broadcast, radio, print, and online news outlets, including ABC, CBS, NBC, CNN, NPR, *The New York Times*, *The Washington Post*, and *The Huffington Post*.

Shierholz was an economist at EPI from 2007 to 2014 and she rejoined EPI in 2017. From 2014 to 2017, she served under the Obama administration as chief economist at the Department of Labor. There she worked with Labor Secretary Thomas Perez and other DOL leaders on developing and executing initiatives to boost workers' rights, their wages and benefits, protect savings, and increase workplace safety. She also provided economic analysis on the wages of jobs being added in the recovery, brought heightened attention to the need for paid family leave, and fought for new regulations guaranteeing overtime pay to millions of workers and paid sick leave for over a million workers on federal contracts.

Prior to joining EPI in 2007, Shierholz was assistant professor of economics at the University of Toronto. She has a PhD in economics from the University of Michigan, an MS in statistics from Iowa State University, and a BA in mathematics from Grinnell College.

## **Abigail Wozniak**

*Associate Professor in the Department of Economics, University of Notre Dame*

Abigail Wozniak is an Associate Professor in the Department of Economics at the University of Notre Dame, working primarily in the field of labor economics. Her research has examined migration between states and cities as well as employer compensation and screening policies. Professor Wozniak is currently a Faculty Research Fellow at the National Bureau of Economic Research (NBER) and a Research Fellow at the Institute for the Study of Labor (IZA) in Bonn, Germany. Over 2014–15, she served as Senior Economist to the White House Council of Economic Advisers, working on labor economics issues. She was a Visiting Fellow at Princeton University in 2008–09. She is a graduate of Harvard University (PhD) and the University of Chicago (AB). She is a Wisconsin native and a former Associate Economist at the Chicago Federal Reserve. Her work has been featured in *The New York Times*, *The Wall Street Journal*, *The Huffington Post*, *Businessweek*, and other outlets.



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Advancing Opportunity,  
Prosperity, and Growth

*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.

## 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.

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