W.E. UPJOHN INSTITUTE
FOR EMPLOYMENT RESEARCH

Upjohn Institute Working Papers | Upjohn Research home page

3-19-2021

Labor Market Trends and Outcomes: What Has Changed since the Great Recession?

Erica L. Groshen
Cornell University ILR School, erica.groshen@gmail.com

Harry J. Holzer
McCourt School of Public Policy, Georgetown University, hjh4@georgetown.edu

Upjohn Institute working paper ; 21-342

Follow this and additional works at: https://research.upjohn.org/up_workingpapers

 Part of the Labor Economics Commons

Citation

Groshen, Erica L. and Harry J. Holzer. 2021. "Labor Market Trends and Outcomes: What Has Changed since the Great Recession?" Upjohn Institute Working Paper 21-342. Kalamazoo, MI: W.E. Upjohn Institute for Employment Research. https://doi.org/10.17848/wp21-342

This title is brought to you by the Upjohn Institute. For more information, please contact repository@upjohn.org.

W.E. UPJOHN INSTITUTE
FOR EMPLOYMENT RESEARCH
Researching the causes and consequences of unemployment

Labor Market Trends and Outcomes: What Has Changed since the Great Recession?

Upjohn Institute Working Paper 21-342

Erica L. Groshen
Cornell University
ILR School
Email: erica.groshen@gmail.com

Harry J. Holzer
Georgetown University
McCourt School of Public Policy and *IZA*
Email: hjh4@georgetown.edu

February 2021

ABSTRACT

We describe trends in wages and labor force participation for the "working class"—whom we define as workers with high school or less education—compared to those with college or more. We compare cyclical peaks over the entire period 1979–2019, with particular focus on the Great Recession (2007–2010) and recovery (2010–2019). We also present results by gender and race. We find real wage growth in the latter period for all workers, but not enough to change the long-term trends of growing inequality and stagnant wages for the less-educated; and we also find that labor force participation continued to decline for the less-educated, even during the recovery. Gaps between whites and blacks also grew, while Hispanics and Asians made more progress. We consider various explanations of these findings and show that the early effects of the 2020–2021 pandemic recession hurt less-educated workers and those of color more than anyone else.

JEL Classification Codes: J15, J16, J31

Key Words: Wages, participation, working class, Great Recession

Acknowledgments: We thank Ryan Nunn and Duncan Hobbs for their assistance in tabulating our employment outcomes, and Cait Chamberlain for general assistance. We also thank the editors and other volume authors for helpful comments.

Upjohn Institute working papers are meant to stimulate discussion and criticism among the policy research community. Content and opinions are the sole responsibility of the author.

I. INTRODUCTION

It is no longer news that most U.S. workers, especially those without college degrees, saw wages stagnate over the past four decades; that inequality rose dramatically in this period; and that millions of prime-age workers left the labor market (Groshen and Holzer 2019). Equally true is that during the past dozen years, the U.S. labor market experienced unusually wide swings in labor market conditions, which also affected workers' outcomes. As we now experience the ongoing COVID-19 recession in 2020–2021, this paper assesses how those two powerful influences (the long-run trends and the recent business cycles) interacted in the U.S. labor market, with particular focus on the continuing disappointing trends for noncollege workers.

On the one hand, the Great Recession of 2007–2010 was a cataclysmic event for U.S. workers, generating the worst declines in employment observed in the nearly 80 years since the Great Depression.[1] The recession was not only deep, but recovery from it also occurred quite slowly.[2] On the other hand, the recovery lasted the longest of any on record, ultimately resulting in the lowest U.S. unemployment rates since the late 1960s. Indeed, by February 2020, we had had nearly five years of unemployment rates at or below 5 percent, which is also the longest such period since the 1960s. Then, starting in March and especially in April 2020, the labor market deteriorated very rapidly because of the Covid-19 recession. It recovered partially in the late spring and early summer, but the recovery then slowed and eventually flatlined after October.

[1] The Great Recession began in late 2007 but worsened substantially in 2008–2009. The economy began its recovery in mid-2009 but not in the labor market until early 2010, since employment changes lag behind those in output.

[2] Unemployment peaked at about 10 percent in early 2010 and remained at or above 8 percent well into 2012.

These labor market oscillations likely generated some lasting outcomes for workers, both negative and positive. The Great Recession, which was both severe and long-lasting, had detrimental effects on workers that may have continued long into the recovery. Economists refer to these long-lasting effects of temporary recessions as *hysteresis*, as some workers are scarred by lengthy spells without work, reducing their attractiveness to employers and/or their skills and labor market contacts. On the other hand, a relatively tight labor market that lasts for many years can support higher wage growth and career opportunities, perhaps with differentially large impacts on less-educated workers.

Economists still debate the extent to which the labor market tightened during the recovery. Various forms of "hidden unemployment" persisted and wage growth was modest throughout most of it. Yet both the length and depth of the recovery clearly brought many workers back into the labor force who had left, and enabled many to enjoy several years of positive real wage growth. But after these years of progress, the pandemic recession of 2020 again imposed great employment losses on less-educated workers and those of color.

In this paper, we examine wage and employment outcomes for prime-age U.S. workers—i.e., aged 25–54—over the period 1979–2019, with particular emphasis on the later years. Prime-age workers are the ones whom it is most sensible to analyze, since they have mostly completed their schooling but have not yet begun to retire. The years 2000–2007 and 2007–2019 constituted two full business cycles, with cyclical peaks in 2000 and 2007, a Great Recession trough in 2010, and another peak in 2019. We therefore present a range of employment outcomes for the years 1979, 2000, 2007, 2010, and 2019—but with a particular focus on the Great Recession and its recovery between 2007 and 2019. We also contrast outcomes for workers with bachelor's degrees or above with outcomes for workers who, at most, finished high school (these constitute

the "working class" in many analyses, including ours), with outcomes also broken down by gender and race.[3]

After presenting these results, we discuss the long-run market and institutional forces behind the most disturbing trends in the labor market. We consider the extent to which the Great Recession and subsequent recovery interacted with these forces to generate longer-term improvement in some outcomes and further deterioration in others.

With this context in mind, we then turn to the effects of the Covid-19 pandemic and associated recession on worker outcomes, and the extent to which less-educated workers and those of color suffered the worst employment losses through the end of 2020. Though we do not yet know the full extent to which these workers will suffer long-term employment losses, the data we have to date are worrisome. We conclude by summarizing our findings and considering implications for future trends and policy.

II. TRENDS IN EMPLOYMENT AND EARNINGS, 1979‑2019

We now consider trends in three major employment outcomes for U.S. workers: 1) employment, 2) overall real wages, and 3) labor force participation. We will consider some outcomes over the entire 40-year period between 1979 and 2019, but with a particular focus on the years since 2007. We also consider outcomes for all workers, but with some particular attention to those with high school or less education—whom we consider to be the U.S. working class—and how their outcomes differ from those of college graduates.

[3] Workers with some college but no degree are excluded when comparing outcomes for college and high school graduates.

Figures 1, 2, and 3 present the aggregate trends since 1979 in employment-to-population ratios, labor force participation, and median real hourly wages, respectively, for the population aged 25–54. We adjust wages for inflation using the chain-weighted GDP deflator for personal consumption expenditures.[4] The wage measures exclude other forms of compensation, like employer 401K contributions and the value of employer-provided health care; they also exclude other transfer payments from government.

The employment-to-population ratio (Figure 1) follows the well-known peaks and troughs in business cycles over the past 40 years, especially during the Great Recession and afterward. Overall employment rates rose until 2000 but declined a bit during the years afterward. By 2019, employment had recovered to its prerecession level in 2007, though not to its earlier peak in 2000. This (and our other aggregate findings below) are consistent with Shambaugh and Strain (2021).

Trends in labor force participation (Figure 2) and real wages (Figure 3) are somewhat less cyclical. Participation among prime-age workers rose until 2000 and declined somewhat thereafter; it declined overall during the Great Recession but had almost recovered to its 2007 level by 2019.

We also note that median real wages rose by only about 18 percent over the entire 40-year period, with notable increases occurring only in the late 1990s to early 2000s and 2014–2019. Indeed, during the latter five-year period, median real wages rose about 8 percent overall—a welcome development, though not enough to change the overall view of relative wage stagnation over four decades.

[4] Real wages decline a bit more rapidly over time if one deflates nominal wages with the Consumer Price Index for Urban Workers research series—CPI-U-RS—since the research series adjusts for some but not all of the overstatement of annual inflation in the traditional CPI. See Moulton (2018) for a comparison of GDP and CPI deflators over time. Wage figures throughout the paper appear in 2019 dollars.

These broad aggregate trends in employment, participation, and real wages mask considerable variation by education and gender over time. Figures 4 and 5 display trends in median real wages separately for men and women, and for those with high school or less education (Figure 4) and those with college (bachelor's) degrees (Figure 5). We do the same for labor force participation rates in Figures 6 and 7.

We present both sets of outcomes at five points in time: business cycle peaks in 1979, 2000, and 2007, the trough of the Great Recession in 2010, and the most recent cyclical peak in 2019. These comparisons enable us to infer just how much employment outcomes had deteriorated by 2010, and the extent to which they recovered in the subsequent nine-year expansion, particularly for noncollege workers.

Figures 4 and 5 illustrate the following outcomes for U.S. workers' median real wages:

- Over the past 40 years, but especially during the years 1979–2000, real wages grew rapidly for those with bachelor's degrees but were flat or declining for those without—that is, the "working class"—with better growth among women than men in both cases.
- During the recovery from the Great Recession, median real wages increased for all workers, with increases of roughly similar magnitudes.

Therefore, as seen in Figures 4 and 5, earnings inequality has risen substantially in the past 40 years by education within gender groups, but it has declined between gender groups.

We also know from published summary data that *nominal* wage growth (i.e., without adjusting for inflation) remained somewhat modest after the Great Recession compared to earlier periods of time; indeed, such increases barely ever rose much above 3 percent. But inflation has also remained unusually low throughout this period despite the recovery from the Great Recession, thereby translating modest nominal wage gains into more significant real wage increases. It is also notable (as seen in Figure 3) that early wage gains in the period 2014–2019

were needed to offset a bit of wage loss in the first few years of recovery (beginning in 2010), before overall real wage growth could be observed.

Still, the length of this expansion allowed such increases to accumulate over time and result in significant wage growth. And, as labor markets have been at least somewhat tight for a lengthy period, the relatively greater sensitivity of disadvantaged workers to the business cycle (Aaronson et al. 2019) has translated into mildly greater wage increases for them. Minimum wage increases at the state and local levels no doubt added to real wage growth among the lowest-wage workers.[5] Still, the observed wage increases in the recovery do not greatly change the overall pattern of inequality growth across education groups over the past 40 years.

Figures 6 and 7 illustrate the following trends in labor force participation:

- It has declined the most over the past four decades for non-college-educated men, while it rose rapidly for both less-educated and more-educated women from 1979 to 2000.
- It declined somewhat for most workers from 2000 to 2007, and then again in the Great Recession.
- Participation in the labor force had fully recovered for college-educated women by 2019, but not for the working class or for men.[6]

It is concerning that labor force participation has mostly leveled off for women overall since 2000, leaving their participation rates about 10 percentage points lower than those of men among people with bachelor's degrees (Figure 7). Women with only a high school education have participation rates about 20 percentage points lower than comparable men (Figure 6).

When viewing trends over time by education, it is important to note that the composition of these groups has been changing for two major reasons: 1) college enrollment and completion

[5] https://www.ncsl.org/research/labor-and-employment/state-minimum-wage-chart.aspx.
[6] Again, focusing on the years only since 2014 would no doubt show greater increases.

rates have risen substantially over this 40-year period, and 2) immigrants constitute larger fractions of men with high school or less education than before.

All else being equal, these two compositional changes would depress observed real wage growth among less-educated men. The shift toward college enrollment would also tend to reduce labor force participation, though the greater presence of immigrants would raise it (since immigrant men have very high rates of labor force participation). Furthermore, the tendency of less-educated men to withdraw from the labor force tends to truncate the lower end of the wage distribution for men and raise their observed hourly wage rate. The net effect of all of these compositional changes on observed wages and participation is therefore unclear, and the changes do not clearly bias results in the downward direction for less-educated men.

Importantly, though participation for women rose consistently in the 1980s and 1990s (and earlier), it has been uneven since then. Despite their recovery from the Great Recession, the trend toward higher participation of American women in the late twentieth century remains stalled in the twenty-first century.

Besides the effects documented above on men and women by education, what have similar trends looked like by race? In Tables 1 and 2, we present median real wage (Figure 1) and labor force participation trends (Figure 2) by race and gender. We present some data for five racial groups—1) non-Hispanic whites, 2) blacks, 3) Hispanics, 4) Asians, and 5) Pacific Islander/American Indians. Since not all of these groups were identified in CPS data all the way back to 1979, we present data for those years in which they are available. Accordingly, we present data for whites and blacks starting in 1979, for Hispanics and Asians starting in 2000,

and for Pacific Islanders/American Indians (for whom we have separate data only in participation rates, not in wages) starting in 2007.[7]

The results of Table 1 indicate the following:

- Real wages have risen strongly since 2000 for Asians (by about a third), Hispanics (by 20–25 percent), and white females (by nearly half since 1979 and by about 20 percent since 2000).
- Real wages also rose somewhat more modestly for black females (by about a third since 1979 and about 12 percent since 2000).
- Real wage growth has been quite modest for white males and almost nonexistent for black males over the past 40 years.
- All groups experienced some wage growth after 2010, especially Hispanics and Asians.

The results of Table 2 on labor force participation indicate these trends:

- Fairly constant participation among Asians, Pacific Islanders/American Indians, and Hispanics over time, with mostly modest increases for women and decreases among men for the latter two ethnic groups.
- Large declines in participation among white and especially black men since 1979.
- Large increases in participation among white and black females before 2000 but fairly flat since then.
- Modestly increasing participation (1 or 2 percentage points) for most groups of women but mixed results for men during the recovery from the recession in 2010–2019.

Overall, the results by race show impressive gains in wages and/or work activity for Asians, Hispanics, and white women, disturbing declines in work for white and black men, and rising gaps between whites and blacks overall. Our results are also broadly consistent with Biu, Famighetti and Hamilton (2021) on blacks, Orrenius and Zavodny (2021) on Hispanics, and

[7] Separate data for Hispanics and Asians in the CPS only became available during the 1990s; for American Indians and Pacific Islanders they became available in 2003. In data before that time, the latter groups are merged with Asians but do not materially affect results for Asians. Even today, American Indians and Pacific Islanders constitute just 1 percent of the U.S. population, while Asians represent over 6 percent.

Akee (2021) on Pacific Islanders and American Indians). If anything, the declining labor force activity we observe among black men is underrepresented in the civilian labor-force data due to the underrepresentation of particular subgroups.[8]

Finally, Figures 8 and 9 summarize the observed trends in real wages and labor force participation for our education-by-gender and race-by-gender groups over the full business cycle generated by the Great Recession and the recovery afterward, 2007–2019. Figure 8 focuses on education and gender groups, while Figure 9 focuses on race and gender. The results again show, for the entire cycle, major earnings gains for white women, Hispanics, and Asians; modestly improving labor force participation for most racial groups of women but not for those with high school or less education; and modest wage gains plus flat or declining participation for white and black men, especially for the less-educated.

In sum, the Great Recession and our recovery from it did not greatly change longer-term patterns of rising inequality between the working class and college-educated workers in the United States, either in real wages or in labor force activity.

III. WHAT EXPLAINS THESE TRENDS IN LABOR MARKET OUTCOMES?

What accounts for the overall trends in earnings and labor force participation that we have documented, and also for different trends by gender and education, over the past four decades, and more specifically during the period 2007–2019? We first consider the secular and

[8] Low-income black men, and especially those previously incarcerated, are undercounted in the census and other surveys (Pettit 2012). These groups have very low labor-force participation rates, so their absence in the data leads participation rates of less-educated men to be understated. Casual or informal work among such men likely offsets these trends, but only partially. See also Kahn-Lang (2019).

cyclical trends in earnings, which might partly drive the labor force participation trends. We discuss these trends second.

A. Earnings Trends: Markets, Institutions, and Business Cycles

In a purely statistical sense, three factors appear to drive the stagnation of aggregate wages over the past 40 years: 1) declining productivity growth, 2) a decline in labor's share of productivity and income, and 3) a growing share of labor compensation accounted for by nonpecuniary benefits like health care. But explaining why each of these three trends has occurred is somewhat more challenging.

With the exception of the tech boom years (mid-1990s to mid-2000s), U.S. productivity growth has been sluggish (Baily 2015). And though there has been some decoupling of worker compensation from productivity during this period, a strong correlation remains (Stansbury and Summers 2018). Possible culprits for sluggish productivity growth include the aging workforce (Ozimek, DeAntonio, and Zandi 2017), too little investment in research and development (Gruber and Johnson 2019), declining labor market fluidity (Molloy et al. 2016) and "secular stagnation" (Rachel and Summers 2019).

Shifting distributions of productivity and income toward capital might be attributable to rising automation (Acemoglu and Restrepo 2018), but they also could reflect the growing power of employers in both product and labor markets. While technology, globalization, and deregulation in the 1980s and 1990s were seen as forces enhancing product market competition, rising product market concentrations since then may have offset those effects (Philippon 2019), though the evidence on this point remains a bit mixed (Autor et al. 2017; Basu 2019).

Whether or not the monopsony power of employers has risen also remains unclear, though it seems to have risen in some industries like health care (Prager and Schmitt 2021).

Rising employer practices such as noncompete and nondisclosure agreements might also contribute to monopsony in some industries (Krueger and Posner 2018; Nunn and Hunt 2021). Finally, the growing share of worker compensation accounted for by health care no doubt reduces pecuniary worker compensation. While the increases in these shares over time are not much higher in recent decades than before (Burtless and Milusheva 2012), they clearly reinforce the other determinants of lower compensation growth described above.

Whatever explains the overall stagnation in worker earnings, rising earnings inequality in virtually every dimension (except gender) has contributed as well to stagnant median earnings.[9] The debates between those emphasizing labor market forces like skill-biased technical change (SBTC), globalization, and declining growth of the college-educated population versus those emphasizing weakening institutions like unions and federal minimum wages are well known at this point (Groshen and Holzer 2019). Even those emphasizing changes in the demand for and supply of college-educated workers in the market have noted the flattening of the ratio of college to high school wages since 2000, while inequality has risen within the higher-skilled group and especially between those with only bachelor's degrees and those with graduate degrees (Autor, Goldin, and Katz 2020).

Still, a few new developments in the empirical literature on rising earnings inequality are noteworthy. For one thing, differences between firms account for more of the variance in employee earnings over time than in the past (Barth et al. 2014). At the same time, the rising capital intensity of "superstar" firms (Autor et al. 2017) and institutional developments might also limit the ability of workers to share in firm-level product market success. Another

[9] While gender differences are not a main focus of this paper, the decline in the gender earnings gap has largely been driven by rising relative education and earnings among women, as well as declining discrimination and product market shifts from manufacturing to services (Blau and Kahn 2016).

possibility is that information problems prevent employers from tapping into skills developed on the job by experienced noncollege workers (Blair et al. 2020).

Beyond declining unionism, Weil (2019) has called our attention to the growth in "fissured" workplaces—i.e., those in which different occupational groups under the same roof and at the same firm actually work for different employers. Although we have limited data on this, such fissuring likely prevents many groups of workers from sharing in the product market success of firms that sell the goods and services they produce. It also reduces firms' incentives to invest in educating or training their workers, to whom they now have little long-term commitment. Accordingly, an increase in fissuring over time likely contributes to a widening compensation gap between less-educated and more-educated workers (and between labor and capital) over time as well.

Fissuring workplaces are part of a broader story of a likely shift from "high road" to "low road" human resource strategies among many firms for their less-educated workers (Osterman 2017). Firms can sometimes choose to compete in high workers' skills and performance (accompanied by better compensation, more worker training, and/or profit sharing) rather than low labor costs. Evidence suggests that in recent years, firms are less interested in the former approach. Since high-road employers generate a public good for workers, their families, and their communities, an argument can be made that they should receive some public support through technical assistance or subsidies.

Strikingly, the common thread in all these explanations is that they are not likely to subside or reverse in the near future without direct policy action. The business cycle might speed or slow these forces, but it rarely changes the broad trends.

In this context, how did the Great Recession and subsequent recovery affect earnings among less-educated workers? While the employment of non–college graduates appears more cyclically sensitive than that of college grads (Hines et al. 2002), the evidence suggests that wages of young college graduates might be hurt somewhat more than those of non–college graduates when they enter the labor market in serious recessions (Altonji, Kahn, and Speer 2014), with effects persisting for many years. This might be true at least partly because wage growth among these graduates depends more on work experience, which recessions disrupt, as well as the quality of employer-employee matches, which recessions impede as well.

But there is also evidence that the new technologies that limit the earnings of the working class—thereby generating SBTC—are more frequently implemented during recessions (Jaimovich and Siu 2012), since the disruption costs of implementing them are lowered when business is down. Furthermore, we have clear evidence that firms raise worker education requirements during recessions, since college graduates are relatively more available than at other points in the business cycle; but the evidence also suggests that, as recovery from recessions occurs, at least some of the higher skill requirements remain in place (Hershbein and Kahn 2018).

As we noted earlier, earnings among disadvantaged workers rose a bit more in the past five years than those of more-educated workers (see also Aaronson et al. 2019), but overall earnings growth was not sufficient to offset decades of stagnation. Labor markets were also less tight during the recovery than the unemployment rate suggested (Blanchflower 2019). The flow of workers out of the labor force during the Great Recession, which we describe more fully below, generated a larger pool of potential workers available to gradually reenter as the labor market tightened, thereby reducing the pressure on employers to raise wages substantially.

B. Labor Force Participation, Earnings, and the Business Cycle

As we note above, labor force participation of women rose consistently during the second half of the twentieth century, though it dipped after 2000. It also declined modestly during the Great Recession, as we would expect, but only among college-educated females did it fully rebound to its 2007 levels by 2019.

In contrast, participation by less-educated men declined consistently over the past four decades, and notably during the Great Recession. It also failed to recover during the expansion. These developments reflect both the greater cyclical sensitivity of male employment—as males remain more heavily represented in cyclical industries like construction and manufacturing—and perhaps more hysteresis (or long-term scarring) as well from their earlier employment declines.

What accounts for different participation trends between women and men? The rising education and earnings potential of women compared to men no doubt has generated different "labor supply" responses—rising for women and falling for men, as we would expect if their labor supply elasticities (measuring effects of wages on willingness to work) are positive.[10]

At the same time, it seems unlikely that relative wage opportunities, and movements up and down their respective "labor supply" functions, explain all of these differences. For women, decreasing marriage rates and rising single parenthood no doubt contributed to their greater need to work, even at low wages. And changes in income support policies—including welfare reform and the rise of the Earned Income Tax Credit in the 1980s and 1990s—raised incentives to work for low-income women. International experience suggests that work among women would likely

[10] Historically, full-time work among prime-age men was widely regarded as socially mandated. But the withdrawal of so many noncollege prime-age men from the workforce in recent decades (Eberstadt 2016; Krueger 2017) as their earnings deteriorated clearly indicates increases over time in their labor supply elasticities, as discretion about whether and how much to work among men has grown more acceptable.

have continued to rise had the United States adopted more "family friendly" policies, such as child care assistance and paid family leave (Black, Schanzenbach, and Breitwieser 2017).

Similarly, declining work among less-educated men cannot be fully explained by their stagnant or declining wages (Binder and Bound 2019). For African American men, criminal records and perhaps child support arrears reduce labor force participation (Eberstadt 2016; Holzer, Offner, and Sorenson 2005).

More broadly, poor health and disability among less-educated men reduce work effort, but only partly through dependence on disability insurance (Krueger 2017). Geographic imbalances in labor market strength—exacerbated by declining manufacturing employment after 2000 (Autor, Dorn, and Hanson 2016) and the reduced geographic mobility of workers (Austin, Glaeser, and Summers 2018)—further contribute to declining work among blue-collar workers and especially working-class men in recent years.

Given these forces, it is not surprising that labor force participation among less-educated workers (particularly for men) remained lower during the recovery from the Great Recession in those geographic areas hit hardest by the downturn (Yagan 2018), as hysteresis suggests. The deteriorating skills and networks that occur as a result of lengthy periods of nonwork, plus diminishing employer interest (Krueger, Kramer, and Cho 2014), seem to hurt less-educated men the most.

IV. WHAT ABOUT THE PANDEMIC RECESSION OF 2020‑2021?

The pandemic-induced recession of 2020 began with notable employment losses in March, followed by extreme job losses in April. Then a recovery began in May—rapid at first,

then slower. During the months of November and December, employment rates were completely flat.

In Table 3 we present employment-to-population rates, adjusted for reported absences from work (for reasons other than vacation, illness, weather, or labor disputes), in the aggregate and then for subgroups by race, gender, and education. We present these rates for selected months, beginning with the prerecession month of February, continuing through the trough in April, and then for selected months until December 2020.[11]

The results in Table 3 in the aggregate show the rapid decline, rapid partial recovery, and then slowing recovery that occurred during the recession of 2020. Indeed, employment fell about 18 percentage points between February and April, then rose about 12 points between April and December in the aggregate.

Table 3 also illustrates the extent to which workers of color and those with high school or less education bore the brunt of the recession. Employment fell most rapidly for Hispanics and also among blacks until April, and by the end of the year employment for each group remained about eight points lower than in February. High school graduates experienced the largest initial declines, while those with postgraduate education experienced the least; these patterns of relative employment decline still held as of December.

Indeed, this recession has hit the least-educated harder than earlier ones, and their recoveries have been slower since the sectors hardest hit have been leisure/hospitality and personal services, where such workers are concentrated. And the fact that highly educated

[11] These rates are drawn from computations using CPS-ORG data in Hershbein and Holzer (2021). Besides the adjustment in the outcome variable, these tabulations are also based on a broader age sample—18–64—than we used in earlier figures and in Tables 1 and 2. For additional analysis of COVID-19 labor market impacts through September 2020 by demographic group, see Groshen (2020).

workers can much more easily telecommute than those less educated has exacerbated employment gaps during the recovery.

At the time of this writing, we do not yet know what the labor market recovery will look like in 2021 and beyond, or the extent to which long-term unemployment and permanent job loss will occur. But to date, less-educated workers and those of color have endured the highest rates of permanent job loss (Hershbein and Holzer 2021).

The pandemic has likely accelerated the long-run shift toward online shopping in retail trade and ordering food in leisure and hospitality, as well as the role of telecommuting (which will hurt the service industries that cater to workers in downtown business districts). If so, less-educated workers and those of color will continue to sustain disproportionately high permanent job losses in 2021 and beyond. In other words, skill-biased technical changes associated with this recession and eventual recovery will likely add to the plight of our lowest-wage workers.

V. CONCLUSION

Three disappointing labor market trends over the past 40 years are widely known: 1) median real wages have been fairly stagnant, 2) inequality between workers with and without college degrees has dramatically increased, and 3) many less-educated prime-age men have left the labor force. At the same time, gender inequality in both earnings and labor force activity has declined.

The Great Recession affected earnings and labor force trends in a number of ways. The recession itself speeded skill-biased technical changes that raised employer skill demands and relative rewards for those with college degrees. The lengthy recovery afterward helped raise

earnings, even a bit more among low-wage workers than others. Wage gains for Asians and Hispanics have also exceeded those for whites and blacks.

Yet, these recent developments did not broadly disrupt trends in earnings inequality between college and noncollege workers, nor did they alter the fact that median real wages for the less-educated have been fairly stagnant (among women) and declining (for men) over most of the past four decades.

Labor force activity has also followed very different patterns by gender and education. Between 1979 and 2000, participation rates rose strongly for women with and without college degrees, while they fell for less-educated men. After 2000, they fell for both less-educated men and women, and they modestly declined during the Great Recession. Even during the recovery from the recession, we see few signs of rebounding labor force participation among less-educated workers, and significant increases only among educated women.

In particular, the longer-term negative trends among less-educated men likely reflect hysteresis effects. That is, workers may have difficulty recovering from lengthy periods with no work activity, because of depreciating skills, diminishing employer interest, and loss of labor market information and contacts with other workers. And while not as cyclical, the recent lack of labor-force growth among women is troubling; it likely indicates a need for better policies to balance work and family life, such as subsidized child care and paid family leave.

Then too, the pandemic-induced recession of 2020 generated large employment losses, especially for less-educated workers and those of color. It is too early yet to infer long-term employment losses from the recession, or any effects on wages, though our evidence to date on the former implies that the recession will exacerbate existing inequalities over time.

What does the future hold? Automation and globalization in the coming decades will no doubt continue to challenge the employment circumstances of workers—those both with and without college degrees. Many may suffer displacement or declining wages, along with labor market withdrawal.

What policies might help us reverse the disappointing 40-year trends in labor market outcomes for the working class, as well as the more recent and very unequal effects of the pandemic-induced recession? Since both market forces (including market failures) and institutions have contributed to these outcomes, a wide variety of policy responses might be needed to combat them.

Such policies could include the following:

- Strengthening our public higher education (especially community colleges) and workforce systems to improve workers' abilities to adapt to labor market shocks by retraining.
- Strengthening the institutions that support worker compensation for those without college degrees, like collective bargaining (or other forms of worker "voice") and minimum wages.
- Rewards for "high-road" or higher-wage employers who invest in their workers and share their profits with them, perhaps through the tax system (Holzer 2019).
- Additional ways to "make work pay" for lower-wage workers—such as the EITC, as well as better paid family leave and subsidized high-quality child care.
- Policies to enhance competition in product and labor markets, and to limit employer restrictions on worker options and information.
- Special efforts to reduce barriers to work among those with health problems and disabilities and/or criminal records.
- Improving our official labor market statistics, which is critical for managing policy and helping employers and workers make the best decisions possible to thrive in a changing economy.

REFERENCES

Aaronson, Stephanie, Mary Daly, William Wascher, and David Wilcox. 2019. "Okun Revisited: Who Benefits Most from a Strong Economy?" *Brookings Paper on Economic Activity* 2: 1–72.

Acemoglu, Daron, and Pascual Restrepo. 2018. "Artificial Intelligence, Automation, and Work." NBER Working Paper No. 24196. Cambridge, MA: National Bureau of Economic Research.

Akee, Randall. 2021. "The Great Recession and American Indians, Alaska Natives, and Native Hawaiian and Pacific Islanders." In *What Has Happened to the American Working Class since the Great Recession?* Jennifer Romich, Timothy Smeeding, and Michael Strain, eds. *Annals of the Academy of Political and Social Science.* Forthcoming.

Altonji, Joseph, Lisa B. Kahn, and Jamin D. Speer. 2014. "Cashier or Consultant? Entry Labor Market Conditions, Field of Study, and Career Success." NBER Working Paper No. 20531. Cambridge, MA: National Bureau of Economic Research.

Austin, Gerald, Edward Glaeser, and Lawrence H. Summers. 2018. "Saving the Heartland: Place-Based Policies in the 21st Century." *Brookings Brief*, Economic Studies. Washington, DC: Brookings Institution.

Autor, David H., David Dorn, and Gordon H. Hanson. 2016. "The China Shock: Learning from Labor Market Adjustment to Large Shocks from Trade." NBER Working Paper No. 21906. Cambridge, MA: National Bureau of Economic Research.

Autor, David H., David Dorn, Lawrence F. Katz, Christina Patterson, and John Van Reenen. 2017. "The Fall in the Labor Share and the Rise of Superstar Firms." NBER Working Paper No. 23396. Cambridge, MA: National Bureau of Economic Research.

Autor, David H., Claudia Goldin, and Lawrence F. Katz. 2020. "Extending the Race between Education and Technology." NBER Working Paper No. 26705. Cambridge, MA: National Bureau of Economic Research.

Baily, Martin. 2015. "Slow Productivity Growth." Paper presented at Brookings Institution, Washington, DC, October 29.

Barth, Erling, Alex Bryson, James C. Davis, and Richard Freeman. 2014. "It's Where You Work: Increases in Earnings Dispersion across Establishments and Individuals in the U.S." IZA Discussion Paper No. 8437. Bonn: IZA.

Basu, Susanto. 2019. "Are Price-Cost Markups Rising in the United States? A Discussion of the Evidence." *Journal of Economic Perspectives* 33(3): 3–22.

Binder, Ariel and John Bound. 2019. "The Declining Labor Market Prospects of Less-Educated Men." *Journal of Economic Perspectives* 33(2): 163–190.

Biu, Ofronama, Christopher Famighetti and Darrick Hamilton. 2021. "The Impact of Recessions on the Black Working and Professional Classes: Wages, Essential Work, and Occupational Safety Risks. In *What Has Happened to the American Working Class since the Great Recession? Annals of the Academy of Political and Social Science.* Forthcoming.

Black, Sandra E., Diane Whitmore Schanzenbach, and Audrey Breitwieser. 2017. "The Recent Decline in Women's Labor Force Participation." Hamilton Project Framing Paper. Washington, DC: Brookings Institution.

Blair, Peter Q., Tomas G. Castagnino, Erica L. Groshen, Papia Debroy, Byron Auguste, Shad Ahmed, Fernando Garcia Diaz, and Cristian Bonavida. 2020. "Searching for STARs: Work Experience as a Job Market Signal for Workers without Bachelor's Degrees." NBER Working Paper No. 26844. Cambridge, MA: National Bureau of Economic Research.

Blanchflower, David. 2019. *Not Working: Where Have All the Good Jobs Gone?* Princeton, NJ: Princeton University Press.

Blau, Fran, and Lawrence Kahn. 2016. "The Gender Wage Gap: Extent, Trends, and Explanations." NBER Working Paper No. 21913. Cambridge, MA: National Bureau of Economic Research.

Burtless, Gary, and Sveta Milusheva. 2012. "Effects of Employer-Sponsored Health Insurance Costs on Social Security Taxable Wages." *Social Security Bulletin* 73(1): 83–108.

Eberstadt, Nicholas. 2016. *Men Without Work*. Washington, DC: American Enterprise Institute.

Groshen, Erica L. 2020. "COVID-19's Impact on the U.S. Labor Market as of September 2020." *Business Economics* 55(4): 213–228.

Groshen, Erica L., and Harry J. Holzer. 2019. "Improving Employment and Earnings in Twenty-First Century Labor Markets: An Introduction." *Russell Sage Foundation Journal of the Social Sciences* 5(5): 1–19.

Gruber, Jonathan, and Simon Johnson. 2019. *Jump-Starting America: How Breakthrough Science Can Revive Economic Growth and the American Dream*. New York: Public Affairs.

Hershbein, Brad, and Harry J. Holzer. 2021. "The COVID-19 Pandemic's Evolving Impacts on the Labor Market: Who's Been Hurt and What We Should Do." IZA Discussion Paper No. 14108**.** Bonn: IZA.

Hershbein, Brad, and Lisa Kahn. 2018. "Do Recessions Accelerate Routine-Biased Technical Change? Evidence from Job Postings." *American Economic Review* 108(7): 1737–1772.

Hines, James R. Jr., Hilary Hoynes, and Alan B. Krueger. 2002. "Another Look at Whether a Rising Tide Lifts All Boats." In *The Roaring Nineties: Can Full Employment Be Sustained?* Alan B. Krueger and Robert Solow, eds. New York: Russell Sage Foundation, pp. 493–537.

Holzer, Harry J. 2019. "Yes, Corporate Tax Cuts Can Raise Wages. Here's How." *Washington Post*, May 9.

Holzer, Harry J., Paul Offner, and Elaine Sorensen. 2005. "Declining Employment among Young Less-Educated Black Men: The Role of Incarceration and Child Support." *Journal of Policy Analysis and Management* 24(2): 329–350.

Jaimovich, Nir, and Henry E. Siu. 2012. "Job Polarization and Jobless Recoveries." NBER Working Paper No. 18334. Cambridge, MA: National Bureau of Economic Research.

Kahn-Lang, Ariella. 2019. "Missing Black Men? The Impact of Under-Reporting on Black Male Labor Market Outcomes." Unpublished paper, Harvard University.

Krueger, Alan B. 2017. "Where Have All the Workers Gone? An Inquiry into the Decline of the Labor Force Participation Rate." *Brookings Brief,* Economic Studies. Washington, DC: Brookings Institution.

Krueger, Alan B., Judd Cramer, and David Cho. 2014. "Are the Long-Term Unemployed on the Margins of the Labor Market?" *Brookings Brief,* Economic Studies. Washington, DC: Brookings Institution.

Krueger, Alan, and Eric Posner. 2018. "A Proposal for Protecting Low-Income Workers from Monopsony and Collusion." Hamilton Project. Washington, DC: Brookings Institution.

Krueger, Alan B., and Lawrence H. Summers. 1986. "Reflections on the Inter-Industry Wage Structure." NBER Working Paper No. 1968. Cambridge, MA: National Bureau of Economic Research.

Molloy, Raven, Christopher L. Smith, Riccardo Trezzi, and Abigail Wozniak. 2016. "Understanding Declining Fluidity in the US Labor Market." *Brookings Brief*, Economic Studies. Washington, DC: Brookings Institution.

Moulton, Brent R. 2018. "The Measurement of Output, Prices, and Productivity: What's Changed since the Boskin Commission?" *Brookings Brief*, Hutchins Center on Fiscal and Monetary Policy. Washington, DC: Brookings Institution.

Nunn, Ryan, and Jennifer Hunt. 2021. "How Labor Market Institutions Matter for Worker Compensation." In *What Has Happened to the American Working Class Since the Great*

Recession? Jennifer Romich, Timothy Smeeding, and Michael Strain, eds. *Annals of the Academy of Political and Social Science.* Forthcoming.

Orrenius, Pia, and Madeline Zavodny 2021. "How Foreign- and U.S.-Born Latinos Fare during Recessions and Recoveries." In *What Has Happened to the American Working Class Since the Great Recession?*, Jennifer Romich, Timothy Smeeding, and Michael Strain, eds. *Annals of the Academy of Political and Social Science.* Forthcoming.

Osterman, Paul. 2017. "In Search of the High Road: Meaning and Evidence." *Industrial and Labor Relations Review* 71(1): 3–34.

Ozimek, Adam, Dante DeAntonio, and Mark Zandi. 2018. *Aging and the Productivity Puzzle*. Paper presented at the American Economic Association conference, held in Philadelphia, January 5–7, 2018.

Pettit, Rebecca. 2012. *Invisible Men: Mass Incarceration and the Myth of Black Progress*. New York: Russell Sage Foundation.

Philippon, Thomas. 2019. *The Great Reversal: How America Gave Up on Free Markets.* Cambridge, MA: Harvard University Press.

Prager, Elena, and Matt Schmitt. 2021. "Employer Consolidation and Wages: Evidence from Hospitals." *American Economic Review* 111(2): 397–427.

Rachel, Lukasz, and Lawrence Summers. 2019. "On Secular Stagnation in the Industrial World." *Brookings Brief,* Economic Studies. Washington, DC: Brookings Institution.

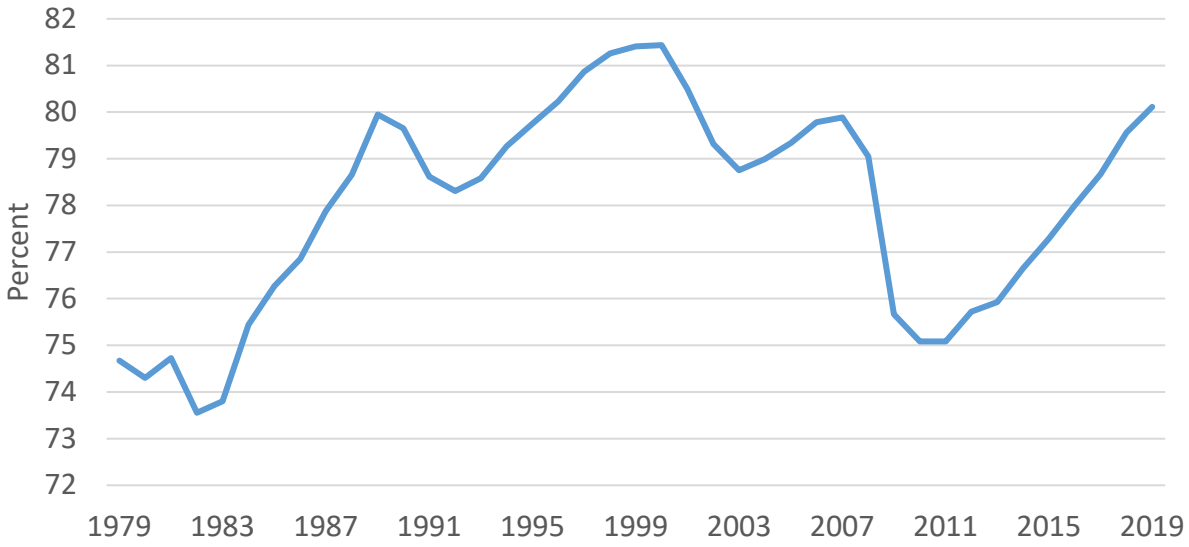
Shambaugh, Jay, and Michael Strain. 2021. "The Recovery from the Great Recession: A Long, Evolving Expansion." In *What Has Happened to the American Working Class Since the Great Recession?* Jennifer Romich, Timothy Smeeding and Michael Strain eds. *Annals of the Academy of Political and Social Science.* Forthcoming.

Stansbury, Anna, and Lawrence H. Summers. 2018. "Productivity and Pay: Is the Link Broken?" NBER Working Paper No. 24165. Cambridge, MA: National Bureau of Economic Research.

Weil, David. 2019. "Understanding the Present and Future of Work in the Fissured Workplace Context." *Russell Sage Foundation Journal of the Social Sciences* 5(5): 147–165.

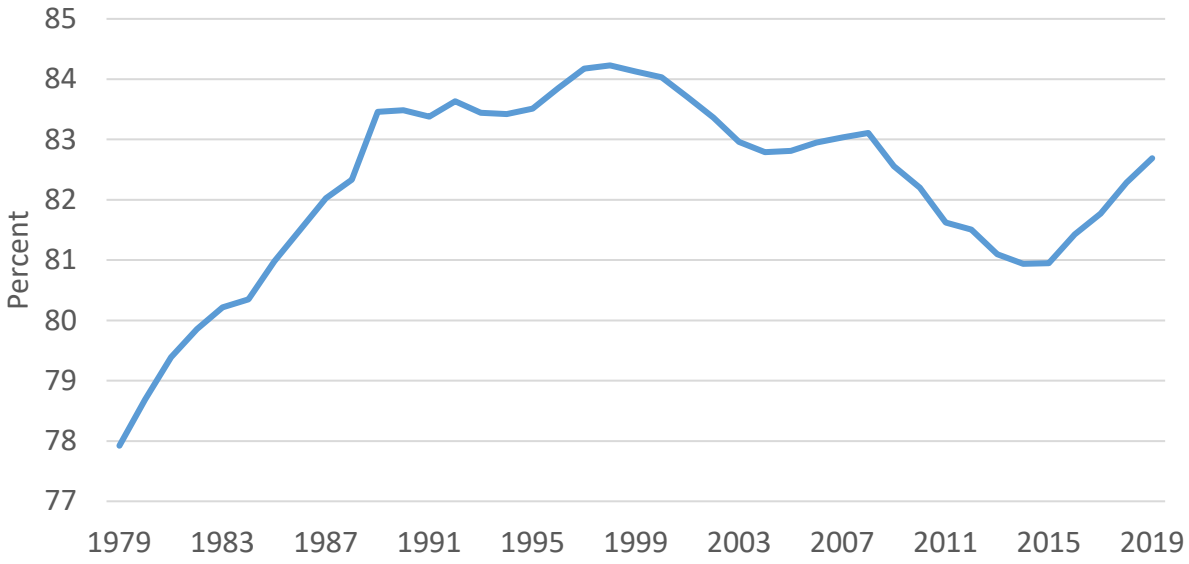
Yagan, Danny. 2019. "Employment Hysteresis from the Great Recession*." Journal of Political Economy* 127(5): 2505–2579.

Figure 1 Annual Employment-Population Ratios for Individuals Ages 25–54, 1979–2019



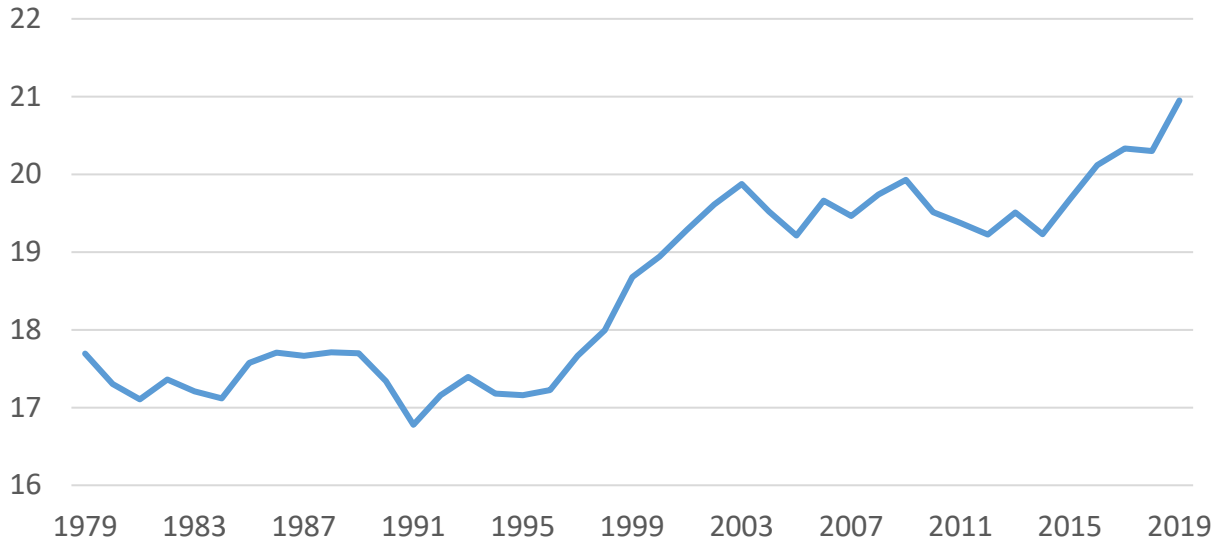
SOURCE: Authors' calculations from the Current Population Survey's basic monthly files.

Figure 2 Annual Labor Force Participation Rates for Ages 25–54, 1979–2019



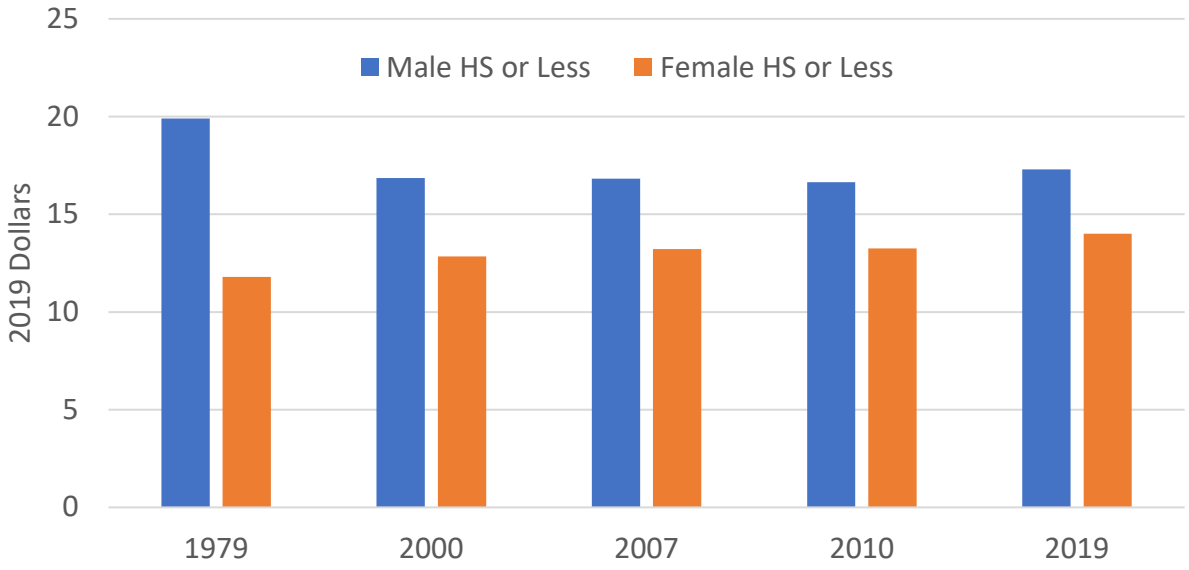
SOURCE: Authors' calculations from the Current Population Survey's basic monthly files.

Figure 3 Annual Median Real Hourly Wages for Ages 25-54, 1979–2019 (2019 dollars)



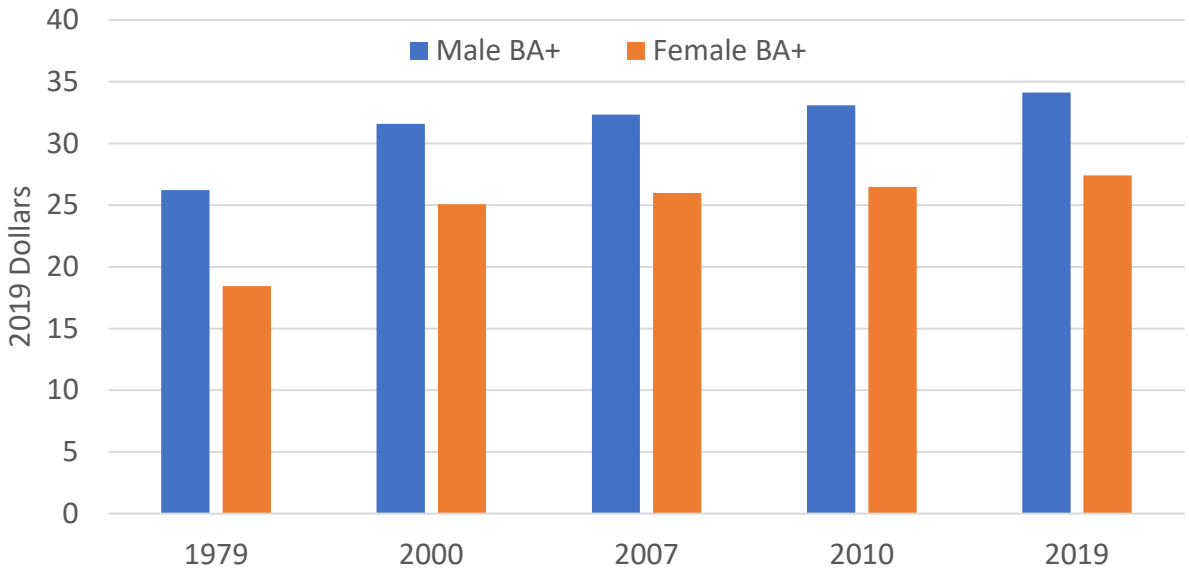
NOTE:Wages are adjusted for inflation (here and in all data presented below) using the chain-weighted GDP deflator for personal consumption expenditures.
SOURCE: Authors' calculations from Current Population Survey's Outgoing Rotation Groups.

Figure 4 Median Real Hourly Wages among Employed Individuals with a High School Diploma or Less Education, Ages 25–54, by Gender



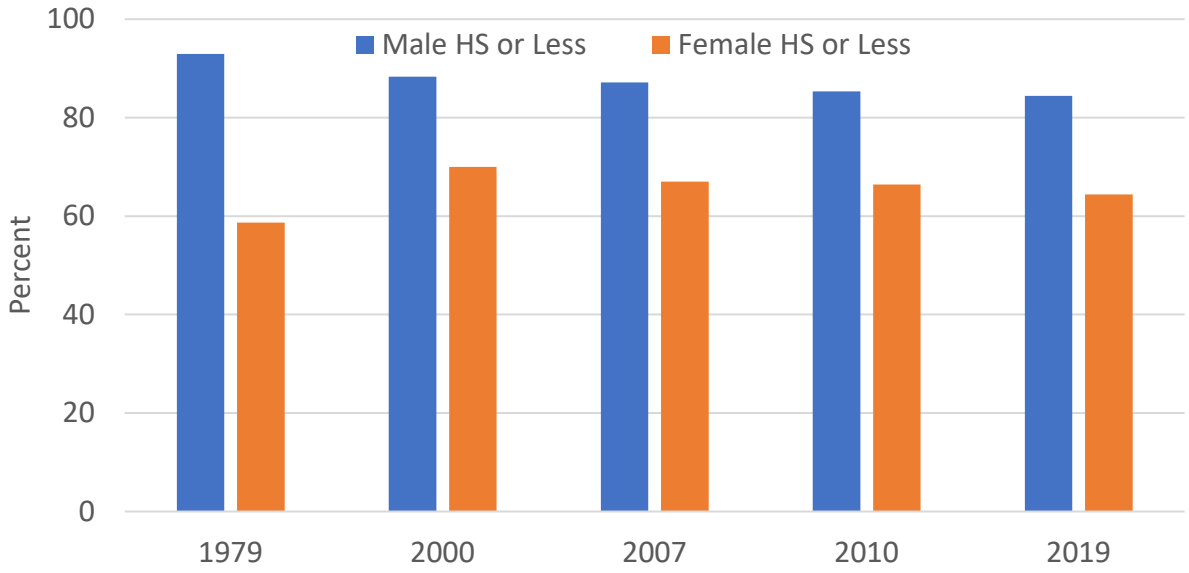
NOTE: Wages are adjusted for inflation (here and in all data presented below) using the chain-weighted GDP deflator for personal consumption expenditures.
SOURCE: Authors' calculations from Current Population Survey's Outgoing Rotation Groups.

Figure 5 Median Real Hourly Wages among Employed Individuals with a Bachelor's Degree or More Education, Ages 25–54, by Gender



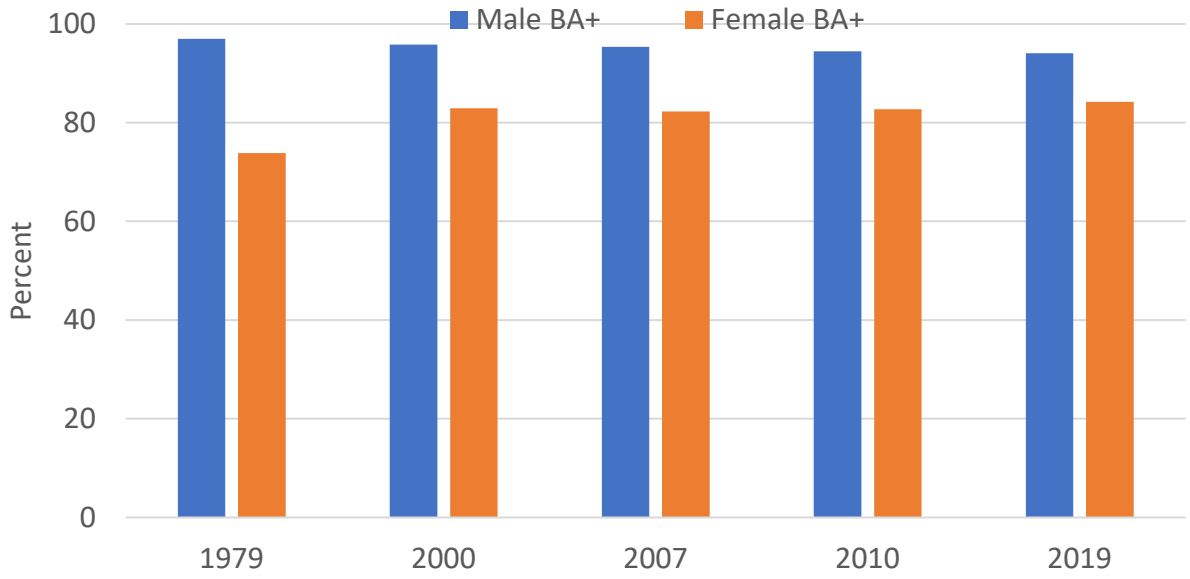
NOTE: Wages are adjusted for inflation (here and in all data presented below) using the chain-weighted GDP deflator for personal consumption expenditures.
SOURCE: Authors' calculations from Current Population Survey's Outgoing Rotation Groups.

Figure 6 Labor Force Participation among Individuals with a High School Diploma or Less Education, Ages 25–54, by Gender



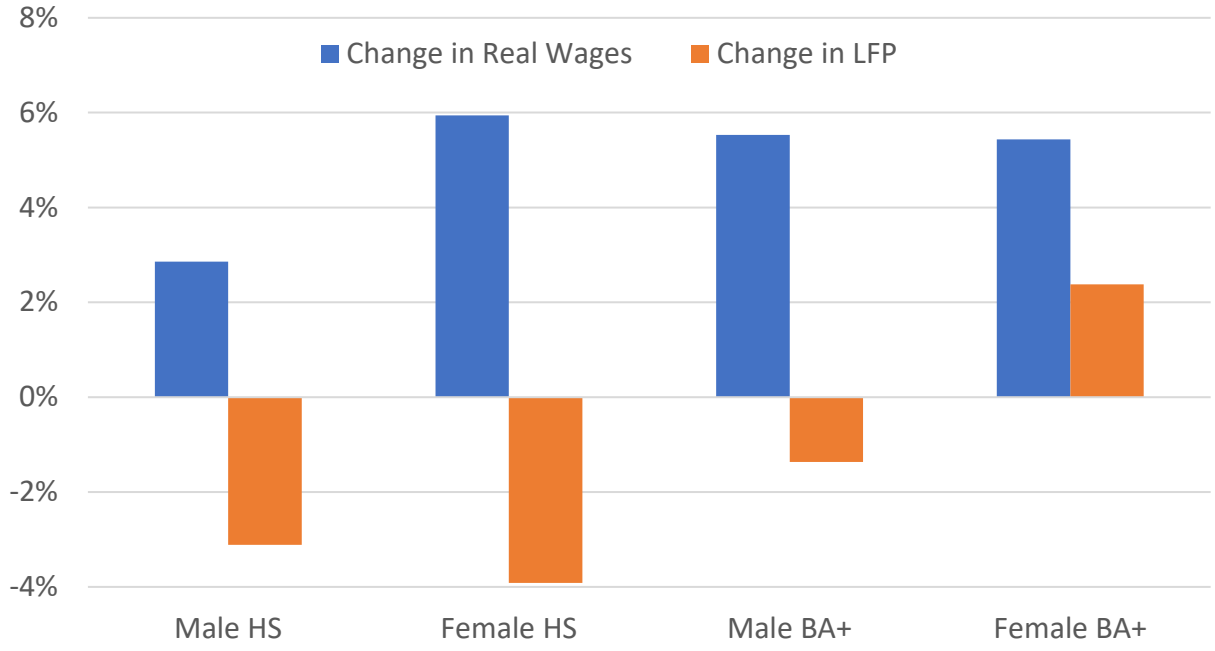
SOURCE: Authors' tabulations from the Current Population Survey.

Figure 7 Labor Force Participation among Individuals with a Bachelor's Degree or More Education, Ages 25–54, by Gender



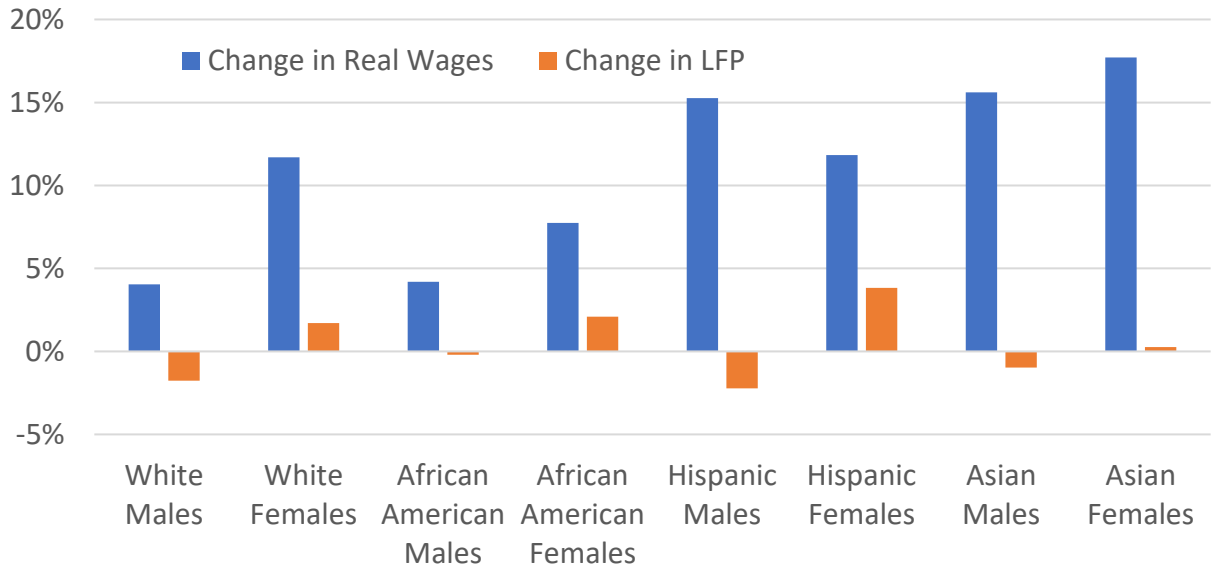
SOURCE: Authors' calculations from the Current Population Survey's basic monthly files.

Figure 8 Percent Changes in Labor Force Participation (LFP) and Median Real Hourly Wages, by Gender and Education, Ages 25–54, 2007–2019



SOURCE: Authors' calculations from the Current Population Survey's basic monthly files.

Figure 9 Percent Changes in Labor Force Participation (LFP) and Median Real Wages by Race and Gender, Ages 25–54, 2007–2019



NOTE: Wages are adjusted for inflation (here and in all data presented below) using the chain-weighted GDP deflator for personal consumption expenditures.
SOURCE: Labor force participation—authors' calculations, derived from the Current Population Survey's basic monthly files. Median real wages—authors' calculations, derived from Current Population Survey's Outgoing Rotation Groups.

Table 1 Real Median Hourly Wages for Employed Individuals, Ages 25–54, by Race and Ethnicity (2019 dollars)

	1979	2000	2007	2010	2019
Non-Hispanic White	18.43	20.36	21.62	21.81	23.08
Males	22.12	23.62	24.03	24.10	25.00
Females	13.59	17.55	18.80	19.31	21.00
African American	14.75	15.66	16.22	16.64	17.31
Males	17.69	16.85	17.28	17.22	18.00
Females	12.50	15.09	15.62	16.07	16.83
Hispanic or Latino		14.04	14.88	14.92	17.00
Males		14.74	15.62	15.78	18.00
Females		12.64	13.82	13.77	15.45
Asian		21.06	23.10	22.96	28.00
Males		23.63	25.99	25.16	30.05
Females		18.25	20.42	20.66	24.04

NOTE: Table 1 shows labor force participation rates for five different racial and ethnic groups. Blank = not available. Prior to 2003, "Asian" and "Pacific Islander" were not separate racial categories. If a respondent recorded multiple races, that person was assigned to the smallest individual group of those listed by the respondent. (This only applies to a very small number of individuals in 2013 and beyond.)
SOURCE: The CPS ORG extracts provided by the Center for Economic Policy Research.

Table 2 Labor Force Participation Rates, Ages 25–54, by Race and Ethnicity, 1979–2019

	1979	2000	2007	2010	2019
Non-Hispanic White	78.5	85.6	84.5	83.6	84.4
Males	95.3	92.9	91.7	90.1	90.1
Females	62.4	78.5	77.4	77.3	78.7
African American	77.0	81.5	80.0	79.0	80.8
Males	89.0	84.6	83.4	82.1	83.2
Females	67.4	78.9	77.2	76.3	78.8
Hispanic or Latino		80.4	80.7	80.4	80.4
Males		92.4	92.6	91.3	90.5
Females		67.8	67.3	68.1	69.9
Asian		81.0	80.7	80.2	80.3
Males		91.8	91.0	89.2	90.1
Females		71.4	71.4	71.9	71.5
American Indian or Pacific Islander			77.7	75.9	76.9
Males			83.4	80.0	82.5
Females			69.7	72.4	72.0

NOTE: Blank = not available. Prior to 2003, "Asian" and "Pacific Islander" were not separate racial categories. If a respondent recorded multiple races, that respondent was assigned to the smallest individual group of those listed by the respondent. (This only applies to a very small number of individuals in 2013 and beyond.)
SOURCE: Authors' calculations from the Current Population Survey's basic monthly files.

Table 3 Adjusted Employment-Population Ratios by Race, Gender, and Education during 2020

	Feb.	April	June	Oct.	Dec.
All individuals	73.9%	55.8%	63.1%	68.1%	68.1%
Non-Hispanic White	75.6%	59.2%	66.7%	71.0%	71.0%
African American	69.8%	51.5%	57.1%	62.6%	62.3%
Hispanic or Latino	72.6%	49.9%	58.2%	65.0%	64.2%
Men	79.1%	61.0%	67.9%	73.2%	72.6%
Women	68.9%	50.8%	58.5%	63.2%	63.7%
Less than high school	55.1%	36.3%	43.3%	50.1%	49.6%
High school/some college	68.7%	47.4%	56.2%	62.4%	61.9%
Associate degree	78.1%	59.7%	67.8%	72.0%	71.3%
Bachelor's degree	82.3%	67.0%	71.7%	76.5%	77.1%
Graduate degree	86.5%	75.0%	80.6%	83.4%	83.8%

NOTE: Table 3 is drawn from Hershbein and Holzer (2021). Workers aged 16 to 64 are included. Those who were missing from work in the reference week for reasons other than illness, weather, vacation, or labor disputes are counted as not employed.
SOURCE: Authors' calculations from the Current Population Survey's basic monthly files.