Declining Job Quality in the United States: Explanations and Evidence

David R. Howell, Arne L. Kalleberg

RSF: The Russell Sage Foundation Journal of the Social Sciences,
Volume 5, Number 4, September 2019, pp. 1-53 (Article)

Published by Russell Sage Foundation

Declining Job Quality in the United States: Explanations and Evidence

DAVID R. HOWELL AND ARNE L. KALLEBERG

The declining quality of jobs has emerged as a key challenge for researchers and policymakers in the twenty-first century. The growing realization that the quality of jobs is central to addressing a myriad of social and economic problems—such as economic development, family formation and social integration, poverty and inequality, and individual well-being—has put this age-old topic on the front burner for social scientists in the United States and around the world. This essay offers our perspective on the job quality problem and debate. We document changes in American job quality since the late 1970s, survey leading explanations, and review the recent evidence.

After briefly reviewing the meaning of job quality, we describe American job quality, focusing on three dimensions of the post-1979 low-wage crisis: stagnation or decline in real (inflation-adjusted) income and wage levels, sharply rising overall wage inequality, and a high and rising incidence of low pay. In contrast to the egalitarian tendency during the first three postwar decades, post-1979 incomes have either worsened or stagnated across most of the wage distribution, generating a growing polarization between top 10 percent incomes and the bottom 90 percent, and even more dramatically, between the top 1 percent and the bottom 50 percent (Piketty, Saez, and Zucman 2018; Acemoglu and Autor 2011; see also Sullivan, Warren, and Westbrook 2001; Atkinson and Brandolini 2011). Market incomes (before taxes and benefits) for the average working-age American adult actually fell between 1980 and 2014, reversing the strong upward trend of previous decades. The incidence of low-wage and very low-wage jobs (which we term *poverty-wage*) grew, spectacularly so for young workers (age eighteen through thirty-four) with less

David R. Howell is professor of economics and public policy at the Milano School of Policy, Management, and Environment, the New School. **Arne L. Kalleberg** is Kenan Distinguished Professor of Sociology at the University of North Carolina at Chapel Hill.

 Howell, David R., and Arne L. Kalleberg. 2019. "Declining Job Quality in the United States: Explanations and Evidence." *RSF: The Russell Sage Foundation Journal of the Social Sciences* 5(4): 1–53. DOI: 10.7758/RSF.2019.5.4.01. We thank the participants of the conference on Changing Job Quality held at the Russell Sage Foundation in June 2018 for their helpful input on this paper as well as the valuable feedback we received from three external reviewers. We especially appreciate the comments on earlier drafts that we received from Eileen Appelbaum, Alison Campion, Peter Cappelli, Maury Gittleman, Sabrina Howell, Jennifer Hunt, Lane Kenworthy, Jeffrey Madrick, and John Schmitt. Howell thanks the Washington Center for Equitable Growth for the support that helped make possible some of the empirical results that appear in the paper. Direct correspondence to: David R. Howell at howell@newschool.edu, 72 5th Ave., #702, New York, NY 10011; and Arne L. Kalleberg at arnekal@email.unc.edu, CB #3210 Hamilton Hall, University of North Carolina, Chapel Hill, NC 27599.

than a college degree. The poverty-wage share even increased for workers with a college degree. Young workers also experienced sizable declines in their median wage (males after 1979, women after around 2000).

Declines in nonwage benefits such as employer-paid health insurance and pensions have also been greater for lower-wage workers, another source of rising absolute and relative inequality in job quality. The expansion of low-wage jobs has often been linked to concerns about the growth of nonstandard jobs—for example, temporary help agency workers, on-call workers, contract workers, and (especially) independent contractors or freelancers—and though the question of the extent of the increase in the share of nonstandard jobs remains controversial, evidence (and perception) is considerable that many dimensions of job quality have worsened for both standard and nonstandard workers. In short, as measured by these and other indicators of job quality, the last four decades have been characterized by unshared—even extractive—economic growth.[1]

We consider leading explanations for these striking changes in job quality and labor market inequality by grouping them into three perspectives concerning how labor markets work. At one end of the theoretical spectrum is the mainstream economist's competitive market model, which explains the wage distribution strictly in terms of the interaction of the supply and demand for worker skills in highly competitive external labor markets (for example, Goldin and Katz 2007; Acemoglu and Autor 2011, 2012; Autor and Dorn 2013). In this view, protective labor institutions, like labor unions, are inefficient interventions, but skill-biased production technologies are reducing their importance, making the perfect competition model an increasingly good approximation for how labor markets work. The result is the law of one wage, in which workers in the same skill group are paid the same wage in similar jobs no matter where they work. The low-wage problem is explained by the failure of worker skills (college degrees) to keep pace with increases in employer demands for them as computerization (and perhaps offshoring) transform the workplace, eliminating the need for humans to do routine tasks.

In contested market models, wage-setting takes place in firms that operate in imperfect markets, and under these conditions employers typically have substantial bargaining (monopsony) power and make use of strategic wage policies to elicit optimal effort, leading to the existence of good and bad jobs for similarly skilled workers (for example, respectively, Manning 2011; Lazear and Shaw 2007). This is a neoclassical view in which market failures are seen as essential features of product and labor markets, and as a result, corrective institutions can improve efficiency and well-being. The low-wage problem reflects rising monopsony power and, reflecting this power, the growing use of human resource practices that push wages below competitive market levels.

Social-institutional approaches share the contested market vision of the centrality of bargaining power within the firm, but broaden the relevant terrain by underscoring the importance of social, political, and structural forces; the effectiveness of protective labor institutions; and workplace culture and conflict (for example, Kaufman 1988, 2004; Osterman 2011). This is a political economy vision in which the power wielded by different key stakeholders generates the institutional configuration and organizational diversity that in turn helps determine key outcomes, including not just wages and nonwage job quality but also the nature and use of available production technologies. The low-wage problem is rooted in deregulation and technological advances that have increased employer power, manifested in firm restructuring and adversarial labor practices aimed at cutting labor costs as the countervailing power of labor institutions collapsed. In this view, the decline in post-1979 job quality can be explained by a declining *willingness to pay* decent wages by lead firms with considerable market power and a declining *ability to pay* decent wages by their suppliers and other firms

1. By extractive growth, we mean unshared growth in which increasing inequality is characterized not just by a growing gap between top and bottom parts of the wage-income distribution, but by absolute declines in inflation-adjusted wages or incomes at the bottom.

confronted with increasingly competitive product markets (Appelbaum 2017).

These three perspectives assign different roles for markets, institutions, and conflict. In contested market and social-institutional approaches, large shifts in labor demand and supply can be important sources of wage and other job quality outcomes. For example, a surplus pool of workers vying for jobs can be expected to undermine their bargaining power, as Adam Smith argued centuries ago (discussed further later). But the same is not the case for the role of protective institutions (formal and informal) in the textbook competitive market explanation. Here the wage is set in the external labor market by supply and demand, and wage inequality reflects the "race" between education and technology. This model excludes by its construction surplus (rents, or excess profits), much less bargaining over it. Rather than acting as countervailing sources of bargaining power that can offset inefficiencies generated by market power, protective labor institutions alter distributional outcomes only at the cost of economic efficiency, resulting in lower overall output and employment.

We next consider the recent evidence. Guided by the competitive market model, researchers have sought evidence showing computer-related shifts in labor demand (measured by changes in the occupational distribution of employment) and shifts in the supply of skills (often measured by the share of college graduates). This demand-supply explanation has become increasingly controversial and we consider a number of questions that have been raised about the measurement, interpretation, and implications of occupational employment polarization and the college-wage premium. In addition to the challenges posed by these questions, the competitive market explanation has no ready answer for recent evidence that strongly supports the long-standing view among early postwar labor economists that wage differentials are substantial, and perhaps growing, for similar workers employed in similar jobs but working in different establishments, firms, and industries (Freeman 1988; Kaufman 1988, 2004). Another challenge is the difficulty of explaining vastly different wage and inequality trends across similarly rich countries that face similar technological advances and globalization pressures.

Researchers who see the labor market through the lenses of the two bargaining power approaches have focused on evidence of rising monopsony power, increases in employment restructuring to reduce labor costs through outsourcing nonessential tasks formerly done in house, and the eroding power of countervailing labor institutions (such as laws governing the labor process, collective bargaining protections, and minimum wage legislation). In addition, social-institutional scholarship has pointed to the effects of changes in national and local public policies that affect human resource practices (such as labor laws and tax policy), the state of labor supply (such as policies that affect unemployment levels, trade, and immigration), and declines in the social wage (non–employment-related social provision for working-age families).

Building on the industrial relations economists of the early postwar period, researchers have recently explored newly available linked data sets for individuals and the firms in which they work, which have revolutionized the ability to address questions about firm versus individual effects on wages. The evidence strongly suggests that substantial wage differentials exist for similar workers in similar jobs but employed in different establishments and firms, and that this is a central feature of the American labor market. This evidence is consistent with the view that a shift in bargaining power toward employers has been an important part of the post-1979 collapse in job quality—at least as indicated by wage stagnation, rising wage inequality, and the increasing incidence of low-wage jobs.

Finally, we consider the implications of these alternative views of the labor market for public policies related to job quality. Nearly all researchers concerned with the quality of jobs agree that improving education and training are important for economic growth, employment opportunities, and individual wage outcomes. The question is whether strong upward movement in worker educational achievement, which has characterized the last four decades, can substantially increase overall real wage growth, reduce overall wage inequality, and

lower the incidence of low- and poverty-wage jobs. For those wedded to the competitive market view, the answer is an unequivocal yes. In this view, institutional labor protections designed to increase shared growth through higher real wages and reduced wage inequality will only slow growth and diminish employment. Those who see shifts in bargaining power at the root of wage stagnation and the explosion in wage inequality focus more attention on the potential benefits of national regulatory policy (ranging from antitrust and anticollusion regulations), labor laws that guard individual workers and collective bargaining rights, and protective institutions and policies such as the minimum wage and social wage policies. They point to evidence that an increasing challenge for similarly skilled workers is to find and keep a good job, and that institutional change and policy intervention is needed to change the mix of good and bad jobs. In this view, it is not the level and distribution of worker skills, and certainly of educational attainment, but instead differences in institutional regimes that explain the vast gap in the incidence of low pay between the United States (25 percent) and, say, Australia (15.3 percent) or Belgium (3.4 percent).[2]

Given the centrality of work to human welfare and the functioning of organizations and societies, enhancing the quality of jobs is a pressing issue for public policy. In our view, all these policy directions should be pursued as long as they promote a return to shared growth. As precision machinist Daniel Wasik wrote in a letter to the editor of the *New York Times*, "We must find a more equitable balance between wages, productivity and profits. A rise in productivity should trigger a rise in salary, and when profits soar, the working people instrumental in that success should share in its bounty" (January 21, 2019).

JOB QUALITY: CONCEPTS AND MEASURES

Jobs consist of the specific tasks that people do to earn a living. Jobs represent bundles of rewards and the multidimensionality of these rewards is reflected in common definitions of job quality, such as those used by the International Labor Organization (ILO) and the European Union. The ILO's conceptualization of *decent work* includes nearly a dozen components (each comprising numerous indicators), including opportunities for productive work, adequate earnings, decent hours, stability and security of work, arrangements to combine work and family life, fair treatment in employment, a safe work environment, social protections, social dialogue and workplace relations, and characteristics of the economic and social context of work (for example, Ghai 2003). The European Commission's related concept similarly includes ten components, such as intrinsic job quality, skills, gender equality, health and safety at work, flexibility and security, and work-life balance (2001; see also Green 2006). The core dimensions of job quality certainly include economic compensation such as earnings and (especially in the United States), benefits such as health insurance and pensions, as well as the degree of job security and opportunities for advancement to better jobs, the extent to which people are able to exercise control over their work activities and to experience their jobs as interesting and meaningful, and whether people are able to exercise control over their work schedules so as to permit them to spend time with their families or engage in other, nonwork activities they enjoy. Although a number of definitions, measures, and even indexes of job quality exist, no consensus has been established about what constitutes an adequate summary empirical indicator of job quality (Findlay, Kalleberg, and Warhurst 2013).

Defining whether a job is good for a person depends in part on individuals' motivations for taking one (for example, whether mainly for the money, to make contributions to society or particular groups, or to obtain intrinsic meaning and accomplishment). In general, a good job is likely to be harder to define than a bad one: what we consider to be a good job depends not only on economic benefits—wages and non-

2. These figures come from the OECD (Employment Outlook 2017, Statistical Annex, table O) for 2015. For comparison, Finland, Denmark, France, and the Netherlands had low-pay incidence rates of 7.8, 8.2, 9.1, and 14 percent respectively. Rates for Germany, the UK, and Canada were 15.3, 20.0, and 22.2 percent,

wage benefits such as health and pension coverage—but also on having control over one's schedule and autonomy over the content of work (Kalleberg 2011, 2016). Some good jobs can also be considered better than others, and so we distinguish good from merely decent jobs. By contrast, it is easier to define certain types of jobs as bad if they have extremely low levels of earnings and benefits that are not enough for full-time workers to achieve a minimal standard of living and allow workers little control over the scheduling and conditions of their work.

Types of work arrangements and job quality are related empirically but are distinct concepts. Nonstandard work arrangements depart from the standard employment relations as normative forms of good jobs, but nonstandard jobs are not necessarily bad jobs and might be quite good. Country differences in labor market and social welfare protection institutions are crucial for evaluating the quality of jobs associated with these arrangements. Temporary jobs are not inherently undesirable, for example, because some people would prefer to work on a temporary basis provided that they could still obtain needed economic rewards such as enough earnings and benefits such as health and pensions. This is the case in countries such as Denmark, where such benefits are provided to all citizens regardless of their work status (Kalleberg 2018).

In the discussion that follows, we operationalize job quality mainly as economic compensation such as wages or earnings. This is the most widely used indicator of job quality for which data are available for long periods. We will also consider other dimensions, however, including economic benefits such as health insurance and retirement assistance, as well as non-economic benefits such as control over work schedule and working conditions. These dimensions of job quality are, in general, positively related, and so we can speak of the overall goodness or badness of jobs.

POST-1979 AMERICAN JOB QUALITY: A STATISTICAL PORTRAIT

This overview of important dimensions of post-1979 American job quality begins with national evidence of a striking shift between the broadly shared and moderately egalitarian growth of the three decades between the late 1940s and mid-1970s and the unshared inegalitarian growth of the post-1979 period. We then turn to what has happened to real wages; wage inequality; the incidence of poverty-, low-, and decent-wage jobs; and a variety of nonwage dimensions of jobs quality. We conclude with an overview of the evidence on nonstandard jobs.

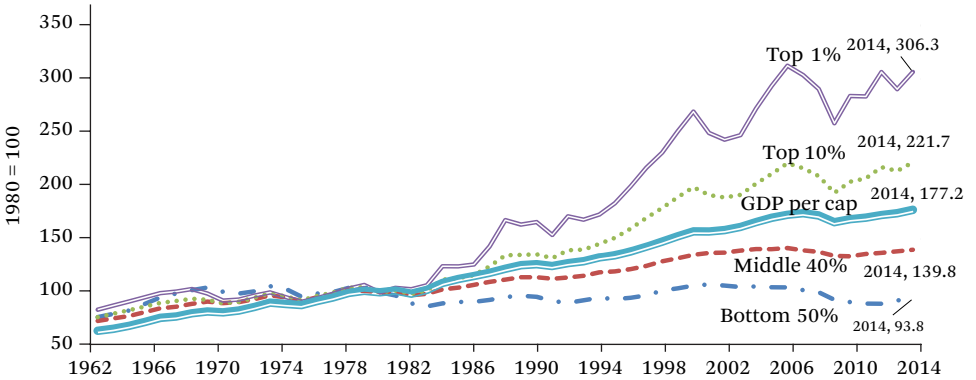
The Economic Context: Four Decades of Unshared Growth

It is now well established that the proceeds of American economic growth since the late 1970s have been almost entirely appropriated by those at the very top of the income ladder, reversing the more egalitarian outcomes of the earlier postwar decades (1946–1980). Thomas Piketty, Emmanuel Saez, and Gabriel Zucman report that in the thirty-four years before 1980, real (inflation-adjusted) pre-tax incomes for the bottom 50 percent and the middle 40 percent (the 50th through 90th percentiles) of adults (ages twenty and older) rose substantially, by 102 and 105 percent respectively, which was more than twice the increase of the top 1 percent (47 percent) (2018, table II). In striking contrast, in the thirty-four years since 1980, bottom-50th and middle-40th percentile adults increased by just 1 percent and 42 percent, whereas top-1 incomes rose by 205 percent. The same pattern holds for post-tax incomes (2018, appendix tables II-B7, II-B8, and II-B10).

Because our concern in this issue is with job quality, a better indicator of shared growth via the labor market is the market income (pre-tax) for working-age adults (twenty to sixty-four), displayed in figure 1.

This figure shows not just the stagnation of the bottom-50 and the increasing growth of incomes as you move up the income ladder, but also the suddenness of the shift between shared and unshared growth regimes around 1980. Top-1 incomes rose at rates broadly similar to per capita gross domestic product (GDP) and top-10, middle-40, and bottom-50 incomes between 1962 and 1980, but show a striking upward decoupling of the top-1 in the aftermath of the 1980 and 1982 recessions, early in the first term of President Ronald Reagan. Although the economy grew by 77 percent between 1980 and

Figure 1. Growth of GDP and Market Incomes of Working-Age Adults, 1962–2014



Source: Authors' compilation.

Note: GDP per head in constant dollars from OECD.stat (extracted April 3, 2018); market incomes for working-age (twenty to sixty-four) individuals from Piketty, Saez, and Zucman 2018 (appendix II, update November 2017, tables II: B7, B8, B10).

2014, the average market income for the bottom-50 actually fell by 6.2 percent (as noted), reflecting a decrease in income of almost $2,000 from $18,049 to $16,136—below the 1966 level of $16,388.

A sharp divergence around 1980 can also be seen in real weekly wages at the 90th, 50th, and 10th wage deciles for all full-time workers and male and female workers separately (Acemoglu and Autor 2011, figures 7a–7c). The trends at the bottom of the distribution show wage stagnation; male workers' real weekly earnings were lower in the mid-2000s than in 1970, and female earnings rose modestly only after 1994. But outcomes are even worse when the pay indicator is hourly wages and all (including part time) workers: "downward movements at the 10th percentile are far more pronounced in the hourly wage distribution than in the full-time weekly data" (Acemoglu and Autor 2011, 1065).

Another way to depict the post-1979 decoupling of worker incomes from economic growth is with the Economic Policy Institute's by now iconic figure,[3] which sets the growth in labor productivity against the growth in the average hourly compensation of production and nonsupervisory workers, who account for about 80 percent of total payroll employment. Between 1947 and 2017, productivity rose by 246 percent, but average worker compensation increased by less than half that, 115 percent. This gap was almost entirely attributable to the post-1979 decades. Although labor productivity and labor compensation increased together between 1948 and 1973 (97 percent and 91 percent), the gap grew to more than 60 percentage points between 1973 and 2016, reflecting an increase of 73.7 percent for productivity and just 12.3 percent for the typical worker.[4]

A way to better understand what post-1979 unshared growth has meant for workers at the bottom of the wage distribution is to compare

3. Not shown; see EPI 2018.

4. The typical worker is often identified in the data as either the median worker, or in this case, as the average for the subset of production and nonsupervisory workers. About 80 percent of this gap is attributable to the weakening of labor's position, a combination of rising wage inequality and the decline in labor's share of total income. The remainder (20 percent) is accounted for by differences in the change in the deflators—one for labor compensation, the other for output—used to adjust for inflation (see Mishel and Bivens 2017). A recent paper by Anna Stansbury and Larry Summers argues that, while there is still a relationship between labor productivity and worker compensation, "other forces" have "pushed the other way." They do not challenge the growing gap shown in figure 1 (2017).

Table 1. Wages at the 20th Percentile and Wage Inequality, 1979–2017

	Wages			Wage Inequality	
	Total	Male	Female	Total	Total
				50:10	95:50
1979	$10.79	$13.06	$9.69	1.76	2.36
1999	10.92	11.90	10.17	1.97	2.74
2017	11.40	12.05	10.88	1.85	3.28

Source: Authors' compilation based on Economic Policy Institute (EPI 2017, "Wages by Percentile," accessed March 1, 2019, http://www.epi.org/data/#/?subject=wage-percentiles&g=*).

hourly pay to what it would take a full-time worker to generate a minimally decent standard of living for herself, much less a family. As table 1 shows, even at the 20th percentile of the overall wage distribution, average hourly pay was just $11.40 in 2017, far below a 2016 basic-needs budget for a single adult in cities like Bakersfield ($14.64), Phoenix ($14.10) and Colorado Springs ($13.45), as calculated by the Economic Policy Institute (EPI) (see Tung, Lathrop, and Sonn 2015, table 3.1, projected for 2016 from EPI's Family Budget Calculator). This wage was just sixty-one cents higher than thirty-eight years earlier—an average increase of about 1.5 cents per year. The table shows that 20th percentile male workers experienced a decline of $1.01 between 1979 and 2017, and that the average 20th percentile female worker wage rose by $1.19 over these four decades (from a much lower base), to a wage of $10.88.

The columns on the right of table 1 report two measures of wage inequality, the ratio of the 50th to the 10th percentile worker (bottom-end inequality), and the 95th to the 50th percentile worker (top-end inequality). Like figure 1, the 95:50 ratio shows the top dramatically pulling away from the typical (median) worker, from a ratio of 2.36 in 1979 to 3.28 in 2017. In contrast to the strong and persistent rise in top income inequality, the 50:10 ratio shows fairly stable bottom-end inequality, rising modestly from 1.76 in 1979 to 1.97 in 1999, and then declining to 1.85 in 2017. This stability in the bottom half of the wage distribution will be important for our discussion about the way changes in the incidence of low-wage and decent-wage jobs should be measured.

Wage Contours and the Incidence of Jobs by Wage Quality

A key assumption of the Organization for Economic Cooperation and Development's recent work on cross-country patterns of job quality has been that *earnings quality*, arguably by far the most important job-quality dimension for most workers, should be understood as a reflection of both pay levels and pay inequality: a given wage is better the higher the standard of living it can purchase *and* the higher it is relative to, say, the median wage of a relevant reference group of wage earners (OECD 2014, chapter 3). If this is the case, jobs in a more compressed wage distribution will be, all else equal, better jobs.

The changing wage quality of jobs can be measured in a variety of ways. John Schmitt and Janelle Jones, for example, define the earnings threshold for a good job as one that pays the same in inflation-adjusted terms as the median wage of men in 1979 ($18.50 in 2010) and find a rising incidence of good-wage jobs between 1979 and 2010, from 40.6 to 47.2 percent of employment. This improvement is driven by wage increases for women, which more than offsets the decline in the incidence of good-wage jobs for men from 57.4 to 54.6 percent (Schmitt and Jones 2012, 3–4).[5] Jennifer Hunt and Ryan Nunn define their "wage bins" (groups ranked by their average wages) similarly, with 1979 wage thresholds defining each bin, and find an increase in the share of workers in the top wage bin but no evidence of a "declining middle" (2019). These results hold whether the wage distribution is organized into four, five, or ten bins. This is a quasi-absolute wage approach

5. An earlier version was published in *Challenge* (Schmitt 2008).

that fixes the definition of a good job in terms of the median wage in a 1979 economy, with no adjustment for any sharing in productivity growth. The problem with this approach—if the purpose is to identify good-wage jobs—is that it takes no account of productivity growth, which is normally assumed to be shared to some degree with the workforce. The real, inflation-adjusted wage that qualifies as "good" should be defined not relative to a 1979 (or 1959) wage threshold but to a current one.

Harry Holzer and his colleagues define a good job as one that pays a wage premium above the "market value of the portable component of an individual's skills and attitudes" (2011, 21).[6] This approach is consistent with a competitive market perspective—wages are good if they pay more than the market-clearing level, which should be the worker's marginal product. Reviewing data for twelve states for a single decade, from 1992 to 2003, the authors conclude that "good jobs remain quite plentiful in the United States—but they are becoming harder for workers with limited skills and education to obtain" (19).

The far more conventional approach to the measurement of changes in the wage quality of jobs is to define a wage in each period (year or quarter) as the benchmark, typically some fraction of the overall median wage, and calculate the incidence of employment above it (the good- or decent-wage share) or below it (the low-wage or poverty-wage share). The Russell Sage Foundation's low-wage project, for example, defined the incidence of low pay as jobs paying less than two-thirds of the median wage. Using this definition, they find that low pay "was already high in the 1970s and has changed little since then" (Mason and Salverda 2010, 36). The Organization for Economic Cooperation and Development (OECD) defines low pay similarly but restricts the benchmark wage to the median for full-time workers. Because full-time workers are generally paid higher wages for the same work and the full-time to part-time wage gap has increased in the United States, the OECD's approach yields both a somewhat higher level and a moderately growing incidence of low pay for the United States (OECD 2014, table Y).

In sum, the message of the literature on the incidence of low-wage and good-wage jobs has varied with the definitions but, broadly, asserts rough *stability* or slight improvement since the 1970s—a period of (as we have seen) stagnant or declining real wages, a dramatically widening compensation-productivity gap, and exploding inequality. One explanation for this apparent anomaly is that a low-wage job is conventionally defined relative to the median wage, so it measures changes in wage inequality in the bottom half of the distribution. Table 1 showed that bottom-half inequality (as measured by the conventional 50:10 ratio) has changed little since the late 1980s, which translates into stable low-pay incidence, even though the standing of the entire bottom half of wage earners declined relative to the top half, increasingly so with each percentile from the 60th to the 95th.

There is no substantive reason why the benchmark for measuring the incidence of low pay should be the median, however, any more than the fraction of the median should be set at two-thirds (instead of, say three-fifths or one-half). At the same time, reliance on the median instead of the mean can result in perverse effects, such as a declining incidence of low wages (presumably a positive outcome) as real wages fall across the entire bottom of the wage distribution but most rapidly at the median (clearly a negative outcome).[7] It also explicitly rules out the view that increases above the 50th percentile of the wage distribution have, or should have, an influence on what is understood as a low wage. The usual critique of replacing the median with the mean is that the incidence of low pay should not be determined by what is happening at the very top of the income ladder. But this is actually a moot point, because the conventional measurement of incidence rates has always relied on survey or

6. For example, building cleaners who are paid $10 in a local labor market in which pay for similar skills is just $9 would have a good job.

7. This is not necessarily hypothetical; the polarization literature has argued that just this sort of twist in the bottom of the wage distribution helps explain overall wage inequality since the late 1980s (Autor and Dorn 2013).

census data, which excludes as much as the top 5 percentiles of the wage distribution (to ensure individual anonymity), and these few percentiles account for the vast bulk of the rise in top-end inequality since the early 1980s.

Figure 2 presents the incidence of low pay with two approaches, one defined by the median, the other by the mean.[8] Panel A reports low-pay incidence with the conventional low-wage definition: jobs that pay less than two-thirds of the median wage for full-time wage and salary workers, which was $13.33 in 2017. Based on evidence from basic-needs budgets, this is a wage that, even on a full-time basis, would make it extremely difficult to support a minimally adequate standard of living for even a single adult anywhere in the country. This wage threshold ($13.33) is just above the wage cutoff for food stamps ($12.40) and Medicaid ($12.80) for a full-time worker (thirty-five hours per week, fifty weeks per year) with a child; full-year work at thirty hours per week would make a family of two eligible for the food stamps with a wage as high as $14.46 and as high as $14.94 for Medicaid.[9] For this reason, we refer to this as the poverty-wage threshold.

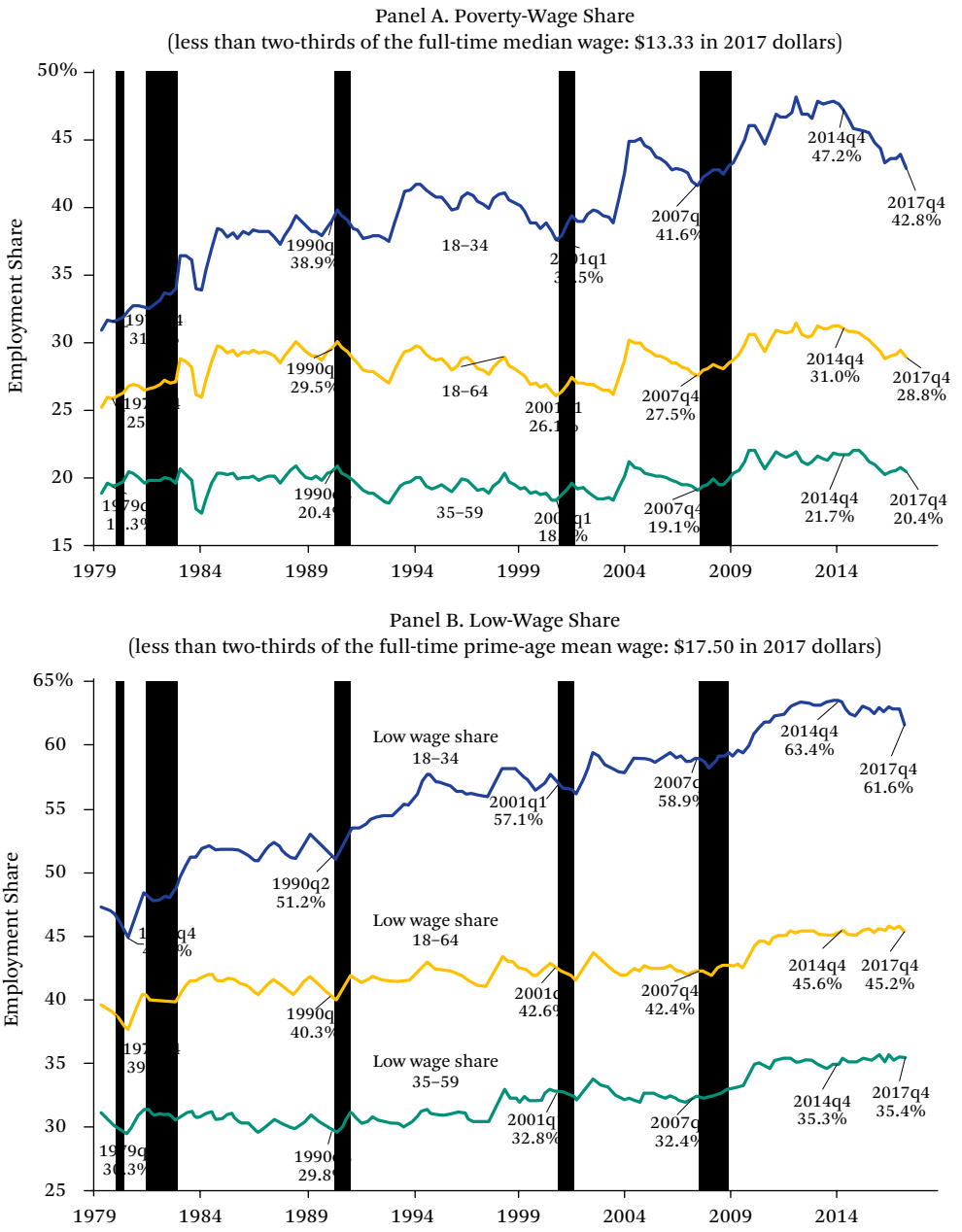
Panel A shows that, consistent with evidence from the OECD for low-wage incidence, which uses the same definition, the poverty-wage share was fairly stable for all workers (eighteen through sixty-four) over the last four decades, ranging from 26 to 31 percent (see OECD 2017, statistical annex, table O). This stability was driven by outcomes for prime-age workers (thirty-five to fifty-nine), which fluctuate moderately around 20 percent in the bottom line in panel A. This stability also reflects averaging the results for men (which shows a rising incidence of poverty-wage jobs) and females (falling or stable poverty-wage rates until the late 1990s, and rising since). In sharp contrast, panel A shows that the incidence of poverty-wage jobs has exploded for young workers, rising from 31.5 percent in 1979 to a peak of around 48 percent in 2013 before falling to 42.8 percent in 2017.

Panel B defines a low wage as less than two-thirds of the mean for full-time prime-age workers, with low-wage jobs falling below the decent-wage threshold of $17.50 in 2017. This wage is well above the wage that would make a full-time (or near-full-time) worker eligible for food stamps and several dollars above the basic-needs budget for a single adult in most American cities, but is conservative in that the basic-needs budget for a single adult with one child ranges from $22 to $30 (Howell 2019). The decent-wage threshold, which uses the mean as the benchmark, increases the incidence of low pay (compare with panel A), but also has implications for changes over time in a period of rising relative pay of those between the 50th and 95th percentiles. Panel B shows that the low-wage share (those with wages below the decent-wage threshold) for all workers (age eighteen through sixty-four) rose from 39.1 percent in 1979 to 42.6 percent in 2001 and continued to increase to 45.2 percent at the end of

8. The hourly wage is taken from the Outgoing Rotation Groups of the Current Population Survey, and the version used here was accessed from the Center for Economic and Policy Research (CEPR). The sample was limited to wage and salary workers with reported gross (pre-tax) hourly wages between $0.50 and $200 in 1989 dollars. For salaried workers, the hourly wage was calculated by dividing gross pay by usual weekly hours. To adjust for cost-of-living changes, the CPI-U-RS is used as the deflator, which is the standard for wages (for example, see Autor 2010; for a detailed description and assessment of alternative deflators, see Moulton 2018).

9. The gross monthly eligibility income for food stamps for a household of two persons (such as a mother and child) was $1,736 in 2017 (Saving to Invest, "2016–2017 Food Stamp (SNAP) Income Eligibility Levels, Deductions and Benefit Allotment Payments," accessed March 1, 2019, http://www.savingtoinvest.com/food-stamp-snap-income-eligibility-levels-deductions-and-benefit-allotment-payments). Working thirty-five hours a week (140 hours per month), a worker could have been paid as much as $12.40 and still be eligible for food stamps; at thirty hours, eligibility would have extended up to $14.46. Medicaid eligibility in 2017 for a family of two was $22,411 (PeopleKeep, "2017 Federal Poverty Level Guidelines," Febuary 7, 2017, accessed March 1, 2019, https://www.peoplekeep.com/blog/2017-federal-poverty-level-guidelines), which is $12.80 per hour for a full-time worker, defined as 1,750 hours. At 1,500 hours (thirty hours per week, fifty weeks a year), the Medicaid eligible wage would be $14.94. Full-time employment in many other rich countries is around 1,500 hours per year.

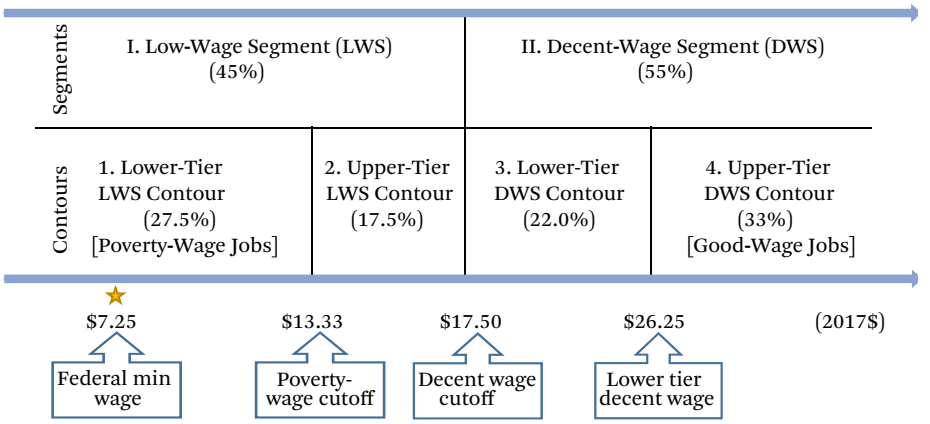
Figure 2. Incidence of Low Pay in the United States, 1979–2017: Two Perspectives



Source: Howell 2019.

Note: The poverty-wage threshold is the conventional low-wage cutoff: two-thirds of the median wage for full-time workers. The decent-wage threshold is defined as two-thirds of the mean wage for full-time prime-age workers. Lower tier decent wage jobs are those that pay up to 50 percent above the decent job threshold. Employment shares report the share of employed workers (eighteen to sixty-four) with wages within each contour or segment wage range. The data are from the merged outgoing rotation groups (MORGs) from the Current Population Surveys (CPS) for 1979 to 2017, accessed from the Center for Economic Policy Research (CEPR).

Figure 3. Structure of American Wage Quality Circa 2017



Source: Authors' compilation.

Note: The poverty-wage threshold is the conventional low-wage cutoff: two-thirds of the median wage for full-time workers. The decent-wage threshold is defined as two-thirds of the mean wage for full-time prime-age workers. Lower-tier decent-wage jobs are those that pay up to 50 percent above the decent-job threshold. Employment shares report the share of employed workers (eighteen to sixty-four) with wages within each contour or segment wage range. The data are from the merged outgoing rotation groups (MORGs) from the Current Population Surveys (CPS) for 1979 to 2017, accessed from the Center for Economic Policy Research (CEPR).

2017. The low-wage incidence for prime-age workers was stable through the mid-1990s at around 30 percent, rose to 32 to 33 percent until the 2008 financial crisis, and has hovered around 35 percent since. In contrast to this moderate worsening for prime-age workers, the low-wage employment share for young workers exploded from 46.9 percent in 1979 to a peak of 63.4 percent in 2014 and was slightly lower at the end of 2017 (61.6 percent).

These two wage threshold formulas are used to generate the two-segment, four-contour wage structure shown in figure 3 (Howell 2019). The decent-wage threshold distinguishes the decent-wage from the low-wage segment. Poverty-wage jobs make up the bottom tier (contour) of the low-wage segment. The decent-wage segment can also be divided into wage contours, with the highest—good jobs—defined as those with wages above 150 percent of the decent-wage threshold, which was $26.25 in 2017. By these definitions, 45 percent of wage and salary workers were in the low-wage segment in 2017, with 27.5 percent in the bottom, poverty-wage contour; 55 percent were in the two decent-wage segments, with one-third of all workers in the upper good-wage job contour.

Although grounded in evidence from basic-needs budgets and Supplemental Nutrition Assistance Program (food stamp) and Medicaid eligibility, the specific contour and segment boundaries are arbitrary—as all such schema must be. But changes by a dollar or two one way or another does not change the employment shares of each contour segment much, and even less the trends over time. This conception of the wage structure also corresponds closely to both the older labor market segmentation (LMS) and the more recent polarization literatures. The poverty-wage contour consists mainly of low-wage service and blue-collar jobs that characterize the secondary segment in the LMS literature (Gordon, Edwards, and Reich 1982; Gittleman and Howell 1995) as well as the nonroutine manual task jobs in the polarization literature (Autor, Katz, and Kearney 2005, 2008; Autor and Dorn 2013). The two middle contours—the upper-tier low-wage contour and lower-tier decent-wage contour ($13.33 to $26.25 in 2017)—overlap closely with the LMS's subordinate primary segment's routine white-collar

Table 2. Employment Shares for Wage Segments and Contours, 1979–2017 (percentages)*

Age Group	Segments or Contours	1979q4	2000q4	2014q4	2017q4
Eighteen to sixty-four	I. decent-wage job segment	61.5	57.9	55.9	55.0
	1. upper-tier dw contour	34.5	33.4	33.9	33.0
	2. lower-tier dw contour	27.0	24.5	22.0	22.0
	II. low-wage job segment	38.5	42.1	44.1	45.0
	3. upper-tier lw contour	12.8	16.4	12.9	17.5
	4. lower-tier lw contour	25.6	25.8	31.2	27.5
Eighteen to thirty-four < col	I. decent-wage job segment	48.2	31.8	24.9	23.4
	1. upper-tier dw contour	20.4	10.6	8.7	7.4
	2. lower-tier dw contour	27.7	21.2	16.2	16.0
	II. low-wage job segment	51.8	68.2	75.1	76.6
	3. upper-tier lw contour	16.1	22.4	15.3	23.1
	4. lower-tier lw contour	35.7	45.8	59.8	53.5
Eighteen to thirty-four >= col	I. decent-wage job segment	78.0	79.7	70.3	68.1
	1. upper-tier dw contour	44.9	49.7	43.5	40.3
	2. lower-tier dw contour	33.0	30.1	26.9	27.8
	II. low-wage job segment	22.0	20.3	29.7	31.9
	3. upper-tier lw contour	9.6	11.7	13.7	17.3
	4. lower-tier lw contour	12.4	8.6	16.0	14.6

Source: Authors' compilation.

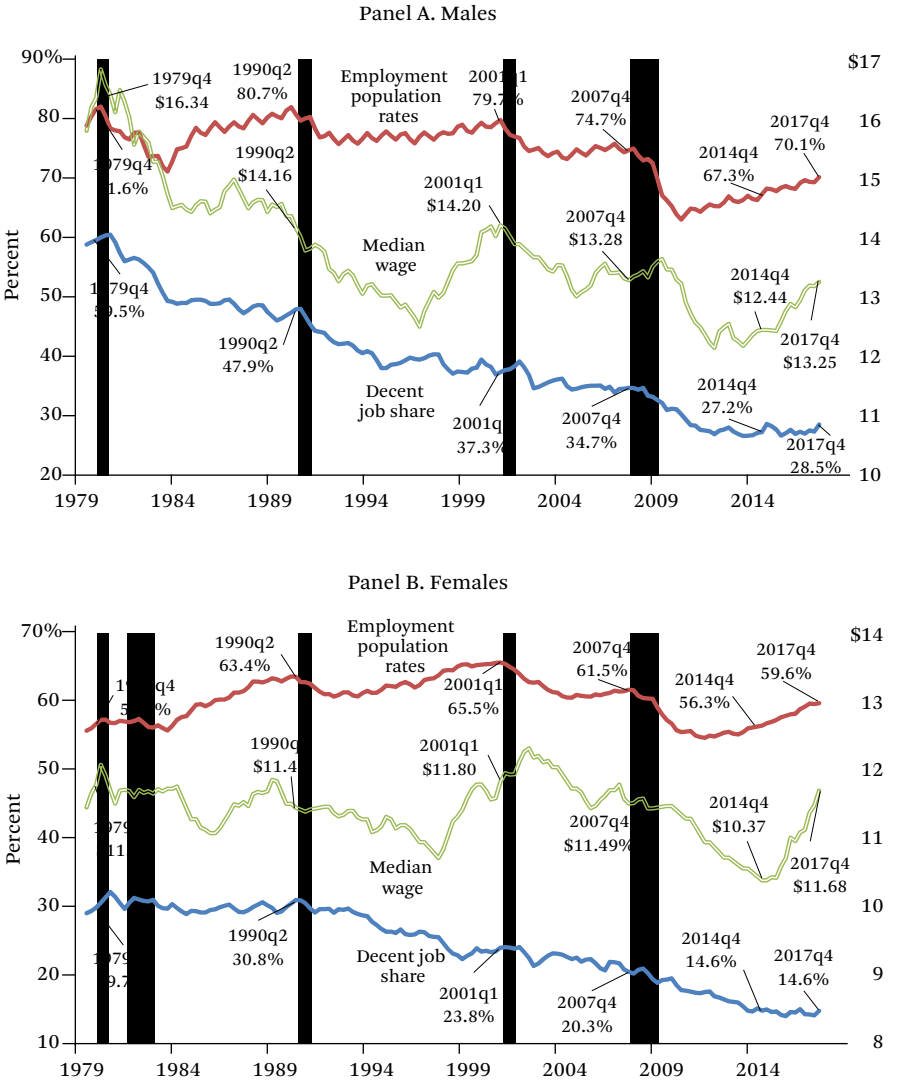
Note: The poverty-wage threshold is the conventional low-wage cutoff: two-thirds of the median wage for full-time workers. The decent-wage threshold is defined as two-thirds of the mean wage for full-time prime-age workers. Lower-tier decent-wage jobs are those that pay up to 50 percent above the decent job threshold. Employment shares report the share of employed workers (eighteen to sixty-four) with wages within each contour or segment wage range. The data are from the merged outgoing rotation groups (MORGs) from the Current Population Surveys (CPS) for 1979 to 2017, accessed from the Center for Economic Policy Research (CEPR).

and high-wage blue-collar job contours (Gittleman and Howell 1995) as well as the polarization literature's routine manual job group. Finally, the overall mix of jobs in the upper-tier decent-wage contour is broadly similar to the LMS literature's independent primary segment and to the polarization literature's nonroutine high cognitive skill jobs.

Table 2 presents employment shares for each of these contour segments for three demographic groups defined by age and education for 1979, 2000, 2014, and 2017. The top panel reports that the share of all employed wage and salary workers (ages eighteen through sixty-four) in the decent-wage segment fell from 61.5 percent to 57.9 percent between 1979 and 2000, and then fell further to 55 percent by the end of 2017; its mirror image, the low-wage job segment, grew steadily from 38.5 percent to 45.0 percent in 2017. Declining job shares characterized each of the two decent-wage contours between 1979 and 2017 (from 34.5 percent to 33 percent for the upper-tier decent-wage contour, and from 27.0 percent to 22 percent for lower-tier decent jobs). In contrast, the employment shares of both low-wage contours increased (from 12.8 percent to 17.5 percent in the low-wage upper tier and from 25.6 to 27.5 percent for the lower, poverty-wage job tier).

The middle and bottom panels of table 2 report changes in employment shares across the four job-quality contours for young workers (ages eighteen through thirty-four) by education level. For young workers with less than a college degree, the middle panel shows that the share employed in the decent-wage segment fell from 48.2 to 23.4 percent between 1979 and 2017, and grew spectacularly in the poverty-wage contour, from 35.7 to 53.5 percent. The bottom panel shows that this pattern even held for

Figure 4. Decent Job Rates, Median Wages, and Employment Rates for Young Workers Without a College Degree, 1979–2017



Source: Howell 2019.

Note: Young is ages eighteen to thirty-four. Amounts in 2017 dollars.

young workers with a college degree: the employment share of young college-degree holders in the decent-wage segment fell from 78.0 to 68.1 percent. As a result, the share of workers with college degrees employed in the low-wage segment grew from 22.0 to 31.9 percent.

Figure 4 presents time series trends for two indicators of job quality for young workers without a college degree—the decent-wage share and the overall median wage—with male workers shown in panel A and female workers in panel B. These figures also show the employment rate for each of these demographic groups (for details, see Howell 2019). Panel A of figure 4 reports that among young male workers with less than a college degree, the incidence of decent jobs has fallen steadily and colossally between 1979 (59.5 percent) and 2017 (28.5 percent). This was also true for non–college-degree prime-age workers (ages thirty-

five through fifty-nine, not shown), whose incidence of decent jobs fell from 82.5 to 59.3 percent. Panel B shows that the decent-wage share for young non–college-degree female workers was roughly stable at about 30 percent through the early 1990s and has fallen steadily since, reaching just 14.6 percent in 2014 (and 2017). The decent-wage share for prime-age non–college-degree women rose from 42.1 to 47.3 percent between 1979 and 1990 and then fell to 39.3 percent by the end of 2017 (much of the decline took place between 2007 and 2010).

It is not just the share of decent jobs that has declined sharply for these workers. The quality of jobs, as measured by the median wage, has dropped off sharply as well. Panel A of figure 4 shows that the overall median wage for young less-educated men fell from $16.34 (less than the decent-wage cutoff) to just $13.25 in 2017 (below the poverty-wage cutoff). Although the general trend was downward, changes in the tightness of the labor market clearly mattered a great deal: panel A reports a large and steep increase in the second half of the 1990s and an equally sharp decline between the end of 2009 and 2012. For similarly defined female workers, overall job quality as measured by the median was roughly stable between 1979 and 2000 (a median wage in the neighborhood of $11.50) but after peaking in 2003 at $11.80, the noncollege young female wage fell to just $10.37 at the end of 2014. Although it subsequently increased to $11.68 in the fourth quarter of 2017, this was still $1.65 below the $13.33 poverty-wage threshold.

Such large declines in job quality, as measured by both opportunities for decent jobs and the median wage, are likely to affect people's labor supply decisions. Figure 4 shows that employment rates for young workers with less than a college degree have ratcheted downward since around 2000. For young male workers without a college degree (panel A), employment rates fell dramatically, from 79.7 percent in the first quarter of 2001 to 67.3 percent at the end of 2014, before rising to 70.1 percent in the fourth quarter of 2017. Panel B shows that employment rates for young less-educated female workers increased from 56.5 percent in 1979 to 65.5 percent in 2001, fell back to 56.3 percent in 2014, and then recovered to 59.6 percent in 2017.

The rise in low-wage jobs we have documented here makes it important to know how this and other labor market changes have affected mobility out of low-wage work over time. In this issue, Michael Schultz uses data from the U.S. Panel Study of Income Dynamics from 1968 to 2014 to examine the changing patterns of mobility out of low-wage jobs in the United States (2019). His analysis shows that over the whole period about 42 percent of workers entering low-wage jobs below our "poverty threshold" between the ages of twenty-five and fifty-four were able to move to higher wages within two years, and that about 63 percent do so within six years. A key finding is that after controlling for a wide variety of demographic and educational characteristics, mobility rates out of low-wage work have fallen since the late 1990s and worsened further since the Great Recession. Women and nonwhites are less likely to move out of low wages and only minimal progress has been made in closing these gaps since the late 1960s.

Tom VanHeuvelen and Katherine Copas (in this issue) show that since 2000, geographic differences have mattered much more for high-wage than low-wage workers in the United States. Geographical differences among high-wage labor markets are great, but places are becoming more uniform for those in low-paying and insecure work (2019). They also find evidence that affluent households increasingly depend on the availability of low-wage workers.

Nonwage Dimensions of American Job Quality

The two wage thresholds, one that identifies poverty-wage jobs (using a median wage threshold) and the other that defines decent-wage jobs (relative to a mean wage threshold), provide alternative approaches to the measurement of long-run changes in wage quality. Changes in the incidence of poverty-wage and decent-wage jobs can be viewed as measures of changes in job quality if other important dimensions of employment valued by workers—such as health, pension and days-off benefits, and important working conditions—are closely associated with wage levels, and the (positive) relationships between pay and these other job-quality dimensions have not substantially weakened much over time.

Nonwage job-quality characteristics are notoriously difficult to reliably measure over extended periods.[10] But available evidence on one important category of nonwage job-quality characteristics—nonwage benefits—shows no meaningful compensating increases that could be said to offset the stagnation in real pay and rise in the incidence of low-wage jobs just documented. Nonwage compensation grew by 10.1 percent between 1979 and 2016, only slightly higher than the 9.2 percent increase in the median wage (Schmitt, Gould, and Bivens 2018).

At the same time, the share of workers receiving employer-paid health and pension benefits has declined sharply. The Economic Policy Institute reports that the share of workers receiving at least partially paid health insurance from their employers in 2016 ranged from 24.3 percent in the bottom fifth of the wage distribution to 73.1 percent in the top fifth. Not only were low-wage workers much less likely to have this benefit, but the share with paid health benefits has declined much more for lower- than for higher-wage workers: the bottom fifth experienced twice the percentage drop as the top fifth between 1979 and 2016, a decline of 35.9 percent (down from 37.9 percent in 1979) relative to 18.3 percent for the top fifth (down from 89.5 percent); between these, the middle fifth experienced a decline that was also in the middle: a fall in the share with health insurance of 23.6 percent (from 74.7 percent in 1979 to 57.1 percent in 2016).[11] A better indicator would take into account changes in the level of employer subsidy, which has likely also fallen faster for lower- than for higher-wage workers.

The decline in the share of workers with employer provided pension coverage was similar across the wage distribution in percentage terms: from 18.4 percent to 11.3 percent for the bottom quintile (–38.6 percent), from 52.3 percent to 34 percent for the middle quintile (–35 percent), and from 78.5 percent to 49.6 percent for the top quintile (–36.8 percent).[12] It should also be recognized that, with the decline of defined benefit pensions, retirement income risk has shifted sharply from employers to workers.

Although we do not have time series data on days-off benefits and on-the-job working conditions, the 2015 Rand Survey of American Working Conditions provides a variety of indicators that can be associated with pay for a single year. The survey included responses from 2,066 persons between the ages of eighteen and seventy-one who were working for pay at the time of the survey (Maestas et al. 2017, 4). Table 3 tabulates some key results of the Rand survey by wage contour. The distribution of employed survey respondents is similar to that of the Current Population Surveys (CPS)—it is smallest in the second contour (14.7 percent versus 17.5 percent in the CPS), second largest in the bottom (poverty-wage) job contour (21.5 percent versus 27.5 percent), and largest in the top, good-wage contour (43 percent versus 33 percent).

Rows 3 through 5 of table 3 show that the share of workers in firms that offer health, pension, and disability benefits are far higher in the two decent-wage contours (columns 3 and 4) than in the bottom poverty-wage contour (column 1), and the gaps are strikingly similar across benefit types. The two decent-wage contours show worker shares with health insurance offered (but not necessarily paid) by the employer at 81.5 percent and 73.4 percent in 2015, relative to 40.6 percent in the poverty-wage contour.[13] Whereas 42.6 percent of bottom contour workers work for firms that offer disability benefits, the other three contours range from 69.4 to 71.9 percent.

Six indicators of paid time off are shown in rows 6 through 11. For each, benefits are better

10. Schmitt and Jones point to the difficulties involved in generating a consistent series of the value to workers of employer contributions to health and pension benefits over the post-1979 decades (2012).

11. Authors' calculations based on Economic Policy Institute figures ((EPI 2017, "Health Insurance Coverage," accessed March 1, 2019, https://www.epi.org/data/#?subject=healthcov&d=*).

12. Authors' calculations based on Economic Policy Institute figures (EPI 2017, "Pension Coverage," accessed March 1, 2019, https://www.epi.org/data/#/?subject=pensioncov&d=*).

13. The good-wage job contour (4) had a substantially lower share than the lower-tier decent jobs contour (3). The same pattern holds for employer offered pension benefits.

Table 3. Working Conditions and Employment-Related Benefits by Wage Contour, 2015

	Contour 1	Contour 2	Contour 3	Contour 4
1. Wage range, 2015$	<= $12.67	$12.68–$16.41	$16.42–$24.62	>= $24.63
2. Survey respondents (share of total)	434 (21.5%)	297 (14.7%)	422 (20.1%)	870 (43.0%)
Health-pension benefits				
3. Employer offered health insurance (% yes)[a]	40.6	71.5	81.5	73.4
4. Employer offered pension (% yes)[a]	37.0	68.0	80.9	75.6
5. Employer offered disability insurance (% yes)	42.6	70.0	69.4	71.9
Paid time off				
6. Paid sick time offered (% yes)	35.0	66.9	79.4	76.8
7. Paid sick days per year (three)	9.7	10.3	12.2	15.2
8. Paid holidays (% yes)	41.4	64.4	72.1	72.2
9. Paid vacation time (% yes)	40.3	66.6	84.3	75.9
10. Paid vacation days given (#)	12.4	16.1	22.2	22.8
11. Paid vacation days taken (#)	11.6	12.0	13.7	16.3
Hours and schedule				
12. Good fit of working hours with family and social commitments (% well–very well)	18.4	12.6	20.1	39.6
13. Regular and steady work throughout year (% yes)	17.6	13.4	21.9	40.4
Indirect job quality indicators				
14. Looking for a job (% yes)	39.0	29.9	32.5	22.2
15. Union member (% yes)	6.5	12.6	16.6	22.7

Source: Authors' calculations based on Survey of American Working Conditions (Rand 2015).
Note: Contour 1 = lower tier of low-wage segment; contour 2 = upper tier of low-wage segment; contour 3 = lower tier of decent-wage segment; contour 4 = upper tier of decent wage segment. For wage contour definitions, the poverty-wage threshold is the conventional low-wage cutoff: two-thirds of the median wage for full-time workers. The decent-wage threshold is defined as two-thirds of the mean wage for full-time prime-age workers. Lower tier decent wage jobs are those that pay up to 50 percent above the decent job threshold. Employment shares report the share of employed workers (eighteen to sixty-four) with wages within each contour or segment wage range. The data are from the merged outgoing rotation groups (MORGs) from the Current Population Surveys (CPS) for 1979 to 2017, accessed from the Center for Economic Policy Research (CEPR).
[a]The question asks whether the respondent's employer offers health insurance, pension-retirement benefits, or disability benefits. This appears to leave open how much, if anything, is contributed by the employer to the costs of these benefits.

the higher the wage contour. For example, the share of workers with paid sick time (row 6) is almost twice as high for contour 2 (66.9 percent) as for contour 1 (35 percent), and the share is higher still in the decent-wage contours (79.4 percent and 76.8 percent). Row 7 shows that the number of paid sick days increases systematically across the wage contours, from 9.7 to 10.3, 12.2, and 15.2. The same pattern holds for paid holidays, paid vacation time, and paid vacation days that are both given and taken.

Rows 12 and 13 report two hours and work

schedule indicators. Workers in good-wage jobs (contour 4) are much more likely than workers in poverty-wage jobs (contour 1) to agree that their job offers both "a good fit of working hours with family and social commitments" (39.6 percent versus 18.4 percent) and that the job offers "regular and steady work" (40.4 percent versus 17.6 percent). At the same time, a smaller share of workers in the upper tier of the low-wage segment, contour 2, say they have regular and steady work than those in poverty-wage jobs (13.4 percent to 17.6 percent). Although workers in the highest wage contour (4) are by far the most advantaged on these hours and scheduling criteria, far fewer than half report that their work schedules offer a good fit (39.6 percent) or regular and steady work (40.4 percent).

We included two additional indicators because they are likely to be highly associated with job quality as indicated by wages, benefits, satisfactory hours and work schedule, and job conditions: the share looking for a different job (row 14, a likely consequence of job quality) and the share reporting union membership (row 15, a likely cause of job quality). Active job search is much higher for workers in poverty-wage jobs (39 percent) than the middle two wage contours (29.9 percent and 32.5 percent), which in turn is far above the search rate for workers in the good-wage jobs (22.2 percent). Similarly, union membership increases from 6.5 percent in contour 1 to 22.7 percent in contour 4.

These data strongly support the view that, at least at the highly aggregated level of four wage contours, nonwage benefits and working conditions vary systematically with wage quality, from worst in the poverty-wage contour (1) to best in the good-wage contour (4). This suggests that wages are a good approximation for overall job quality.

Nonstandard Work Arrangements and Job Quality

Changes in job quality are often linked to transformations in work arrangements from the post–World War II norm of standard employment relations to the current emphasis on nonstandard work arrangements. Our analysis in the previous section focused mainly (though not completely) on workers who had standard employment relations: wage and salaried workers, including part-timers but not the self-employed. Here, we examine how nonstandard work arrangements are related to job quality.

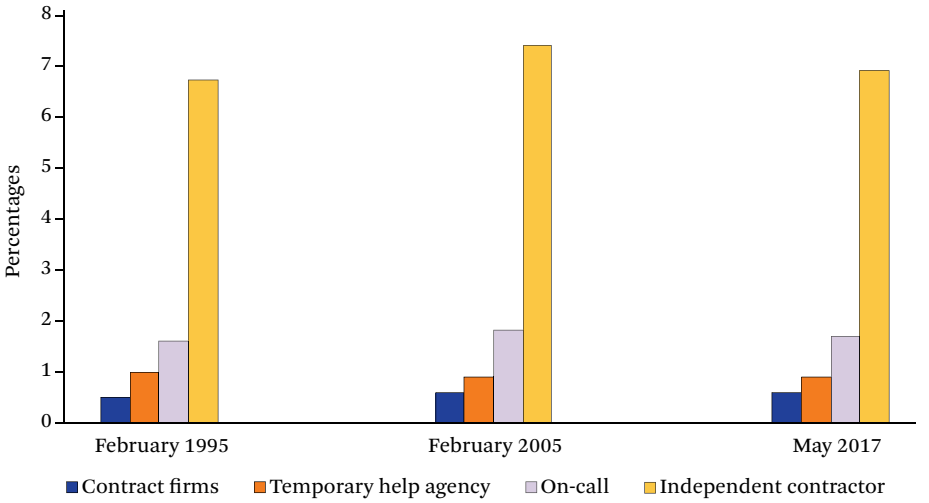
Trends in Nonstandard Work Arrangements

A prominent theme in recent research on job quality is the rise of nonstandard work arrangements that depart from the previously widely accepted norm of standard employment relations involving permanent, full-time work directed by an employer at the employer's place of business and with regular pay and benefits. They include temporary work (hired both through agencies and directly), part-time work (which is more nonstandard in some countries than others), contract work, irregular and casual work, and some types of self-employment and independent contracting. In general, nonstandard forms of work are uncertain and insecure and (especially in the United States) often lack the social and statutory protections that have come to be associated with regular, standard employment relations in the early post–World War II period (see, for example, Vosko 2010; Kalleberg 2011; Weil 2014).

Unfortunately, interest in and theories of nonstandard work arrangements have outrun empirical evidence based on representative data and using consistent definitions and adequate measures. Systematic data are in short supply about trends in the various types of nonstandard work arrangements that span a relatively long period; until recently, only relatively poor information on the extent of nonstandard work arrangements and how this has changed during the past several decades has been available. In the United States, nationally representative data on nonstandard work (such as temporary work or independent contractors) were not collected systematically until the mid-1990s with the Contingent Work Supplements (CWS) to the February Current Population Surveys conducted in 1995, 1997, 1999, 2001, 2005, and in May 2017. These provide the most extensive estimates of nonstandard work arrangements in the United States.

Figure 5 presents estimates (from the 1995, 2005, and 2017 CWS) of the percentage of the U.S. labor force working in four kinds of nonstandard work arrangements: employees of contract companies, employees of temporary

Figure 5. Nonstandard Work Arrangements in the United States



Source: Authors' compilation based on analyses of 1995, 2005, and 2017 Current Population Surveys' Contingent Work Supplements.

help agencies, on-call workers (who are called to work by employers on an as-needed basis, such as substitute teachers), and independent contractors (which include freelancers and workers who are self-employed but have no employees).

The percentage of workers in nonstandard work arrangements has increased only slightly since 1995: from 9.8 percent of the labor force in 1995 to 10.1 percent in 2017. About 1 percent of the labor force was employed by temporary help agencies and about 0.5 percent worked for contract companies, and the sizes of these groups were similar between the original survey in 1995 and 2017. The percentage of on-call workers was 1.7 percent in 2017, slightly greater than in 1995. The percentage of independent contractors, the largest category of nonstandard work, was 6.9 percent in 2017, slightly more than in 1995 and a decline from 7.4 percent in 2005 (see also Appelbaum, Kalleberg, and Rho 2019).

These relatively flat trends in the CWS estimates of nonstandard work arrangements undoubtedly underestimate both the size and the growth of the nonstandard labor force. The CWS is a household survey of workers that asks about the worker's main job (in a particular week) and thus does not count second or third jobs (Mishel, Bernstein, and Allegretto 2007, 239). By contrast, estimates of independent contractors based on administrative data such as tax records register independent contracting at any point in the year and on supplementary as well as main jobs; these estimates show much higher (and increasing) rates of independent contracting (Abraham et al. 2017). The 2017 BLS CWS result differs from Lawrence Katz and Alan Krueger's finding of an increase in the percent of independent contractors from in 7.4 percent in 2005 to 8.4 percent in 2015 (2016). The authors also report an increase in all four categories of nonstandard work from 10.7 percent in 2005 to 15.8 percent in 2015. More recently, they note that their estimates of nonstandard work arrangement were too high, as they were skewed by spotty data and the recession of a decade ago (2019).

Estimating the number of workers employed by contract companies is especially problematic. The low percentages of contract company workers as identified by the CWS does not square with the case study evidence about the rise of outsourcing and organizational *fissuring* in recent years (see, for example, Weil 2014, 2017; Bernhardt et al. 2015; Appelbaum and Batt 2017). Many workers do not know whether their company is a contract company; transformations in

how business organizes work are also "invisible to most of us as consumers" (Weil 2014, 3).

Moreover, we need to keep in mind that the recent rise of nonstandard work arrangements in the United States began in the mid-1970s (Kalleberg 2011), and the lack of information on these types of work from these earlier periods makes it difficult to assess long-term trends (for a discussion of this problem, see Green 2006). The incidence of nonstandard work arrangements is also greater in some countries than in the United States (see ILO 2016; Kalleberg 2018). In Japan, slightly more than one-third of Japanese workers in 2010 were in nonstandard work arrangements (Osawa, Kim, and Kingston 2013). In countries where employment protections are strong, such as France and Spain, numbers of temporary workers are high because employers are reluctant to hire permanent workers they will have difficulty shedding. By contrast, employers in liberal market economies such as the United States and United Kingdom have fewer incentives to offer fixed-term, temporary contracts because employment protections for permanent workers are weak. In the United States, the vast majority of workers are employees "at will," except for the small number of union members (especially in the private sector) and some well-paid professionals with individual employment contracts.

A relatively large proportion of jobs that have been created in recent years have been in nonstandard work arrangements: a recent OECD study of twenty-six European countries showed that about half of the jobs created between 1995 and 2013, and about 60 percent of those created between 2007 and 2013, were in nonstandard jobs (OECD 2015). This suggests a substantial shift in the nature of work in these countries, and one that grows more pronounced over time. Further, in 2013, about one-third of all jobs in these countries were in nonstandard work arrangements, divided about equally among temporary jobs, permanent part-time jobs, and self-employment.[14]

Nonstandard Work Arrangements and Job Quality

Low-wage and nonstandard jobs are interconnected in significant ways. Some nonstandard jobs may be good ones, such as well-paid consultants who have a great deal of control over the terms and conditions of work. Independent contractors and other forms of self-employment may provide higher wages than regular full-time workers in standard jobs, though workers in these nonstandard arrangements are less apt to receive fringe benefits. Moreover, independent contractors are likely to prefer to work in them (see Kalleberg et al. 1997; Kalleberg, Reskin, and Hudson 2000).

However, many nonstandard jobs are characterized by low pay, low security, poor working conditions, high anxiety, and result in poor mental and physical health. Some nonstandard work, such as temporary help agency employees, on-call workers and day laborers, and part-time workers are consistently more likely than regular full-time workers to have low pay and to lack health insurance and pension benefits (see, for example, Tilly 1996; Kalleberg 2000; Stancanelli 2002). They also often lack statutory protections in the form of labor laws. Moreover, workers in low-wage and nonstandard jobs often tend to be the most vulnerable members of the labor force such as racial and ethnic minorities, women, immigrants, and undocumented workers.

Contract company workers, moreover, are likely to have jobs that are of lower quality than comparable jobs in which production is not outsourced. As Eileen Appelbaum and Rosemary Batt summarize the literature on this topic, "Most empirical research in both the USA and Europe suggests that the rise of the networked firm and outsourcing of production has led to a deterioration in the jobs and pay of workers and to a growth in wage inequality" (2017, 77). Outsourcing work to contract companies relieves large firms from having to maintain internal equity pay norms. Contractors are also likely to be subject to greater cost pres-

14. The extent to which regular part-time work can be considered to be precarious differs among countries: in some, part-time work can be fairly stable and associated with social and statutory protections akin to those enjoyed by regular, full-time workers and so are less likely to be precarious than are short-term and irregular jobs, for example.

sures, leading them to lower wages and make wage theft more likely. Nevertheless, the difficulties in measuring contract work underscore the need for additional research on the quality of such jobs (see, for example, Bernhardt et al. 2015).

The quality of nonstandard jobs should be judged in relation to the job quality of standard employment relations. All nonstandard work arrangements are associated with insecurity and uncertainty, and this is generally true also for all workers, in both high- as well as low-skill jobs. Although nonstandard jobs often pay low wages, then, low-wage jobs are also increasingly found in standard employment relations: the shifting of risks from employers to workers has reduced protections for standard workers as well, leading to a stagnation or deterioration of wages for many who are employed on a permanent basis (Bernhardt 2014). Even among workers who continue to work full time with their employers on standard employment contracts, the greater incidence of downsizing and related human resource practices shifts risks of work from employers (and the government) to workers and is illustrated by trends such as the growth of defined-contribution relative to defined-benefit pension plans and the increasing proportion of health insurance premiums paid by employees rather than their employers. This risk shifting occurs with temporary or contract jobs, but also characterizes the decline of social protections associated with standard employment relations.

Linking nonstandard work arrangements to job quality raises a number of important issues related to work and workers. Several articles in this issue address some of these correlates of nonstandard work, such as their demographic composition, the consequences of working in nonstandard jobs for health, and how labor market dynamics are reflected in the search process for standard and nonstandard jobs. These studies help bolster our understanding of this underdeveloped area of research on labor markets and inequality.

Cathy Liu and Luísa Nazareno use data from the CWS and show that workers in nonstandard employment receive increasingly lower earnings and work fewer hours than comparable workers in traditional arrangements (2019). However, the penalties for working in nonstandard jobs differ for subgroups of workers: for example, high-skill workers in nonstandard jobs are more disadvantaged relative to those in standard jobs than are low-skill workers. Trevor Peckham and his colleagues demonstrate that those who had nonstandard and dead-end jobs had lower general and mental health as well as more occupational injuries than those who had standard employment relations (2019). Susan Lambert, Julia Henly, and Jaeseung Kim find that nonstandard and precarious work schedules are both widespread in the U.S. labor market but also introduce instability as well as unpredictability into workers' lives (2019). In particular, they find that the relationship between schedule volatility and financial insecurity is greater for salaried than for hourly workers, suggesting that variability in hours does not translate directly into perceived earnings instability. Finally, David Pedulla and Katariina Mueller-Gastell document differences in the job search process between nonstandard workers, whom they define as part-time and temporary workers, in the United States (2019). They find that young workers and those with less education are more likely to apply for nonstandard jobs.

EXPLAINING JOB QUALITY: THEORETICAL PERSPECTIVES

The current focus on job quality is motivated by the widespread recognition and concern that American economic growth since the late 1970s has been unshared with the workforce, resulting in a four-decade long increase in wage, income, and wealth inequality. What explains how the proceeds of economic growth are shared with workers across the wage distribution? And what explains the sharp U-turn in shared growth around 1980? Because the wage is a critical indicator of job quality for most workers, the wage-setting process must be at the center of any answer to these questions. But even narrowed to wage setting, the terrain is far too large and complex to do more here than provide a bird's-eye perspective through the particular lenses we bring to the question.

Explanations for the post-1979 low-wage cri-

sis—wage stagnation or decline, rising wage inequality, and increases in the incidence of poverty and low wages—derived from alternative visions of how the labor market works. Systematic efforts to explain wage outcomes date back to the beginning of the industrial revolution, and in particular, to Adam Smith's *Wealth of Nations*. Because the essential features of the contemporary debate can be found in Smith, we begin by briefly summarizing Smith's views. We then argue that current perspectives about how the labor market works are widely interpreted to reflect either a *market* (supply and demand) or an *institutional* (bargaining power) vision. This terminology can be misleading, given that the market is an institution and could not function—even the special case of the economist's textbook (neoclassical) perfect competition model—without a variety of other formal institutions (for example, those that establish property rights and enforcement) and informal ones (for example, social norms that establish trust). It also fails to recognize the recent development of a market-optimization vision in which bargaining power is central, which can be referred to as contested market models.

We view differences in the dynamics, evolution, and performance of the labor market—and consequently changes in job quality—to be rooted in alternative perspectives on institutions and their effects on economic outcomes. Institutions are typically understood as the formal and informal rules of the game, often manifested in regulations and in public and private organizational policies, that evolve over time and that reflect collective and political choices governing interactions between individuals as well as groups of individuals (including organizations, communities, and governments). They provide the framework within which decisions and actions take place, help motivate individual behavior, and define the structure and operation of groups. Inherently political constructs, institutions reflect "socio-political compromises established in historically-specific conditions" (Amable 2016, 79).

In mainstream labor economics, the conception of institutions is narrower but not necessarily inconsistent with this understanding. For example, according to a leading textbook, "A labor market institution is a system of laws, norms, or conventions resulting from a collective choice and providing constraints or incentives that alter individual choices over labor and pay" (Boeri and van Ours 2013, 8). In this view, institutions form a "wedge between the value of the job for a firm and the reservation wage of the individual," and hence are, relative to the economist's perfect labor market, inherently inefficient (8). Alternatively, if labor markets are imperfect in important ways, institutions can be corrective and improve efficiency. This is the position of contested market (monopsony search and personnel economics) models. In social-institutional approaches, the employment relation is inherently socially embedded because the labor that is exchanged for pay cannot be separated from the worker (unlike a material commodity). Institutions, even protective labor institutions, are not presumed to be inherently inefficient, nor do they merely serve to correct market failures. Instead, by defining the nature of the employment relation and helping to allocate power to key parties with conflicting interests, they are essential features of the labor market and central to the determination of labor outcomes.

Markets, Institutions, and Bargaining Power: Smith's Vision

To understand how labor markets in capitalist economies work, and specifically how wages are set, it is useful to start with Adam Smith, whose "invisible hand" theorem about the benefits of market competition has long been the keystone of mainstream economics (1937 [1776]). But whereas Smith is widely seen as the father of free market economics, *The Wealth of Nations* makes it clear that institutions, social norms, and market pressures are all central to the balance of bargaining power between "masters" and "workmen." Smith's chapter 8 ("of the Wages of Labor") highlights the ways in which "monopsony power" (the ability to set wages through the "collusion" of masters), social norms (subsistence consistent with "common humanity"), institutions (the use of state power to ensure low wages), and the swings in the market between "scarcity of hands" and "scar-

city of employment" all matter a great deal. Smith begins with wage setting as the outcome of self-interested bargaining: "What are the common wages of labour, depends everywhere upon the contract usually made between those two parties, whose interests are by no means the same. The workmen desire to get as much, the masters to give as little, as possible. The former are disposed to combine in order to raise, the latter in order to lower, the wages of labour. It is not, however, difficult to foresee which of the two parties must, upon all ordinary occasions, have the advantage in the dispute, and force the other into a compliance with their terms" (1937 [1776], 66).

Employers have a number of structural advantages in the wage dispute. First, they can hold out much longer than workers. Although masters "could generally live a year or two upon the stock which they have already acquired. Many workmen could not subsist a week." Second, employers easily collude with one another to keep wages low: "being fewer in number, they can combine much more easily. . . . Masters 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." And, third, employers are politically more powerful and can rely on the police powers of the state: "the law, besides, authorizes, or at least does not prohibit their combinations, while it prohibits those of the workmen. . . . [the masters] never cease to call aloud for the assistance of the civil magistrate, and the rigorous execution of those laws which have been enacted with so much severity against the combinations of servants, labourers, and journeymen" (Smith 1937 [1776], 66).

Despite these overwhelming employer advantages, wages tend not to fall below socially acceptable subsistence levels for working families, due both to social norms that keep the wage above "the lowest which is consistent with common humanity" (Smith 1937 [1776], 68) and to employers' self-interest in reproducing a healthy and productive workforce.[15] At the same time, market forces matter: in good years of strong economic growth, "The scarcity of hands occasions a competition among masters, who bid against one another, in order to get workmen, and thus voluntarily break through the natural combination of masters not to raise wages" (68). But in lean years, in a "scarcity of employment," workers compete with one another and drive the wage back down to the rate just consistent with "common humanity." Workers who must invest to learn their trade will get a compensating wage premium (now termed the return to "human capital"), but Smith does not explain wage differentials as a simple reflection of differences in worker productivity; instead, wages are sometimes set above the market-clearing level to spur worker morale, reduce turnover, and increase productivity (now known as an efficiency wage).[16]

In sum, we can find important roles in Smith for *market forces* (the relative jobs scarcity of jobs and workers), monopsony *bargaining power* (employer collusion), *social norms* (the social subsistence wage as the lower wage threshold), *formal institutions* (the advantages to employers of prevailing legal rules), and *wage-driven productivity growth* (not just productivity-driven wage growth). Together, these can help explain substantial persistent cross-firm (and industry) differences in wages and nonwage job quality for similar workers that have been observed by researchers since 1776.

The Contemporary Debate

As in Smith's vision of the mid-eighteenth-century English labor market, three key dimensions—market forces, institutions, and social

15. "Thus far at least seems certain, that, in order to bring up a family, the labour of the husband and wife together must, even in the lowest species of common labour, be able to earn something more than what is precisely necessary for their own maintenance" (Smith 1937 [1776], 68).

16. "The liberal reward of labour, as it encourages the propagation, so it increases the industry of the common people. The wages of labour are the encouragement of industry, which, like every other human quality, improves in proportion to the encouragement it receives. . . . Where wages are high, accordingly, we shall always find the workmen more active, diligent, and expeditious, than where they are low" (Smith 1937 [1776], 81).

forces or structures—are inextricably linked in contemporary real-world wage setting. As Richard Freeman notes, "All countries rely on a mixture of the market interaction of supply and demand and labor institutions to determine employment, wages, and conditions of work" (2013, 15). But most efforts to explain labor market outcomes have been seen as falling into one of two broad categories, either institutional (stressing all sources of bargaining power) or market competition (the overwhelming dominance of the forces of supply and demand for skills). For example, in the late 1950s, written in the context of the recent high-profile debate on the merits of the competitive model (marginal productivity theory) as a useful guide to actual real-world wage setting, Melvin Reder's survey of wage theory framed it this way: "There are two general approaches to the theory of wage structure. One is the market theory, or the competitive hypothesis, the other is what we might roughly term institutional. Each has its place and, under pressure, most students of the labor market will concede this" (quoted in Kaufman 2004, 31).[17]

Although the competitive market model has continued to dominate textbook economic presentations and economists' professional work, the post-1979 wage problem has triggered a new interest in the effects of institutions and policies on the balance of bargaining power. As in the 1940s and 1950s, these bargaining power approaches are increasingly challenging the mainstream competitive market model, whose advocates have risen to the defense. For example, Gregory Mankiw unfavorably contrasts Joseph Stiglitz's view that rising wage inequality and stagnant wages reflect large-scale rent-seeking behavior in an economy increasingly rigged to benefit the employers and the rich with Claudia Goldin and Katz's technology-driven supply and demand explanation for rising wage inequality (Mankiw 2013, 23). Similarly, Steven Kaplan and Joshua Rauh argue that the evidence on the determination of sharply rising CEO pay, and top incomes more generally, favors "theories that root inequality in economic factors, especially skill-biased technological change, greater scale, and their interaction" as opposed to "those who suggest that the increase in pay at the top is driven by a recent removal of social norms regarding pay inequality" (2013, 15; see also Gabaix, Landier, and Sauvagnat 2014).

On the other side, arguing that the erosion of institutional protections is central to the wage crisis, sociologists Bruce Western and Jake Rosenfeld write that "Union decline forms part of an institutional account of rising inequality that is often contrasted with a market explanation" (2011, 513). Similarly, the economist Henry Farber and his colleagues motivate their path-breaking study on union wage effects on the grounds that "These new data sources allow us to revisit the role of unions in shaping the income distribution and contribute to the long-running 'institutions versus market forces' debate" (2018, 2).

At the international level, Florence Jaumotte and Carolina Osorio Buitron of the IMF note that "Explanations for the rise of inequality in the developed world either focus on market-driven forces or institutional changes" (2015, 7). Similarly, in reviewing the literature on the importance of cognitive skills in explaining international differences in wage inequality, a recent OECD study explains that "what was really at stake was the role of the market (demand and supply) as an explanation for differences in the returns to skill versus an alternative explanation that attributes skill prices to differences in institutional setups, like the minimum wage and unionization. This mirrors a wider debate in the economic literature that has pitched the market (including the role of technological change and international trade) against institutions in explaining wage dispersion" (Broecke, Quintini, and Vandeweyer 2019, 251–52).

Three Views of the Labor Market

Despite this long history of framing explanations of the way the labor market works in terms of markets versus institutions, in recent

17. The leading figures in the debate were Richard Lester for the critique and Fritz Machlup for the defense (see Kerr 1994; Kaufman 1988).

decades the literature seems better described by three fundamental visions. The mainstream neoclassical approach, characterized by putting market forces and individual optimization at the center of the analysis, includes both those convinced that perfectly competitive markets are a good approximation of the way labor markets work and those who see asymmetric information and transaction costs as pervasive and fundamental, leading to the need for models of imperfect competition in bargaining over rents (above competitive market returns). The yawning gap that has developed in recent decades between these competitive and contested market approaches is nicely summarized by Alan Krueger:

> Although economists' go-to model of the labor market is often one with perfect competition—where bargaining power is irrelevant because supply and demand determine the wage, and there is nothing firms can do about it—in many applications I think it is more appropriate to model the labor market as imperfectly competitive, subject to monopsony-like effects, collusive behavior by firms, search frictions, and surpluses that are bargained over. As a result of these labor market features, firms should be viewed as wage-setters or wage-negotiators, rather than wage-takers. (2018,1)

Two very different traditions share this vision in which bargaining power is central. While the imperfect competition (or "contested market") view shares with the political economy (or "social-institutional") perspective a focus on collusive behavior and bargaining over rents, the later places much greater emphasis on non-optimizing behavior and conflict between groups of stakeholders within firms and the structuring of this conflict by workplace cultures and worker identities, internal labor markets, external labor institutions, and public policies. This section considers each of these perspectives in turn.

The Competitive Labor Market Model

In the competitive textbook model, "Earnings are made dependent on the amounts invested in human capital, and the latter are assumed to be determined by a rational comparison of benefits and costs" (Becker 1975, 133).[18] In this view, without the interference of protective institutions, the labor market will clear and price adjustments ensure no excess labor supply or demand, a single price (wage) will prevail for a given level of worker skill, and that wage will be the worker's marginal product—the extra value the worker contributes. In their labor economics textbook, *The Economics of Imperfect Labor Markets,* Tito Boeri and Jan van Ours explain that the analysis of imperfect labor markets must begin with the baseline of a perfectly competitive labor market, in which "the market is transparent, workers and firms are perfectly informed about wages and labor services offered by other firms, and there are no frictions or costs (e.g., no time related to job search and no transportation costs when going to job interviews) involved in the matching of workers and vacancies, that is, of labor supply and demand" (2013, 7). Although this is recognized as a highly simplified model with strong assumptions, it

18. The textbook neoclassical model consists of two key elements that combine to generate an equilibrium that is Pareto-optimal, that is, one that maximizes efficiency such that any deviation from it will reduce overall economic welfare. One is the assumption of a particular market structure, perfect market competition, in which all agents are price-takers (wage-takers), there is no bargaining power, and workers are paid their marginal products. The other is the behavioral assumption of constrained maximization, in which all agents (workers and employers) are rational, which is understood as self-interested maximizing behavior (Becker 1975; Kaufman 2004). An example of a much broader, less rigorous conception is Dani Rodrik's: "At the core of neoclassical economics lies the following methodological predisposition: social phenomena can best be understood by considering there to be an aggregation of purposeful behavior by individuals . . . interacting with each other and acting under the constraints that their environment imposes" (2007, 3). We find Rodrik's definition much too broad to be helpful in understanding important cleavages in the literature; it is hard to imagine any leading social scientists who would not agree that individual behavior can be viewed as at least attempting to be broadly purposeful.

is also accepted by many mainstream economists as capturing the essential features of contemporary labor markets.

Seen through the lens of the competitive market model, wage outcomes (and job quality more generally) are best explained by shifts in the supply and demand for skills. On the demand side, computerization of the workplace has increased the demand for skills, but the supply of college-degree workers has not kept pace. Because computer technologies most easily substitute for workers doing routine noncognitive tasks, employment becomes polarized, with faster job growth at the bottom and top of the skill distribution than in the middle. David Autor and Katz offer a good summary of this view: "Two forces are rapidly shifting the quality of jobs, reshaping the earnings distribution, altering economic mobility, and redefining gender roles in OECD economies. These forces are, one, employment polarization (a demand-side force) and, two, a reversal of the gender gap in higher education (a supply-side force), reflecting women's rising educational attainment and men's stagnating educational attainment. The result has been a labor market that greatly rewards workers with college and graduate degrees but is unfavorable to the less-educated, particularly less-educated males" (2010, 1).

Similarly, Daron Acemoglu and Autor's chapter on wage inequality in the most recent *Handbook of Labor Economics* aims "to account for recent changes in the earnings and employment distribution in the United States" and does so with a perfectly competitive demand-supply model (2011, 1157).[19] They extend the canonical demand and supply model (which is also referred to as the textbook model) with "a tractable task-based model," but the theoretical foundation is the same, one that "crucially depends on competitive labor markets, where each worker is paid the value of his or her marginal product" (2011, 1159; see also Autor, Katz, and Kearney 2006, 2008; Goldin and Katz 2007, 2008; Autor and Dorn 2013).[20] Nancy Folbre terms this a "just desserts" vision of the labor market in which factors of production (such as workers) get what they contribute (2016).[21]

This marginal productivity framing rules out a meaningful role for institutional effects on wage setting and the possibility of important (and growing) within- and between-firm wage differentials for similarly skilled workers doing similar job tasks. This helps explain why protective labor institutions and within-firm bargaining power are all but unmentioned in this literature (see, for example, Autor, Katz, and Kearney 2006, 2008; Goldin and Katz 2007, 2008; Autor and Katz 2010; Acemoglu and Autor 2011, 2012; Autor and Dorn 2013). As Goldin and Katz put it, "Stripped to essentials, the ebb and flow of wage inequality is all about education and technology" (2009, 1).

Contested Market Competition

Whether the canonical competitive market model and its variants can adequately explain recent rises in the college-wage premium and employment and wage polarization is contro-

19. The handbook, edited by Ashenfelter and Card (2011), can be viewed as the definitive statement of the current state-of-the-art in mainstream labor economics; it comprises twenty chapters in two volumes (1,827 pages).

20. "Even though workers of the same skill level perform different tasks, in equilibrium they will receive the same wage—a simple 'law of one price' that has to hold in any competitive equilibrium. . . . In any equilibrium, all tasks employing low skill workers must pay them the same wage, W_L, since otherwise, given the competitive market assumption, no worker would supply their labor to tasks paying lower wages. Similarly, all tasks employing medium skill workers must pay a wage W_M, and all tasks employing high skill workers must pay a wage W_H. As a consequence, the values of the marginal product of all workers in a skill group must be the same in all the tasks that they are performing" (Acemoglu and Autor, 2011, 1122–23).

21. The marginal productivity vision of wage setting is taught in every standard economics (and labor economics) textbook and appears in professional and popular articles whose purpose is to weigh in on the sources of contemporary wage inequality. As Mankiw puts it, "In the standard competitive labor market, a person's earnings equal the value of his or her marginal productivity. . . . The key issue is the extent to which the high incomes of the top 1 percent reflect high productivity rather than some market imperfection" (2013, 30).

versial (see the following section). However, as Alan Manning points out, the competitive model has a hard time accounting for many other labor outcomes: "Many empirical observations (e.g., equilibrium wage dispersion, the gender pay gap, the effect of minimum wages on employment, employers paying for general training, costs of job loss for workers with no specific skills to list only a few) that are puzzles if one thinks the labor market is perfectly competitive are simply what one might expect if one thinks the labor market is characterized by pervasive imperfect competition" (2011, 1031).[22]

In the early 1930s, Joan Robinson, a prominent Cambridge University economist, recognized that just as firms could have monopoly power in product markets, they could also have substantial monopsony power in buyer's (input) markets. The presence of monopoly power in the product market can generate monopsony power in the labor market, as can any frictions that cause workers not to know about other job opportunities (such as imperfect information about contract terms or the working conditions on the new job) or that make it difficult to take a new job or switch jobs (commuting costs, family obligations). These sources of employer bargaining power can cause wages to be set below the worker's marginal product.[23] "The very fact that we turn up to the same employer day after day strongly suggests there are some rents from that relationship" (Manning 2011, 977).

Another dimension of monopsony power, which may be particularly important to understanding the post-1979 wage crisis, is between lead firms and their suppliers. Spurred by technological advances, deregulation, and the shift from the managerial to the financial model of the firm, large firms have restructured by outsourcing specialized and peripheral functions to contractor firms. This has led to increasing competitive pressures in supplier firms, and predictable consequences for wages in the contractor firms (Weil 2014, 2017; Appelbaum 2017; Handwerker 2018; Wilmers 2018). We mention restructuring and fissuring here because of the tie to monopsony power, but it is consistent with, and most developed by researchers associated with, the social-institutional view.

In this contested market view, because wage bargaining takes place over a range of possible wages given by the worker's marginal product (the upper limit) and the workers' reservation wage (the lower limit), a firm with monopsony power may pay wages that are too low and employ too few workers, resulting in inefficient and inequitable outcomes. Policy responses to monopsony power that could promote both efficiency (employment) and equity (higher wages) include the establishment of wage floors via minimum wage regulation or effective collective bargaining. In short, because markets are no longer perfect, efficiency may require the establishment of protective labor institutions. As Manning explains, "One's views of the likely effects of labor market regulation should be substantially altered once one recognizes the existence of imperfect competition" (2011, 1031). At the same time, despite the central role of market imperfections, rents, and bargaining powers for understanding wage outcomes, imperfect competition models retain the demand-supply framing, grounded in maximizing behavior of self-interested agents.

A complementary new personnel economics (NPE) literature is concerned with a fundamental problem of modern capitalism: the organization of a firm's production process that maximizes productivity and minimizes unit costs. This is a problem ruled out in the canonical textbook model, under which either perfect contracting is assumed or a firm or a fictitious social planner organizes the production pro-

22. Manning defines imperfect competition as the operation of markets in which an "employer or employee or both get some rents from an existing employment relationship" (2011, 974). Such rents violate the fundamental assumptions of the perfect competition model.

23. Imperfect competition models share with the competitive market view the centrality of a demand-supply framework in which the demand curve is given by the worker's marginal product. But unlike the competitive model, in the monopsony model firms can pay workers less than their marginal product (for an institutionalist critique of labor demand as the worker's marginal product, see Kaufman 2007).

cess.[24] The NPE literature is neoclassical in the sense that it "assumes that both the worker and the firm are rational maximizing agents, seeking utility and profits" but, like the imperfect competition literature, it "allows for constraints or imperfections, such as imperfect information and transaction costs, and permits an individual's utility to be influenced by a variety of factors such as personal identity, competition, and peer pressure" (Lazear and Shaw 2007, 91–92). The goal is to understand and model optimal management practices on promotions, raises, the compensation structure (pay-for-performance), the balance between wages and benefits, and the use of teams. More generally, NPE can be seen as the study of ways to organize production and allocate rents optimally, defined from the perspective of the employer's goal of profit maximization. Less attention has been focused on how conflict between groups of stakeholders is resolved, given workplace cultures, power dynamics, and the influence of outside institutions and public policies (Osterman 2011).[25]

Social-Institutional Bargaining Power Approaches

As Bruce Kaufman argues, the social-institutional vision "starts with an imperfect world with humans as they are. . . . Because all contracts are incomplete, people must solve their coordination, allocation, and pricing and output decisions through an evolutionary process of institution-building and a mix of markets, formal organizations, and social institutions" (2004, 34). A long tradition in the social sciences has viewed the economy as "socially embedded" (Granovetter 2005). Robert Solow, one of the giants of postwar economics, points out what might seem obvious: "Wage rates and jobs are not exactly like other prices and quantities" and "Once you admit to yourself that wage rates and employment are profoundly entwined with social status and self-esteem you have already left the textbook treatment of the labor market behind" (1990, 23, 10). The employment relationship is contested, as Adam Smith underscored, with management required to make the organization and payment of the "factors of production" profitable for the firm, a central insight of both the new personnel economics and Marxian economics (albeit from very different perspectives).

Building on Adam Smith, prevailing academic and political debates, and their own extensive experience in the workshops and slums of late-nineteenth-century London, Beatrice Webb and Sidney Webb argued more than a century ago that the two parties in the wage negotiation come to the table with vastly unequal capacities to bargain, from financial resources (ability to hold out) and political connections (access to state power) (1897). Further, they maintained that the perfect market assumption was a scholastic fiction, and—importantly—that many of the "imperfections" (more appropriately understood as natural and fundamental features of nearly all real-world labor markets) served to enhance the already dominant bargaining power advantage of employers. As a result, market forces tend to determine at best only the upper and lower boundaries of the wage, a view developed by Richard Lester a half century later in his article "A Range Theory of Wage Differentials" (1952). The wage would normally gravitate to the bottom of the range because the imperfections systematically favored the employer, as Smith argued. For example, "asymmetric information favors employers since they have superior information about market conditions" (Kaufman 2004, 20).

Another central dimension of the institutional approach is exemplified by the work of the early postwar American labor economists

24. "Since there are no distortions, the equilibrium allocation can be characterized by solving the social planner's problem. In each time period, the planner chooses the level of capital K(t), and the allocation of labor Lm(t) to manual tasks in the service sector that maximize aggregate utility" (Autor and Dorn 2013, 1563).

25. Michael Reich and James Devine write that the conflict between workers and employers (labor and capital) "is not resolved by the operation of markets. Conflict is inherent in the employment relation because the employer does not purchase a specified quantity of labor, but rather control over the worker's capacity to work over a given time period, and because the worker's goals differ from those of the employer" (1981, 27).

and industrial relations scholars, such as Sumner Slichter, Clark Kerr, John Dunlop, Richard Lester. and Lloyd Reynolds, who drew attention to what Dunlop referred to as "persistent and pervasive" wage differentials that cannot be accounted for by worker skills. Rather than reflecting the balance of supply and demand for skill, wage levels and differentials were best explained by relative bargaining power, rooted in the structure of production and product markets, and only partly explained by collective bargaining outcomes. According to Dunlop, "The differentials are related to product market groupings of firms and within a given product grouping, to the size of the establishment, or in some circumstances to the size of the enterprise. Different competitive conditions in product markets are related to different compensation levels for the job classification in the local labor market" (1985, 31). In most cases, wages are set for jobs in internal labor markets, not for individuals in external markets. "The internal labor market is the unit within which relative wage rates are also determined among job classifications, not among individuals, with the aid of job evaluation or incentive systems or by decisions exercised by management or through collective bargaining" (31).

In this tradition, non–skill-related wage differences are explained in large part by the ability and willingness of firms to pay wages higher than the minimum market-clearing wage, which translates into interindustry and interfirm wage differentials for workers with similar skills (Howell 1989; Howell and Wolff 1991). Important determinants of the *ability to pay* are monopoly rents, reflecting dominant product market positions that make possible price markups and therefore high and rising value productivity that can be shared with workers (or not). Because the demand for labor is derived from product demand, employers are able to pay more (and hence workers will have more bargaining power, all else equal) the less responsive product demand is to labor costs. This ability to pay will also vary with the labor share of costs (production technology). In addition, employers will also differ in their *willingness to pay* (or incentive to pay) "efficiency wages" that promote higher morale and higher productivity (as noted by Adam Smith) that reduce the threat of unionization and that lower the cost associated with "shirking, sabotage, striking, and quitting" (Howell 1989, 35; see also Lester 1952; Howell and Wolff 1991; Kristal and Cohen 2014).

It is this focus on the many dimensions of the employment relationship that has been the domain of industrial relations scholarship, the social-institutional counterpart to modern human resource management and personnel economics. The sheer complexity of the dynamics that produce the wide range of wage rates for similarly skilled workers, the variation in employment contracts governing nonwage dimensions of the job, and more generally the management practices that govern the workplace that vary widely even across plants and establishments of the same company (Bloom et al. 2017), cannot be explained by competitive market pressures (which should produce convergence). Instead, as Richard Freeman argues in his assessment of the contributions of the early postwar industrial relations economists, understanding these labor outcomes requires "the reliance on informed priors, based on personal observation and common economic sense" coupled with a central focus on firm behavior, industry structures, worker resistance, and social norms in understanding both individual wage setting and collective bargaining outcomes (1988, 206; for examples of more recent scholarship in the industrial relations tradition field, see Doeringer and Piore 1971; Kochan, Katz, and McKersee 1994; Locke, Kochan, and Piore 1995; Weil 2014).

Within a given institutional context (laws, regulations, and social norms) and the state of worker resistance, "The proposition of industrial relations is that interactive variation in the external environment of firms, their internal structure and organizational characteristics and their organizational goals and strategies lead the owners/executives to craft a finite number of distinct ES (employment system) configurations or 'HRM [human resource management] architectures'" (Kaufman 2010, 95). Changes in these within-firm configurations and architectures are important to the understanding of wage outcomes since the 1970s.

Other important social-institutional perspectives on employment relations, wages, and job quality have emerged from sociology and political science. For example, power resources theory emphasizes how the differential power resources of workers through political parties and unions help determine the institutions governing the labor market as well as the inclusiveness of welfare provisions by the state, which in turn has major consequences for worker bargaining power (see, for example, Korpi 1985; Esping-Andersen 1990). A related perspective, the varieties of capitalism approach, emphasizes how economic activity is coordinated between workers and firms, and how coherent sets of institutions have evolved differently across capitalist countries to manage employment and wages and their connections to educational and skill formation institutions (Hall and Soskice 2001; Amable 2016).

These approaches have in common the view that economic activity and processes are socially embedded in "social networks, culture, politics and religion" (Granovetter 2005, 35). A good example is the treatment of roles social networks play, which are important to economic outcomes for three reasons: they "affect the flow and the quality of information"; they "are an important source of reward and punishment"; and trust "emerges, if it does, in the context of a social network" (33). As recognized in contested market models (the economics of imperfect competition), an essential feature of a well-functioning labor market is efficiently matching workers to jobs. But the socially embedded approach is different: "Economic models typically assume that workers and jobs are matched through a search whose costs and benefits are equalized at the margin. But in most real labor markets, social networks play a key role. Prospective employers and employees prefer to learn about one another from personal sources whose information they trust" (Granovetter 2005, 37).[26]

As a result, the institutional vision regards job matching and the fundamental nature of the employment relationship as inherently social and governed by social structures and relations, economic institutions, and public policies. Job search, job matching, and rent sharing in the employment relationship takes place "only in the context of, and mediated by, social relations that require them to behave in line with rules that are social rather than economic" (Streeck 2005, 255).

If these considerations are important, well-designed institutions and social policies, along with effective human resource policies, can increase both the equity and efficiency of wage and employment outcomes (Agell 1999; Howell and Huebler, 2005; Freeman 2007). In this view, extensive state regulation is necessary for a well-functioning labor market and workplace.[27]

Labor Market Regulation and Performance: Three Perspectives

Each of the three labor market perspectives has generated extensive research designed to help explain the stagnation in wages and the rise in wage inequality since the late 1970s. We conclude this section with the implications of each view of how the labor market works for the relationship between labor market regulation and labor market performance. The ability of protective labor market institutions and policies to raise job quality for some workers, at least for some time, is not in question. But can these collective, social actions serve to improve labor market outcomes for all—or at least most—workers over the long term?

We organize the discussion around figure 6,

26. An important dynamic effect is lost in the static costs-benefits model: "when mobility results from network connections, it changes network structure that then feeds back into future mobility patterns. Thus, network structure can be partially endogenized in labor market analysis" (Granovetter 2005, 37).

27. As David Brady and Benjamin Sosnaud write, "States do not simply follow what markets have initiated; states enable and allow markets to happen" (2010, 535). In this light, institutional economics, in Kaufman's words, is inevitably "political economy, because it focuses on the nexus between law and economics, the central role of the state in forming and enforcing the legal regime, and how the politically determined rules of the game affect economic behavior and performance (and vice versa)" (2007, 16).

which presents a stylized picture of how each of the three labor market perspectives imagines the trade-off and complementarity between protective labor regulation and performance, understood as the quality of outcomes for workers.

Labor market performance can be thought of as measured by a combination of productivity growth, real wage growth, and low unemployment. Our preferred interpretation is to privilege outcomes for the bottom half of the wage distribution. The higher on the vertical scale, the better off these workers are because they have greater opportunities for employment at higher wages. The horizontal axis shows the degree of labor market regulation, or alternatively, contracting freedom between workers and employers in the labor market. This runs from unregulated contracting on the far right (at A) to perfectly regulated, or administered, at the far left: labor institutions and social policies designed to increase worker wages, reduce wage inequality, and provide more security, get stronger and more effective moving left from point A. These protections might include the coverage and power workers have in collective bargaining and job security, the degree of strictness of employment protection laws, and the greater the generosity of minimum wages, unemployment benefits, and the social wage (income available to those of working age with little or no employment income).

In the competitive market model, the analysis begins with the state of perfect labor market liberty, at A. At this competitive equilibrium, the value of the job to the employer is equal to the reservation wage of the worker, and because no institutions (regulations, policies, social norms) stand in the way of perfectly informed voluntary employer-worker contracting, the market clears at maximum output and full employment. As protective constraints increase, labor market performance declines. This prediction is consistent with the conventional economist's view of an inherent trade-off between equality and efficiency as well as with Albert Hirschman's "perversity thesis" in which policies and institutions (such as the minimum wage, collective bargaining, and work hour restrictions) end up harming the intended beneficiaries (1991).

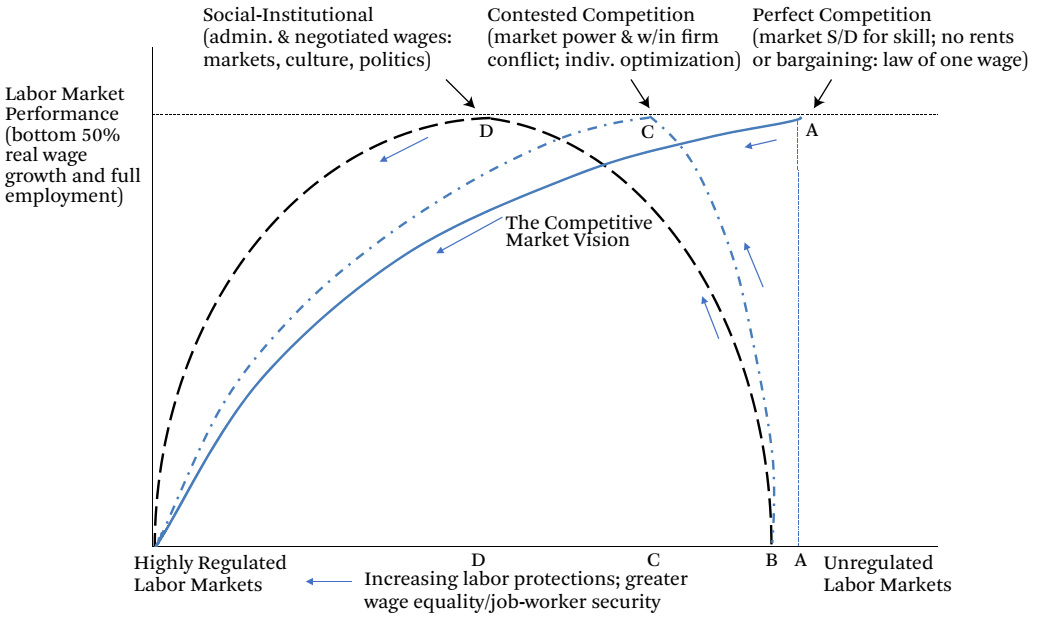
In the contested market, imperfect competition vision, market failures—imperfect information, transaction costs and monopsony power—create rents that must be bargained over by employers and workers. Because no labor market can function without some social norms that govern the job-matching process and constrain employer power in the employment relationship, the starting point for the imperfect competition vision is shown as point B, just to the left of the perfect market freedom of point A. As Manning puts it, "If labor markets are imperfectly competitive there is no such presumption that the market is efficient and there is at least the potential for some regulation to improve efficiency" (2011, 1024). Although the sharply different predictions of the effects of minimum wage regulations in imperfectly competitive markets relative to those of the canonical competitive model have received the most attention, others are numerous.[28] In addition, as the NPE literature stresses, management practices must be optimized to maximize firm competitiveness and profitability, which may require human resource practices that promote fairness or, alternatively, undermine solidarity through divide-and-rule management.

For these reasons, the figure shows increasing labor protections (and human resource practices) generating improved labor market performance, reaching the optimal point at C, after which additional constraints will tend to reduce performance, resulting in lower real wage growth, employment, or both. The goal of regulation (and management) in this view is to get the market back to the competitive ideal by compensating for market imperfections in the hiring and promotion process.

Social-institutional perspectives imagine no such competitive ideal. Piece-work production processes are the exception and team work is typical; transaction costs are pervasive; information and markets are profoundly imperfect; and thus the worker's marginal product cannot

28. "For example, one can show that regulation to restrict aspects of labor contracts like hours or holidays can improve employment" (Manning 2011, 1026).

Figure 6. Markets, Institutions, and Bargaining Power: Three Visions of Labor Market Regulation and Performance



Source: Authors' adaptation of Robert Boyer's diagram (Boyer 2006, figure 1).

be a meaningful concept for real-world wage determination, and well-functioning protective labor institutions are a prerequisite for labor market efficiency. Understanding the labor market as "a social institution," as Solow puts it, the social-institutional perspective on regulation and performance is depicted as an inverted U: optimal economic performance requires a substantial set of protective labor institutions and social policies. Internal labor markets must be designed with respect to within-workplace group interests and cultures. Moving from right to left on the regulatory freedom axis, as the strength and effectiveness of protective labor institutions and policies increase, economic efficiency also increases, reflecting the complementarity between protective regulation and efficiency. But this occurs only up to a point, identified in the figure as D, beyond which the workplace enters a zone of trade-offs because regulatory intervention threatens productivity and employment.

These three labor market perspectives offer a wide range of predictions about the relationship between labor market regulation and performance, from a strict trade-off (the competitive model), to modest opportunities for complementarity followed by competitive model–like trade-offs (contested market models), to substantial complementarity (social-institutional models). These alternative views have important implications for policy priorities, which we consider after reviewing the evidence.

CHANGES IN AMERICAN JOB QUALITY: EXPLANATIONS AND EVIDENCE

The descriptive evidence presented earlier showed that, by many conventional indicators, post-1979 job quality has either declined or failed to improve for most workers—in sharp contrast to the three previous postwar decades (the late 1940s through the late 1970s). Average market incomes for working-age adults in the bottom half of the income distribution actually fell; wage and benefit compensation for production and nonsupervisory workers, some 80 percent of payroll workers, grew little and far slower than labor productivity; and the incidence of low-wage jobs rose—and the share of

decent-wage jobs fell—and did so most dramatically for young workers.

A useful way to understand these changes in labor outcomes is by reference to three distinctive perspectives on how the labor market works. Here, we describe and assess some important recent research aligned with these theoretical perspectives. The empirical literature framed by the competitive market explanation has focused on wages by skill group (for example, as measured by the college-wage premium) and on the pattern of occupational employment growth by level of worker skill (typically indicated by the wage).[29] In contrast, perspectives that focus on imperfect labor markets, generated by firm concentration and frictions (and transaction costs) in the employment relationship, have focused their research efforts on the monopsony power of firms, resulting in wages that for similar workers vary substantially across establishments and firms. Research framed by the social-institutional tradition extends this focus on firm-level bargaining power but puts particular emphasis on the sources of bargaining power within the firm, firm restructuring and workplace fissuring, and the erosion of countervailing protective labor market institutions, such as labor laws, collective bargaining, and the legal minimum wage.

The Canonical Market Model and the Evidence

Through the lens of the "canonical supply-demand model" (Autor 2017, 1), the post-1979 stagnation in wages and the rise in wage inequality are explained by the failure of the supply of worker skills (usually measured by the college-educated share of the workforce) to keep up with accelerating computer-driven increases in the demand for skills by employers.[30] In this view, the worsening of the wage problem—wage stagnation at the bottom, rising top-half wage inequality, and a high and rising incidence of low-wage work—is mainly the consequence of a long-term mismatch between the supply and demand for skills. For empirical support, this literature has focused mainly on evidence of, first, a close correspondence between occupation skill levels (usually measured by the average wage) and occupation employment growth, and, second, a rising college-wage premium. Both have been interpreted to suggest that skill-biased demand shifts have been outpacing increases in the supply of skills.

Empirical research in the competitive market paradigm has explored these predictions in two iterations. The first, now referred to as the canonical skill-biased technological change model, asserted a close monotone relationship between occupational employment growth and the skill-wage level of the occupation: as the workplace computerized, the skill-biased effects of technological change on the demand for worker skills accelerated, leading to higher employment growth for workers with higher cognitive skills (Katz and Murphy 1992; Autor, Katz, and Krueger 1998). But, as early as the mid-1990s, critics called attention to the failure of the canonical SBTC explanation to explain several basic facts of the timing and pattern of wage changes. In particular, skill upgrading had been taking place for decades before the introduction of computers and evidence was scant that the rate of SBTC had accelerated over the course of the 1980s in ways that could explain the growth in inequality, well before most workplaces were transformed by computer-based production technologies (Mishel and Bernstein 1994, 1998; Howell and Wieler 1998; Howell 2002; Card and DiNardo 2002). Another problem was the breakdown in the monotone

29. The college-wage premium is defined as the ratio of the wage of workers with at least a college degree to those with just a high school degree.

30. "Under the Tinbergian assumption that technology is skill-biased, technological progress will necessarily widen inequality among skill groups unless it is countered by increases in the supply of human capital. The steady accumulation of human capital has thus been the main equalizer in the U.S. labor market" (Acemoglu and Autor 2012, 427). In the contested market and especially in the social-institutional view, the technology chosen and how it is implemented is a strategic choice reflecting a variety of factors that determine how skill-biased it is, and if it is upwardly skill-biased, effects on inequality can be offset not just by supply shifts, but by countervailing labor institutions.

relationship between skill levels and employment growth: the 50:10 wage ratio (bottom-end inequality) stopped increasing around 1987, reflecting a flattening of growth in the middle of the wage distribution. It was recognized that the middle of the occupational employment distribution was growing more slowly than both high-skill and low-skill occupations, which became known as job polarization (Autor, Levy, and Murnane 2003; Autor Katz, and Kearney 2006; Goos and Manning 2007).

These empirical facts led to the development of a more compelling second-generation version of the canonical market account, known as the tasks framework, which highlights the differential effects of computers on the demand for routine tasks (downward) and nonroutine tasks (upward); the canonical SBTC model now took a *routine-biased* form (RBTC) (Acemoglu and Autor 2011, 2012). But the basic model remained the same—the demand and supply of skills in a setting or workplace computerization—but now, rather than a simple linear relationship between computerization and the demand for skills, the relationship becomes U-shaped, caused by declining demand for routine-task jobs in the middle of the wage-skill distribution relative to rising demand at the top (because high-skill nonroutine-task jobs are complementary with computerization) and at the bottom (because demands for nonroutine manual and people-skill task jobs increase—for example, in the case of low-wage service occupations). If labor demand shifts toward the top and bottom, the supply of high cognitive skill workers is inadequate, and some middle-wage routine-task workers are redundant, the result should be rising *wage* polarization.[31]

This RBTC research has in turn generated a number of critical questions about the measurement, interpretation, and implications of the college-wage premium and occupational employment and wage polarization. For example, what is the significance of the fact that most of the rise in the college-wage premium has been driven by workers with advanced degrees? Do changes in the college-wage premium reflect mainly shifts in the demand and supply of skills, as presumed in this literature, or increased sorting of highly educated workers to high-wage firms, or changes in the bargaining power of workers with an advanced degree (professionals, financiers, executives), many of whom are protected from pay competition by credential and licensing requirements? What explains the apparent slowdown in the demand for cognitive skills and the college-wage premium after the late 1990s? Is this slowdown consistent with the computer-driven demand shift explanation? How much of the observed occupational polarization can be accounted for by the long-standing shift away from manufacturing toward services, a development that predates computerization by several decades? How well does occupational employment polarization translate into occupational wage polarization, and how does the latter correspond to individual wage outcomes, especially for production and nonsupervisory workers (about 80 percent of the workforce)?

Job Polarization

It has become widely accepted that employment polarization is one of the defining features of the post-1970s labor market, both in the United States and across the rich world (Autor, Katz, and Kearney 2008; Acemoglu and Autor 2011; OECD 2017). From the vantage point of the early 2000s, the evidence suggested that workplace technologies had led to an important shift from monotone growth in the 1980s across occupations (slowest at the bottom to highest at the top) to polarized employment growth (with slowest growth in the middle) in the 1990s. But when examining the data by census decade, the 2000s has failed to support continued polarization (Mishel, Schmitt, and Shierholz 2013; Autor 2015), which requires explanation: Why would computerization generate occupational employment polarization in the 1990s but not since?

Lawrence Mishel, John Schmitt, and Heidi Shierholz argue that "the declining middle" has

31. The explanation for rising employment shares at the bottom and the translation of this into rising average wage relative to the middle is less developed in this literature (but see Autor and Dorn 2013; for critiques, see Mishel, Schmitt, and Shierholz 2013; Hunt and Nunn 2019).

been taking place since the 1950s (2013). Similarly, Zsófia Bárány and Christian Siegel show that occupation-level polarization in the United States can be traced back to the 1950s, decades before the use of computers in the workplace, and argue that it has been generated mainly by sector shifts away from manufacturing and toward high- and low-skill services—the hollowing out of the middle from deindustrialization (2018). The long-run perspectives of both Mishel and his colleagues and Bárány and Siegel support the deindustrialization perspective of Barry Bluestone and Bennett Harrison and others as early as the 1980s (Bluestone and Harrison 1982; Harrison and Bluestone 1988).

Mishel and his colleagues show that, while occupation-based employment polarization can be observed in the decade of the 1990s, even for that decade "the lines traced out fit the data very poorly" (2013, 5). They conclude that "changes within occupations greatly dominate changes across occupations so that the much-focused-on occupational trends, by themselves, provide few insights" (5). This assessment contrasts with Dwyer and Wright's results (this issue), which show strong evidence of polarization between the early 1990s and 2009 to 2017 (2019) at the level of jobs (occupation-industry cells).

Using a highly aggregated occupation scheme, the OECD portrays the more recent period, from 1995 to 2015, as characterized by dramatic and pervasive polarization across the rich world, but offers ambiguous assessments of the role of skill-biased computerization (2017, figure 3.1). This research allocates eight of the nine large standard (ISCO-88) occupation groups to high-, middle-, and low-skill groups. The OECD evidence shows striking differences between the sharply declining employment growth of the three middle-skill groups (clerks, craft and related trades workers, and plant and machine operators and assemblers), the moderate growth of the two low-skill occupations (service workers and shop and market sales workers, elementary occupations), and the rapid growth of the three high-skill occupations (legislators, senior officials, and managers; professionals; technicians and associate professionals). The OECD authors find that 29 percent of the observed polarization can be explained by the decline in manufacturing; the rest is associated with the increase in the use of information and communication technologies (ICT). But, crucially, they find no statistical effects for ICT on employment polarization outside of manufacturing and no support for their measure of globalization in either manufacturing or nonmanufacturing sectors (OECD 2017, tables 3.2, 3.3). This evidence suggests a strong but largely unexplained pattern of occupation-based polarization.

The overall lesson from this evidence seems to be that both manufacturing and service sectors have strong tendencies to polarize: manufacturing because of productivity growth (and offshoring), and service sectors because of the inherent nature of the demand for both high- and low-skill services (given that computerization has contributed to the decline in routine clerical work).

In addition to the mixed evidence on occupational employment polarization and the difficulty of attributing the hollowing out of the middle to computerization, the existence of a strong link between occupational employment and occupational wage polarization is controversial (Mishel, Schmitt and Shierholz 2013).

Equally important, recent evidence shows that any hollowing out of the middle of the occupational wage distribution (declining relative wage growth in middle-wage occupations) explains little of the growth in overall individual wage inequality. Hunt and Nunn show, for example, that most individual workers in the occupations assigned to the fourth occupation decile do not have wages in the fourth decile of the overall individual wage distribution (2019, figure 10). "One therefore cannot think of the middle occupation-based percentiles as mapping to middle-wage workers." The same problem holds at the bottom of the wage distribution: "Many workers in the bottom two occupation-based percentiles are not low-paid workers" (10). They conclude that "When using workers' wages to indicate job quality we find no employment polarization for men or women in any period of time covered by the Current Population Survey (1973–2017), a finding that is robust to adjustment for age and education" (2).

The wage contour results presented earlier

are consistent with the Hunt and Nunn findings (2019). The two-segment, four-contour wage quality structure (see table 2 and figure 3) can be transformed into a tripartite one by combining the middle two wage contours (2 and 3). For all workers (ages eighteen to sixty-four), this wage structure shows substantial employment stability: between 1979 and 2017, the top contour's employment share fell from 34.5 to 33 percent; the middle two contours remained about the same; and the bottom (poverty-wage) contour's employment share rose from 25.6 to 27.5 percent.

The College-Wage Premium

In addition to evidence of job polarization, empirical support for the competitive model has been centered on the rise in the college-wage premium. According to Autor, "A key implication of the rising college/high school wage premium is that a central causal factor behind rising inequality in the United States has been the slowdown in the accumulation of skills by young adults almost 30 years ago" (2014, 847). Autor also speculates that "Had the supply of college graduates risen as rapidly in the decades after 1980 as it did in the decades immediately before, it is quite plausible that there would have been no sustained rise in the skill premium in the U.S. labor market" (847).

Following Autor and his colleagues, Goldin and Katz, and others, Acemoglu and Autor present empirical evidence that the relative wages of college graduate workers to high school graduates has shown a tendency to increase over multiple decades despite the large secular increase in the relative supply of college-educated workers (2011, 1044; see also Autor et al. 2008; Goldin and Katz 2007, 2008). But it is notable that the college-wage premium as measured in this literature has been rising since 1973, mainly because of both large increases in pay for advanced degree workers and the flat or slightly falling wages for those with a high school degree or less (Mishel, Bivens, and Gould 2012, table 4.12).

This raises a fundamental question about the direction of causation, one that is not adequately addressed in this literature. The rise in the college premium may not be exclusively, or even mainly, an outcome of the demand and supply of skill, but rather a reflection of the sharp rise in top incomes generated by increasing bargaining power of professional, managerial, and technical workers (protected by credential and licensing constraints and located disproportionately in high-rent firms, especially in the finance sector) and the decline in protective labor institutions and changes in employer practices that have undermined the bargaining power of production and nonsupervisory workers. In support of this alternative social-institutional explanation, Niklas Engbom and Christian Moser find that "where you work mediates a substantial share of returns to education at the bachelor's and master's level, and to a lesser extent among doctorates" (2017, 374). Other important recent studies using linked employee-employer data sets have found substantial sorting of highly educated workers into higher paying firms (Card, Cardoso, Heining and Kline 2016; Song et al. 2019). At the same time, firms have restructured, concentrating lower educated workers into low-wage contractor firms (Weil 2014; Handwerker, 2018; Wilmers 2018). These findings are consistent with increasing firm concentration (monopoly power) and the ability to mark up product prices, and therefore in monopsony power (Barth et al. 2016; De Loecker, Eeckhout, and Unger 2018; Benmelech et al. 2018). This research strongly suggests that "where you work" matters a great deal for what you get paid, and this is likely to explain a substantial part of the rise in the college wage premium.

An important question for a competitive market explanation of the wage problem that relies on evidence of increases in the college-wage premium concerns the adequacy of educational attainment as an indicator of cognitive skills. Much of this literature is characterized by a conflation of skills, education, and wages. Samuel Bowles, Herbert Gintis, and Melissa Osborne's 2001 review of the relevant literature concludes that after controlling for cognitive skills (such as test scores), a large return to schooling remains, which is unexplained in most standard statistical tests. Their review of the evidence suggests that this unexplained return to schooling can be attributed to noncognitive skill-related behavioral characteristics and social skills (for more recent evidence, see

also Deming 2017). College degrees not only signal levels of cognitive skills, but also provide employers with a screening device for workers with desired behavioral and personal characteristics (Cappelli 2015, 270).

This evidence of the importance of education as a screening device for behavioral characteristics that may have little connection to workplace productivity raises the question of the ability of cognitive skills (whether measured by test scores or educational attainment) to explain the wage distribution. A key motivation for the development of search theory was to explain persistent large differences in wages paid to similar workers. As Dale Mortensen puts it, "Observable worker characteristics that are supposed to account for productivity differences typically explain no more than 30 percent of the variation in compensation across workers in these studies" (2005, 1). Mortensen's explanation is that worker wages reflect productivity differences across firms. "If the same worker is more productive in one firm than in another, then the more productive firm finds it more profitable to compete by offering a higher wage." It is precisely this non–skill-related wage dispersion that much recent empirical work in the contested market and social-institutional traditions has attempted to explain by extending the argument from the distribution of employer productivity (Mortensen) to the distribution of employer power and the strategic use of it (Manning 2011; Krueger 2018). As Appelbaum argues, the evidence linking high wages to productive firms measures the latter as revenue productivity, which may reflect more market power than efficiency, or as she puts it, the "greater ability that strong firms have to lay claim to rents and to jointly profit relative to weaker firms" (2017, 15).

Another question concerns the fact that the rise in the 90:50 wage differential has continued into the 2000s, despite a flattening of the college wage premium for both males and females after 2000, even when workers with advanced degrees are included (Autor 2014, figure 1). This corresponds in timing to what appears to be a substantial decline after 2000 in the growth in demand for cognitive skills (Beaudry, Green, and Sand 2013). If computerization drives the demand for jobs with high cognitive skills, there is no obvious reason for the break in the trend that takes place around 2000. David Deming shows that in fact it is not jobs with the highest cognitive (measured as math) skill requirements that have grown fastest, but those with the highest social skills (2017).

Paul Beaudry, David Green, and Benjamin Sand suggest that the supply of college-educated workers may have outstripped demand for them—reversing the logic of the canonical SBTC-RBTC models: as the share of college-educated workers has continued to grow "they have moved down the occupational ladder and have begun to perform jobs traditionally performed by lower-skilled workers" and these lower-skilled workers do the same to workers beneath them (2013, 2). This overeducation cascading dynamic of college graduates pushing down the wages of less-educated workers is consistent with the recent literature on skill mismatch (for a summary, see Cappelli 2015). It could also help explain the rising incidence of low-wage and poverty-wage jobs and the decline in decent jobs, especially for young American workers with less than a college degree. At a minimum, these considerations complicate the computer-driven shift in demand toward high cognitive skills as a compelling explanation for wage stagnation and rising wage inequality.

Bargaining Power Explanations and the Evidence

From the vantage point of the contested market and social-institutional perspectives, the employment relationship is characterized by imperfect information and transaction costs. For this reason, labor markets are necessarily imperfect and most workers are therefore employed in firms and organizations that have some wage-setting power. Following Sanford Jacoby (2005), Adam Cobb argues that "systems of corporate employment can be categorized broadly into two ideal types: organizational or market oriented" (2016, 12). But a market orientation does not mean that firms are "price-takers," with wages and working conditions set in the external labor market. Even most small firms operating in highly competitive markets rely on human resource management functions, internal or contracted out. For organiza-

tionally oriented firms, the demand and supply for skills are most relevant at "ports of entry" to the firm (Dunlop 1985; Osterman 1994). In this setting, the ability, willingness, and incentives to pay a higher wage than the minimum set by a worker's reservation wage (that is, the wage it takes for a worker to supply their work effort to the firm) sets a range for wages both at ports of entry to the firm and for mobility among jobs within the firm. This approach calls for a research agenda that begins with the premise that labor outcomes will vary substantially across establishments, firms, and industries for similar workers doing similar sets of tasks, which in turn suggests that some jobs are better than others depending on where you work (Barth et al. 2016). As Krueger puts it, these features of the labor market are better understood not as "imperfections" but as "the way the labor market works," which helps explain many well-documented labor market outcomes "such as the high variability in pay for workers with identical skills in different industries or firms, the lack of evidence that minimum wage increases reduce employment, and the reluctance of firms to raise wages when vacancies are hard to fill" (2018, 1).

From the social-institutional perspective, job-quality outcomes documented earlier can best be explained by a large-scale post-1979 shift in bargaining power away from production and nonsupervisory workers toward executives, top professionals, and financiers. These shifts mainly reflect political choices rooted in the dominance of ideas about the merits of free markets, most notably regarding the benefits of deregulation, tax cuts, small government, and financialization. This regime shift took place in the context of macro-structural changes such as the shift to a service economy and technological advances in production, communications, and transportation technologies that have facilitated the outsourcing and offshoring of work. A central factor in the shift to unshared growth was the ascendancy of the financial sector and the role of finance in nonfinancial corporations' decision making, featuring the maximization of shareholder value as the fundamental corporate objective.[32] Central to this redirection were concerted attacks on unions and the collective bargaining system, the real value of the minimum wage, and protective laws and regulations governing the employment relationship, resulting in a decline in the effectiveness of these protective labor market institutions. This, in turn, facilitated the restructuring of employment systems to achieve greater flexibility and lower labor costs through domestic outsourcing and production offshoring (moving parts of the production process abroad). The result was a fissured workplace in which workers formerly employed in lead firms now worked for outside suppliers (Weil 2014; Appelbaum 2017; Handwerker 2018).[33]

We have organized our review of recent empirical work framed by the contested market and social-institutional traditions under three headings, employer wage-setting power, the decline of protective labor institutions, and the restructuring of the employment relationship.

Employer Wage-Setting Power

Employer wage-setting power can be expected to increase with both concentration in product markets (monopoly power) and labor markets (conventional monopsony power) as well as with labor market frictions and related transaction costs (dynamic monopsony power). In conditions of conventional monopsony, because fewer firms control a particular product market, workers in particular types of jobs

32. In what seems striking testimony to the importance of the interplay between ideas and interests, following the publication of a paper by Jensen and Meckling in 1976 that applied principal-agent theory to the theory of the firm, companies began "to adopt the financial model of the firm . . . in which managers—the agents—are charged with single-mindedly serving the interests of the principals—the firm's shareholders—by maximizing shareholder returns . . . (and in so doing) altered the logic of value creation" (Appelbaum 2017, 6). This contributed to gigantic increases in top management pay, the rise of leveraged buyouts by private equity firms, and the fissured workplace—all of which increased income inequality and reduced nonsupervisory worker wages.

33. For evidence from Germany on the effects of contracting-out on wages (downward) and wage inequality (upward), see Goldschmidt and Schmieder 2017.

have few if any alternative employment options, which increases employer bargaining power. More generally, however, any impediment to job mobility that raises transaction costs for workers (for example, transportation costs or social amenities that develop from time spent on the job in a particular workplace) will also increase employer bargaining power (Manning 2003, 2011; Krueger 2018). At the same time, lead firms have increased their monopsony power over their suppliers, which has cascading consequences for wages in contract firms.

A considerable literature has developed in recent years on the growing concentration of firms in narrowly defined economic sectors and geographic areas, demonstrating that higher concentration is associated with lower wages. To the extent that firms differ in market power, this could be a source of growing wage inequality (see Furman and Orszag 2015; CEA 2016; Bivens et al. 2018). The rise in corporations' product market power has stemmed in part from political choices to reduce antitrust enforcement against mergers and collusion and to strengthen patent protections, but also as a consequence of new products and technologies characterized by scale and network economies (CEA 2016; Appelbaum 2017). Perhaps the strongest evidence on rising firm concentration is at the sector level, in retail and wholesale, finance, transportation, agriculture, and hospitals (CEA 2016, 4). But the long-term increase in profitability offers additional compelling evidence. For example, the 90th percentile firm had twice the returns on capital as the median firm in 1990; by 2014, returns had increased to five times the median firm (CEA 2016, 5). Jose Azar, Ioana Marinescu, and Marshall Steinbaum find a close relationship between local labor market concentration (the dominance of a small number of employers for an occupation in a commuting zone) and worker wages: "In a nutshell, we find that labor market concentration in the average market is high, and higher concentration is associated with significantly lower posted wages" (2017, 1). John Abowd and his colleagues (2012, 2017) and David Card and his colleagues (2016) find strong support for Mortensen's proposition (consistent with the postwar industrial relations economists such as John Dunlop and Sumner Slichter) that high productivity firms pay more. Abowd and his colleagues conclude that workers benefit from working at a top-paying firm in two ways: they earn more at a point in time and they have a higher probability of moving to a higher wage the following year (2017, 3). But as noted earlier, productivity is measured in value terms, so high productivity may reflect as much the capture of rents as much as production efficiency.

Recent work on price markups (the increase product prices above marginal costs) finds that markups were "relatively constant between 1950 and 1980 at around 20 percent above marginal costs" (De Loecker, Eeckhout, and Unger 2018, 31; see also Barkai 2016). From 1980 onward, change in this pattern has been clear: markups steadily increased from an average of 18 percent to nearly 67 percent in 2014, a three-and-a-half-fold increase. This is associated with rising profitability, falling labor share of income, falling low-skill wages, and rising wage inequality. In another recent study, Efraim Bemelech, Nittai Bergman, and Hyunseob Kim focus more directly on the concentration-wage relationship and find a powerful correspondence between them (2018).[34] Similarly, Nathan Wilmers shows a clear increase in the power of

34. "We use manufacturing plant-level data from the U.S. Census Bureau from 1977 to 2009 to provide evidence that wages are significantly lower in local labor markets in which employers are more concentrated. . . . We argue that the results are consistent with firms exploiting workers in the form of lower wages (than a competitive market level) in monopsonistic labor markets, particularly when labor bargaining power is weak and worker mobility is limited. We suggest that the decline in U.S. unionization and labor mobility during the 1980s and 1990s is important in explaining stagnation in wages. In addition, we show how higher employer concentration impairs the transmission of productivity growth into wage increases. Finally, we document an indirect China effect in which competition with Chinese exporters leads to a higher concentration of employers, resulting in even lower worker wages" (Bemelech, Bergman, and Kim 2018, 23–24).

larger "buying" firms over smaller "supplying" firms, as well as sizable downward effects on worker wages in the latter: "Suppliers that are more profitable or have a larger market share face increased negative waged effects when they become dependent on dominant buyers" (2018, 231). He estimates that "rising buyer power could explain around 10 percent of wage stagnation among nonfinancial firms since the 1970s" (231). In this issue, Wilmers shows that institutional and organizational constraints such as multi-employer collective and pattern bargaining, or employer collusion operated to lower inequality in the United States from 1968 to 1977 (2019). Moreover, unionization, establishment size, and pension provision reduced inequality not only among coworkers within workplaces, but also across workplaces.

The Decline in Countervailing Labor Institutions

Historically, collective bargaining and protective public policies, such as minimum wage legislation, have helped promote shared growth. Combined with the effects of declining employment in formerly union-intensive goods-producing sectors, anti-union government and corporate actions have led to precipitous declines in membership and coverage. For example, the union member share of employment for young (eighteen to thirty-four) male workers with less than a college degree fell from 24 percent in 1983 to 11.1 percent in 2001 and even further to 8.8 percent in 2014; for similar female workers, the decline was from 12.9 percent to 6.7 percent in 2001 and to 5.2 percent in 2014. By 2014, young male and female college graduates had much higher union membership rates than those with less than a college degree (13.1 percent versus 8.8 percent for males; 9.8 percent versus 5.2 percent for females) (Howell 2019).[35]

Some have argued that the decline in union power has played little or no role in the rise in wage inequality,[36] but a long history of post–World War II research documents substantial union effects on both wage levels and wage inequality (Freeman and Medoff 1984; DiNardo, Fortin, and Lemieux 1996; Card 2001; Western and Rosenfeld 2011). In an important new study, Farber and his colleagues take advantage of new data that extend the record back to the 1930s and find large union effects on inequality (2018, 2–3).[37]

As the unionized share of the workforce has declined, the direct effects of unions on wage inequality has fallen (Goldin and Katz 2009, 5), but the lesson is not that unions are not an important part of the post-1979 decline in wage inequality. It is the reverse. The ebbing strength of unions has mattered a great deal for nonunion workers as well as union members. Studying evidence dating to the 1940s, James Mosher finds that "when unionization was a credible threat in the U.S., nonunion firms paid a premium to workers to remain nonunion" (2007, 227), an effect that appears to be highly relevant to contemporary wage setting, as suggested by the wage policies of Amazon and other large retailers (see also Cardiff-Hicks, Lafontaine, and Shaw 2014). Mosher also makes the case that swings in union power have played an important role in explaining changes in the college-wage premium. Similarly, David Jacobs and Lindsey Meyers conclude that "politically inspired reductions in union membership, and

35. Young workers with a college degree experienced a similarly drastic decline in membership in the 1980s (from 22.4 percent to 14.8 percent for male workers, and from 16.7 percent to 10.9 percent for female workers between 1983 and 1990). It then remained roughly stable between 1990 and 2010. By 2014, 13.1 percent of young employed male college graduates and 9.8 percent of comparable female graduates were union members.

36. "Most economists, however, discount the role of unions in the increase in inequality" (Acemoglu, Aghion, and Violante 2001, 2, quoted in Farber et al. 2018, 1).

37. "We show that the income advantage accruing to union households relative to non-union households with the same demographics and skill proxies is roughly constant (between fifteen and twenty log points) over our eighty-year period, despite the huge swings in union density and composition." The authors argue that unions confer "a substantial advantage to what would otherwise have been low-income households, thus compressing the income distribution" (Farber et al. 2018, 3).

labor's diminished political opportunities during and after Reagan's presidency, meant unions no longer could slow the growth in U.S. inequality" (2014, 1; see also Schmitt and Mitukiewicz 2011).

An important source of the weakening of collective bargaining has been the increasing frequency of anti-union tactics by employers, which Kate Bronfenbrenner documents for 1986 through 2003 (2009). "The overwhelming majority of employers, either under the direction of an outside management consultant or their own in-house counsel, are running aggressive campaigns of threats, interrogation, surveillance, harassment, coercion, and retaliation" (Bronfenbrenner, quoted in Stelzner 2017, 233). Mark Stelzner documents the substantial changes in laws and norms after the early 1980s that facilitated these aggressive and effective actions. Three developments were particularly important: a reinterpretation of the National Labor Relations Act (NLRA) that produced a sharp shift from favorable to unfavorable adjudications; extensive delays in processing times in cases brought against employers for violations of the NLRA, mainly concerning certification of bargaining units and union election outcomes; and the sudden shift in management norms after President Reagan fired 11,400 air traffic controllers in 1981 that led to the increasing use of permanent replacement workers in strikes. "Employers suddenly became much more willing to use or threaten to use permanent replacements when workers went on strike" (Stelzner 2017, 240). The result was a dramatic decline in total case intake at the National Labor Relations Board and a collapse in the number of work stoppages per year (Stelzner 2017, figures 1 and 2).

The erosion of the value of the federal minimum wage is also pointed to as contributing substantially to the payment of low wages. Recent evidence overwhelmingly supports the existence of large positive wage effects of increasing minimum wages with little or no harmful consequences for employment or even hours worked (see, for example, Card and Krueger 1994; Schmitt 2013; Howell, Fiedler, and Luce 2016). In an important new study, Doruk Cengiz and his colleagues use new methods and data to "infer the total change in jobs due to the policy by comparing the number of missing jobs below the new minimum wage to the excess number of jobs paying at (and above) the new minimum wage" (2018, 2). They find that for forty-six substantial minimum wage increases, after five years, "average wages of the affected earners increase significantly by 10.8 percent. We also find employment is little changed with a statistically insignificant increase of 0.2 percent" (2). Similarly, in a study of the effects of local minimum wages on food service wages and employment in six cities, Sylvia Allegretto and her colleagues find "statistically positive effects on earnings" but cannot "detect negative significant employment effects in any of the individual cities, or when pooling them together" (2018, 39). It is increasingly accepted that the decline in the real value of the legal minimum wage has played an important role in the post-1979 wage problem for workers at the bottom of the distribution.

Employment Restructuring Within the Firm

According to Weil's fissured workplace hypothesis, an important driver of the growth in wage inequality "over the last three decades has been an evolution of business organization that has fundamentally altered the employment relationship and, in turn, the way that wages are set for workers in a growing range of industries" (2017, 210). The same workers doing exactly the same tasks in the same jobs get lower wages after their tasks have been shifted to outside contractors (224). Examples include janitors, security guards, and cleaning service and food service workers. Considering the post-1979 increase in outsourcing to low-wage contractor firms, Appelbaum's research points to a "new labor market segmentation between lead firms and contractor firms. . . . The position of the worker's employer in the production network directly affects the worker's pay and working conditions. Thus, worker' wages depend not only on their own productivity characteristics, but on the relative power of their employer vis-à-vis other organizations in the network" (2017, 14).

Elizabeth Handwerker and James Spletzer provide strong supporting evidence of the

growth in employment outsourcing and its effect on wages by measuring changes in occupation concentration, defined as the variety of occupations in particular establishments (2015). Driven by downward pressure on low-wage workers, "as much as 52 percent of overall wage inequality growth (63 percent of wage inequality growth between employers)" can be explained by their measures of occupational concentration (2). In updated work, Handwerker confirms these earlier findings, and concludes that "workers in establishments that are more concentrated in occupations overall earn lower wages" and that "changes in the distribution of occupational concentration are related to the growth in private-sector wage inequality" over this period (2018, 3). This restructuring and fissuring of the workplace helps explain recent evidence of substantial between-firm and between-establishment wage differentials for similarly skilled workers (see, for example, Abowd et al. 2012; Barth et al. 2016; Song et al. 2019).

In addition to the fissuring caused by domestic outsourcing, the offshoring of production and the rise in trade competition, especially with China, have put downward pressure on wages. But the effects of these developments on production and nonsupervisory workers are concentrated in manufacturing sectors. While these are often vitally consequential for local communities, some have argued that these are not at the root of the wage inequality problem. According to Lemieux, "On balance, there is at best some weak evidence that offshoring has contributed to the growth in wage inequality in the United States over the last few decades" (2011, 18).

Although wage setting in the United States takes place almost exclusively within the firm, large and persistent non–skill-based wage differentials have been shown at the industry level in many studies that extend back to at least the 1940s. As Furman and Orszag point out, much recent research is consistent "with the notion that firms are wage setters rather than wage takers in a less than perfectly competitive marketplace" (2015, 1). One example is the recent work of Tali Kristal and Yinon Cohen, who have explored the relative importance of technology-driven demand for skills, the supply of skills, and institutional factors. They conclude that "Contrary to that [SBTC] view, we find that the decline of pay-setting institutions is almost twice as important as technology-driven demand for skilled labor in explaining rising inequality within US industries" (2014, 207).

Institutions and Job Quality: How the United States Compares

One way to explore the importance of the institutional setting for job quality—and for who gets good jobs—is with comparisons across similarly developed countries confronted by similar technological, deindustrializing, and globalization pressures. Interpreting the evidence on wage and wage inequality trends as broadly similar across rich countries, John Van Reenen concludes that similar market forces, rather than institutional differences, must be the main explanation because he sees inequality trends as quite similar across countries: "in terms of these major long-term trends (in inequality), many of the similarities across countries suggests to me that country-specific institutions are unlikely to be the fundamental causes of such changes, as institutions differ so much between nations" (2011, 731). By contrast, Acemoglu and Autor, citing nine studies, argue that "changes in the earnings distribution have been quite different in different countries" (2011, 1160). But in their (competitive market) view, regulations and other institutional "constraints" contribute to differences in wage outcomes across countries not directly, through their effects on bargaining power, but because they determine which technologies are adopted.[38]

We share Acemoglu and Autor's view of the cross-country variation in wage levels and wage inequality but suggest a much simpler and far more plausible explanation: that institutions, policies, and employer practices play central roles in determining differences in the strength

38. See also Acemoglu and Autor, who mention *institution* just once, and the reference is to educational institutions (2012).

and character of worker bargaining power across countries. This conclusion is supported by a number of recent cross-country studies. For example, the Russell Sage Foundation's low-wage project concluded that "the most important influence on the observed differences in low-wage work is the 'inclusiveness' of a country's labor market institutions" (Gautié and Schmitt 2010, 7). Similarly, a recent study by IMF researchers Florence Jaumotte and Carolina Buitron explores the causes of rising inequality in the rich world (2015). According to the authors, although "high-income countries have been affected in broadly similar ways by SBTC and globalization, they have seen inequality rise at different speeds" and for this reason they focus "on the role played by labor market institutions in 20 advanced countries during 1980–2010" (5). "We find evidence that the decline in union density—the fraction of union members in the workforce—is strongly associated with the rise of top income shares. . . . Our empirical results also indicate that unions can affect income redistribution through their influence on public policy. We further find that reductions in the minimum wage relative to the median wage are related to significant increases in inequality" (6).

Senior researchers at the OECD have also attempted to explain rising inequality across rich countries with empirical data that allow them to explore the importance of cognitive skills and institutions (Broeke et al. 2019). They interpret recent cross-country research as finding that differences in the "net supply of skills" (the quantity supplied versus demanded) have explained only a small part of the variation in wages across countries, citing Blau and Kahn (1996, 2005) and Devroye and Freeman (2001). While Edwin Leuven, Hessel Oosterbeek, and Hans van Ophem claim "that around one-third of the variation in relative wages between skill groups across countries could be explained by differences in the net supply of skills" (2004, cited in Broecke, Quintini, and Vandeweyer 2019, 251), more recently, and with the use of a far superior measure of cognitive skills, the OECD's Survey of Adult Skills (PIAAC), studies by Anita Pena (2014) and Marco Paccagnella (2015) "also find that skills contribute very little to international differences in wage inequality, and that skill prices play a far more important role" and conclude that "differences in inequality must be driven primarily by differences in institutions—a view echoed by another recent paper" (cited in Jovicic 2015, 252).[39]

Challenging these conclusions on the relatively minor role played by cognitive skills in explaining cross-country wage inequality, Stijn Broecke, Glenda Quintini, and Marieke Vandeweyer argue that these studies may have failed to fully account for the effects of "skills supply and demand" on variations in wage inequality (2019). To test this possibility, they use the same PIAAC data with a "demand and supply model to study the relationship between the net supply of skills . . . and wage inequality" and find that "market forces do indeed matter" but only for the top half of the distribution (the 90:50 wage ratio), accounting for less than one-third (29 percent) of the gap between the United States and other rich countries (253). Their measure of the net supply of skills "explains little of the higher wage inequality at the bottom of the wage distribution" (253).

This failure of skills to explain any of the far higher American wage inequality in the bottom half would seem to be the headline finding. Another seemingly important but unnoted result is the strong statistical links between institutions and cross-country differences in "bottom-end" job quality: although cognitive skills show no effect on the 50:10 wage ratio in any of their tests, when controlling for the net supply of skills, a number of institutional variables (the minimum wage, collective bargaining coverage, the size of the public sector) are found to be highly significant predictors (table 7.5, panel c).

In sum, a large and empirically sophisticated recent literature has shown that the demand and supply of cognitive skill cannot ex-

39. Institutional effects on cross-country differences in bottom-end wage inequality are best shown in separate regression tests because, as the authors point out, "there is a high degree of collinearity between the institutional variables" (Broecke, Quintini, and Vandeweyer 2019, 274).

plain trends in cross-country wage inequality. Thomas Lemieux has concluded that "the routinization hypothesis, just like SBTC, cannot really explain why inequality expanded in some countries but not in others" (2011, 17).

ENHANCING JOB QUALITY: POLICIES

Many of the severe labor market problems that American workers experience today, and will experience in the coming decade, are rooted not in the shortage of jobs, or in the quality of workers themselves, but in the quality of jobs employers offer. The most devastating effects of declining job quality, especially for workers with less than advanced degrees, has been stagnant or declining real (inflation-adjusted) wages and compensation, growing wage inequality, and the increasing incidence of low- and poverty-wage jobs—especially pronounced for young workers (ages eighteen to thirty-four). In addition, many have asserted a rapid expansion in job insecurity in standard, full-time jobs, and in the various forms of nonstandard jobs. The increasing severity of the low-wage problem, rising job insecurity, and the likely growth in nonstandard work arrangements has been linked to a large number of social and economic problems, such as family fragmentation, poverty and inequality, and poor individual well-being. Our discussion of the problem of low job-quality points to the need for new labor and social policies to shift the American economy from the extractive growth path of the post-1979 period to a new shared-growth path.

The different explanations for recent trends in job quality we have summarized have sharply different policy implications. In the competitive market vision, the forces of supply and demand external to the firm drive wage growth and wage inequality (and more broadly job quality). If the main source of rising earnings inequality is a rising demand for highly educated workers from computer-driven technological change unmatched by increases in the supply of college graduates (Autor 2010, 35), then raising worker skills must be the main policy solution. Indeed, in his overview of the RBTC-polarization account of earnings inequality for the Hamilton Project, Autor offers four policy recommendations, three of which are skills related: increase the supply of college graduates, improve K–12 education, and expand training programs (2010, 35). The fourth is to increase investment in research and development and infrastructure. The need to rebalance bargaining power between employers and workers is not mentioned.

By contrast, the contested market (imperfect competition) and social-institutional perspectives see wage and labor market outcomes as mainly a function of bargaining power, which in turn is driven by prevailing institutions and social policies in addition to market forces and the strategic goals of firms (such as the reduction of labor costs via workplace fissuring). The extent to which technology, education, and other workplace-relevant skills matter for long-term changes in the distribution of wages and income is also determined by prevailing institutions and policies. If bargaining power is central to job-quality outcomes, it is necessary to implement both product market regulations designed to increase competitive market forces by reducing employer monopoly and monopsony power over suppliers and workers, and protective labor regulations that can provide workers with countervailing power.

These differences across labor market perspectives are not mutually exclusive because each emphasizes indispensable components of a comprehensive set of policies needed to enhance job quality. It is essential to upgrade worker skills because high-quality jobs of the future will require workers with high levels of various kinds of skills. Access to educational opportunities needs to be extended to all, just as alternatives to colleges and universities to train future workers need to be nurtured. Policies that enhance education and skills as well as social capital are necessary to enable people to navigate relatively insecure labor market conditions; the rapidity of technological change means that people need to refresh their skills periodically. Policies that increase the demand for good jobs, such as public investments in needed infrastructure, are also necessary to maintain full employment and create well-paying jobs that engage the skills that result from education and training. The list of press-

ing needs is long; it includes rebuilding our nation's decaying infrastructure of roads, bridges, schools, airports, trains, and mass transit.

Nevertheless, in our view, a serious attack on unshared growth—one that can make a big difference in the next decade or so—requires major institutional and policy changes designed to alter bargaining power over rents (above-market returns) in the labor market between employers and workers. Institutions can make a big difference in enhancing the quality of jobs, as Françoise Carré and Chris Tilly demonstrate vividly in their study of differences in job quality of retail jobs in different companies and countries (2017). This is consistent with cross-country evidence that strongly suggests that institutional or policy arrangements are possible that can generate far more equitable and efficient outcomes than are often observed in the United States.

Thus, policies to increase good jobs and make bad jobs better need to focus on institutional changes as well as on supply and demand. The Economic Policy Institute's agenda of enhancing the quality of jobs for working Americans offers a variety of suggestions for needed institutional changes (Bivens et al. 2014, 2018; see also Osterman 2008; Krueger 2018). These include policies supporting good jobs such as increasing the federal minimum wage and making labor law friendlier to both collective bargaining (such as ending forced arbitration in employment contracts) and individual bargaining (such as restricting the use by firms of noncompete clauses that keep workers from moving to other employers, and the closely related no-poaching clauses in franchise contracts).

It is also essential to decouple economic security from market work as much as possible. In this issue, Dwyer and Wright propose the use of state subsidies and policies to facilitate the "social and solidarity" economy such as the provision of eldercare and childcare in Quebec (2019). Moreover, as discussed, concerns about nonstandard work arrangements such as temporary work stem from the fact that workers in these arrangements often do not have access to health insurance benefits. The Affordable Care Act is an important step in this direction, though it has yet to be fully implemented, and much more support is needed for childcare and paid sick and family leaves. Later in this issue, Lambert, Henly, and Kim point to the importance of laws regarding fair and predictable scheduling for mitigating some of the negative effects of precarious work (2019).

Realizing these needed policy changes depends on the ability of workers to push the government to adopt protective labor market and welfare institutions and to encourage collaborative efforts between managers and workers. The decline of unions is a major reason for the shift in power relations from the more balanced situation during the thirty years after World War II to the greater power exercised by employers in the United States since the 1980s. A key question here concerns the kind of worker power best suited to meet the challenges created by the changing nature of employment relations, whether these be traditional unions or forms such as occupational groups or other worker associations.

The necessary policy changes must also recognize the growing diversity of the labor force especially in terms of age, race-ethnicity, immigration status, and gender that has resulted in different people having distinct needs. Elsewhere in this issue, Liu and Nazareno show that low-skill workers (especially minority and immigrant workers) are more likely to be in nonstandard jobs, underscoring the overrepresentation of the more vulnerable groups in the population in nonstandard jobs (2019). Family structures have become more diverse and include growing numbers of dual-earner and single-parent families that need help to reconcile demands of work and family life through better provision of childcare, parental leave policies, flextime, and other forms of flexible scheduling.

The obstacles to implementing policies to enhance job quality that would require a tougher stance on monopoly (price setting) and monopsony (wage setting) power, stronger protective labor institutions and policies, shifts in human resource policies and norms about shared within-firm productivity growth are enormous. Nevertheless, because low-wage and insecure jobs are key factors behind the

concerns and resentments that have fueled social and political transformations of recent years, enhancing job quality remains a pressing concern. Although policies to address these problems require public policy actions at both national and local levels, progress in the short term is most likely to occur at the local level because states and localities have taken the lead in minimum wage laws, flexible scheduling, and other ways of enhancing job quality.

REFERENCES

Abowd, John M., Francis Kramarz, Paul Lengermann, Kevin L. McKinney, and Sebastien Roux. 2012. "Persistent Inter-Industry Wage Differences: Rent Sharing and Opportunity Costs." *IZA Journal of Labor Economics* 1(1): 7. Accessed February 28, 2019. https://izajole.springeropen.com/articles/10.1186/2193-8997-1-7.

Abowd, John M., Kevin L. McKinney, and Nellie L. Zhao. 2017. "Earnings Inequality and Mobility Trends in the United States: Nationally Representative Estimates from Longitudinally Linked Employer-Employee Data." *NBER* working paper no. 23224. Cambridge, Mass.: National Bureau of Economic Research.

Abraham, Katherine G., John C. Haltiwanger, Kristin Sandusky, and James R. Spletzer. 2017. "Measuring the Gig Economy: Current Knowledge and Open Issues." Paper presented at Measuring and Accounting for Innovation in the 21st Century, Cambridge, Mass. (March 10–11, 2017).

Acemoglu, Daron, Philippe Aghion, and Giovanni L. Violante. 2001. "Deunionization, Technical Change and Inequality." In *Carnegie-Rochester Conference Series on Public Policy*, vol. 55, edited by Marvin Goodfriend and Stanley E. Zin. New York: Elsevier.

Acemoglu, Daron, and David Autor. 2011. "Skills, Tasks and Technologies: Implications for Employment and Earnings." *Handbook of Labor Economics*, vol. 4B, edited by Orley Ashenfelter and David Card. San Diego, Calif.: Elsevier.

———. 2012. "What Does Human Capital Do? A Review of Goldin and Katz's *The Race Between Education and Technology*." *Journal of Economic Literature* 50(2): 426–63.

Agell, Jonas. 1999. "On the Benefits from Rigid Labour Markets: Norms, Market Failures, and Social Insurance." *Economic Journal* 109(453): 143–64.

Allegretto, Sylvia, Anna Godoey, Carl Nadler, and Michael Reich. 2018. "The New Wave of Local Minimum Wage Policies: Evidence from Six Cities." Berkeley: University of California, Institute for Research on Labor and Employment, Center on Wage and Employment Dynamics.

Amable, Bruno. 2016. "Institutional Complementarities in the Dynamic Comparative Analysis of Capitalism." *Journal of Institutional Economics* 12(1): 79–103.

Appelbaum, Eileen. 2017. "What's Behind the Increase in Inequality?" Washington, D.C.: Center for Economic and Policy Research (September).

Appelbaum, Eileen, and Rosemary Batt. 2017. "The Networked Organization: Implications for Jobs and Inequality." In *Making Work More Equal: A New Labour Market Segmentation Approach*, edited by Damian Grimshaw, Colette Fagan, Gail Hebson, and Isabel Tavora. Manchester, UK: Manchester University Press.

Appelbaum, Eileen, Arne Kalleberg, and Hye Jin Rho. 2019. "Nonstandard Work Arrangements and Older Americans, 2005–2017." Washington, D.C.: Center for Economic and Policy Research and Economic Policy Institute.

Ashenfelter, Orley, and David Card, eds. 2011. *Handbook of Labor Economics*, vol. 4B. Amsterdam: Elsevier-North Holland.

Atkinson, Anthony B., and Andrea Brandolini. 2011. "On the Identification of the Middle Class." *ECINEQ* working paper no. 2011–217. Rome: Society for the Study of Economic Inequality.

Autor, David H. 2010. *The Polarization of Job Opportunities in the U.S. Labor Market: Implications for Employment and Earnings*. Washington, D.C.: Center for American Progress and The Hamilton Project.

———. 2014. "Skills, Education, and the Rise of Earnings Inequality Among the 'Other 99 Percent'." *Science* 344(6186): 843–50.

———. 2015. "Why Are There Still So Many Jobs? The History and Future of Workplace Automation." *Journal of Economic Perspectives* 29(3): 3–30.

———. 2017. "How Long Has This Been Going On? A Discussion of 'Recent Flattening in the Higher / Education Wage Premium: Polarization, Skill Downgrading, or Both?' By Robert G. Valletta."

Paper presented at the NBER Conference on Research and Income in Wealth "Measuring and Accounting for Innovation in the 21st Century," Washington, D.C. (March 10–11, 2017).

Autor, David H., and David Dorn. 2013. "The Growth of Low-Skill Service Jobs and the Polarization of the U.S. Labor Market." *American Economic Review* 103(5): 1553–97.

Autor, David H., and Lawrence Katz. 2010. "Grand Challenges in the Study of Employment and Technological Change." Paper submitted to the National Science Foundation. Arlington, Va. (September 27, 2010).

Autor, David H., Lawrence F. Katz, and Melissa S. Kearney. 2005. "Rising Wage Inequality: The Role of Composition and Prices." *NBER* working paper no. 11628. Cambridge, Mass.: National Bureau of Economic Research.

———. 2006. "The Polarization of the U.S. Labor Market." *American Economic Review* 96(2): 189–194.

———. 2008. "Trends in U.S. Wage Inequality: Revising the Revisionists." *Review of Economics and Statistics* 90(2): 300–23.

Autor, David H., Lawrence F. Katz, and Alan Krueger. 1998. "Computing Inequality: Have Computers Changed the Labor Market?" *Quarterly Review of Economics* 113(4): 1169–214.

Autor, David H., Frank Levy, and Richard J. Murnane. 2003. "The Skill Content of Recent Technological Change: An Empirical Exploration." *Quarterly Journal of Economics* 116(4): 1279–333.

Azar, Jose, Ioana Marinescu, and Marshall I. Steinbaum. 2017. "Labor Market Concentration." *NBER* working paper no. 24147. Cambridge, Mass.: National Bureau of Economic Research.

Bárány, Zsófia L., and Christian Siegel. 2018. "Job Polarization and Structural Change." *American Economic Journal: Macroeconomics* 10(1): 57–89.

Barkai, Simcha. 2016. "Declining Labor and Capital Shares." Chicago: The University of Chicago Booth School of Business. Accessed March 26, 2019. http://home.uchicago.edu/~barkai/doc/BarkaiDecliningLaborCapital.pdf.

Barth, Erling, Alex Bryson, James C. Davis, and Richard Freeman. 2016. "It's Where You Work: Increases in Earnings Dispersion across Establishments and Individuals in the United States." *Journal of Labor Economics* 34(S2): S67–S97.

Beaudry, Paul, David A. Green, and Benjamin M. Sand. 2013. "The Great Reversal in the Demand for Skill and Cognitive Tasks." *NBER* working paper no. 18901. Cambridge, Mass.: National Bureau of Economic Research.

Becker, Gary S. 1975. *Human Capital*. Cambridge, Mass.: National Bureau of Economic Research.

Benmelech, Efraim, Nittai Bergman, and Hyunseob Kim. 2018. "Strong Employers and Weak Employees: How Does Employer Concentration Affect Wages?" *NBER* working paper no. 24307. Cambridge, Mass.: National Bureau of Economic Research.

Bernhardt, Annette. 2014. "Labor Standards and the Reorganization of Work: Gaps in Data and Research." *IRLE* working paper no. 100–14. Berkeley, Calif.: University of California, Institute for Research on Labor and Employment.

Bernhardt, Annette, Rosemary Batt, Susan Houseman, and Eileen Appelbaum. 2015. "Domestic Outsourcing in the U.S.: A Research Agenda to Assess Trends and Effects on Job Quality." Paper prepared for the Future of Work Symposium, U.S. Department of Labor, Washington (December 2015).

Bivens, Josh, Elise Gould, Lawrence Mishel, and Heidi Shierholz. 2014. "Raising America's Pay: Why It's Our Central Economic Policy Challenge." Briefing Paper no. 378. Washington, D.C.: Economic Policy Institute.

Bivens, Josh, Lawrence Mishel, and John Schmitt. 2018. "It's Not Just Monopoly and Monopsony: How Market Power Has Affected American Wages." Washington, D.C.: Economic Policy Institute.

Blau, Francine D., and Lawrence M. Kahn. 1996. "International Differences in Male Wage Inequality: Institution Versus Market Forces." *Journal of Political Economy* 104(4): 791–837.

———. 2005. "Do Cognitive Test Scores Explain Higher U.S. Wage Inequality?" *Review of Economics and Statistics* 87(1): 184–93.

Bloom, Nicholas, Erik Brynjolfsson, Lucia Foster, Ron S. Jarmin, Megha Patnaik, Itay Saporta-Eksten, and John Van Reenen. 2017. "What Drives Differences in Management?" *NBER* working paper no. 23300. Cambridge, Mass.: National Bureau of Economic Research.

Bluestone, Barry, and Bennett Harrison. 1982. *The Deindustrialization of America*. New York: Basic Books.

Boeri, Tito, and Jan van Ours. 2013. *The Economics of Imperfect Labour Markets*, 2nd ed. Princeton, N.J.: Princeton University Press.

Bowles, Samuel, Herbert Gintis, and Melissa Osborne. 2001. "The Determinants of Earnings: A Behavioral Approach." *Journal of Economic Literature* 39(4): 1137–76.

Boyer, Robert. 2006. "Employment and Decent Work in the Era of 'Flexicurity.'" *DESA* Working Paper no. 32. New York: United Nations.

Brady, David, and Benjamin Sosnaud. 2010. "The Politics of Economic Inequality." In *Handbook of Politics: State and Society in Global Perspective*, edited by Kevin Leicht and Craig Jenkins. New York: Springer.

Broecke, Stijn, Glenda Quintini, and Marieke Vandeweyer. 2019. "Wage Inequality and Cognitive Skills: Reopening the Debate." In *Education, Skills, and Technical Change: Implications for Future US GDP Growth*, edited by Charles R. Hulten and Valerie A. Ramey. NBER Studies in Income and Wealth, vol. 77. Chicago: University of Chicago Press.

Bronfenbrenner, Kate. 2009. "No Hold Barred: The Intensification of Employer Opposition to Organizing." Briefing paper no. 235. Washington, D.C.: Economic Policy Institute.

Cappelli, Peter H. 2015. "Skill Gaps, Skill Shortages, and Skill Mismatches: Evidence and Arguments for the United States." *ILR Review* 68(2): 251–90.

Card, David. 2001. "The Effect of Unions on Wage Inequality in the US Labor Market." *ILR Review* 54(2): 296–315.

Card, David, Ana Rute Cardoso, Jorg Heining, and Patrick Kline. 2016. "Firms and Labor Market Inequality: Evidence and Some Theory." *NBER* working paper no. 22850. Cambridge, Mass.: National Bureau of Economic Research.

Card, David, and John E. DiNardo. 2002. "Skill-Biased Technological Change and Rising Wage Inequality: Some Problems and Puzzles." *Journal of Labor Economics* 20(4): 733–83.

Card, David, and Alan B. Krueger. 1994. "Minimum Wages and Employment: A Case Study of the Fast-Food Industry in New Jersey and Pennsylvania." *American Economic Review* 84(4): 772–93.

Cardiff-Hicks, Briana, Francine Lafontaine, and Kathryn Shaw. 2014. "Do Large Modern Retailers Pay Premium Wages?" *NBER* working paper no. 20313. Cambridge, Mass.: National Bureau of Economic Research.

Carré, Françoise, and Chris Tilly. 2017. *Where Bad Jobs Are Better: Retail Jobs Across Countries and Companies*. New York: Russell Sage Foundation.

CEA. 2016. "Labor Market Monopsony: Trends, Consequences, and Policy Responses." Washington: White House Council of Economic Advisors.

Cengiz, Doruk, Arindrajit Dube, Attila Lindner, and Ben Zipperer. 2018. "The Effect of Minimum Wages on Low-Wage Jobs: Evidence from the United States Using a Bunching Estimator." *CEP* discussion paper no. 1531. London: London School of Economics and Political Science, Centre for Economic Performance.

Cobb, Adam. 2016. "How Firms Shape Income Inequality: Stakeholder Power, Executive Decision Making, and the Structuring of Employment Relationships." *Academy of Management Review* 41(2): 324–48.

De Loecker, Jan, Jan Eeckhout, and Gabriel Unger. 2018. "The Rise of Market Power and the Macroeconomic Implications." Unpublished manuscript, Department of Economics, Katholieke Universiteit Leuven. Accessed February 28, 2019. http://www.janeeckhout.com/wp-content/uploads/RMP.pdf.

Deming, David J. 2017. "The Growing Importance of Social Skills in the Labor Market." *Quarterly Journal of Economics* 132(4): 1593–640.

Devroye, Dan, and Richard Freeman. 2001. "Does Inequality in Skills Explain Inequality of Earnings Across Advanced Countries?" *NBER* working paper no. 8140. Cambridge, Mass.: National Bureau of Economic Research.

DiNardo, John, Nichole M. Fortin, and Thomas Lemieux. 1996. "Labor Market Institutions and the Distribution of Wages, 1973–1992: A Semiparametric Approach." *Econometrica* 64(5): 1000–1046.

Doeringer, Peter B., and Michael J. Piore. 1971. *Internal Labor Markets and Manpower Analysis*. Lexington, Mass: D. C. Heath.

Dunlop, John. 1985. "Needed: An Interdisciplinary Approach to Labor Markets and Wage Differentials." *Monthly Labor Review* 108(7): 30–32.

Dwyer, Rachel E., and Erik Olin Wright. 2019. "Low-Wage Job Growth, Polarization, and the Limits and Opportunities of the Service Economy." *RSF: The Russell Sage Foundation Journal of the Social*

Sciences 5(4): 56–76. DOI: 10.7758/RSF.2019.5.4.02.

Economic Policy Institute (EPI). 2017. *State of Working America Data Library*. Updated February 13, 2017. Accessed March 1, 2019. https://www.epi.org/data.

———. 2018. "The Productivity-Pay Gap." Accessed March 1, 2019. https://www.epi.org/productivity-pay-gap.

Engbom, Niklas, and Christian Moser. 2017. "Earnings Inequality and the Minimum Wage: Evidence from Brazil." *CESifo* working paper series no. 6393. Munich: Center for Economic Studies.

Esping-Andersen, Gøsta. 1990. *The Three Worlds of Welfare Capitalism*. Princeton, N.J.: Princeton University Press.

European Commission. 2001. *Employment in Europe 2001: Recent Trends and Prospects.* London: European Commission, Employment & Social Affairs.

Farber, Henry, Daniel Herbst, Ilyana Kuziemko, and Suresh Naidu. 2018. "Unions and Inequality Over the Twentieth Century: New Evidence from Survey Data." Sante Fe, N.M.: Santa Fe Institute. Accessed February 28, 2019. http://tuvalu.santafe.edu/~snaidu/papers/union_sub3.pdf.

Findlay, Patricia, Arne L. Kalleberg, and Chris Warhurst, eds. 2013. "The Challenge of Job Quality." *Human Relations* 66(4): 441–51.

Folbre, Nancy. 2016. "Just Deserts? Earnings Inequality and Bargaining Power in the U.S. Economy." Working paper. Washington, D.C.: Washington Center for Equitable Growth.

Freeman, Richard B. 1988. "Does the New Generation of Labor Economists Know More Than the Old Generation?" In *How Labor Markets Work: Reflections on Theory and Practice by John Dunlop, Clark Kerr, Richard Lester and Lloyd Reynolds*, edited by Bruce Kaufman. Lanham, Md.: Lexington Books.

———. 2007. "Labor Market Institutions Around the World." *NBER* working paper no. 13242. Cambridge, Mass.: National Bureau of Economic Research.

———. 2013. "Failing the Test? The Flexible U.S. Job Market in the Great Recession." *NBER* working paper no. 19587. Cambridge, Mass.: National Bureau of Economic Research.

Freeman, Richard B., and James L. Medoff. 1984. *What Do Unions Do?* New York: Basic Books.

Furman, Jason, and Peter Orszag. 2015. "A Firm-Level Perspective on the Role of Rents in the Rise in Inequality." Presentation at *A Just Society* Centennial Event in Honor of Joseph Stiglitz, Columbia University, New York City (October 16, 2015).

Gabaix, Xavier, Augustin Landier, and Julien Sauvagnat. 2014. "CEO Pay and Firm Size: An Update After the Crisis." *The Economic Journal* 124(574) (February): F40–F59.

Gautié, Jérôme, and John Schmitt, eds. 2010. *Low-Wage Work in the Wealthy World*. New York: Russell Sage Foundation.

Ghai, Dharam. 2003. "Decent Work: Concept and Indicators." *International Labour Review* 142(2): 113–45.

Gittleman, Maury, and David R. Howell. 1995. "Changes in the Structure and Quality of Jobs in the United States: Effects by Race and Gender, 1973–1990." *Industrial and Labour Relations Review* 48(3): 420–40.

Goldin, Claudia, and Lawrence F. Katz. 2007. "Long-Run Changes in the Wage Structure: Narrowing, Widening, Polarizing." *Brookings Papers on Economic Activity* no. 2. Washington, D.C.: Brookings Institute. Accessed February 28, 2019. https://www.brookings.edu/bpea-articles/long-run-changes-in-the-wage-structure-narrowing-widening-polarizing.

———. 2008. *The Race Between Education and Technology.* Cambridge, Mass.: Harvard University Press.

———. 2009. "The Future of Inequality: The Other Reason Education Matters so Much." In *Improving "No Child Left Behind": Linking World-Class Standards to America's Economic Recovery.* Washington, D.C.: Aspen Institute.

Goldschmidt, Deborah, and Johannes F. Schmieder. 2017. "The Rise of Domestic Outsourcing and the Evolution of the German Wage Structure." *Quarterly Review of Economics* 132(3): 1165–217.

Goos, Maarten, and Alan Manning. 2007. "Lovely and Lousy Jobs: The Rising Polarization of Work in Britain." *Review of Economics and Statistics* 89(1): 118–33.

Gordon, David M., Richard Edwards, and Michael Reich. 1982. *Segmented Work, Divided Workers*. New York: Cambridge University Press.

Granovetter, Mark. 2005. "The Impact of Social Structure on Economic Outcomes." *Journal of Economic Perspectives* 19(1): 33–50.

Green, Francis. 2006. *Demanding Work: The Paradox of Job Quality in the Affluent Economy*. Princeton, N.J.: Princeton University Press.

Hall, Peter A., and David Soskice. 2001. "Introduction to Varieties of Capitalism." In *Varieties of Capitalism: The Institutional Foundations of Comparative Advantage*, edited by Peter A. Hall and David Soskice. Oxford: Oxford University Press.

Handwerker, Elizabeth Weber. 2018. "Increased Concentration of Occupations, Outsourcing, and Growing Wage Inequality in the United States." Unpublished manuscript, U.S. Bureau of Labor Statistics.

Handwerker, Elizabeth Weber, and James R. Spletzer. 2015. "The Role of Establishments and the Concentration of Occupations in Wage Inequality." *IZA* discussion paper no. 9294. Bonn: Institute for the Study of Labor.

Harrison, Bennett, and Barry Bluestone. 1988. *The Great U-Turn: Corporate Restructuring and the Polarizing of America*. New York: Basic Books.

Hirschman, Albert O. 1991. *The Rhetoric of Reaction: Perversity, Futility, Jeopardy*. Cambridge, Mass.: Harvard University Press.

Holzer, Harry J., Julia I. Lane, David B. Rosenblum, and Fredrik Andersson. 2011. *Where Are All the Good Jobs Going?* New York: Russell Sage Foundation.

Howell, David R. 1989. "Production Technology and the Interindustry Wage Structure." *Industrial Relations* 28(1): 32–50.

———. 2002. "Increasing Earnings Inequality and Unemployment in Developed Countries: Markets, Institutions, and the 'Unified Theory.'" *Politics & Society* 30(2): 193–243.

———. 2019. "What Happened to Decent Jobs? The Decline in American Job Quality, 1979–2014." Working Paper. Washington, D.C.: Washington Center for Equitable Growth.

Howell, David R., Kea Fiedler, and Stephanie Luce. 2016. "What's the Right Minimum Wage? Reframing the Debate from 'No Job Loss' to a 'Minimum Living Wage." Washington, D.C.: Washington Center for Equitable Growth.

Howell, David R., and Friedrich Huebler. 2005. "Wage Compression and the Unemployment Crisis: Labor market Institutions, Skills, and Inequality-Unemployment Tradeoffs." In *Fighting Unemployment: The Limits of Free Market Orthodoxy*, edited by David R. Howell. Oxford: Oxford University Press.

Howell, David R., and Susan S. Wieler. 1998. "Skill-Biased Demand Shifts and the Wage Collapse in the United States: A Critical Perspective." *Eastern Economic Journal* 24(3): 343–66.

Howell, David R., and Edward N. Wolff. 1991. "Skills, Bargaining Power and Rising Interindustry Wage Inequality Since 1970." *Review of Radical Political Economics* 23(1-2): 30–37.

Hunt, Jennifer, and Ryan Nunn. 2019. "Is Employment Polarization Informative About Wage Inequality and Is Employment Really Polarizing." Unpublished manuscript, Rutgers University.

International Labour Organization (ILO). 2016. *Key Indicators of the Labor Market*. Geneva: ILO.

Jacobs, David, and Lindsey Myers. 2014. "Union Strength, Neoliberalism, and Inequality: Contingent Political Analyses of U.S. Income Differences Since 1950." *American Sociological Review* 79(4): 1–23.

Jacoby, Sanford M. 2005. *The Embedded Corporation: Corporate Governance and Employment Relations in Japan and the United States.* Princeton, N.J.: Princeton University Press.

Jaumotte, Florence, and Carolina Osorio Buitron. 2015. "Inequality and Labor Market Institutions." *IMF* staff discussion note. Washington, D.C.: International Monetary Fund.

Jensen, Michael C., and William H. Meckling. 1976. "Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure." *Journal of Financial Economics* 3(4): 305–60.

Jovicic, Sonja. 2015. "Wage Inequality, Skill Inequality, and Employment: Evidence from PIACC." *Schumpeter* discussion paper no. 2015-007. Wuppertal, Germany: University of Wuppertal.

Kalleberg, Arne L. 2000. "Nonstandard Employment Relations: Part-Time, Temporary, and Contract Work." *Annual Review of Sociology* 26(1): 341–65.

———. 2011. *Good Jobs, Bad Jobs: The Rise of Polarized and Precarious Employment Systems in the United States, 1970s to 2000s*. New York: Russell Sage Foundation.

———. 2016. "Good Jobs, Bad Jobs." In *The Sage Handbook of the Sociology of Work and Employment*, edited by Stephen Edgell, Heidi Gottfried, and Edward Granter. Thousand Oaks, Calif.: Sage Publications.

———. 2018. *Precarious Lives: Job Insecurity and Well-Being in Rich Democracies*. Cambridge: Polity Press.

Kalleberg, Arne L., Edith Rasell, Naomi Cassirer, Barbara F. Reskin, Ken Hudson, David Webster, and Eileen Appelbaum. 1997. *Nonstandard Work, Substandard Jobs: Flexible Work Arrangements in the U.S.* Washington, D.C.: Economic Policy Institute and Women's Research and Education Institute.

Kalleberg, Arne L., Barbara F. Reskin, and Ken Hudson. 2000. "Bad Jobs in America: Standard and Nonstandard Employment Relations and Job Quality in the United States." *American Sociological Review* 65(2): 256–78.

Kaplan, Steven N., and Joshua Rauh. 2013. "It's the Market: The Broad-Based Rise in the Return to Top Talent." *Journal of Economic Perspectives* 27(1): 35–56.

Katz, Lawrence F., and Alan B. Krueger. 2016. "The Rise and Nature of Alternative Work Arrangements in the United States, 1995–2015." *NBER* working paper no. 22667. Cambridge, Mass.: National Bureau of Economic Research.

———. 2019. "Understanding Trends in Alternative Work Arrangements in the United States." *NBER* working paper no. 25425. Cambridge, Mass.: National Bureau of Economic Research.

Katz, Lawrence F., and Kevin Murphy. 1992. "Changes in Relative Wages, 1963–1987: Supply and Demand Factors." *Quarterly Journal of Economics* 107 (February): 35–78.

Kaufman, Bruce E. 1988. "The Postwar View of Labor Markets and Wage Determination." In *How Labor Markets Work: Reflections on Theory and Practice by John Dunlop, Clark Kerr, Richard Lester, and Lloyd Reynolds*, edited by Bruce Kaufman. Lanham, Md.: Lexington Books.

———. 2004. "The Institutional and Neoclassical Schools in Labor Economics." In *The Institutionalist Tradition in Labor Economics*, edited by Dell P. Champlin and Janet T. Knoedle. Armonk, N.Y.: M. E. Sharpe.

———. 2007. "The Impossibility of a Perfectly Competitive Labour Market." *Cambridge Journal of Economics* 31 (April): 775–87.

———. 2010. "The Theoretical Foundation of Industrial Relations and Its Implications." *Industrial and Labor Relations Review* 64(1): 74–108.

Kerr, Clark. 1994. "The Social Economics Revisionists: The 'Real World' Study of Labor Markets and Institutions." In *Labor Economics and Industrial Relations: Markets and Institutions*, edited by Clark Kerr and Paul D. Staudohar. Cambridge, Mass.: Harvard University Press.

Kochan, Thomas A., Harry C. Katz, and Robert B. McKersie. 1994. *The Transformation of American Industrial Relations.* Ithaca, N.Y.: ILR Press.

Korpi, Walter. 1985. "Developments in the Theory of Power and Exchange." *Sociological Theory* 3(1): 31–45.

Kristal, Tali, and Yinon Cohen. 2014. "The Causes of Rising Wage Inequality: The Race Between Institutions and Technology." *Socio-Economic Review* 15(1): 187–212.

Krueger, Alan B. 2018. "Reflections on Dwindling Worker Bargaining Power and Monetary Policy." Economic Policy Symposium, Jackson Hole, Wyo. (August 24, 2018).

Lambert, Susan J., Julia R. Henly, and Jaeseung Kim. 2019. "Precarious Work Schedules as a Source of Economic Insecurity and Institutional Distrust." *RSF: The Russell Sage Foundation Journal of the Social Sciences* 5(4): 218–57. DOI: 10.7758/RSF.2019.5.4.08.

Lazear, Edward P., and Kathryn L. Shaw. 2007. "Personnel Economics: The Economist's View of Human Resources." *Journal of Economic Perspectives* 21(4): 91–114.

Lemieux, Thomas. 2011. "Wage Inequality: A Comparative Perspective." *Australian Bulletin of Labour* 37(1): 2–32.

Lester, Richard A. 1952. "A Range Theory of Wage Differentials." *Industrial and Labor Relations Review* 5 (July): 433–50.

Leuven, Edwin, Hessel Oosterbeek, and Hans van Ophem. 2004. "Explaining International Differences in Male Skill Wage Differentials by Differences in Demand and Supply of Skills." *Economic Journal* 114(495): 466–86.

Liu, Cathy Yang, and Luísa Nazareno. 2019. "The Changing Quality of Nonstandard Work Arrangements: Does Skill Matter?" *RSF: The Russell Sage Foundation Journal of the Social Sciences* 5(4): 104–28. DOI: 10.7758/RSF.2019.5.4.04.

Locke, Richard, Thomas Kochan, and Michael Piore. 1995. *Employment Relations in Changing World Economy.* Cambridge, Mass.: MIT Press.

Maestas, Nicole, Kathleen J. Mullen, David Powell, Till von Wachter, and Jeffrey B. Wenger. 2017. "The American Working Conditions Survey Data: Codebook and Data Description." Santa Monica,

Calif.: Rand Corporation. Accessed February 28, 2019. https://www.rand.org/pubs/tools/TL269.html.

Mankiw, N. Gregory 2013. "Defending the One Percent." *Journal of Economic Perspectives* 27(1): 21–34.

Manning, Alan. 2003. *Monopsony in Motion: Imperfect Competition in Labor Markets*. Princeton, N.J.: Princeton University Press.

———. 2011. "Imperfect Competition in the Labor Market." In *Handbook of Labor Economics*, vol. 4B, edited by Orley Ashenfelter and David Card. Amsterdam: Elsevier-North Holland.

Mason, Geoff, and Wiemer Salverda. 2010. "Low Pay, Working Conditions, and Living Standards." In *Low-Wage Work in the Wealthy World*, edited by Jérôme Gautié and John Schmitt. New York: Russell Sage Foundation.

Mishel, Lawrence R., and Jared Bernstein. 1994. *Is the Technology Black Box Empty?: An Empirical Examination of the Impact of Technology on Wage Inequality and the Employment Structure.* Washington, D.C.: Economic Policy Institute.

———. 1998. "Technology and the Wage Structure: Has Technology's Impact Accelerated Since the 1970s?" *Research in Labor Economics* 17: 305–55.

Mishel, Lawrence, Jared Bernstein, and Sylvia Allegretto. 2007. *The State of Working America 2006/2007*. Ithaca, N.Y.: Cornell University Press, ILR School.

Mishel, Lawrence R., and Josh Bivens. 2017. "New Paper on Pay-Productivity Link Does Not Overturn EPI Findings." *Working Economics Blog*, November 9, 2017. Accessed March 1, 2019. https://www.epi.org/blog/new-paper-on-pay-productivity-link-does-not-overturn-epi-findings.

Mishel, Lawrence R., Josh Bivens, and Elise Gould. 2012. *The State of Working America, 2012.* Washington, D.C.: Economic Policy Institute.

Mishel, Lawrence, John Schmitt, and Heidi Shierholz. 2013. "Don't Blame the Robots: Assessing the Job Polarization Explanation of Growing Wage Inequality." *EPI-CEPR* working paper. Washington, D.C.: Economic Policy Institute.

Mortensen, Dale T. 2005. *Wage Dispersion: Why Are Similar Workers Paid Differently*? Cambridge, Mass.: The MIT Press.

Mosher, James S. 2007. "U.S. Wage Inequality, Technological Change, and Decline in Union Power." *Politics & Society* 35(2): 225–64.

Moulton, Brent R. 2018. "The Measurement of Output, Prices, and Productivity: What's Changed Since the Boskin Commission?" Washington, D.C.: Brookings Institution.

OECD. 2014. "How Good Is Your Job? Measuring and Assessing Job Quality." In *The Employment Outlook 2014*. Paris: Organization for Economic Cooperation and Development.

———. 2015. *In It Together: Why Less Inequality Benefits All.* Paris: Organization for Economic Cooperation and Development.

———. 2017. "How Technology and Globalization Are Transforming the Labour Market." In *The Employment Outlook 2017*. Paris: Organization for Economic Cooperation and Development.

Osawa, Machiko, Myoung Jung Kim, and Jeff Kingston. 2013. "Precarious Work in Japan." *American Behavioral Scientist* 57(3): 309–34.

Osterman, Paul. 1994. "Internal Labor Markets: Theory and Change." In *Labor Economics and Industrial Relations: Markets and Institutions*, edited by Clark Kerr and Paul D. Staudohar. Cambridge, Mass.: Harvard University Press.

———. 2008. "Improving the Quality of Low-Wage Work: The Current American Experience." *International Labour Review* 147(2-3): 115–34.

———. 2011. "Institutional Labor Economics, the New Personnel Economics, and Internal Labor Markets: A Reconsideration." *Industrial and Labor Relations Review* 64(4): 637–53.

Paccagnella, Marco. 2015. "Skills and Wage Inequality: Evidence from PIAAC." *OECD Education* working paper no. 114. Paris: Organization for Economic Cooperation and Development.

Peckham, Trevor, Kaori Fujishiro, Anjum Hajat, Brian P. Flaherty, and Noah Seixas. 2019. "Evaluating Employment Quality as a Determinant of Health in a Changing Labor Market." *RSF: The Russell Sage Foundation Journal of the Social Sciences* 5(4): 258–81. DOI: 10.7758/RSF.2019.5.4.09.

Pedulla, David S., and Katariina Mueller-Gastell. 2019. "Nonstandard Work and the Job Search Process: Application Pools, Search Methods, and Perceived Job Quality." *RSF: The Russell Sage Foundation Journal of the Social Sciences* 5(4): 130–58. DOI: 10.7758/RSF.2019.5.4.05.

Pena, Anita A. 2014. "Revisiting the Effects of Skills on Economic Inequality: Within- and Cross-Coutry Comparisons Using PIAAC." Presentation at Taking the Next Step with PIAAC: A Research-

to-Action Conference, Arlington, Va. (December 11–12, 2014).

Piketty, Thomas, Emmanuel Saez, and Gabriel Zucman. 2018. "Distributional National Accounts: Methods and Estimates for the United States." *Quarterly Journal of Economics* 133(2): 1–57.

Rand Education and Labor (Rand). 2015. "American Working Conditions Survey." Accessed March 1, 2019. https://www.rand.org/education-and-labor/projects/american-working-conditions.html.

Reich, Michael, and James Devine. 1981. "The Microeconomics of Conflict and Hierarchy in Capitalist Production." *Review of Radical Political Economics* 12(4): 27–45.

Rodrik, Dani. 2007. *One Economics—Many Recipes: Globalization, Institutions, and Economic Growth.* Princeton, N.J.: Princeton University Press.

Schmitt, John. 2008. "The Decline of Good Jobs: How Have Jobs with Adequate Pay and Benefits Challenge Done?" *Challenge* 51(1): 5–25.

———. 2013. "Why Does the Minimum Wage Have No Discernible Effect on Employment?" Washington, D.C.: Center for Economic and Policy Research.

Schmitt, John, Elise Gould, and Josh Bivens. 2018. "America's Slow-Motion Wage Crisis." Washington, D.C.: Economic Policy Institute.

Schmitt, John, and Janelle Jones. 2012. "Where Have All the Good Jobs Gone?" Washington, D.C.: Center for Economic and Policy Research. Accessed March 26, 2019. http://cepr.net/documents/publications/good-jobs-2012-07.pdf.

Schmitt, John, and Alexandra Mitukiewicz. 2011. "Politics Matter: Changes in Unionization Rates in Rich Countries, 1960–2010." Washington, D.C.: Center for Economic and Policy Research.

Schultz, Michael A. 2019. "The Wage Mobility of Low-Wage Workers in a Changing Economy, 1968 to 2014." *RSF: The Russell Sage Foundation Journal of the Social Sciences* 5(4): 159–89. DOI: 10.7758/RSF.2019.5.4.06.

Smith, Adam. 1937 (1776). *An Inquiry into the Nature and Causes of The Wealth of Nations*, Modern Library Edition. New York: Random House.

Solow, Robert. 1990. *The Labor Market as a Social Institution*. Cambridge: Basil Blackwell.

Song, Jae, David J. Price, Fatih Guvenen, Nicholas Bloom, and Till von Wachter. 2019. "Firming Up Inequality." *Quarterly Journal of Economics* 134(1): 1–50.

Stancanelli, Elena. 2002. "Do Temporary Jobs Pay? Wages and Career Perspectives of Temporary Workers." Working paper. Tilburg, Germany: Tilburg University.

Stansbury, Anna, and Larry Summers. 2017. "Productivity and Pay: Is the Link Broken?" *NBER* working paper no. 24165. Cambridge, Mass.: National Bureau of Economic Research.

Stelzner, Mark. 2017. "The New American Way—How Changes in Labour Law Are Increasing Inequality." *Industrial Relations Journal* 48(3): 231–55.

Streeck, Wolfgang. 2005. "The Sociology of Labor Markets and Trade Unions." In *The Handbook of Economic Sociology*, edited by Neil J. Smelser and Richard Swedberg. Princeton, N.J.: Princeton University Press.

Sullivan, Teresa A., Elizabeth Warren, and Jay Lawrence Westbrook. 2001. *The Fragile Middle Class: Americans in Debt*. Austin: University of Texas Press.

Tilly, Chris. 1996. *Half a Job: Bad and Good Part-Time Jobs in a Changing Labor Market.* Philadelphia, Pa.: Temple University Press.

Tung, Irene, Yanet Lathrop, and Paul Sonn. 2015. "The Growing Movement for $15." Washington, D.C.: National Employment Law Project.

Van Reenen, John. 2011. "Wage Inequality, Technology and Trade: 21st Century Evidence." *Labour Economics* 18(6): 730–41.

VanHeuvelen, Tom, and Katherine Copas. 2019. "The Geography of Polarization, 1950 to 2015." *RSF: The Russell Sage Foundation Journal of the Social Sciences* 5(4): 77–103. DOI: 10.7758/RSF.2019.5.4.03.

Vosko, Leah F. 2010. *Managing the Margins: Gender, Citizenship, and the International Regulation of Precarious Employment*. Oxford: Oxford University Press.

Webb, Sidney, and Beatrice Webb. 1897. *Industrial Democracy*. London: Longmans, Green, and Co.

Weil, David. 2014. *The Fissured Workplace*. Cambridge, Mass.: Harvard University Press.

———. 2017. "Income Inequality, Wage Determination, and the Fissured Workplace." In *After Piketty: The Agenda for Economics and Inequality*, edited by Heather Boushey, J. Bradford DeLong, and Marshall Steinbaum. Cambridge, Mass.: Harvard University Press.

Western, Bruce, and Jake Rosenfeld. 2011. "Unions,

Norms, and the Rise in U.S. Wage Inequality." *American Sociological Review* 76(4): 513–37.

Wilmers, Nathan. 2018. "Wage Stagnation and Buyer Power: How Buyer-Supplier Relations Affect U.S. Workers' Wages, 1978–2014." *American Sociological Review* 83(2): 213–42.

———. 2019. "Solidarity Within and Across Workplaces: How Cross-Workplace Coordination Affects Earnings Inequality." *RSF: The Russell Sage Foundation Journal of the Social Sciences* 5(4): 190–215. DOI: 10.7758/RSF.2019.5.4.07.