

Low-Wage Job Growth, Polarization, and the Limits and Opportunities of the Service Economy



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We analyze U.S. job growth from the 1980s to the 2010s. We define jobs as occupations within sectors to capture position in the production system as well as skill hierarchies. Low-wage jobs outgrew middle-wage jobs over much of this period, particularly for women and nonwhite workers. Service work drove most low-wage job growth, but even a small resurgence in manufacturing job growth in the 2010s was concentrated in low-wage jobs. Given the constraints of economic restructuring on the growth of decent jobs, we consider alternative logics for the creation of jobs in twenty-first-century economies. The prospects for job growth in the future, we argue, requires a robust defense of these alternative logics that can and do thrive alongside and within a capitalist market economy.

Keywords: jobs, inequality, polarization, low-wage work, labor policy

Does the American economy generate enough quality jobs to support prosperity and security for all? The answer to this question appeared far less promising at the end of the twentieth century than it had in earlier decades. Changes in industrial organization and employment relations after the 1970s made it harder for work-

ers to achieve a decent standard of living in the United States. Declining unionization and weakening business regulation reduced worker power in negotiations with employers. The shift from a manufacturing to a service economy accelerated declining worker power as growth slowed in more-unionized sectors and

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boomed in less-unionized ones, resulting in a more precarious economy that produced an abundance of low-wage jobs (Gautié and Schmitt 2009; Kalleberg 2011). These dynamics culminated in the emergence of job polarization in the 1990s when, at least according to several prominent analyses, employment growth became concentrated among the lowest-wage and highest-wage jobs and slumped among the middle-wage jobs that underwrote a more widely shared prosperity in the 1960s (Autor, Levy, and Murnane 2003; Wright and Dwyer 2003).

Economic restructuring continued into the first two decades of the 2000s but a number of disjunctions between trends in wages and employment in this period raised questions about the quality of jobs generated as well as the possibilities for stronger growth in the future. For one, employment trends followed a rather bumpy trajectory. Slow job growth in the early 2000s culminated in massive job losses during the Great Recession and a very slow recovery after, all of which significantly depressed labor market opportunities over an extended period for American workers after the turn of the new century (BLS 2019). The economic expansion after the Great Recession became more robust over time, however, offering some intimations of recovery in lower- to middle-wage jobs (BLS 2019). Employment trends also diverged more from wage trends in this period than in the preceding decades. There had been greater agreement that employment polarized in the 1990s (including in some countries in Europe) along with growing wage inequality, though the causes were debated (Wright and Dwyer 2003; Goos and Manning 2007; Oesch and Menés 2011; Autor, Katz, and Kearney 2006; Dwyer 2013; Liu and Grusky 2013; Fernández-Macías 2012). Debate has been more vigorous about the empirical trends in the 2000s, which show less evidence of wage polarization, slowing returns to higher education and growing challenges to the evidence of tight coupling between employment and wage trends even for the 1990s (Mishel, Schmitt, and Shierholz 2013; Beaudry, Green, and Sand 2016; Hunt and Nunn 2018). These divergences have led to greater efforts to analyze patterns of employment growth separate from trends in individual wage distribu-

tions, most studies so far focused on understanding the distinctive wage trends in the 2000s. We take the alternative tack of studying employment trends distinct from individual wage trends. We followed this approach in our earlier analysis of job polarization in the 1990s, arguing that the job structure is irreducible to the individual attributes of workers making up those positions (Wright and Dwyer 2003).

We study the American jobs structure because jobs are the site of economic interests that flow not just from the material resources of wages, but also from position in the organization of production. Jobs deliver wages and other benefits to individuals but do so in social organizational units that are the result of interest contestation, organizational dynamics, and the political regulation (and deregulation) of labor and capital (Wright 1997; Fernandez 2001; Weeden 2002; Mouw and Kalleberg 2010; Liu and Grusky 2013; Kristal 2013). Jobs thus bundle rights and responsibilities that shape the quality of work beyond the particular wages they provide. That social organization imposes constraints on what jobs are available to workers based on institutional rules, spatial distributions, and both discriminatory and conventional understandings of the types of worker suited to different jobs (Milkman and Dwyer 2002; Sassen 2001; England 2010). The relatively weak social safety net provided by the federal government makes the quality of jobs created in the American economy all the more important: jobs exert outsized influence on livelihoods in societies such as the United States where government benefits and insurance provide a low social wage. Indeed, the large number of low-wage jobs in the United States is understood to be in part a consequence of the low social wage, in that more Americans are forced to accept any employment compared to their counterparts in countries with higher social wages (Gautié and Schmitt 2009).

In this article, we study patterns of job growth and decline at the turn of the twenty-first century as indicators of change in the prospects for shared growth in the American economy. We focus on the trajectory of low-wage jobs in the transition from a manufacturing to a service economy because we are interested in the relative production of bad versus decent

jobs in this period. The quantity of jobs created in a national economy is widely recognized as a valuable indicator of the health of an economy. The Organization for Economic Cooperation and Development metric of labor market performance, for example, includes measures of overall levels of employment as well as measures of job quality realized in compensation, job security, and the conditions of work (OECD 2014; Cazes, Falco, and Menyhért forthcoming). Our approach integrates job quantity and quality by evaluating employment growth and decline (job quantity) across the distribution of job median wages (job quality). The quantity of low-quality versus high-quality jobs is an indicator of the degree to which social groups all share in economic growth (Fernández-Macías, Storrie, and Hurley 2012). We focus especially on the growth of low-wage jobs relative to higher-wage jobs, and on understanding job growth in the early decades of the 2000s compared to the 1980s and 1990s. We also analyze gender and race-ethnic divides in low-wage job growth in order to understand the disparate impacts of economic restructuring on diverse socioeconomic groups.

We reflect on the prospects for more broadly shared economic growth in the American economy—any economy—that depends on capitalist production and consider sources of job growth that are particularly likely to support social equality and justice. We argue that more equally shared growth requires a reinvestment in public goods and a broader vision of a social economy, which produces livelihoods not only in the service of capitalist growth, but in support of human flourishing.

CHANGE IN THE AMERICAN JOBS STRUCTURE

Studies of job polarization in the 1990s brought increased attention to the American jobs structure (and to similar changes in other countries) but differed in the operationalization of jobs and in the extent to which they focused on job trends versus wage trends. Our approach is distinctive not only in focusing on jobs rather than individual wages (as discussed), but also in understanding jobs as occupations within sectors rather than as synonymous with occupations.

These alternative approaches provide different views of economic change; our approach is particularly valuable for understanding the low-wage labor market and possibilities for decent work to support livelihoods for all.

Prior analyses of the job structure often attempt to link wage and employment, with mixed results. Indeed, David Howell and his colleagues show that wages and employment were only weakly associated in the 1980s up to 1997, significant numbers of jobs experiencing high hours growth but little or no wage growth, and other jobs experiencing the reverse (2001). Later analyses of the full 1990s expansion by David Autor and his colleagues argue that wage inequality and job polarization were more strongly correlated (2003, 2006, 2008). This pattern supports skill-biased technological change explanations that computerization increased the demand for the highest-skill jobs but reduced it for the most routine middle-skill jobs that could be automated relative to the most manual low-skill jobs that still require human labor (Acemoglu and Autor 2011). Many studies question the canonical role of technological change, arguing that other factors, including changing labor market institutions and shifts in the social organization of services, also significantly increase inequality (Liu and Grusky 2013; Dwyer 2013). Some argue that significant discontinuities between wages and jobs undercut the skill-biased technological change (SBTC) conclusions (Mishel, Schmitt, and Shierholz 2013; Hunt and Nunn 2018). First, the 1980s saw a surge in wage inequality, but the strongest job polarization emerged in the 1990s (Mishel, Schmitt, and Shierholz 2013). Second, the evidence for the 1990s is based in part on the particular operationalization of jobs (more on this shortly). Third, even if the 1990s were a period of the strongest associations between wages and employment growth, the 2000s brought new challenges as trends in wage inequality and employment growth became even less aligned (Mishel, Schmitt, and Shierholz 2013; Hunt and Nunn 2018). Slow wage growth in the 2000s was associated with less wage polarization because most wage gains shifted to the very top of the distribution of workers (Piketty and Saez 2006; Hunt

and Nunn 2018). High-skill jobs thus became less clearly linked to employment and wage growth and the returns to skill slowed into the 2000s (Beaudry, Green, and Sand 2016). Trends in wage inequality are thus likely best understood by focusing on individual wage distributions but not expecting that they will move tightly with employment trends. Job growth remains an important indicator, however, of labor market opportunity in the American economy.

Studies that link wages and employment typically define jobs as synonymous with occupations because they prioritize skill developments over other changes in the production system. Research in the SBTC tradition focuses on occupational polarization, embedding the priority of a skills-based approach into the analytic design (Autor, Levy, and Murnane 2003; Mishel, Schmitt, and Shierholz 2013; Liu and Grusky 2013). The extent and causes of occupational polarization are debated, however. Some studies argue that the evidence for wage polarization was strongest for occupations in the 1990s, but also susceptible to coding discontinuities in occupations (Mishel, Schmitt, and Shierholz 2013; Hunt and Nunn 2018). At the same time, substantial heterogeneity within occupations is part of the source of the decoupling of wage and occupational growth trends.

Industrial sectors are one of the key sources of wage variability within occupations as well as a key feature of the labor market structure that shapes opportunities for individual workers. Industrial sectors organize the work of the economy and more directly reflect policy decisions about economic investment and institutional responses to changes in technology, global competition, and the makeup of the American workforce than occupational groupings do (Tomaskovic-Devey and Skaggs 2002). Indeed, analyses of the labor market impacts of trade competition foreground sectoral exposures over occupational dynamics (Autor, Dorn, and Hanson 2016; Acemoglu et al. 2016; Goos, Manning, and Salomons 2014). Sectoral dynamics also significantly shape the opportunities for rent-seeking, worker bargaining power, and other factors that affect the quality of jobs for individual workers. For example, the finance

sector provides higher wages across all occupations, and some occupations within that sector also have structural advantages in capturing rents (Tomaskovic-Devey and Lin 2011; Böhm, Metzger, and Strömberg 2018). The monopsony power of some employers and the structural power of different industries shape the bargaining contexts between capital and labor (Dickens and Katz 1987; Krueger and Summers 1988; Manning 2003; Tomaskovic-Devey 2017). Sectoral dynamics thus likely contribute to divergences between individual wage trends and occupational wage trends. Sectoral change also captures the large-scale economic restructuring that shapes the emergence of new opportunities and the decline of formerly valuable sources of livelihoods (Goos, Manning, and Salomons 2009, 2014). Occupational dynamics still matter because the demand for skill shapes which positions are growing and declining, but this demand occurs within the context of sectoral dynamics.

Our focus on the job structure also requires more careful attention to expansionary and recessionary periods than studies that focus on secular shifts in the demand for skill as a result of computerization. Indeed, evidence suggests that the patterning of job polarization is sensitive to measurement at different points of the business cycle (Wright and Dwyer 2003; Gaggl and Kaufmann 2015). Recessionary periods appear to shape the trajectory of job growth in crucial ways, especially in the wake of significant downturns such as the Great Recession (Gaggl and Kaufmann 2015). Sectoral dynamics may be particularly sensitive to the business cycle (Goos et al. forthcoming), consistent with our expectation that sectors shape the transformation of the job structure.

RESEARCH QUESTIONS: LOW-WAGE JOB GROWTH IN THE 2000S

We pursue several questions in order to understand change in the quality of jobs created in the American economy and identify the locations in the American economy that could provide more equally shared resources in the future. First, what was the trend in low-wage job growth in the 2000s relative to middle-wage and higher-wage jobs? We are interested in this

question overall, but also for its implications for the sociodemographic groups most likely to hold low-wage jobs, and for the sectoral composition of low-wage job growth.

Second, has the distribution of low-wage job growth across women and men and between racial groups changed in the 2000s relative to earlier periods? Women and disadvantaged racial and ethnic populations have disproportionately held low-wage jobs; white workers have disproportionately held the highest-wage jobs (Applebaum, Bernhardt, and Murnane 2006). Polarization thus entailed disparities in livelihoods between socioeconomic groups as well as a division in the quality of growing jobs (Wright and Dwyer 2003; Dwyer 2013). Over time, women and racially disadvantaged groups continued to make gains in education that may have reduced disparities, while economic restructuring hit some disproportionately white communities particularly hard. Immigration slowed significantly during and after the Great Recession, resulting especially in shifting the balance of U.S.-born to Latino-immigrant workers (Kochan 2014). Has the American jobs structure become more integrated and inclusive by gender and race over time? These questions become intertwined with questions about economic restructuring given the differential position of gender and race groups in the U.S. labor market (Gittleman and Howell 1995).

Third, has job growth across manufacturing and service sectors continued to produce polarization in the 2000s and especially since the Great Recession? There are a number of reasons to expect change in job growth across sectors. Varied efforts to improve service jobs with unionization, efforts to increase wages, and a strengthening labor market after the Great Recession may have contributed to stronger growth in the middle (Applebaum, Bernhardt, and Murnane 2006). Manufacturing employment rebounded as well, leading to public interest in a revitalization of that sector as a source of improved job quality in the American economy. However, the same institutional constraints on worker power that contributed to polarization at the end of the twentieth century remained in force at the beginning of the twenty-first (Kalleberg 2011). The relative strength of job growth at the bottom versus the

middle of the labor market is a crucial indicator of how broadly shared economic growth is and can be under the institutional conditions of twenty-first-century American labor markets.

DATA AND METHODS

We study more than thirty years of low-wage job growth in the United States using the Current Population Survey (CPS), the major source of data on the American job structure. The CPS is a nationally representative sample of U.S. households, conducted monthly since the 1940s, and includes an expanded set of employment information starting in 1979. The basic monthly survey includes core demographic and labor-force participation questions, which are used to track the U.S. unemployment rate. The CPS also provides supplements with more detailed employment data, which we used in our analyses of low-wage job growth over time. From the 1980s through 2017, we use the Outgoing Rotation Group Earner Study (NBER 2017). In all samples across years, we include all full- and part-time civilian workers age eighteen to sixty-five. We exclude self-employed workers because the related wage data are incompatible with that on employees.

Jobs Defined by Occupations Within Sectors

The CPS coding of occupation and industry follows the U.S. Census Bureau codes, which are revised after each decennial census. These coding changes reflect changes in the economy but also produce discontinuities in our data series. The coding schemes changed significantly after the 1980 Census, and thus we start our analyses in 1983 when the CPS implemented the new codes, and again in 2002 after a significant revision following the 2000 Census. The Census Bureau made more minor changes in the periods in between the bigger revisions.

Sector

We create a consistent set of twenty-three industrial sector codes over all periods of analysis. Starting in 1970, the CPS provides data on industry in several hundred three-digit codes. The coding of the more disaggregated industry changes over time and results in some shifting of jobs across our standard two-digit categories, but for the most part these categories

ries remain fairly stable. We also aggregate the twenty-three sectors into eight categories to better analyze larger-scale sectoral trends: extractive and manufacturing; construction, transport, and repair; communications, utilities, and sanitary service; wholesale trade; retail trade, private and personal services, and entertainment and recreational service; business service, other professional service, and finance, insurance, and real estate; health services; and educational service, social services, and public administration. We also combine all services together and compare them with nonservice sectors.

Occupation

We create a consistent set of forty-five occupation codes that we use in all analyses. The underlying occupational coding scheme changes, reflecting shifts in the U.S. economy. CPS occupation codes changed significantly over the fifty years of our analysis. We use a consistent set of codes based on the 1990 scheme for all periods. The 1980 and 1990 schemes are relatively similar (after a larger reclassification after 1970). Changes to the census coding scheme for 2000 were significant but mainly entailed a reorganization of the code along with greater detail within categories. We use the crosswalk developed by the Bureau of Labor Statistics to make a consistent set of codes across the 1990s and 2000s (Meyer and Osborne 2005).

Jobs

We define jobs as cells in the occupation within sector matrix, making up almost one thousand individual jobs. A few small jobs drop out of the analysis when no workers are in a particular cell at the beginning or end of a period.

Job Wages

We index job types by one salient characteristic: the wages they typically generate. Wages are an imperfect but valuable proxy for other measures of job quality. This is particularly true in

the U.S. context, where various benefits come along with jobs yielding different levels of pay because of the relatively low social wage. We calculate median hourly wages in every period in order to rank jobs by wage levels. We use the median rather than mean for each job because the CPS top-codes wages, which skews calculations of the average.¹ We convert salaries and other forms of nonhourly pay into hourly pay using usual weekly earnings and usual hours worked per week. We adjust all dollar amounts consistent 2017 dollars using the CPI-U adjustment. We follow Barry Hirsch and Edward Schumacher (2004) and exclude imputed wage data, which are calculated using very highly aggregated occupational categories and thus are likely particularly noisy for our purposes.

Our approach here captures relative pay between jobs rather than absolute wage trends as an indicator of trends in job quality (Applebaum, Bernhardt, and Murnane 2006). Thus our focus on the distribution of types of jobs as such is distinct from the question of growing wage inequality between the best and worst jobs, which would indicate growing distance between positions at the poles of the job-wage distribution.

Sociodemographic Groups

We analyze job growth for women relative to men and for several racial-ethnic groups. The CPS questions on race and ethnicity follow changes in the U.S. Census data collection on race, becoming more detailed over time and, in the latest years, allowing respondents to select multiple categories. We create a consistent set of categories over time, including non-Hispanic white, black, other race, and all Hispanic. We include all races other than black and white in one category because of limitations in the CPS sample and coding practices for creating more disaggregated groups. Other race, thus, is a highly heterogeneous category. We follow standard census practices in including all Hispanic workers in one category, and use the

1. Some scholars use the mean instead of median to rank jobs (usually defined as occupations). Lawrence Mishel, John Schmitt, and Heidi Shierholz draw the same conclusion we do that median job wages provide a more consistent data series in the CPS and also have the virtue of being less susceptible to skew as a result of a small number of top earners in a job (2013). The authors test the ranking of jobs (defined as occupations) using both approaches and find little difference in results.

term *Hispanic* because this is the language used in the questionnaire instrument even though *Latinx* better captures evolving race-ethnic categorizations in the United States. For the later years, we combine multiple race workers into single categories to construct a consistent coding series over time even though this oversimplifies racial identification. Sensitivity analyses with alternative definitions in the years that this is possible show the same pattern of results.

Analytic Strategy

First, we rank-order jobs from the lowest to the highest median hourly wage and then group them into three ordered categories each containing about one-third of the employment at the beginning of an economic expansion. The bottom tercile contains the roughly one-third of employment at the beginning of a job expansion that are in the jobs with the lowest median wages, the highest tercile contains the roughly one-third of the employment in jobs with the highest median weekly wages, and so on. These job-wage terciles capturing relative pay are the primary categories we use in assessing the quality of the expansion of jobs in the American economy. We focus on the bottom tercile as an approximation of low-wage jobs that has particular salience given the concentration of job growth in that range of job wages. We analyze the distribution of net changes in number of jobs within each tercile (especially the bottom tercile) during periods of job expansion and contraction. Our measure of net job change represents the outcome of processes of the creation of new jobs and the destruction of old jobs. Net job change is different from measures of job openings given that turnover and retirements may produce vacancies even in the absence of overall net growth.

In our main analysis, we study net job change over the four expansions and three recessions since the early 1980s. We organize our data into annual increments and thus our measures of expansionary and recessionary periods are not as precise as the National Bureau of Economic Research definitions, which define the beginning and end of these periods by month (NBER 2017), but provide us with the necessary sample sizes within jobs to produce reasonable esti-

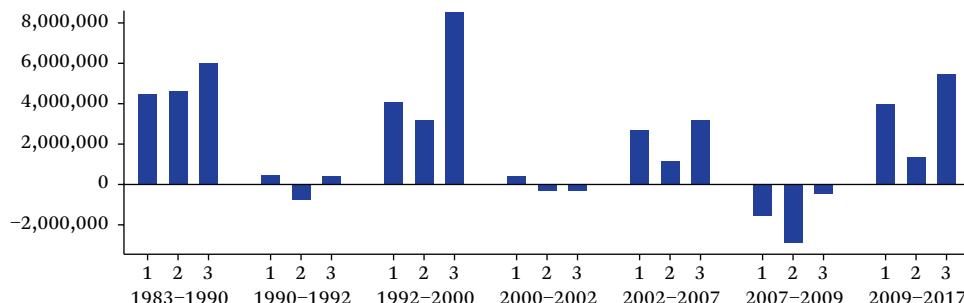
mates of job median wages. This annual level of precision is sufficient for our purposes in capturing general patterns of job growth over time. We also have to make some accommodations to beginning and ending dates for periods depending on data availability and changes in the CPS coding.

We undertook a range of supplementary analyses to ensure that the main findings we report here are robust to alternative specifications of the jobs structure. In these analyses, we ranked jobs into more disaggregated categories of quintiles as well as defined jobs weighted by hours worked, and these approaches show similar patterns at the level we discuss here. Although each analytic approach yields insight, terciles are an effectively parsimonious strategy for presenting our findings relative to our questions in this article.

One final note of comparison to studies of job polarization that link shifts to wage inequality or the demand for skill. We explicitly bracket questions about what jobs are growing as a percentage share of the overall economy and whether evidence indicates that job growth clearly matches occupational or individual characteristics. Instead, we focus on the pattern and character of employment growth in itself. Which jobs in the job-wage distribution grow and how has this changed over time? Thus we focus on the opportunity structure of the American employment system as whole. Economic change is complex and proceeds along multiple, sometimes empirically conflicting, dimensions. We see our analyses of the job structure as complementary to studies of wages trends, including the wage contours analyzed in the introduction to this issue, and studies of occupational change, but as distinctively focused on trends in the labor market positions that so many depend on for their livelihoods (Howell and Kalleberg 2019).

LOW-WAGE WORK AND TRANSFORMATIONS OF THE U.S. JOB STRUCTURE

We start by analyzing the overall pattern of job growth across terciles in every expansion and recession from the 1980s to the 2000s. We then analyze gender and racial inequality in job growth over the same time period. Finally, we

Figure 1. Job Growth Across Job-Wage Terciles During Economic Expansions and Recessions

Source: Authors' analysis based on 1983–2017 data from the Current Population Survey (NBER 2019).

Note: Jobs are defined by the cells in a matrix of detailed occupations by economic sectors. Job-wage terciles are defined by jobs ranked by median hourly wage: job cells are rank-ordered on the basis of median hourly wages, and these rank-ordered job-cells grouped into equal population terciles at the beginning of each period. The top (third) tercile thus represents the one-third of the employed labor force in the best-paying types of jobs and the bottom (first) tercile represents the one-third of the employed labor force in the worst-paying types of jobs. The number of categories varied for different periods because of occupation and sector coding changes in the CPS.

evaluate economic restructuring from manufacturing to service in the 2000s.

Low-Wage Job Growth and Polarization in the 2000s

We find significant job polarization in the 2000s for occupation by sector positions in the U.S. labor market. Figure 1 tracks the total job growth across wage-terciles of jobs in each expansion and recession from the 1980s to the 2010s. The terciles correspond to widely accepted understandings of the distribution of job quality as divided between bad, decent, and good jobs, the bottom tercile being entirely low-wage jobs (Kalleberg 2011; Howell and Kalleberg 2019). In the 2009 to 2017 expansion, for example, the median wage in the bottom tercile was \$12.80 (2017 dollars), which for a full-time, full-year worker yields an annual income right at the U.S. poverty line for a family of four in 2017 dollars (U.S. Census Bureau 2018). The top boundary of the bottom tercile is \$15.80, which

approximates commonly suggested minimums for a \$15 an hour living wage (Desmond 2019).² Thus, tracking employment growth in the bottom tercile of job median wages captures the low-wage labor market yet is also somewhat more expansive than the poverty-wage market.

Every period of expansion had stronger growth in the top and bottom terciles than in the middle tercile, but the bottom became a larger share in the 2000s. Recessionary periods show much lower levels of net job change for the most part, the important exception being the Great Recession period, from 2007 to 2009, which ushered in more job loss than the other downturns in our time series did. Even recessionary periods show a polarized pattern in which job losses were worse in the middle tercile. Low-wage jobs stand out in maintaining even higher growth than the top during even the first two economic downturns in the early 1990s and 2000s. In contrast, the middle tercile not only showed decelerating levels of growth

2. The bottom tercile of jobs in an economy are not necessarily bad jobs just because they are the worst jobs in that economy. In economies governed by labor market institutions that accord more power to workers, the lowest-wage jobs can be quite decent (Gautié and Schmitt 2009). Our understanding of the bottom tercile as encompassing bad jobs is due both to evidence that these wage levels are below the level of a living wage and to evidence that low-wage jobs in the United States have low levels of autonomy, schedule control, and employment security (Kalleberg 2011).

Table 1. Shares of Job Growth, 1983–2017

	Relative Share by Tercile			Ratio of Terciles	
	1	2	3	T1/T2	T1/T3
1983–1990	30%	31%	40%	0.96	0.74
1992–2000	26	20	54	1.29	0.48
2002–2007	38	17	45	2.27	0.84
2009–2017	37	12	51	2.99	0.73

Source: Authors' analysis based on 1983–2017 data from the Current Population Survey (NBER 2019).

across economic expansions, but also shouldered the majority of the job losses during recessions. The 1980s and 1990s were more robust periods of expansion overall; job growth weakened in the 2000s, though with a more robust recovery in the 2009 to 2017 expansion.³

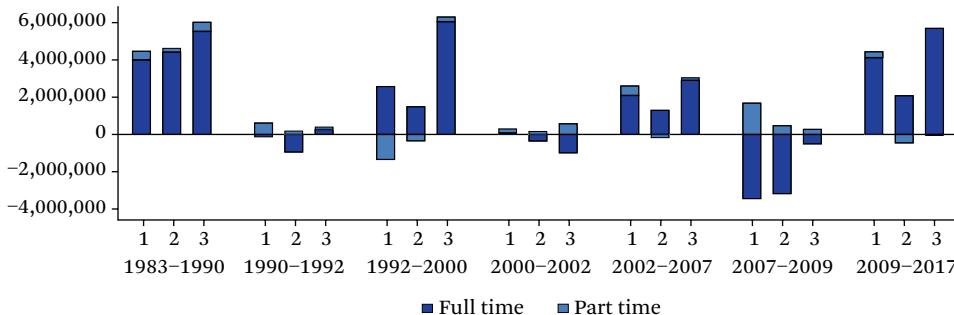
Over time, jobs in the bottom tercile of job median wages became a larger share of job growth in the bottom half of the wage distribution and maintained relatively robust levels of growth in contrast to the middle of the job structure. Table 1 reports the percentage share of growth by tercile in the left panel and the ratio of growth in the bottom relative to the middle and top in the right panel. The share of growth in the bottom tercile grew from 30 percent in the 1980s to 38 percent in the 2000s. The middle underperformed relative to the bottom and became a lower percentage over time, while the top outpaced growth in the bottom. The ratios in the right panel show that the share of employment growth at the bottom grew relative to the middle across every period. The ratio between the bottom and top shifted more because the top usually outgrew the bottom, but at different rates depending on how robust the expansion was. During the anemic expansion of 2002 to 2007, growth at the top and bottom came closest to even, but the top pulled ahead again as the 2009 to 2017 expansion picked up steam.

The analyses so far combine full-time and part-time jobs, consistent with our focus on the overall distribution of discrete jobs. Low-wage jobs are, however, both disproportionately part time and particularly susceptible to being downgraded in hours during contractions in the United States. The high degree of employer

flexibility in U.S. labor markets makes hours reduction (including shifting positions from full-time to part-time status) a target for cost savings, and, given a weak safety net, workers have few options during economic downturns to leave positions that keep them underemployed. Figure 2 reports job growth stacked by full-time versus part-time job status. The balance between full- and part-time jobs was cyclical across the entire thirty-five year period, with part-time work more dominant in recessions than during expansions. Part-time jobs made up a greater share of bottom tercile growth in the two 2000s expansions than during the 1980s and 1990s, and in fact part-time work declined in the bottom tercile during the 1990s expansion. Essentially all job growth during recessions was for part-time jobs. The Great Recession saw a particularly large decline in full-time positions and growth in part-time jobs. The bottom tercile was most susceptible to the cyclical hours constriction, reflecting the flexibility of work hours in the U.S. economy, especially among low-wage jobs. Although workers may benefit from the availability of part-time work in slack times, the overall degree of volatility in work hours makes wages less certain, benefits more insecure, and family life more chaotic (Kalleberg 2011; Pugh 2015).

Our analysis brings to the forefront both continuity and change in low-wage job growth in the United States. Taking the evidence first of the strong continuities, low-wage job growth is a stubbornly persistent feature of the American labor market. Low-wage jobs grew steadily across distinct economic periods marked by different trends in wage inequality, returns to skill, technological innovations, and trade dy-

3. Most of the job growth in the post-Great Recession period occurred after 2012.

Figure 2. Job Growth Across Job-Wage Terciles Stacked by Full-Time and Part-Time Status

Source: Authors' analysis based on 1983–2017 data from the Current Population Survey (NBER 2019).

Note: Jobs are defined by the cells in a matrix of detailed occupations by economic sectors. Job-wage terciles are defined by jobs ranked by median hourly wage: job cells are rank-ordered on the basis of median hourly wages, and these rank-ordered job-cells grouped into equal population terciles at the beginning of each period. The top (third) tercile thus represents the one-third of the employed labor force in the best-paying types of jobs and the bottom (first) tercile represents the one-third of the employed labor force in the worst-paying types of jobs. The number of categories varied for different periods because of occupation and sector coding changes in the CPS. Full time and part time defined as usual hours worked per week.

namics. They grew during robust expansions such as the tech-boom 1990s as well as during anemic recoveries such as the post-2001 war economy, and across periods distinguished by Democratic and Republican control of the executive branch. Other research suggests those jobs are worsening on a number of job-quality dimensions, even if at times the strong demand for low-wage jobs has produced some wage growth. The relative stability of low-wage job growth across expansions discussed here occurred alongside other changes that degraded low-wage work: lower job security, more varied work schedules, growing managerial discretion, and employment at will. The findings on full-time versus part-time work schedules illustrate the aggregate effects of this degradation. Given the typical focus of research on declining job quality on change in the conditions of work, the persistence of low-wage job growth can be overlooked. What has changed more significantly is the surrounding context of low-wage growth: in relative terms, low-wage jobs have become a greater share of job growth overall. The job-growth patterns in the middle and top tercile changed more than at the bottom, and indeed much of the theory about job polarization focuses on shifts in returns to skill in

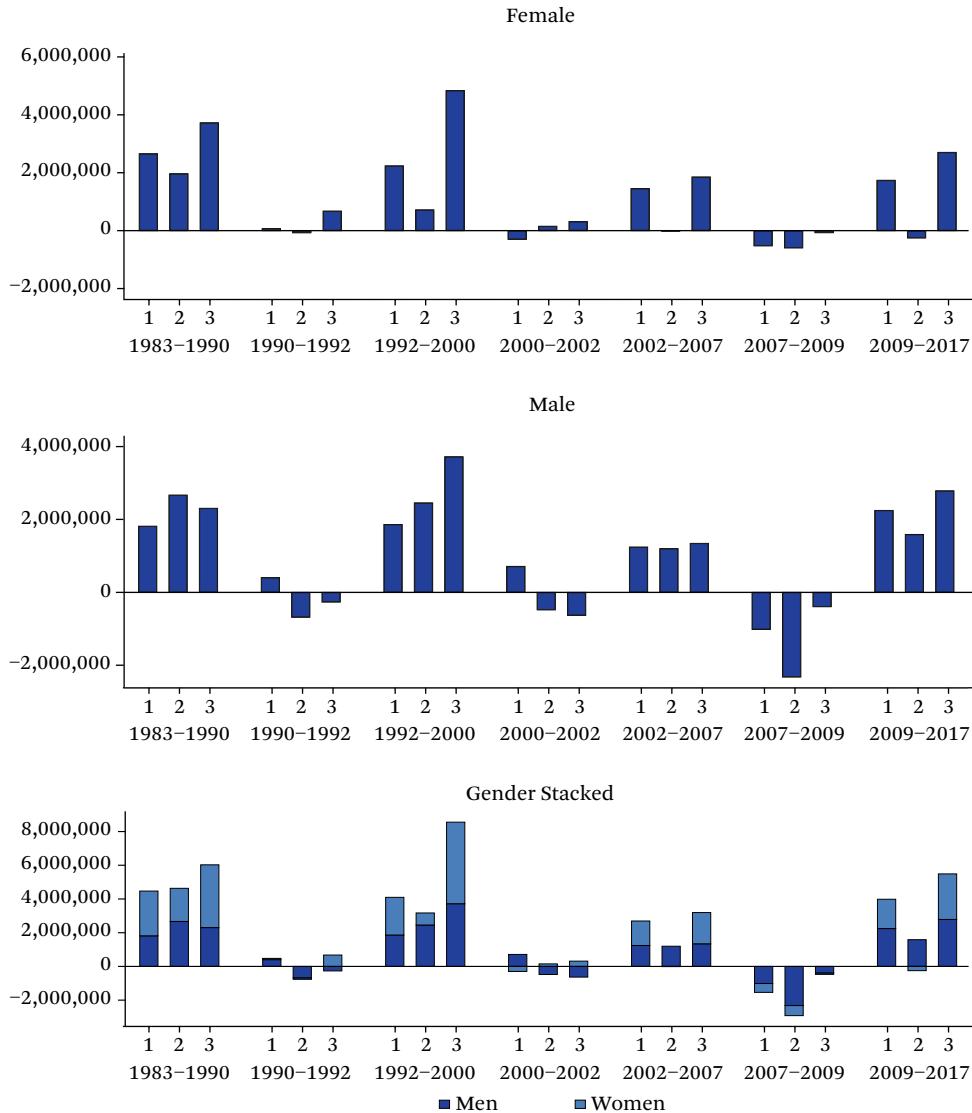
middle-wage and high-wage jobs (Autor and Dorn 2013). The persistent growth of low-wage work raises as many questions about the overall project of relying on the labor market for livelihoods as about the quality of the labor market dynamics themselves, questions which we return to after considering gender and racial inequality in job growth.

Gender and Racial Inequality in Job Growth

Sociodemographic groups were affected differently by changes in the job structure. These differences highlight the disparate impact of economic restructuring given the labor market position of diverse populations, a key reason it is important to study the job structure in addition to individual wage distributions, which obscure some of these impacts. Gender and racial inequality in job growth also helps us understand economic restructuring itself because groups with different histories of labor market incorporation face different labor market opportunities given past entrenched inequalities.

Both women and men experienced increasingly polarized job growth over time, but polarization began earlier for women than for men and became more sharply divided over time. Figure 3 reports job growth across time sepa-

Figure 3. Job Growth Across Job-Wage Terciles, by Gender



Source: Authors' analysis based on 1983–2017 data from the Current Population Survey (NBER 2019).

rately for women and men. The core gender difference is that men maintained stronger growth in the middle over time relative to women. Job growth for women was polarized by our measure even starting in the 1980s. For men, however, it became truly polarized only with the heavy job losses in the middle during the Great Recession and was followed by weaker growth in the middle in the 2009 to 2017 expansion. Men and women both see more similar patterns of growth at the bottom and top across

time. Women see somewhat higher absolute levels of growth in the earlier periods, reflecting the increasing labor-force participation among women. The more polarized pattern for women likely reflects underlying gender occupational segregation and lower pay for female-dominated positions, both of which are particularly severe across working-class jobs (England 2010). Women also entered the labor force in larger numbers after periods of highest unionization so that women are less likely to be in the

unionized and more-protected positions in the middle. Further, the middle-wage jobs that women did hold in the past were primarily clerical and less likely to be unionized (Dwyer 2013; McCall 2011).

The overall continuity in low-wage job growth across economic periods masks significantly changes in the racial-ethnic composition of employment growth. Figure 4 shows job growth separated into panels for non-Hispanic white, non-Hispanic black, non-Hispanic other race, and all Hispanic workers. The panels reflect not only different labor market positions but also different levels of growth. White workers saw disproportionately strong growth at the top over all periods. However, job losses for white workers were significant at the middle and bottom in the 2000s, a factor that may be related to growing populism and discontent among white workers. Black and Hispanic workers were more heavily weighted to the bottom than their white counterparts but maintain somewhat more even growth over time. Job growth for non-Hispanic black and non-Hispanic other race workers became more polarized over time, however, and these groups made up a growing share of low-wage job growth in the 2000s. Hispanic workers remained heavily weighted to the bottom in all periods, though the low-wage share dropped somewhat over time. In supplemental analyses, we compare job growth for U.S.-born and immigrant Hispanic workers. We find that Hispanic job growth became increasingly dominated by U.S.-born Hispanics, who are more likely to gain higher-wage jobs than are immigrant workers, reflecting slowing immigration in the 2000s (Kochan 2014).⁴ The finding that high levels of low-wage job growth persist even in times of lower immigration is consistent with comparative evidence that the size of the low-wage labor market has more to do with labor market institutions and the social wage

than with levels of immigration (Applebaum, Bernhardt, and Murnane 2006, 148).

In supplemental analyses of gender by race groups, we find that men and women within given racial groups experience patterns of job growth more similar to each other than to the patterns of job growth for same-gender groups. However, nonwhite women in particular often experience less growth in middle-wage jobs but higher growth in low-wage jobs than men of the same race or ethnic group. Thus job growth among nonwhite women drives the distinctive trajectory of women relative to men. The net effect of the changes reported in figure 4 result in job growth at every level becoming more diverse as the U.S. demography has become more diverse. The drop in the middle is in the aggregate driven by declines among white workers.

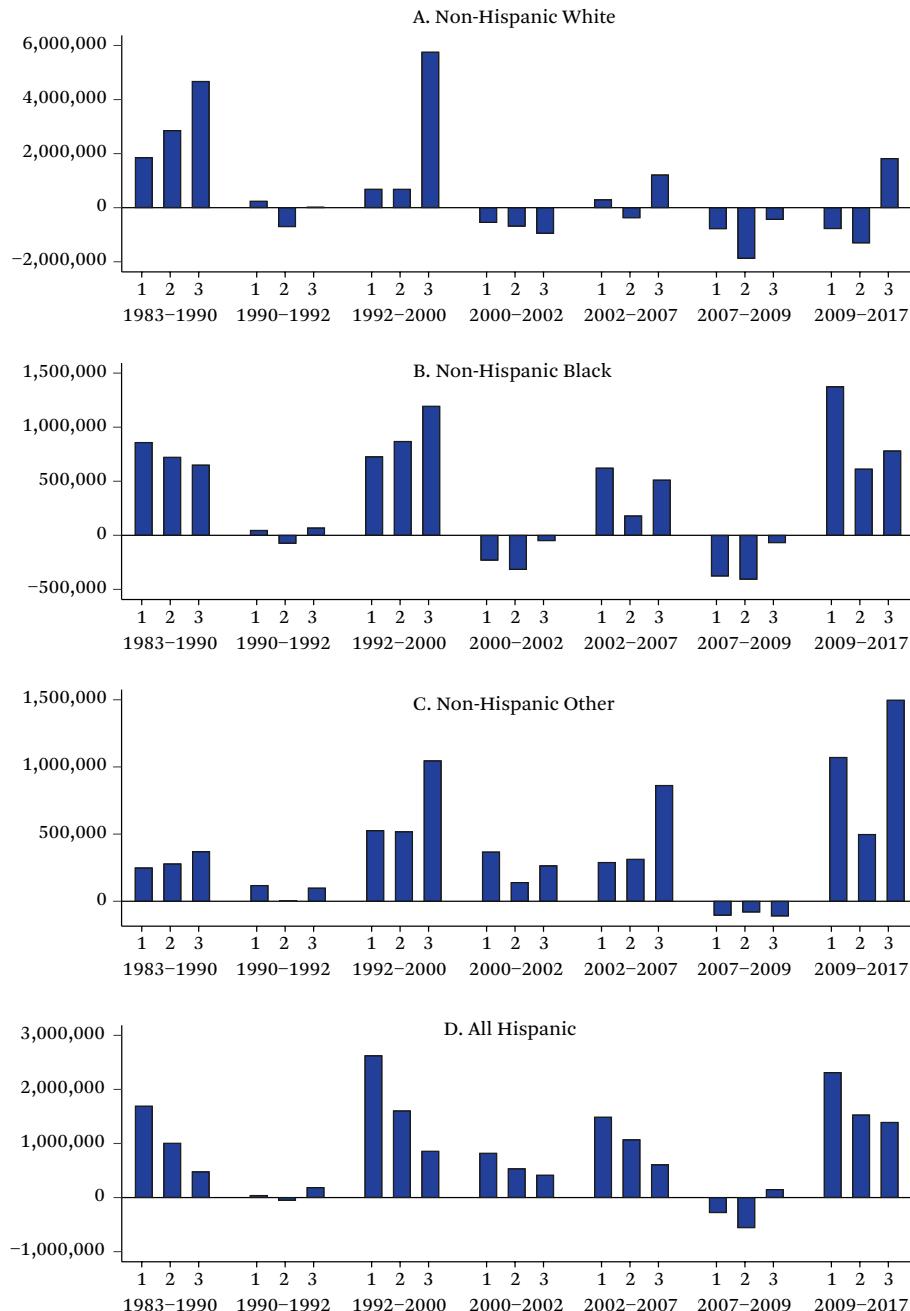
Stability and Change in the Sectoral Composition of Low-Wage Job Growth

The shift from an economy based on manufacturing and production to one based on services fueled the emergence and persistence of job polarization over time. The service sector has long been polarized between low-wage and high-wage jobs. As job growth in manufacturing and related sectors declined, the underlying polarization of services came to dominate job growth overall. Does any evidence indicate improvements in service jobs or a resurgence of manufacturing that could bring back more decent jobs? The persistence of job polarization in the 2000s is a worrying sign, but differences in sectoral trajectories may underlie the overall numbers.

We are interested in the sectoral composition of job growth at different levels rather than understanding the contributions relative to the overall size of the sectors. Figure 5 shows job change across job-wage terciles in service sectors, manufacturing sectors, and all other sectors.⁵

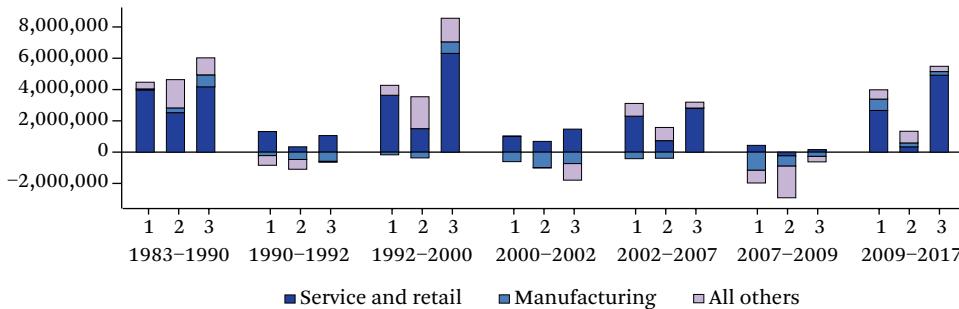
4. Results available on request. We do not report here because of complications in interpreting both changing job growth and changing immigration trends, which require a more detailed analysis (López, Bialik, and Radford 2018). Future research should return to this question with, possibly, additional data sources more effective in capturing the immigrant worker population including undocumented immigrants.

5. Service sectors include private and personal services; entertainment and recreational services; business services, other professional service, and finance, insurance and real estate; health services; and educational service, social services and public administration; and retail trade. Manufacturing sectors include durable and

Figure 4. Job Growth Across Job-Wage Terciles, by Race-Ethnicity

Source: Authors' analysis based on 1983–2017 data from the Current Population Survey (NBER 2019).

Note: Jobs are defined by the cells in a matrix of detailed occupations by economic sectors. Job-wage terciles are defined by jobs ranked by median hourly wage: job cells are rank-ordered on the basis of median hourly wages, and these rank-ordered job-cells grouped into equal population terciles at the beginning of each period. The top (third) tercile thus represents the one-third of the employed labor force in the best-paying types of jobs and the bottom (first) tercile represents the one-third of the employed labor force in the worst-paying types of jobs. The number of categories varied for different periods because of occupation and sector coding changes in the CPS.

Figure 5. Job Growth Across Job-Wage Terciles, by Sector

Source: Authors' analysis based on 1983–2017 data from the Current Population Survey (NBER 2019).

Note: Jobs are defined by the cells in a matrix of detailed occupations by economic sectors. Job-wage terciles are defined by jobs ranked by median hourly wage: job cells are rank-ordered on the basis of median hourly wages, and these rank-ordered job-cells grouped into equal population terciles at the beginning of each period. The top (third) tercile thus represents the one-third of the employed labor force in the best-paying types of jobs and the bottom (first) tercile represents the one-third of the employed labor force in the worst-paying types of jobs. The number of categories varied for different periods because of occupation and sector coding changes in the CPS. Service sectors include private and personal services; entertainment and recreational services; business services, other professional service and finance, insurance and real estate; health services; and educational service, social services and public administration; and retail trade. Manufacturing includes durable and nondurable manufacturing as well as all extractive sectors. All other sectors include wholesale trade; construction, transport, and repair; communications, utilities, and sanitary.

The findings show significant continuity in the dominance of service-sector jobs at the top and the bottom as we expected, but more change in the pattern of job growth in manufacturing sector. Most employment growth over the entire period of study concentrated in services, and services themselves were even more polarized than jobs overall. Taking the long view of services in the U.S. economy reminds us that the decline of manufacturing and clerical jobs that have received so much attention in explanations of job polarization revealed a fundamental feature of the service economy rather than created it. Although the increasing polarization of the service sector over time likely was driven by factors that also influenced decline in middle-wage jobs, including both technological and institutional dynamics, polarization has been a long-standing feature of the service economy.

Job growth and decline in manufacturing changed more over time. Persistent decline in manufacturing brought the middle down, especially during recessions, but also during the expansions of the 1990s and early 2000s. Evidence also indicates greater growth in manufacturing in the 2009 to 2017 expansion in all terciles. The absolute growth of those sectors was still smaller than the decline was during the Great Recession; however, manufacturing declines in the recessions of the early 1990s and 2000s were followed by continuing declines in the expansions that came after. Manufacturing job growth was disproportionately in the bottom tercile relative to the middle and bottom, in contrast to the 1980s, when the small growth that occurred was in the middle and top. The growth at the bottom reflects evidence that the manufacturing jobs that are returning are less likely to be unionized and more likely to be out

nondurable manufacturing as well as all extractive sectors. Extractive sectors account for a fairly small share of job growth, but typically are understood to be significantly related to manufacturing in processes of economic restructuring. Remaining sectors include wholesale trade; construction, transport, and repair; and communications, utilities, and sanitary.

of the major central firms than when manufacturing jobs led the middle class (Rothstein forthcoming).

CAN BAD JOBS BECOME GOOD JOBS?

Our analysis of the long-running dominance of low-wage service jobs at the bottom of the U.S. labor market presents both challenges and opportunities for the chances of developing a greater share of decent jobs in the future. Low-wage service jobs have grown significantly and consistently over time, representing a reliable source of employment for many decades and suggesting they may provide some opportunity for better jobs in the future. Yet the persistence of service jobs at the bottom over decidedly different economic periods also demonstrates a stubborn stickiness of low wages for such jobs.

The decline in growth in the middle of the labor market as polarization took hold makes the improvement of these jobs appear even more remote. The same pressures that suppressed job growth in middle-wage jobs present obstacles for converting low-wage service jobs into better jobs and may be degrading low-wage jobs as well. Declining jobs in the middle may also result in fewer routes to mobility for workers hoping to improve their careers over their life course. The overall slumping of employment growth in the first expansion of the 2000s along with employment loss in the Great Recession is a concern even for those still unconvinced that job polarization is significant. The more robust growth in the 2009 to 2017 expansion has recovered some of those losses, though not all, and long-term effects persist for those who entered the labor market or were retiring during that downturn (Mishel, Schmitt, and Shierholz 2013; Krueger 2017). Worries about the spread of automation to low-wage jobs, including increasingly to service jobs, raise further concerns (Autor 2015).

Declining worker power also limits the possibilities of policies that focus on skill given that even highly skilled workers appear to be losing bargaining power. Indeed, the routes through which manufacturing and clerical jobs became better jobs earlier in the twentieth century, including especially unionization and bureaucratized internal labor markets, entailed strategies aimed at improving bargaining

power rather than skill. The decline of worker power made it more difficult for workers in even growing jobs to demand better conditions unless they could demand rents through skills or access to the levers of power within organizations through managerial positions. In a context of declining worker power, managers and organizations have had relatively free rein to degrade middle-wage jobs or limit the emergence of new good jobs. Managerial strategies focused on efficiency and (perhaps) limiting solidarity may split a mixed skill job into two, dividing the skills into two jobs by concentrating the cognitive skills that demand educational credentials into a higher-wage job, and the manual or lower-credentialed skills into a lower-wage position. One example is the increasing divide in the work of nursing between highly skilled RNs and less-skilled LPNs and other health aides (Duffy 2011). The same process may also manifest in a shift in demand from similar jobs from middle- to lower-skill positions.

Given the importance of declining worker power to our current situation of an increase in low-wage jobs but stagnating or declining job quality, investing in institutions that build opportunities for low-skill workers to achieve decent, life-sustaining jobs should be a policy priority (Osterman and Shulman 2011). It is politically popular to argue for the return of manufacturing, and indeed our results show both persistent job growth and some evidence of resurgent growth in production and extractive sectors. This growth, however, came mainly at the bottom of the job-wage structure. Rather than restoring the growth of the past, this growth is simply another indication of the degrading quality of work. Proposals to rebuild the institutions that existed in the 1960s may face the same obstacles, potentially achieving only shadows of the earlier era. Furthermore, given contemporary conditions, some of those institutions may be less useful in providing quality jobs. Clerical work has followed a similar trajectory to manufacturing jobs in formerly providing middle-wage jobs but now seeing slowing growth or disappearing. Calls to restore clerical and related jobs are notably few and far between, perhaps because those jobs were important for women whereas male-

dominated manufacturing jobs appeal more on the basis of out-of-date assumptions about whose work is most valuable. We also suspect the different conversation about manufacturing versus clerical work may also derive from wider recognition that high levels of clerical work simply belonged to different social conditions in a way that the powerful imagery of manufacturing resists. In any case, we need a new vision of quality job growth in the twenty-first century.

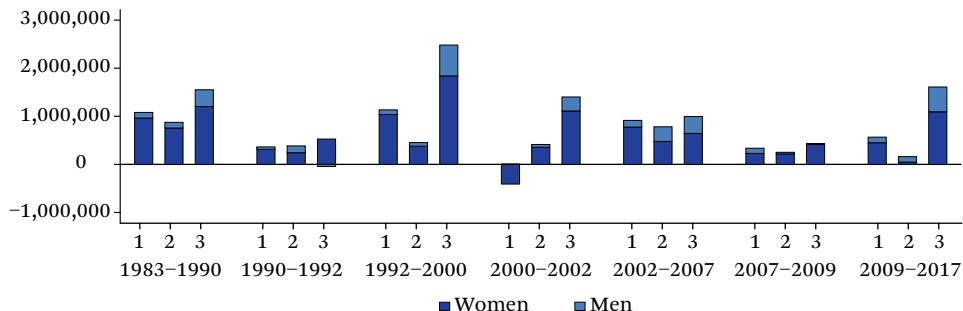
In general terms, if we wish to improve the quality of jobs available to most people in developed capitalist economies, we can either attempt to influence the kinds of jobs generated by capitalist firms—by changing their incentives or by imposing constraints on their strategies—or we can attempt to generate jobs outside the ordinary processes of capitalist markets. Many policy proposals focus on the first of these approaches, and we would endorse many of those proposals. We close, however, by reflecting on the potential opportunities associated with creating jobs outside of capitalist markets, and consider two major options with salience given the evidence we have presented about the types of jobs that are growing.

First, we could reinvest in public jobs programs. Even in the United States, the developed capitalist country that maintains among the lowest levels of public employment, roughly 15 percent of jobs are provided by federal, state, and local governments. After adding to this number jobs that are directly the result of state contracting to private firms, the figure is probably above 25 percent. Unlike in capitalist markets, the character of these jobs is not dictated by profit-maximizing criteria and market logics, but instead by political and normative considerations. When states decide to create jobs, they have considerable economic latitude in deciding the pay scales, requirements, working conditions, and other attributes that distinguish good jobs from bad jobs. Of course, the expansion of public-sector employment is constrained by market processes. This is one of the hallmarks of the state in a capitalist society: revenues to pay for state employment come from taxation of various forms of income generated mainly in the market economy. It is only a constraint, however, and does not determine

a strict level of employment, let alone the character of that employment. In these terms, the level of public-sector employment in the United States is clearly far below the carrying capacity of the country's capitalist economy given that taxation as a proportion of gross domestic product is so much lower in the United States than in nearly all comparable economies. Even in Europe, however, no hard economic limit restricts the relative size of public-sector employment relative to private-sector employment. The constraints are not primarily economic, but instead political and ideological (Wright 2019).

The second form of noncapitalist income-generating employment is less familiar to many people: the social and solidarity economy. This term is used in a variety of different ways to describe a range of economic activities that are organized neither by capitalist firms nor by states (Wright 2019). At the core of the social-solidarity economy are nonstate organizations producing goods and services directly to meet the needs of people—either of the members of the organization or the people they serve. Nonprofit organizations and nongovernmental organizations are often included in this category. Worker and consumer cooperatives are also often included to the extent that they are primarily oriented to meeting the needs of their members rather than maximizing profits. Sometimes what are called *social enterprises*—profit-making firms in which a social mission has priority over profits—are also included in the social economy. The social-solidarity economy may be facilitated by a range of state policies and subsidies, but the activities within the social-solidarity economy are not themselves run by the state. A particularly vibrant example of the social economy as a source of significant job creation exists in Quebec in the provision of eldercare and childcare services. As of early 2008, more than forty thousand people were employed in the Quebec childcare cooperatives and roughly eight thousand in eldercare cooperatives.

One virtue of investing in the social economy is that capitalist nations already have a thriving care economy, but one that often undersupplies care because of market failures (Folbre 2002; England, Budig, and Folbre 2002;

Figure 6. Job Growth Across Care Jobs, Stacked by Women and Men

Source: Authors' analysis based on 1983–2017 data from the Current Population Survey (NBER 2019).

Note: Jobs are defined by the cells in a matrix of detailed occupations by economic sectors. Job-wage terciles are defined by jobs ranked by median hourly wage: job cells are rank-ordered on the basis of median hourly wages, and these rank-ordered job-cells grouped into equal population terciles at the beginning of each period. The top (third) tercile thus represents the one-third of the employed labor force in the best-paying types of jobs and the bottom (first) tercile represents the one-third of the employed labor force in the worst-paying types of jobs. The number of categories varied for different periods because of occupation and sector coding changes in the CPS. The care domain includes occupations and industries that contribute to the health and development of people. Occupations include nurses, doctors, allied health professionals and aides, teachers, childcare workers, professors, allied education professionals, social workers, and religious support workers. Industries include educational service, hospital service, other medical services, and social services. Alternative measures of care work include what is sometimes termed *reproductive labor*, including food preparation, house cleaning, and other related physical labors of care. We exclude here, but note that if we included those jobs, the bottom tercile would show higher levels of growth given the concentration of reproductive labor jobs at the bottom (Duffy 2011).

Duffy 2011). Figure 6 reports job growth in jobs (occupations and sectors) that contribute to the health and development of human beings, including education, health care, and social services. The figure shows that care-work jobs grew in every period, even during recessions, including the Great Recession. Job growth in care-work jobs was generally polarized, however, between the top and bottom terciles. The social-solidarity economy may provide a route to upgrading the lowest-wage care-work jobs and providing more robust middle-wage growth as is more common in jobs, such as construction, that support the physical infrastructure (Dwyer 2013). This is especially important for women given that these jobs are disproportionately held by women workers of all racial-ethnic groups, in contrast to the middle-wage jobs that have been disproportionately held by men.

Although investing in alternative arrangements such as the public and social economy to create jobs poses a number of political and economic challenges, our findings demonstrate an apparently significant demand for just the sorts of jobs typically created in such arrangements. Many of the services that have grown most robustly are those that in many times and places have been supported by public expenditures, including in the United States. The care domain involves the work that connects to public goods such as health, education, and the support of young children (Albelda et al. 2009; Antonopoulos et al. 2010). We have emphasized the strength of care and household services that are often provided in both the public sector and social-solidarity sector. Those represent investments in the human and social infrastructure. Demand is also considerable for investments in the physical infra-

structure, which also demands jobs with lower levels of education, often in the bottom and middle terciles of the job-wage distribution, such as construction, carpentry, and transport. Investments in green technology that produce a more sustainable economic system in the future would also thrive under alternative economic arrangements.

The jobs created to remedy these challenges may be higher-quality jobs that provide more opportunities for fulfillment and flourishing than the good jobs of the past. Although manufacturing and clerical jobs provided better wages and benefits, and many provided fulfilling and interesting work, some were repetitive and provided little in the way of autonomy or creativity. If the future of the American jobs structure depends on investing in the human and physical infrastructure, positive externalities in the quality of life as well as the quality of jobs would be numerous. Evidence is significant that we suffer under both care deficits and infrastructure deficits that harm and limit the development of human potential. When we develop proposals for good jobs, we should focus on improving all aspects of job quality and broader societal goals rather than limiting our vision to a return to perhaps idealized jobs of the past. The prospects for more equally shared growth in the future requires grappling with the limits and opportunities of the service economy in the twenty-first century.

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