

REIMAGINING FULL EMPLOYMENT: 28 MILLION MORE JOBS AND A MORE EQUAL ECONOMY

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EXECUTIVE SUMMARY

Thanks to recent success in controlling COVID-19, the extraordinary stimulus measures of 2020–2021, and the large-scale investment that decarbonization will call for, the US economy is poised for a period of faster economic growth than it has seen in decades.

With the right policy choices, and absent further upheaval from COVID variants, the coming years could be remembered as the rebirth of a dynamic, more egalitarian US economy—an extended period of wage gains and capacity-boosting investment, with new spending pushing against the productive potential of the economy.

If we manage the boom rather than fight it, we could see true full employment—and the reduced racial and gender inequalities that come with it.

How we define the potential labor force and maximum sustainable employment are critical questions for macroeconomic debates, since they will determine how much growth policymakers can or should aim for.

In this issue brief, we explore alternative measures for potential employment in the United States. Using variation in employment rates over time, across age groups, and across demographic groups as a benchmark, we estimate the size of the “latent” labor force that might plausibly be drawn into employment by sustained tight labor markets. We conclude that with sustained strong demand, the US could plausibly reach an employment-population ratio on the order of 68 percent over the next decade, about 10 points higher than the Congressional Budget Office’s (CBO’s) estimate of maximum employment. This is equivalent to an additional 28 million jobs beyond the CBO’s projection.

The data shows employment prospects for disadvantaged groups are more dependent on labor market conditions than for more privileged groups. Employment gaps by age, education, and especially race are strongly responsive to current labor market conditions, as reflected in the unemployment rate.



To say that gaps in employment by race, gender, and education are responsive to demand conditions is not to deny that these are the product of systemic inequalities, including both employer discrimination and access to jobs. On the contrary, it is precisely because differences in employment rates reflect systemic inequalities, rather than differences in capacity or willingness to work, that they are responsive to demand conditions. Structures of privilege and inequality place Black people, women, and those with less formal education at the back of the hiring queue. But it is the state of the labor market that determines how much of the queue will be hired.

This issue brief argues that potential employment in the US is much higher than we have seen in recent years, even before the pandemic. In addition to those officially counted in the labor force, there is a large latent labor force, consisting of people who are not currently seeking work but who could reasonably be expected to do so given sustained strong labor demand. This implies much more labor market slack than conventional measures of unemployment suggest.

This unmeasured slack is reflected in the sluggish wage growth and below-target inflation seen in the years prior to the pandemic, despite a low measured unemployment rate. It is also visible in the decline in labor force participation over the past 20 years, even correcting for the aging of the population. An important but less familiar sign of labor market slack is the difference in employment rates between groups with more- and less-privileged positions in the labor market. Educated white men benefit from more favorable access to jobs for a number of reasons, importantly including employer discrimination and structural racism and sexism more broadly. Because less-favored groups—Black workers, women, those with less formal education, those just entering the labor market—are generally last hired and first fired, the gaps between more- and less-favored groups vary systematically over the business cycle. When labor markets are weak and employers can pick and choose among potential employees, the gap between employment rates for more- and less-favored groups widens. When labor markets are tight, and workers have more bargaining power, the gap shrinks.

In this issue brief, we use this systematic relationship between overall labor market conditions and employment rates across race, gender, education, and age to construct a new measure of potential employment. In effect, since more-favored workers will be hired before less-favored ones, the difference in outcomes between these groups is a measure of how close hiring has gotten to the true back of the line.

We construct our measure in stages. We start with the fact that changes in employment rates *within* a given age group cannot reflect the effect of population aging. Simply



basing potential employment by age groups on employment rates that have been observed historically implies potential employment 1.7 points higher than the CBO estimates.

Next, we close the employment gaps by race and gender, on the assumption that women and Black Americans are no less able or willing to work than white men of a similar age. (When adjusting for gender, we make an allowance for lower employment rates among parents of young children). This raises potential employment by another 6.2 points.

Finally, reducing the employment gap between more- and less-educated workers in line with the lower gaps that have been observed historically adds another 1.8 points to the potential employment rate.

In total, these adjustments yield a potential employment-population ratio 10 points higher than the CBO estimates, equivalent to the addition of about 28 million more jobs over the next decade.

Adding these 28 million additional jobs over the next decade would require an average annual growth in employment of 2.1 percent, a faster rate of job growth than the US has seen since the 1970s. That we have not seen employment grow at this rate in recent years does not mean it is impossible, however. It could—and we argue, does—simply reflect that the US has experienced a long period of growth below potential. The employment growth that would fully mobilize the latent labor force, as estimated here, is in line with the rate of GDP growth required to repair the damage from the Great Recession of 2007–2009 and return GDP to its pre–2007 trend.

INTRODUCTION

Every new economic data release spurs a new round of the same debate: Is demand still short of potential output? Or is demand already running ahead of the economy's normal level of production, with the economy in danger of overheating? Both sides can marshal evidence to support their view, but there's another possibility: Demand may be running ahead of what we're used to—but this could mean not overheating, but a boom.

A boom is something more than just faster growth; it's an extended period when spending is pushing against the productive potential of the economy, creating pressure for wage gains and capacity-boosting investment. If this sounds unfamiliar, it's probably because you've never experienced it. The last three recessions have been followed by jobless recoveries, with unemployment elevated for years after each recession officially ended.¹ Other than a few years in the late 1990s, it's been 40 years

¹ The last three recessions were in 2007–2009, 2001, and 1990–1991.



since the US has seen an extended period in which the economy was running at anything like full capacity. But thanks to the combination of a rapid bounce-back from the pandemic and the need for massive new spending to deal with the climate crisis, we have a unique chance to break this pattern. The coming decade could see a historic boom—but only if we are prepared to manage it rather than fight it.

The strong demand and tight labor markets associated with a boom can permanently raise labor force participation, as new groups of people enter the labor market. Booms also raise productivity, as scarce labor and strong demand create both the incentive and the opportunity for innovation. They also create a more equitable and fair distribution of income, a welcome development after decades of increased inequality.

There is a real danger that policymakers will look at a healthy, strong economy and see overheating that they believe needs to be brought under control. In a tight labor market, employers come under more pressure to offer raises and training and to recruit workers they might not have otherwise considered. These are welcome developments for society, but they are not always welcomed by businesses. If faster wage growth is treated as a problem that must be solved, we will never see the faster productivity growth that results when scarce labor spurs innovation.

A great deal of work is needed to update our ideas about economic policy for a new world in which the overarching problem may not be how to break out of chronic stagnation, but how to manage a period of rapid growth. The goal of this issue brief is to address one important question about this new environment: Given sustained strong demand, how much could US employment plausibly grow?

The issue brief is organized as follows:

Section 1 situates our argument in the larger debate about potential output, the speed of the current recovery, and the extent to which slow growth since the 2007–2009 recession is the result of supply constraints or weak demand. Estimates of maximum potential employment are an important consideration in assessing both economic performance since 2007 and the amount of stimulus the economy requires today.

Standard approaches to measuring the potential labor force simply extrapolate from the recent past and assume that any sustained fall in employment must reflect hard structural constraints. But it is now widely accepted that demand shortfalls can have persistent effects, leaving GDP and employment lower for many years after the initial shock. This is visible in the CBO's potential employment-population ratio estimates, which simply track the downward trend in the actual ratio since 2000. Under these conditions, conventional measures of potential employment will effectively “lock in” any demand shortfall, making a period of depressed employment look like the new ceiling.



To overcome this problem, we need an estimate of potential employment that does not start from the premise that recent performance is the best achievable, but that draws on a longer set of historical data and on variation in employment rates across the population. The remainder of this issue brief develops such an estimate.

Section 2 develops the argument that demand conditions play a larger role both in longer-term shifts in the employment rate and in variation in employment rates across demographic groups than is usually assumed. We first look at the decline in labor force participation and employment rates between 2000 and 2019, and present evidence that this decline is not simply a function of the increasing share of the population of retirement age.

We then look at differences in employment rates along race, gender, and education lines, and suggest that these are more reflective of demand conditions than of structural differences in capacity for paid work. Each of these demographic groups faces a unique set of barriers, but the historical record suggests that sustained strong demand can close the racial employment gap, shrink the education employment gap, and mitigate the gender employment gap.

Section 3 presents our proposed alternative measures. We take variation in employment rates across age groups and demographic groups to construct a set of alternative measures of potential employment. We progressively incorporate age, race, gender, and education into our estimates of maximum potential employment rates, eventually reaching a value about 10 points higher than the CBO's projections—an addition of about 28 million more jobs over the next decade.

Section 4 addresses the common concern that strong labor markets could boost employment but raise inflation to unacceptable levels. We suggest three reasons why such fears may be overblown. First, the existence of a large latent labor force will itself limit wage acceleration. With a large pool of people who can be drawn into employment given sustained strong demand, there is a larger degree of slack at a given unemployment rate. Second, the existence of search costs and frictions in the labor market makes the idea of a “labor supply curve” inapplicable. It may take demand to draw people from the margins of the labor market into employment, but that does not mean they will demand a higher wage going forward. Finally, the assumption that higher wages must be passed through to prices ignores two other possibilities: that they can spur faster productivity growth, and that they can simply result in a higher share of GDP going to wage-earners rather than profits. The large fall in the share of national income going to wages over the past generation makes this last possibility especially important.



1. MOTIVATION: PUBLIC SPENDING AND SUPPLY CONSTRAINTS

After the deepest recession in modern history, the US has begun its recovery from both the public health and economic crises of the COVID-19 pandemic. There is reason for optimism when it comes to the economy. In the first half of 2021, the US added over half a million jobs per month. While somewhat slower than many had expected, this is still the fastest employment growth in decades.

It is possible that the recovery will falter, of course. New coronavirus variants, for example, could prompt renewed restrictions that dampen economic activity. The Federal Reserve may prematurely raise interest rates and provoke a recession. But if the recovery continues to gather steam, we will soon be faced with a new question: How much growth is too much? Some critics are already expressing what we consider a misplaced concern: that the economy will recover too fast.

Some worry that this spending and demand may exceed the productive capacity of the economy, often described as “potential output.” They warn that we may see inflation begin to take off in a spiraling fashion as spending potential exceeds the potential capacity of the economy and breaks people’s expectations of what inflation will be. Another group focuses on the dangers of rapid wage increases, warning that businesses will be unable to operate in an environment where labor scarcity allows workers to demand much higher pay. Others worry about the crowding-out of private spending. These critics, in general, want to see the recovery slowed down, either by higher interest rates set by the Federal Reserve or slowing the amount of spending done by Congress (Summers 2021).

The context for today’s debate is the disappointing, decade-long recovery from the Great Recession. Initially, economists had expected GDP to quickly return to its long-run trend, as had been the case after previous post-war recessions. As this “bounce-back” growth failed to materialize, forecasters repeatedly downgraded their estimates of potential output of the US economy. By the year 2017, according to the CBO, GDP had returned to potential (Congressional Budget Office 2017). But this convergence of actual and potential output occurred entirely on the side of the reduction of potential output (Mason 2017). In terms of returning to trend or otherwise picking up steam, the Great Recession was actually doing worse than the Great Depression 11 years on (Delong 2018).

Despite the slow recovery from the Great Recession and the lowering of potential output expectations, the US did start experiencing labor market growth in 2014. By 2019, this growth surpassed the new, more pessimistic estimates of maximum employment and



output. This is seen, for example, in the Fed’s estimates of the long-run unemployment rate that the economy was capable of sustaining without accelerating inflation. In early 2011, the Fed believed the long-run unemployment rate to be 5.6 percent (Federal Open Market Committee 2011). In 2016, it was estimated to be 5.25 percent (Federal Open Market Committee 2016). Yet unemployment was below 4 percent for two years, and near 3.5 percent for six months, in advance of the pandemic—with no sign of inflation accelerating, or even consistently hitting the Fed’s target (US Bureau of Labor Statistics 2021d).

Despite the absence of acerbating inflation, the CBO assumed that the economy was operating above potential throughout 2018 and 2019 (see Figure 1). It warned that excessive growth was leading to “heightened demand for labor as well as upward pressure on inflation and interest rates” (Congressional Budget Office 2019). If this estimate was taken seriously, macroeconomic policy in the absence of the pandemic should have been aiming for *fewer* jobs, not more.

Figure 1

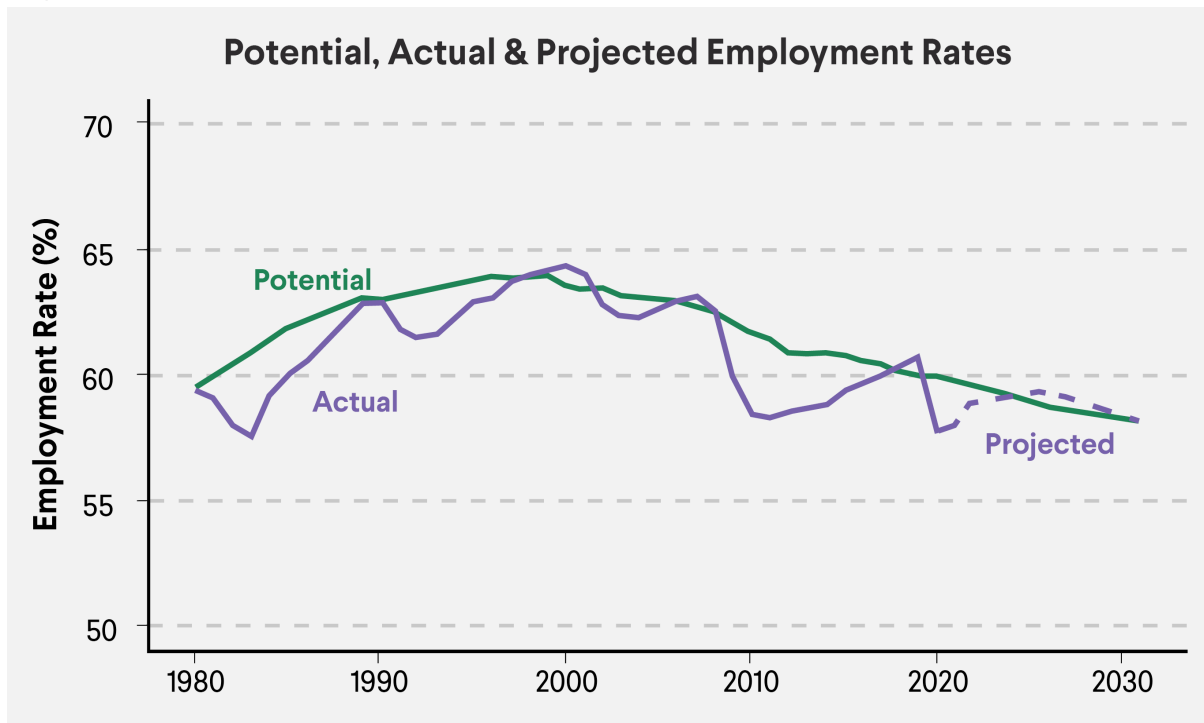


Figure 1 shows CBO estimates of potential and projected employment rates as compared to actual employment rates since 1980. The potential employment rate line is the CBO’s potential labor force estimate as a proportion of the civilian noninstitutional population, less the NAIRU (the minimum sustainable unemployment rate). The actual employment rates are compiled from CBO historical data. The dashed line shows the CBO’s projected employment rates for 2021–2030. Source: Author’s analysis of historical data and economic projections from the CBO (2021b).



Labor market conditions on the eve of COVID are of critical importance for macroeconomic policy going forward. If the economy was already too hot in 2019, then returning to the labor market and trend GDP of that period is the ceiling for what we should expect from stronger demand. However, if there was still room to expand in the months before COVID hit, then that means that, with time, the economy can return to a trend of GDP and employment above the one it was experiencing before the crisis. It may still be possible to reverse the damage done by the Great Recession, and to reach or exceed the labor market performance of the late 1990s—the last sustained boom in US history.

Addressing this question requires a different approach to estimating the potential labor force, or the total number of people who could plausibly be employed, given strong enough demand. In other words, we want to know the fraction of the population that would be willing and able to work for wages and under conditions similar to those existing today, if there is sufficient demand to hire them. If the labor force is larger than conventional measures suggest, because there are people who could and would like to be working but are not actively searching for work, that means there is more room to expand the economy, and less danger that faster growth will lead to rising inflation. So, any claims about the degree to which faster growth is possible, or will only lead to inflation, depend on an implicit or explicit estimate of the potential labor force.

It may still be possible to reverse the damage done by the Great Recession, and to reach or exceed the labor market performance of the late 1990s—the last sustained boom in US history.

Traditionally, economists have defined the labor force as people who are either employed, or who are actively searching for work. By this measure, the labor force shrank dramatically during the pandemic, since many of those who lost their jobs due to closures (or voluntarily left them due to health concerns or care responsibilities) were not, for obvious reasons, actively looking for new jobs. Most economists—including Treasury Secretary Janet Yellen, Fed Chair Jerome Powell, and President Biden's Council of Economic Advisors—agree that the conventional labor force estimates are not meaningful for the pandemic period. One alternative is to look instead to the labor force participation rate at the end of 2019 (Smialek 2021). Rather than count the people who had left the labor force during COVID as permanently displaced from working, we should understand that policy can and should target aggregates of working activity beyond what is captured by the traditional measure of unemployment.



This argument is valid as far as it goes, but there is no reason to stop at 2019. The same kind of skepticism should be applied to estimates of potential employment from before the pandemic. These estimates systematically treated demand-driven shifts in labor market conditions as permanent, structural changes in the size of the potential labor force. While forecasts from before 2007 predicted higher output and employment than turned out to be the case, forecasts from after the recession systematically erred on the side of pessimism. As a representative example, estimates from the Federal Reserve Board in 2014 argued that it expected “further declines in the aggregate labor force participation rate as the most likely outcome,” and, even if the economy picked up, “the downward influences on the aggregate labor force participation rate will likely dominate, restraining trend growth in the aggregate labor force” (Aaronson et al. 2014). But instead of declining, as predicted, labor force participation remained flat and even increased over the course of the next six years. Aggregate labor force participation was 62.9 percent in fall 2014 and was 63.4 percent in January 2020 (US Bureau of Labor Statistics n.d.). This is a difference of 1.3 million jobs.

There’s also a growing recognition that conventional measures of full employment treat the fact that some people face disadvantages in the labor market as if they were hard constraints on their ability to work. The CBO, for instance, assumes in its measure of potential output and full employment that the Black unemployment rate cannot go below 10 percent at the natural rate of unemployment (Williams 2021). This assumption that the difference between Black and white employment is a hard, unchangeable fact—already problematic on its face—is further undermined by the strong variation in this gap over the business cycle. The gap between white and Black employment rates consistently increases during recessions and only falls as the economy approaches full employment (Aaronson et al. 2019; Bernstein and Jones 2020). If we question the idea that current differences between employment rates along lines of race, gender, or education reflect basic differences in the propensity to work, then we must adjust our estimates of potential employment accordingly.

In short, we need a measure of potential employment that does not automatically treat recent employment outcomes as the limit of what is possible. We also need a measure of potential employment that does not take the unequal outcomes across race, gender, and education levels as structural constraints on people’s ability to work, but rather as the outcomes of structures of relative advantage in the labor market—which in turn means they may be strongly influenced by the relative bargaining power of employers and workers. The remainder of this issue brief is an attempt to construct such a measure.



2. DEMAND CONDITIONS AND EMPLOYMENT RATES

It is often assumed that differences in employment rates between different groups of people, and sustained changes in employment rates, must reflect structural limits—demographic factors that are independent of the level of demand in the economy. Short-run changes in employment, by contrast, are generally agreed to reflect the level of spending in the economy.

The weak recovery from the Great Recession has complicated this picture. Many researchers have found that the downturn had a sustained effect on employment, beyond the short period in which demand is traditionally expected to operate (Nunn, Parsons, and Shambaugh 2019; Blanchflower and Levin 2015). At the same time, the consensus view is that the aging of the population, with an increasing share of adults over the age of 65, has also had a large effect on employment rates since 2000, and will continue to reduce employment rates into the future (Abraham and Kearney 2018). This view of long-term employment trends as fundamentally reflecting labor supply suggests that if some groups of people have systematically lower employment rates than others, this must reflect structural differences in their capacity or willingness to work. From this perspective, these differences might be overcome with supply-side interventions—for instance, better education and training—but will not be closed by stronger demand.

In this section, we suggest that the demographic explanation for the post-2000 decline in employment rates is weaker than it looks at first glance and, therefore, should not be the main guide of our estimates of potential employment. There is good reason to think that the longer-term decline in employment rates, and not just the rapid falls in the recessions of 2000 and 2007–2009, is the result of weak demand. Cajner, Coglianesi, and Montes (2020) have demonstrated that the labor force participation rate has a longer cyclical response after a negative shock than the unemployment rate. Contracting monetary policy and fiscal spending too early can transform this cyclical process into a long-term effect. The notion that demand can have long-run effects on the size of the labor force goes against traditional textbook economics, but it has become more widely accepted since the Great Recession (Ball 2015).

The view of employment differences between demographic groups as reflecting labor supply constraints is similarly open to question. As we show below, these differences vary strongly over the business cycle. As we argue below, this suggests that the size of these gaps is a useful gauge of the extent of labor-market tightness.



IS THE FALL IN EMPLOYMENT RATES SINCE 2000 THE RESULT OF AN AGING POPULATION?

The overall employment-population ratio peaked in 2000 at around 64.5 percent. At the start of 2020, just before the pandemic, it was about 61 percent, a decline of 3.5 points. This decline did not happen all at once, but in two big drops—by 2.5 points in 2000–2003 and a full 5 points in 2007–2010. In the expansions in between these drops in the employment-population ratio, employment rose steadily, and was still rising when the pandemic struck (see Figure 1, above).

Numerous empirical studies have concluded that the Great Recession and its aftermath were largely responsible for the sharp decline in the employment rate after 2007 (Levin 2015). While it has become accepted that the sharp falls were due to weak demand—the fall in total spending that defines a recession—the longer-term downward trend is supposed to reflect an entirely different set of factors, primarily an aging population. If this were the case, while demand-side policy would have been appropriate in the immediate wake of the pandemic, it will soon be at the limits of its ability to further boost employment, if it has not already reached them.

The aging-population explanation of the post-2000 downward trend in employment rates has a superficial plausibility. It is true that the share of the population of the oldest age groups is increasing over time; the fraction of the population over 64 has risen from 16 percent in 2000 to 20 percent today, while the fraction over 74 has risen from 7 percent to 8 percent. And it is true that people in these older age groups are less likely to be employed than younger people. Indeed, a secure retirement, freed from the need to work until you die, is perhaps the most fully realized accomplishment of the American welfare state (Konczal 2021).



Figure 2

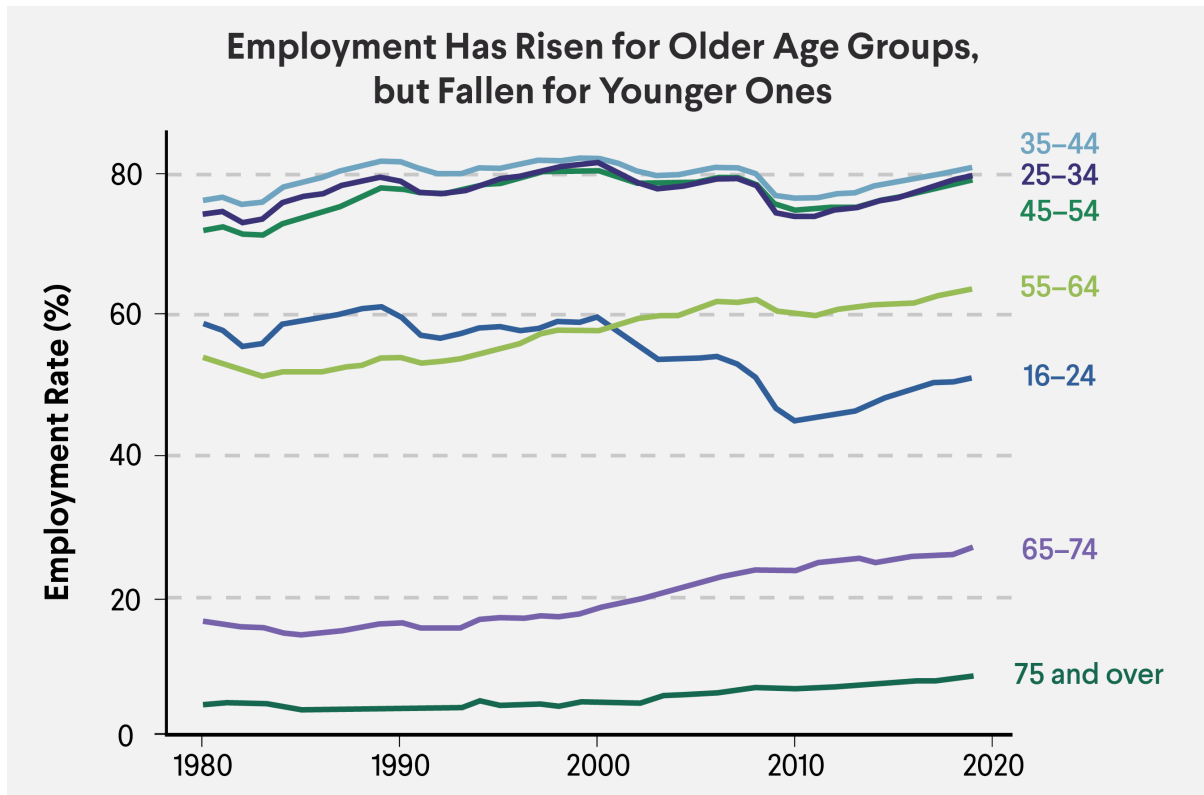
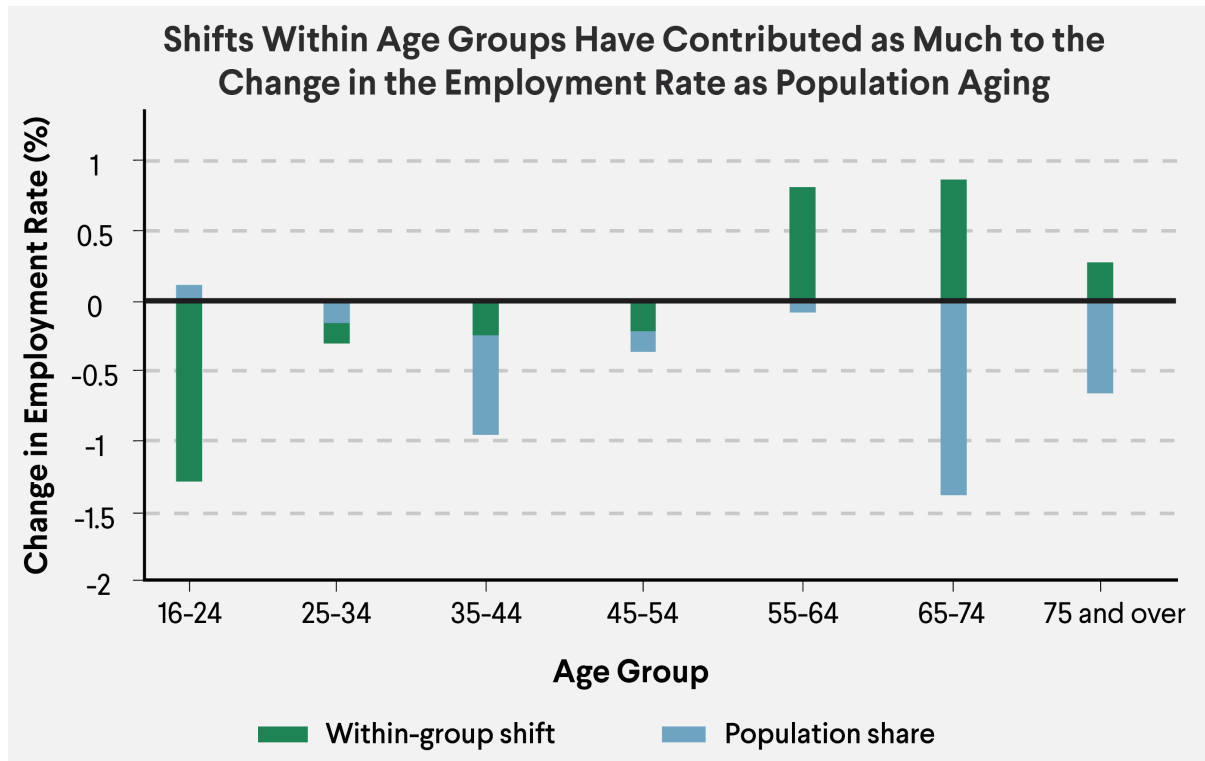


Figure 2 shows the employment rate for seven different age groups from 1980 to 2019. The age groups categorized as “prime age” (25 to 54) show similar and stable employment rates. But other age groups have seen significant shifts in employment rates over the past 20 years, with younger groups seeing falling employment and older groups seeing rising employment. Source: Author’s analysis of Current Population Survey Extracts, Version 1.0.16 (EPI 2021).

The problem for the aging-population explanation of falling employment rates is that employment rates within age groups are not fixed. Over the past 20 years, there have been large changes in employment rates within age groups: falling employment among young people, and rising employment among older people. Indeed, in 2019, employment rates among Americans 65 and older were the highest on record (see Figure 2, above). Because these within-group shifts were largely offsetting, the actual employment decline has been not too far from what you would predict based on aging. But that is a misleading coincidence; the increasing share of older people has played only a small role in the overall decline in employment

Figure 3A



Figures 3A and 3B show the contributions to the overall change in the employment rate of shifting employment rates within age groups and the changing shares of the age groups. Figure 3A shows the contribution of shifts in employment rates for each age group and the changing share of that age group in the overall population. A negative population share value indicates either a declining share of the population for a group with an above-average employment rate, or a rising share of the population for a group with a below-average employment rate. Source: Author's analysis of Current Population Survey Extracts, Version 1.0.16 (EPI 2021).

Figure 3B

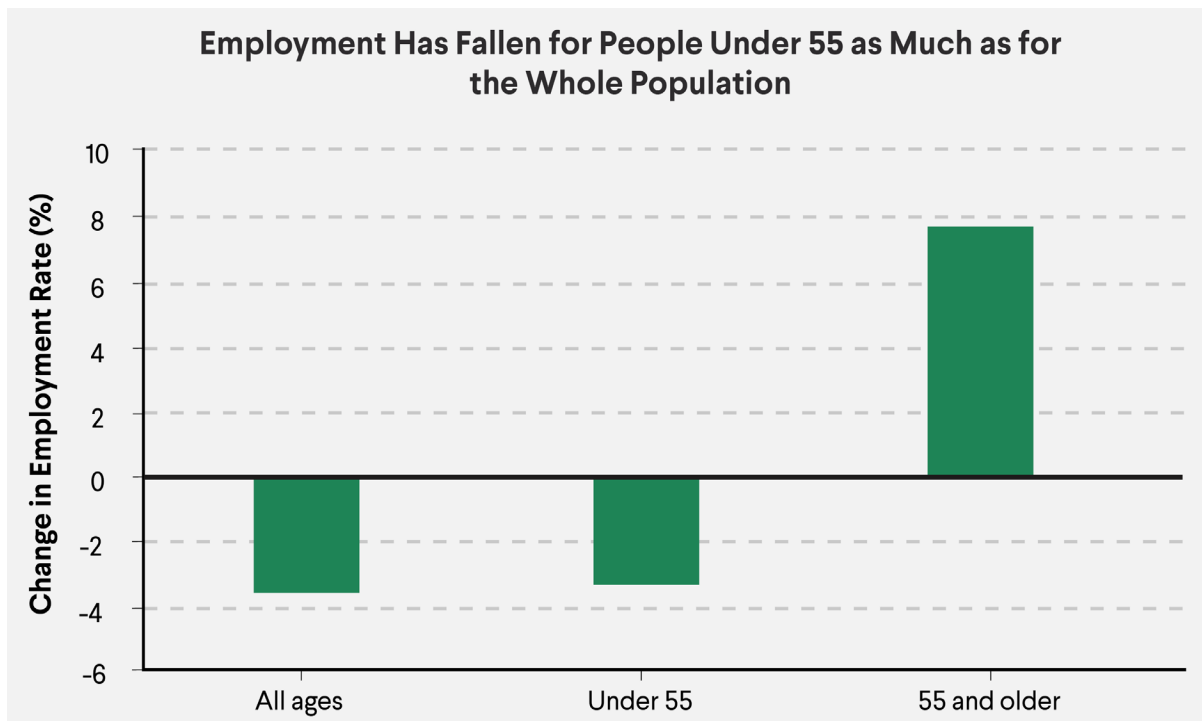


Figure 3B breaks the population into just two groups— those under 55 and those 55 and older—and shows the change in the employment rate within each group. As the figure shows, the fall in the employment rate among those under 55, where aging effects are not significant, was approximately as large as the overall fall in employment rate. Source: Author's analysis of Current Population Survey Extracts, Version 1.0.16 (EPI 2021).

We can see this clearly if we look at the population under 55, essentially none of whom are of retirement age. The fall in employment rates in this group was nearly as large as the fall in the population overall. We can see this in Figures 3A and 3B, which show the overall change in employment rates and the change among those under 55 and those 55 and older. If we exclude those 55 and older, the fall in employment rates between 2000 and 2019 is essentially the same as for the overall population. In other words, the effect of a rising share of older people on employment rates was fully offset by higher employment rates among older people. If we combine the two impacts of older people on employment rates—the change in their share of the population, which lowers overall employment rates, and the change in their own employment rates, which increases it—we find that the overall contribution of people 65 and older to the change in employment rates over 2000–2019 is essentially zero.

We can see the same thing if we focus on the youngest groups, those aged 16 to 24. Their employment rate fell the most of any group, from 60 percent in 2000 to 51 percent in 2019. Given that people under 25 make up about 15 percent of the population surveyed by the US Bureau of Labor Statistics (BLS), this means that about half of the overall decline in employment rates is accounted for by this group alone. One possible reason for declining employment rates among young people is rising enrollment in higher education. But this cannot explain the whole fall. Between 2000 and 2010, the employment ratio for those aged 16 to 24 fell by about 15 points, while the fraction of 18- to -24-year-olds enrolled in higher education rose by 6.7 points (de Brey et al. 2021).

Given that the decline in overall employment rates over the past 20 years was dominated by changes within age groups, it cannot straightforwardly be the result of an aging population. And indeed, claims that depressed employment was a purely demographic phenomenon in the slow recovery following 2009 turned out to be wrong. In the period between 2010 and 2014, when employment rates were essentially flat, many people predicted that they would not rise again since the fall was all due to aging. But once demand picked up, employment rates began to rise as well. In 2014, the CBO predicted, consistent with the demographic story, that paid employment in 2019 would be 145 million. In fact, it was 151 million. Other forecasters who relied on the aging-population story made similarly over-pessimistic predictions.

THE INTERSECTIONS OF WEAK DEMAND, PRIVILEGE, AND LABOR MARKET FRICTION

There is good reason to think that the systematic gaps between employment rates for other demographic groups—such as race, gender, and educational attainment—reflect not differences in willingness or capacity to work, but rather the intersection of weak demand with systematic advantages that some groups enjoy in the labor market. In a society with weak demand, differences in employment rates may reflect a systematic preference for some workers over others, even among those equally able and willing to do a given job. In a tight labor market, employers are less able to exclude qualified applicants.

As a result, employment differences between demographic groups are strongly dependent on the state of the labor market. Simultaneously, employment differences across demographic groups are also the result of employer discrimination and a broader, deep-seated structure of privilege that favors educated white men over women, Black workers, and people with less education. It is precisely *because* employment differences are due to



structures of privilege, rather than ability or willingness to work, that employment gaps vary over the business cycle, as we show below. As tight labor markets shift bargaining power from employers to workers, employers lose the power to favor certain groups over others in hiring.

A second, overlapping reason for different employment rates across demographic groups is the existence of search costs or frictions in the labor market. The term “labor market” is at best a metaphor; there is no central clearinghouse where people present their labor for hire at a given price and employers look through all the available labor for the best offer. Rather, there is a costly and uncertain process of search by which workers and employers look for the best match.

In this search process, some workers will systematically have an easier time than others. This will, in part, be due to the same structures of privilege that drive outright discrimination by employers. Workers from the “right” background, with family or personal connections, will find it much easier to locate a potential employer than those without those advantages. Similarly, job experience and education not only make workers more attractive to potential employers; they also give access to the networks and information that facilitate matching with employers. Other factors, like residence in an area with a high density of potential jobs (or the resources to relocate to one), or lack of other commitments that would interfere with potential employment, influence the ease with which workers can match with employers. Along with direct discrimination by employers, these advantages mean that some people are systematically favored in hiring over others—educated, prime-age white men over younger, female, less formally educated and/or BIPOC (Black, Indigenous, and other people of color) workers.

Search frictions mean that among similarly qualified workers, those in more-privileged groups are likely to be hired first, even if workers from less-privileged groups would not require any higher wages or be otherwise more costly to employ.

This pattern is an important and underappreciated argument for aggressive pursuit of full employment. It is sometimes argued that pushing for tighter labor markets will leave behind BIPOC and other marginalized groups of workers, and that more targeted employment programs are needed. But this is nearly the opposite of what we find. Full employment disproportionately benefits workers who face the greatest discrimination and obstacles (Aaronson et al. 2019; Bergman, Matsa, and Weber 2021). Discrimination and privilege are experienced in unique and intersectional ways by race, age, education, and gender. Below, we analyze historical employment rates in these key demographic groups and other empirical evidence to demonstrate how these dynamics interact with demand.



RACE, EMPLOYMENT RATES, AND DEMAND

Economically, unemployment refers to potential workers who lack jobs not because of their skills (or wage demands) but because of a lack of overall demand in the economy—people who would be employed if the overall level of spending were higher. Thus, to the extent that stronger labor markets can close the gap between Black and white employment rates, the size of that gap is a measure of unemployment.

Figure 4 shows employment-population ratios by race, relative to those of the white population. Here, and for subsequent demographic analyses, employment rates for each group have been adjusted for age by weighting the age groups within each race by the age distribution of the white population (the reference group). Since the age distribution is quite different among racial groups, this adjustment is needed so we can examine the impact of race on its own.

The effects of the different age distributions can further be seen in Table 1, which shows employment rates for selected years for the different groups with and without adjusting for age. It can be seen that, for example, the apparent higher employment rates for Hispanic and Asian groups compared to the white population is entirely due to the younger average age of the Hispanic and Asian groups.

Table 1

2019 Employment Rates by Race		
Race	Employment Rate (%)	Age-Adjusted Employment Rate (%)
Asian	62.5	57.3
Black	58.8	54.0
Hispanic	63.9	56.7
Other	54.7	50.7
White	60.3	60.3

Table 1 shows the 2019 employment rate for five different racial groups and how it changes when adjusted for age. The first column shows the raw rate; the second column shows all rates adjusted to the age distribution of the white population. Raw employment rates of the Asian and Hispanic population are greater than the white employment rate, but this is fully explained by the younger age distribution of these two groups. Adjusted for age, employment rates are highest for the white population. Source: Author's analysis of Current Population Survey Extracts, Version 1.0.16 (EPI 2021).

Figure 4

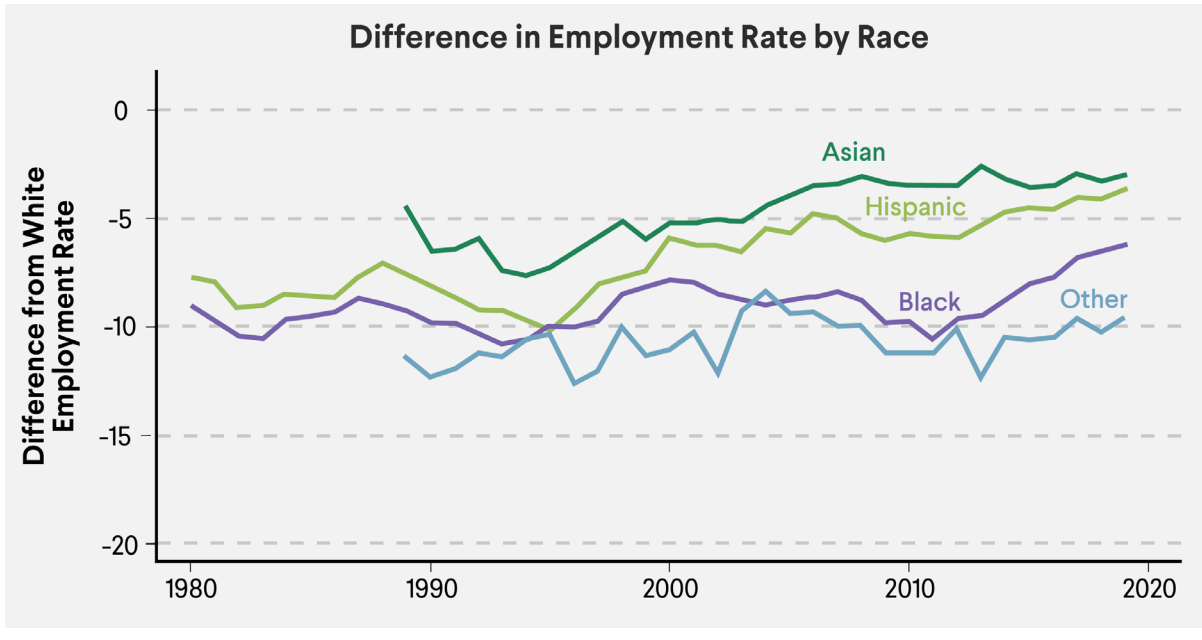


Figure 4 shows the age-adjusted employment rate for four different racial groups, expressed as the difference from the white employment rate. (Consider the horizontal line at zero to be the white employment rate.) Each group’s age distribution was adjusted to the same age distribution as the white population. The BLS has changed its surveying about racial identity over the years, and only provides data for Asian and Other (as separate from Asian) populations since 1990. Source: Author’s analysis of Current Population Survey Extracts, Version 1.0.16 (EPI 2021).

Differences in employment rates by race reflect systematic discrimination in hiring, a long-standing pattern that remains a central feature of US labor markets today (Quillian et al. 2017). What is less widely recognized is that these gaps also vary systematically over the business cycle (Okun 1973; Aaronson et al. 2019). In recessions, employment rates for Black people fall more than employment rates for white people. And in booms, employment rates for Black people rise faster than they do for white people (Aaronson et al. 2019; Bergman, Matsa, and Weber 2021).

Figure 5A

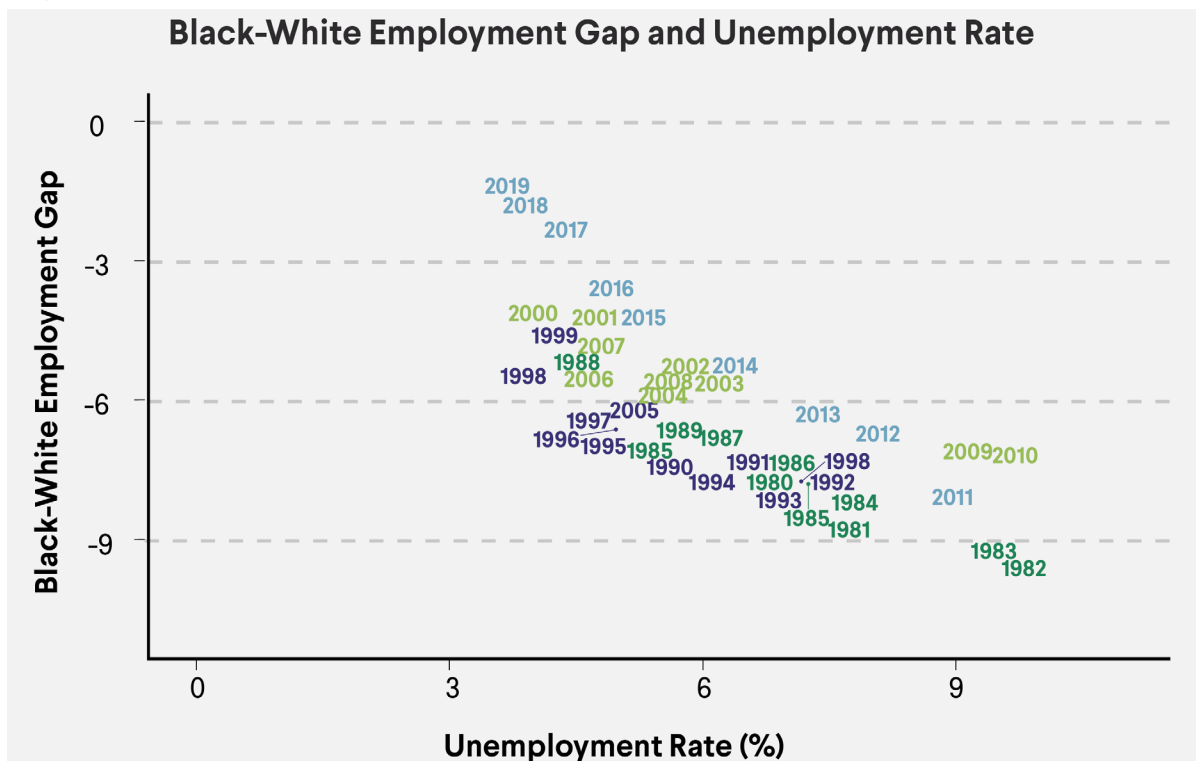
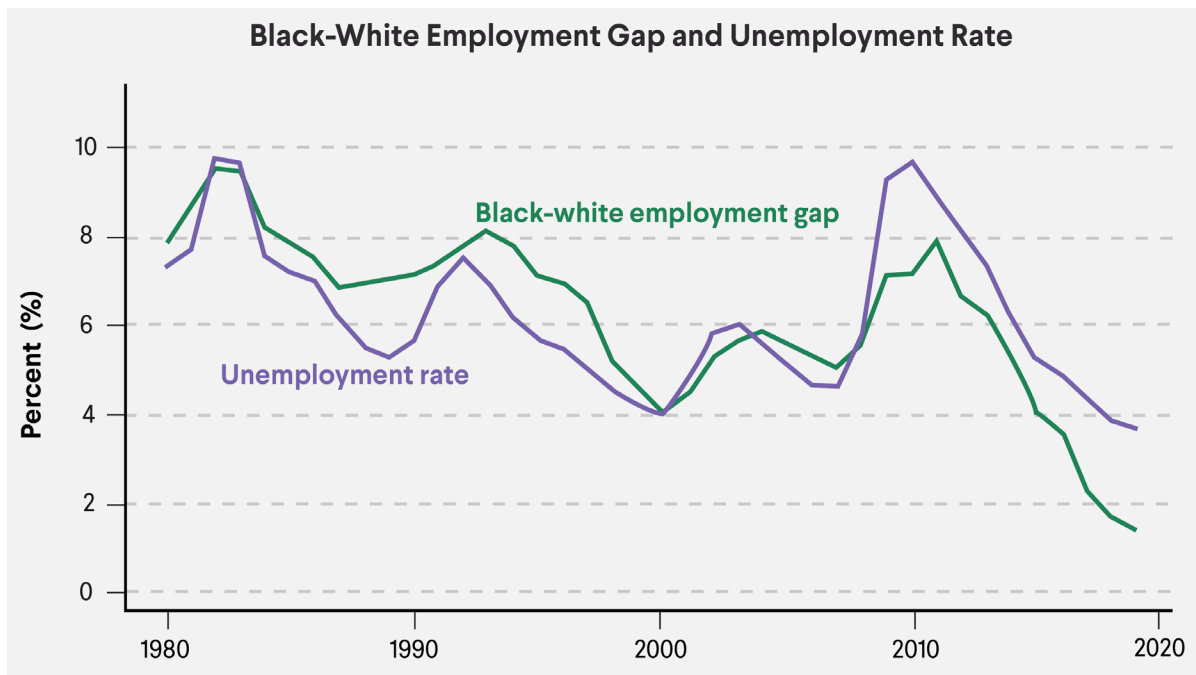


Figure 5B



Figures 5A and 5B show the Black-white employment gap and the unemployment rate from 1980 to 2019. In figure 5A, the horizontal axis shows the overall unemployment rate while the vertical axis shows the difference between the white and Black employment rates in the year shown. In figure 5B, the overall unemployment rate and the difference between the white and Black employment rates are shown over time. Both figures show a tight link between the Black-white employment gap and labor market conditions (which are indicated by the unemployment rate). Rather than remaining stable or declining steadily over time, the racial employment gap narrows when the unemployment rate is low and widens when it is high. Source: Author's analysis of Current Population Survey Extracts, Version 1.0.16 (EPI 2021).



This is illustrated for the Black-white gap in employment rates in Figure 5A and 5B, which illustrate the data in two different ways. Both figures show that there is a strong relationship between the Black-white gap in employment rates and current labor market conditions, as represented by the unemployment rate. The result is the clear relationship shown in the figure—when unemployment is low, the gap between Black and white employment rates is relatively low (the upper left of the figure); but in downturns and weak recoveries, when unemployment rates are high, Black employment falls much more than white employment.

Many researchers have examined the historical relationships between monetary policy and labor market outcomes of different races in the US and found that a period of economic expansion reduces unemployment more for Black people than for white people (Thorbecke 2001; Carpenter and Rodgers III 2004; Zavodny and Zha 2000; Bergman, Matsa, and Weber 2021). Others have studied the US's last boom in the 1990s and found that tighter labor markets brought widespread relative gains to BIPOC workers. They assert that these groups see their largest gains when further strengthening of an already-strong labor market is permitted (Aaronson et al. 2019).

A second implication of the pattern in Figures 5A and 5B is more important for the purposes of this project. The fact that the gap between Black and white employment rates varies so strongly across the business cycle means that most of that gap reflects demand conditions rather than structural factors. Between 2010 and 2019, the Black-white employment gap fell by five points, more than half, to its lowest level on record. Given this record, it is plausible that a few more years of strong employment growth could have closed the gap entirely.

EDUCATION, EMPLOYMENT RATES, AND DEMAND

There is a clear and well-documented relationship between education, on the one side, and employment rates and wages on the other (Shambaugh 2019). These effects are often understood in terms of education providing skills that give people access to more job opportunities and better wages. But to the extent that lower employment rates among younger and less-educated people are sensitive to labor market conditions, they are functionally a form of unemployment. If the gap between employment rates for people with and without college degrees shrinks when labor markets are tight—and it does—then we cannot treat that gap as constant when estimating maximum potential employment.



Figure 6

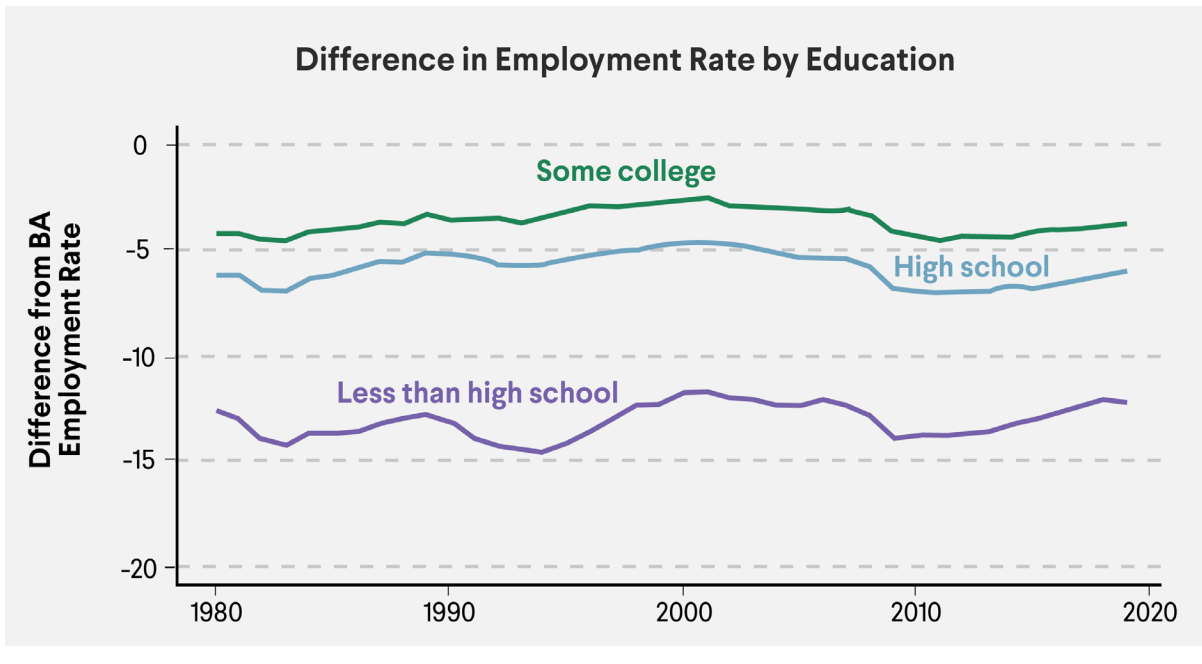


Figure 6 shows the age-adjusted employment rate for three different levels of educational attainment, expressed as the difference from the employment rate of people with a Bachelor’s degree or above. (Consider the horizontal line at zero to be the employment rate of people with a BA or above.) Each group’s age distribution was adjusted to the same age distribution of people with a BA or above. Source: Author’s analysis of Current Population Survey Extracts, Version 1.0.16 (EPI 2021).

Table 2

2019 Employment Rates by Education		
Education	Employment Rate (%)	Age-Adjusted Employment Rate (%)
Less than High School	37.1	48.0
High School	56.7	60.4
Some College	62.5	65.0
BA or more	72.4	72.4

Table 2 shows the employment rate for four groups: those with less than a high school education, those with only a high school diploma, those with some college but not a BA, and those with a BA or higher degree. The first column shows the raw rate; the second adjusts the age distribution of each group to the age distribution of the population with BAs. As the table shows, some of the gap in employment rates between people with more versus less formal education is due to the fact that the proportion of people attending college was lower for the cohorts now at retirement age. However, most of the education gap in employment rates remains even after adjusting for age. Source: Author’s analysis of Current Population Survey Extracts, Version 1.0.16 (EPI 2021).



Figure 6 shows employment-population ratios by highest level of education completed. Since younger people often have less formal education than older people, each group has been adjusted for the age of people with a BA or more, so that we can examine the impacts of education alone.

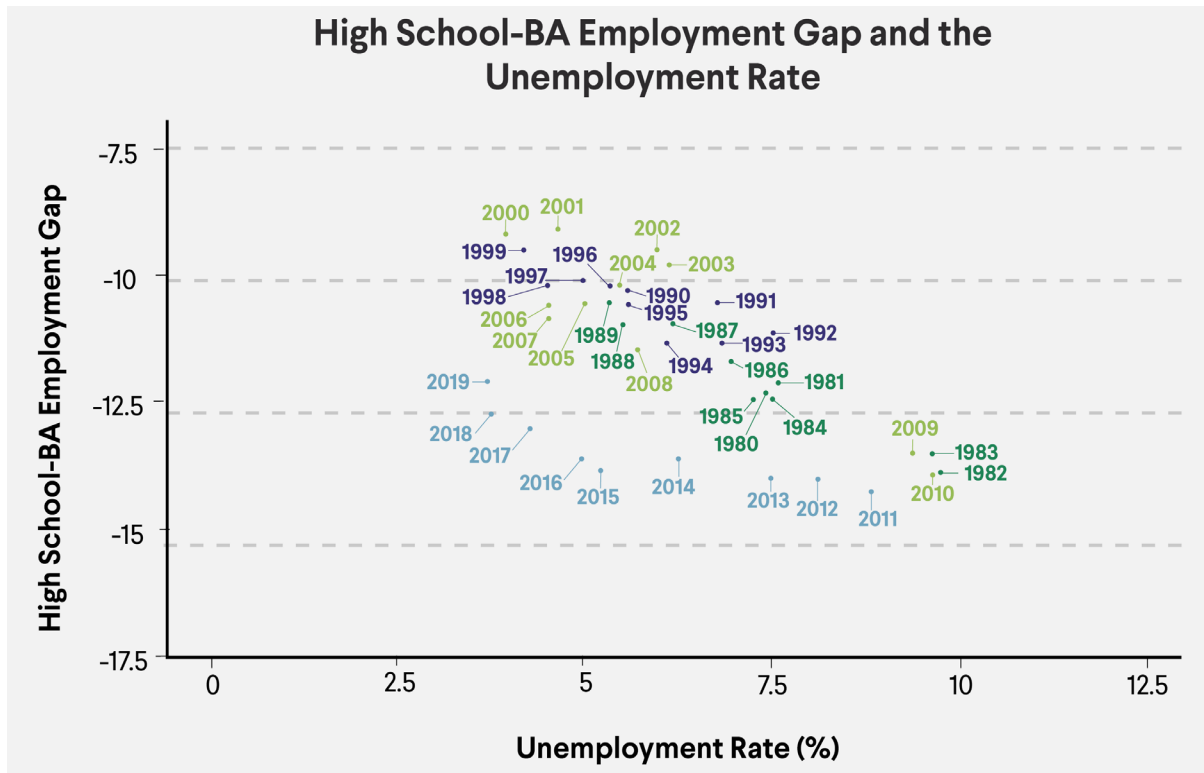
Table 2 shows employment rates for selected years for the different education groups with and without adjusting for age. Most of the education gap in employment rates remains even after adjusting for age.

However, educational attainment plays a different role depending on the level of demand in the economy. A striking illustration of this is offered in the recent paper by Modestino, Shoag, and Ballance (2020) that finds a sharp increase during the 2007–2009 recession in the proportion of job listings calling for a bachelor's degree or more, from 13 percent in 2007 to 25 percent by 2012. Strikingly, this pattern remained basically the same even when controlling for the same job title at the same company, and the increase in jobs listed as requiring BAs was strongly correlated with the unemployment rate across states. This strongly suggests that education requirements were imposed in weak labor markets where employers could be more selective about hires, rather than being necessary to the job itself (Modestino, Shoag, and Ballance 2020).

In some cases, of course, educational credentials do have some relationship with skills that are relevant for particular jobs. It is clear, though, that this is not the main reason for the employment gap by education level. Workers with college degrees, in particular, are likely to have an easier time connecting with potential employers for reasons that have nothing to do with discrimination in hiring: They are more likely to live in major metropolitan areas, their social networks are more likely to connect them with employment opportunities, and so on (Nunn, Parsons, and Shambaugh 2019). There is no reason to think that the jobs being added at the top of a boom require less training than the ones people are doing in a recession. The reason that people without BAs are at less of an employment disadvantage in a boom than in a recession (see Figure 7, below) is not because they are more able to do the jobs on offer then, but because when demand for labor is strong, it is more costly for employers to demand qualifications beyond those actually required by the job. The systematic relationship between employment gaps and demand conditions is strong evidence for this kind of queueing effect. But we also have evidence for it at the level of individual employers. Study after study has confirmed that employers' decisions about whom to offer jobs is strongly influenced by characteristics like race and education, independent of the fit between the applicant and the job (Carnevale et al. 2019).



Figure 7



In **Figure 7**, the vertical axis shows the difference between the employment rate for people with a high school diploma or less, and people with a Bachelor’s degree or more, for the given year. The horizontal axis shows the overall unemployment rate in that year. The clustering of the points around a downward sloping line shows that, historically, the difference in employment rates based on formal education has depended on labor market tightness. When the unemployment rate is low, the gap narrows; when the unemployment rate is high, the gap widens. Since 2010, the gap has been wider than in earlier periods, but the relationship to labor market tightness is still present. Source: Author’s analysis of Current Population Survey Extracts, Version 1.0.16 (EPI 2021).

Furthermore, there is a strong relationship between the education employment gap and labor market conditions. Figure 7 illustrates the high school–BA degree gap in employment rates and their relationship to unemployment rates as represented by the unemployment rate. While less pronounced than the relationship between Black and white employment rates in Figures 5A and 5B, the relationship is still clear: When unemployment is low, the gap between more- and less-educated workers is relatively low (the upper left of the figure), but in downturns and weak recoveries, when unemployment rates are high, the employment of less-educated workers falls much more than for those with a college degree. We can conclude that at least some of the employment gap reflects demand conditions rather than structural factors. Compared with the racial employment gap, however, it is less clear that even sustained strong demand would be enough to eliminate the education gap.

GENDER, CARE WORK, AND EMPLOYMENT GAPS

While the employment gaps between Black and white workers and workers with and without BAs can reasonably be regarded as a form of unemployment that would reliably shrink with stronger demand conditions, the gap between men's and women's employment rates is a bit more complicated. Unlike those other gaps, it is not clearly associated with business cycle conditions, at least in recent cycles. Between 2007 and 2010, employment rates for men fell much more than for women—a phenomenon that sparked discussion of a “man-cession” (Wall 2009).

This different historical pattern is largely related to the disproportionate share of care work done by women. This care work includes childcare, elder care, and other household responsibilities, some of which people are paid to do in the labor market and much of which exists outside of the labor market. The fact that women bear a disproportionate share of childcare and other family and home responsibilities is a major factor in the difference in employment rates between men and women. According to the Current Population Survey (CPS), women are almost 10 times more likely not to participate in the labor market due to family and home responsibilities. This is the largest reason for nonparticipation stated by women, even when other reasons (disability, schooling, retirement, etc.) are even between men and women (Nunn, Parsons, and Shambaugh 2019).



Figure 8

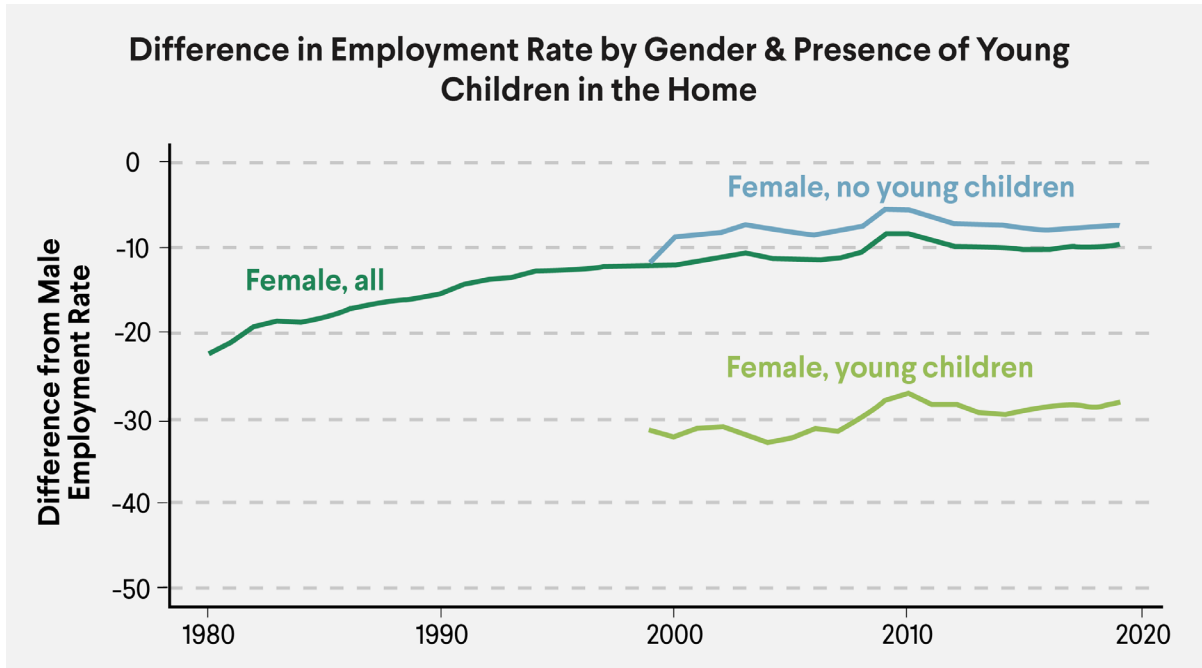


Figure 8 shows age-adjusted employment rates for women, women in households with one or more children under age 6, and women in households without children under age 6, each expressed as the difference from the employment rate of men in the same parental categorization—all men for the all female line, men in households with young children for the female with young children line, and men in households without young children for the female without young children line. (Note: the BLS only began collecting data on the age of children in the home in 2000, and households without young children may have no children or older children.) Consider the horizontal line at zero to be the employment rate of men with the same parental status. The figure shows that while women’s employment rate has been steadily gaining on men’s even after 1980, the presence of small children in the home has a large impact on the gap between men and women’s employment rates. Source: Author’s analysis of Current Population Survey Extracts, Version 1.0.16 (EPI 2021).

Figure 8 shows employment-population ratios by gender, adjusted for age. Figure 8 further disaggregates women with and without young children, starting in 1999 when that data became available and adjusted to the age of men of the same parental status. Since people with children tend to be in their prime working years, women with young children have higher employment rates than those without. Due to the limitations of survey data, this analysis shows some but not all of the ways care work impacts women’s ability and choice to secure employment in the labor market.

Table 3

Employment Rates by Gender and Presence of Young Children					
		2005 Employment Rate (%)	2005 Age-Adjusted Employment Rate (%)	2019 Employment Rate (%)	2019 Age-Adjusted Employment Rate (%)
Young children present	Women	58.6	60.1	63.8	64.7
	Men	92.5	92.5	93.0	93.0
No young children	Women	55.9	58.3	54.3	56.3
	Men	66.5	66.5	63.6	63.6

Table 3 shows age-adjusted employment rates of men and women, with and without children under age 6 in the home. All groups were adjusted to the age of men in the same parental category. While having young children has a much larger impact on women's ability to secure employment than men's, there is also a gender employment gap among men and women without young children. Source: Author's analysis of Current Population Survey Extracts, Version 1.0.16 (EPI 2021).

As Table 3 shows, the employment gap between men and women is much larger among parents of young children than among people without young children in their households. But there is a substantial gap even between men and women without young children. It is plausible that this remaining gap is due to gender discrimination and privileges that would shrink substantially with stronger demand. But given the other care responsibilities that fall disproportionately on women, the case that strong demand alone could eliminate this gap is not quite as clear-cut as for race.

In any case, what we can say is that *if* the goal is to close the gap between men's and women's employment rates via some mix of changing social norms and better support for families' caregiving needs, it will be necessary to achieve fast enough employment growth to absorb the additional women workers entering the labor market. Making it easier for women with young children or other caregiving responsibilities to work will not increase employment unless there is also enough demand to create jobs for them. So, while it may be less true that strong labor markets are a *sufficient* condition for closing the gender employment gap than for the other gaps, it is just as true that it is a *necessary* condition for mitigating the gender employment gap.

DISABILITY, EMPLOYMENT RATES, AND DEMAND

The dynamics experienced in the demographic groups above also apply to people with disabilities. Disability and poor health are the top reason men cite for their nonparticipation in the labor force and the second most significant reason women cite,

accounting for 30 percent of prime-age nonparticipation (Nunn, Parsons, and Shambaugh 2019). Policies that improve people's health and reduce employment barriers for people with disabilities can lift these groups' participation rate. But we also see a systematic relationship between the employment of people with disabilities and labor market conditions. The historical link is difficult to draw, as the BLS only added a question about disability in 2008 (US Bureau of Labor Statistics 2010). But the evidence from the Great Recession and recovery points to a clear movement across the business cycle. The annual employment rate for people with disabilities fell from 19.2 percent in 2009 to 17 percent in 2014. By 2019 it had recovered to 19.3 percent (US Bureau of Labor Statistics 2021a; Shambaugh and Strain 2021). As with the other factors discussed here, the effect of disability on employment rates is not fixed but depends on the state of the labor market.

3. HOW BIG IS THE LATENT LABOR FORCE?

The historical patterns described in the previous section create problems for the conventional ways of thinking about the labor force. It's common to divide the population into two groups. There are people who are in the labor force, meaning they are available and expect to work; if they are not employed, their search for a job will put downward pressure on wages. And then there are the people who are not in the labor force, who are not available for paid employment. They are not looking for a job and have no effect on wages. When people move between these two groups, in this view, it must be because of changes in social norms or institutional factors—for instance, better retirement benefits may encourage older people to exit the labor force. Once they have retired, they are not available for work, and don't lower wages by competing with those in the labor force.

It is clear, however, that in real-world labor markets, things don't line up so nicely. The people who could be drawn into paid employment are not necessarily the same as the people who are influencing wage bargaining today. On the one hand, if employers are strongly averse to hiring certain workers—people with a criminal record, or the long-term unemployed—then their search for work will not have much effect on market wages. Employers may resist hiring from these stigmatized groups and will, up to a certain point, pay higher wages to attract their favored workers. On the other hand, people who are not currently searching for work will not put downward pressure on wages, even if employers would be happy to hire them rather than offer a raise.



The important thing is that these barriers are not fixed but depend on the state of the labor market. Employers may prefer to offer modest raises rather than hire someone with different characteristics than their favored employees, but when the market wage rises too high, they will reconsider this. People with options other than market employment may not feel it is worth entering the labor force if that means an uncertain chance at an insecure, low-wage job, but are more likely to seek employment in a situation where they reliably expect to find a higher-paying job. On both these margins, the effective labor force grows as the labor market tightens.

In addition, these adjustments take time, in large part because the “labor market” is not just a market but a set of social institutions with its own norms. Some people expect to work for a living; others do not. These expectations can change (at one point there was an expectation that married women would exit the labor force when they had children, but this is no longer the case). But these changes in norms take time. So, while tight labor markets can, and historically do, bring new groups of people into paid employment, this can happen only if the tightness is sustained long enough for norms to shift (Aaronson et al. 2019).

These considerations suggest that we need an additional measure of the labor force. By the end of the 2010s, we saw the beginning of an important debate about how to construct such new measures (Abraham, Haltiwanger, and Rendell 2020). If we want to ask how much sustained strong demand could raise employment—the potential labor force in the broader sense—we need a different measure.

In the following sections, we lay out such an alternative measure—an estimate of the maximum employment that could plausibly be generated by sustained strong demand. We will call this the latent labor force, while the standard definition—employed plus conventionally unemployed—we will call the current labor force.

When employment draws in enough of the current labor force, we will see rising wages. Some of these wage increases will be passed on to inflation, as in textbook models. Not all of them will be, however. Some businesses will find ways to raise productivity in response to rising wages. Others will be unable to either raise prices or productivity and will have to accept smaller profit margins; to the extent that this is the case, we will see an increase in the share of income going to labor. As discussed in the following section, these adjustments should not be seen as a problem, but as the normal operation of a growing economy. This process will result in a rise in economy-wide productivity and wages, as inefficient low-wage businesses are gradually replaced by more efficient high-wage ones.



Over time, the combination of rising wages and more active search for employees by businesses will draw people from the latent labor force into the current labor force. This process will take time, but eventually will relieve the pressure in the labor market. In the absence of further boosts to demand, wage growth may slow, but will continue from the new higher level. Meanwhile, the changes in norms and expectations that result from the period of labor market tightness will remain in place. A period of strong demand will leave the economy with permanently higher available labor, just as a deep recession leaves it with less.

So, the current labor force gives a sense of how high employment can rise without an acceleration of wage and prices. But the considerably higher latent labor force gives us a sense of how much employment we might reasonably see if strong demand were sustained.

Instead of thinking of a hard line between “in the labor force” and “not in the labor force,” we can imagine a slope or gradient between people who can be hired most easily, to groups progressively farther away, who can be drawn into employment but only over time and with friction. This friction includes not only higher wages (and prices, to the extent that wage costs can be passed on by employers) but also changes in the way workers are recruited and trained, the way work is organized, and adjustment by workers themselves.

As strong demand is sustained, workers further from employment can be drawn into the labor force. In effect, a sustained boom progressively converts the latent labor force into the current labor force. A natural question is, how far can this process be carried? How many of those who are currently neither working nor looking for work could plausibly be drawn into employment by sustained strong demand?

Obviously, there is some limit to this process. Even if labor market tightness on the level of war mobilization were sustained for many years, many adults still would choose not to be engaged in paid employment (Mason and Bossie 2020). Obviously, many older people will want to—and should be able to—remain retired even when demand for labor is extremely strong; other people have caregiving responsibilities or serious disabilities that will preclude their working under any plausible scenario. There is a strong case that in an environment of economic security, more people would choose to engage in activities other than paid employment. So, there are some constraints on employment even in a setting of unlimited demand for labor. But knowing this in the abstract is not useful. We need a sense of where these absolute labor supply constraints are likely to be, and how far away from them we are.



In the remainder of this section, we present a series of estimates of the US latent labor force. We progressively add people to the existing labor force, who face varying degrees of barriers to employment that could be overcome by sustained strong demand. We start by looking at the historical upper limit of employment in each age group. Then we progressively remove the employment gaps due to race, gender, and education.

METHODOLOGY

To produce our estimates of maximum employment, or what we are calling the latent labor force, we proceed as follows.

For our baseline estimate of potential employment, we assume that the employment-population ratio within each age group returns to its 2019 level. Since employment rates are lower in the oldest age groups, and these groups' share of the population is rising, this implies that the overall employment rates will eventually fall from 2019 levels. This estimated employment level is labeled as "with 2019 employment by age" in Figure 9. As can be seen in Figure 9, maximum employment under this scenario is essentially the same as the CBO's estimate of potential employment.

Table 4

Maximum Employment Rates by Age Group since 1995		
Age Group	Maximum Employment Rate (%)	Year of Maximum
16 to 24	59.7	2000
25 to 34	81.5	2000
35 to 44	82.3	1999
45 to 54	80.5	2000
55 to 64	63.7	2019
65 to 74	27.0	2019
75 and older	8.79	2019

Table 4 shows the highest annual employment rate reached by each age group from 1995 to 2019. These maximum employment rates are used in one of the alternative projections below, where we posit what employment growth is possible in the next 10 years if we assume that each age group has the potential to work as much as it has historically. Source: Author's analysis of Current Population Survey Extracts, Version 1.0.16 (EPI 2021).



We then adjust this baseline as follows.

First, we look for maximum historical employment rates by age. We break the population into age groups: 16–24, and then 10-year groups up to 75 and over. Within each age group, we find the maximum employment rate since 1980. Because of the different employment trends across age groups, these years are not the same as 2000, the year of the maximum overall employment-population ratio. However, it is important to note that for ages 16 to 54, employment rates were highest in 1999 and 2000, which also coincides with the last time the US was considered close to full employment (US Bureau of Labor Statistics 2021b; World Bank 2021). The years of maximum employment for each group are shown in Table 4. Logically, it does not make sense to say that the maximum fraction of a given age group that *can* work is lower than the fraction that *has* worked historically. Our first estimate, considering only age, assigns these maximum employment rates to each age group. This is shown as “with highest employment by age” in Figure 9.

All the remaining estimates demonstrate how much employment could rise if sustained labor market tightness closed various other employment gaps. Within these exercises, we incorporate the same age-adjustment process—selecting the maximum employment rate of each age group.

Next, we find the maximum employment rates of white people in each age group. Correcting for age, white Americans have the highest employment rate of any race, consistent with them facing the fewest barriers to employment. Our next estimate shows the latent labor force implied by lower employment rates among less privileged racial groups. This estimate is labeled as “closing race gap” in Figure 9.

Third, we address the gender employment gap. We find the maximum employment rates for men of all races in each age group. However, because some of the lower employment rates for women reflect their greater share of care work, we make the following adjustment: For each group, we find the average difference in employment rates between women with and women without children under age 6 in their household from 2010 to 2019. We then reduce employment for all people with young children, men and women, by this amount. Our estimate, then, assumes that in a full employment economy, men as well as women with young children will engage in childcare rather than paid work to the same extent that women do now. If we think that the employment rate differential between men and women that is not associated with the presence of children is due to men's more favored position in the labor market, this is the appropriate estimate. It is labeled as “closing gender gap” in Figure 9.



Fourth, we combine the previous two steps by finding the maximum employment rate since 1980 for white men in each age group. We make the same downward adjustment for parents of young children as in the previous step. This estimate incorporates the assumptions of both previous lines—that the differences in employment rates between racial groups and the non-childcare-related difference in employment rates between men and women reflect the privileged labor market position of white men. The value incorporating both these adjustments is shown as “closing race and gender gap” in Figure 9.

Finally, we estimate the impact of removing some of the labor market barriers experienced by people with less formal education during periods of weak demand. It is true that formal education in some cases imparts specific skills required for certain types of jobs. But in a context of weak demand, higher education may serve more as a marker or signal for other qualities that employers desire. Because the effect of education on employment rates is a mix of genuine job qualifications and signaling, we take a slightly different approach here. Rather than setting employment rates for people with less formal education equal to those for BAs (as we did with race and gender), we set the gap between employment rates for those with more and less formal education within each age group at the lowest level observed historically. In addition, we assume that the share of the population with a BA or above will rise over the next decade at the same rate as between 2010 and 2019.

We then estimate the total number of people employed using the maximum employment rate by age group for white men with a BA or more for the share of the population that will have a BA or more and apply the smallest employment gap between people with and without a bachelor’s degree to the rest of the population. We make the same downward adjustment for parents of young children as in the previous two steps. The resulting estimate is shown as “closing race, gender, and education gap” in Figure 9. It represents our best estimate for the maximum employment achievable in the US, given the CBO’s projected size of the civilian noninstitutional population and its age distribution.

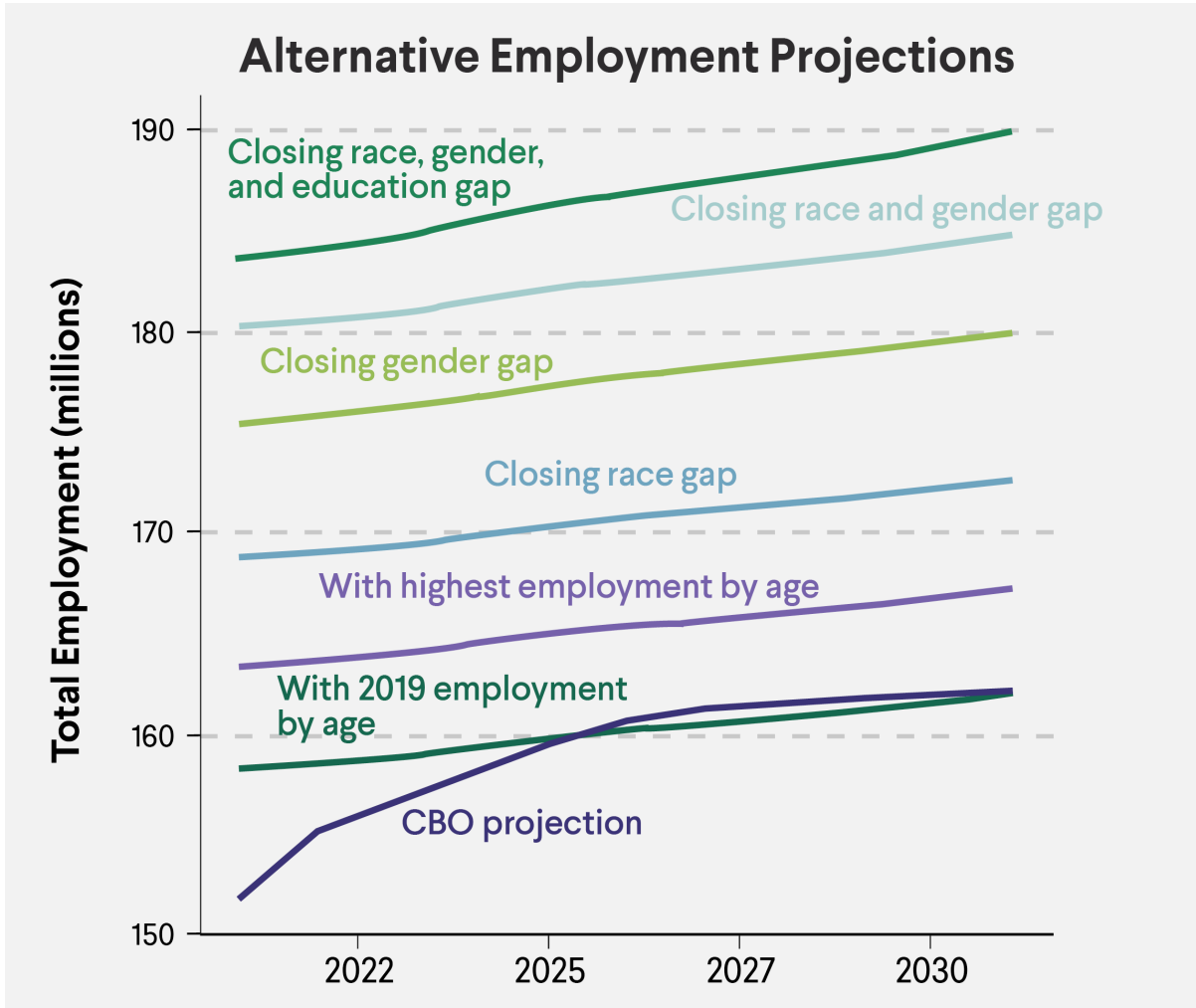
RESULTS

The various estimates discussed above are shown in Figure 9, which shows total potential employment given each of our adjustments. The absolute level of the latent labor force is much higher than the potential labor force estimated in CBO projections. In each of our projections, as in the CBO’s, the absolute level of employment continues to grow due



to the growth of the population. By 2031, our estimate of potential employment reaches 190 million, about 28 million more than estimated by the CBO. Employment rates under the various scenarios are shown in Table 5. Our preferred estimate of the potential employment rate is about 10 points higher than the CBO's.

Figure 9



In **Figure 9**, each line in this figure applies the alternative employment rates discussed in the text to the CBO's projections of the size and age distribution of the civilian non-institutionalized population from 2021 to 2031. These estimates are compared to the CBO's own projections. We assume that: at full employment, employment rates for white men with BAs within each age group should be at the highest rate observed since 1980 for that age group; at full employment there should be no gap between white and Black employment rates or between male and female employment gaps, adjusting for the presence of young children; and for education, the gap between employment rates for more and less educated workers should be the lowest observed since 1980 for that age group. These adjustments suggest the latent labor force is much larger than the CBO's estimate of the potential labor force. Source: Author's analysis of Current Population Survey Extracts, Version 1.0.16 (EPI 2021).

Table 5

Alternative Employment Rates in 2021 and 2031 (%)		
	2021	2031
CBO Projected Employment Rate	58.0	58.2
With 2019 Employment by Age	60.3	58.0
With Highest Employment by Age	62.3	59.9
Closing the Race Gap	64.3	61.8
Closing the Gender Gap	66.9	64.4
Closing the Race and Gender Gap	68.7	66.2
Closing the Race, Gender, and Education Gap	70.1	68.0

Table 5 shows the employment rates for 2021 and 2031 under various assumptions. Employment levels for the various rows are calculated in the same way as in Figure 9, and compared to the CBO’s projections for the civilian non-institutionalized population. Source: Author’s analysis of Current Population Survey Extracts, Version 1.0.16 (EPI 2021).

With all of our adjustments, the maximum potential employment *rate* still declines over time. The aging of the population and the much lower employment rates among the oldest age groups are real phenomena.

Table 5 shows the employment-population ratio after closing the various employment gaps discussed above. The ratio is shown for two years: 2021 and 2031. The 2031 number incorporates the predicted change in the age distribution of the population from the Social Security Administration, the same demographic data that the CBO uses in its forecasts.

Even with the various adjustments we’ve made, the employment-population ratio in 2031 would be higher than the CBO’s projections for 2021. Most notably, rows 4 through 7 of Table 5 show that closing each subsequent employment gap adds 1 to 2 points to the employment rate in 2021 and maintains that over the course of the next 10 years, despite the inevitable decline in the employment rate due to the aging population. Using our best estimate of the latent labor force that addresses the race, gender, and education gaps results in an employment-population ratio in 2031 that is 10 points higher than the employment-population ratio the CBO projects for 2021 and 2031.



Figure 10

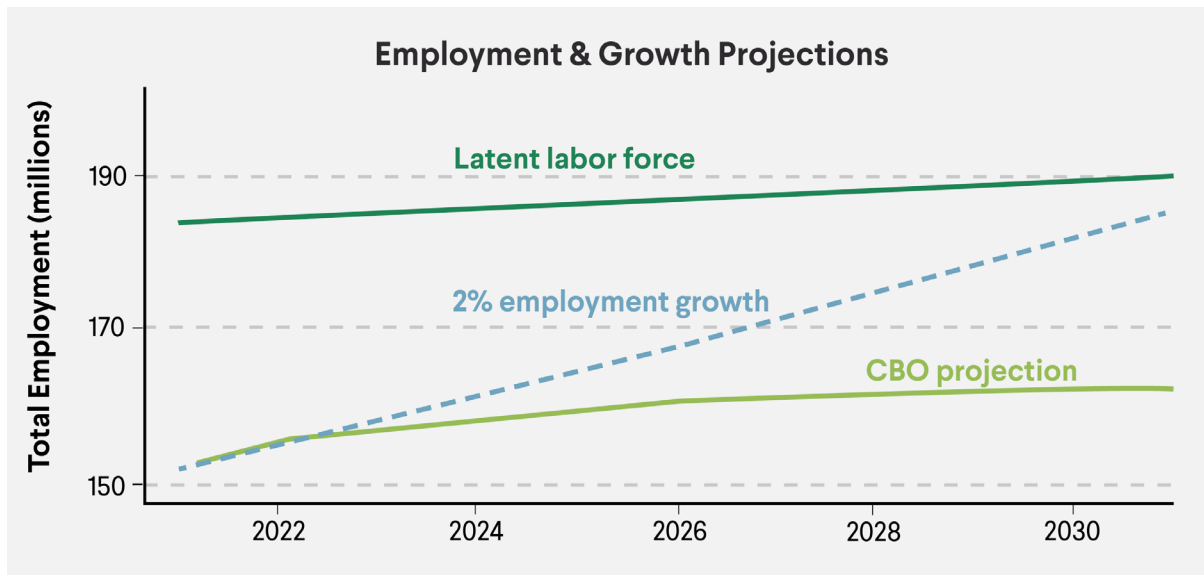


Figure 10 shows the CBO’s maximum employment projection and our preferred estimate for potential employment, which incorporates the closing of the race, gender, and education gaps that we believe could be reasonably achieved through a period of sustained strong demand. The dashed line projects steady 2 percent employment growth starting from actual employment as of June 2021. This level of growth would be enough to fully mobilize the latent labor force over the next 10 years. Source: Author’s analysis of Current Population Survey Extracts, Version 1.0.16 (EPI 2021); Bureau of Labor Statistics.

Figure 10 highlights our best estimate for maximum employment achievable in the US, and the CBO’s projection for maximum sustainable employment. For reference, it also shows the path of employment given 2 percent annual growth over the next decade from the June 2021 level. As the figure shows, 2 percent growth in employment over the next decade would bring the US close to our estimate of maximum employment. A 2 percent annual growth rate is higher than the US has generally seen in recent years, but it is not extraordinarily high by historical standards. Employment grew by 2 percent or more in every year from 1994 through 2000, and again as recently as 2015.

This is the rate of employment growth we would expect from a boom strong enough to reverse the post-2007 demand shortfall. Between 1947 and 2007, real GDP per capita grew at a steady 2.2 percent annual rate. Since then, it has fallen consistently short of this trend. By the end of 2020, real GDP per capita was about 16 percent below the level one would have predicted based on the earlier trend. This is a unique development—previous downturns were followed by “catch-up” growth that returned output to its long-run trend. There are good reasons to think that the failure to return to the earlier trend this time is largely or entirely due to chronic weak demand, rather than any kind of structural or

supply-side factor. If this is the case, then sustained strong demand should be able to return output to its previous trend.

If real GDP per capita were to catch up to the earlier trend over a 10-year period, that would imply (given projected population growth) annual growth in real GDP of about 5 percent. With 2 percent annual employment growth, this would require 3 percent annual productivity growth, comparable to the late 1990s. So, if the goal is to return the economy to its pre-2007 trend over the next decade, 2 percent annual growth in employment is a reasonable expectation.

These numbers are just illustrative; there are extensive debates about the causes of the post-2007 productivity slowdown, and the extent to which it was due to weak demand, that this report does not speak to. Our purpose in making this calculation is simply to show that the idea of a latent labor force on the scale we are suggesting is broadly consistent with the idea that, with the right supporting policies, sustained strong demand could heal the damage from the 2007–2009 recession.

4. EMPLOYMENT GROWTH AND INFLATION

Our focus here is on the question of how much employment could plausibly grow under conditions of sustained full employment. A natural further question, which we will explore more in future work, is what this implies for wage growth and inflation. Presumably, the same tight labor markets that result in the hiring of workers who are less favored by employers and/or face higher search costs would also lead to higher wages, as bargaining power in the labor market shifts in favor of workers. In textbook macroeconomic models, this faster wage growth would be passed through to inflation. If the Fed responded to higher inflation by raising interest rates, this could cut off growth before employment could rise.

We agree that an extended period of full employment would see faster wage growth than the US has experienced in recent years. But we do not believe this rules out sustained tight labor markets, for several reasons.

First, our argument here is that the labor supply is more elastic than is conventionally assumed. With a large reserve of workers potentially available to be drawn into employment, rapid growth implies a smaller increase in wages than it would if pre-pandemic employment had been close to the maximum possible level. Both common sense and economic theory suggest that if the labor force is more elastic than is usually



assumed, the pressure on wages from sustained rapid employment growth would be less. Indeed, increased cyclical movement of workers into and out of the labor force has been suggested as one reason for the apparent “flattening of the Phillips curve”—that is, the weakening of the link between unemployment, wages, and prices (Leduc and Wilson 2017).

Second and related to this, in a search framework, while exceptionally tight labor markets may be needed to draw new workers into employment, once they are there, they will not in general require higher wages than existing workers. Indeed, this is the original idea of hysteresis—that demand conditions have a lasting impact on labor supply. If hysteresis is real—and there is a growing consensus it is (Yagan 2019)—we would expect that while the kind of employment growth we are contemplating here would probably be associated with faster wage growth in the short run, this would be largely transitory, while the employment gains themselves would be permanent.

Third, and most critically, it is not the case that faster wages must be passed one for one to higher prices. As a matter of logic, faster wage growth must translate into some combination of higher inflation, faster productivity growth, and a higher wage share. While traditional models have assumed that labor market—induced wage changes are entirely passed through to inflation, there is no reason that this needs to be true, and there’s a good deal of evidence that it is not. Finally, to the extent that labor market tightness did lead to undesirable inflation, there is a broader set of tools available to deal with this, which do not necessarily require slower employment growth.

Some might argue that even a few years of significantly faster wage growth would be unacceptably inflationary. Indeed, it is commonly held that real wages growing faster than productivity is inherently inflationary. With annual labor productivity growth of around 1.5 percent, as in the years before the pandemic, and a 2 percent inflation target, that would indeed limit nominal wage growth to 3.5 percent.

This view, however, leaves out an important additional variable: the labor share, or fraction of total income going to labor compensation as opposed to profits and other forms of capital income. Specifically, wage growth, inflation, productivity, and the labor share are linked by the following equation:

$$\textit{Nominal wage growth} = \textit{productivity growth} + \textit{inflation} + \textit{percentage change in the labor share}$$

This equation is an identity: It always holds exactly. But as long as the equality is satisfied, the same rate of wage growth is consistent with many different inflation rates. Faster wage growth may lead to higher inflation, but it also may lead to faster productivity



growth, as businesses are incentivized by higher wages to be more efficient, or it may lead to a rising labor share, as higher wages simply come out of profits and workers get a bigger slice of the pie. The idea that in today's economy, faster wage growth may lead not to higher prices, but to a greater share of income going to workers, has gained increasing credence from macroeconomists and policymakers. Yellen (2006), for example, had already observed that "when lower domestic unemployment leads to higher wage demands, firms may not be able to pass through the higher costs, but must absorb them in their markups." More recently, she has suggested that this possibility means that policymakers should be less worried about labor market tightness, and more willing to run the economy hot (Yellen 2021).

The idea that faster wage growth would lead to higher productivity growth is more often seen as a radical or heterodox idea, but it's not clear why it should be. It is hardly controversial that higher oil prices, for instance, will encourage substitution away from oil if they are sustained long enough. And in the context of minimum wage increases, for instance, it is common to hear claims that mandating higher wages will lead to a substitution of machines for humans. But this is just another way of saying faster productivity growth. Insofar as higher wages lead to faster productivity growth, they are *not* inflationary. It is hard to know confidently how large this effect is likely to be, but the economic historian Gavin Wright (2006) makes a strong case that in the late 1990s, it was faster wage growth that drove faster productivity growth, and not the reverse.

In the textbook model, productivity growth is not affected by wage growth, while the wage share is assumed to be constant. Under these assumptions, higher wages must indeed be passed on to higher inflation. These assumptions looked reasonable enough during the four decades after World War II, when the wage share was remarkably stable. More recently, however, the wage share has fallen well below its earlier levels. Between 2000 and the start of the pandemic, the share of income in the corporate business sector going to wages and salaries fell by 5 points, from 65 percent to 60 percent (see Figure 11). Slower wage growth over the past 20 years has *not* been fully passed through to lower inflation. Similarly, we might expect that an acceleration in wage growth would in part be passed on to a higher wage share rather than higher inflation.



Figure 11

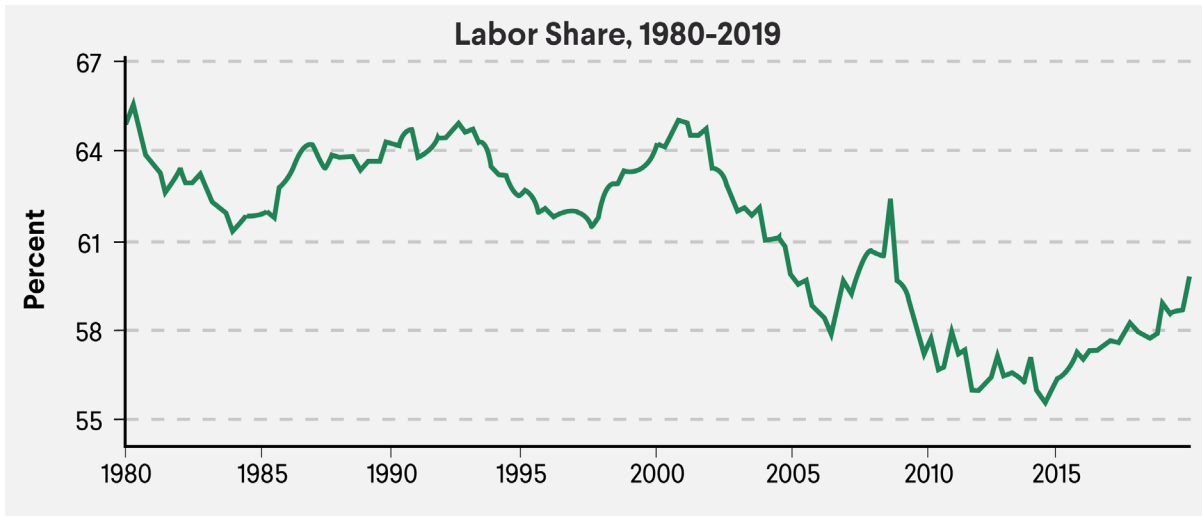


Figure 11 shows total employee compensation as share of gross value added for the corporate business sector. This is the best measure of labor's share of national income. Source: Author's analysis of US Bureau of Economic Analysis (2021).

The fall in the wage share since 2000 has a further important implication: It *cannot* be reversed unless there is a period in which wages grow faster than productivity. Since real wage growth is equal to nominal wage growth minus inflation, we can turn the equation around and write:

$$\text{Percentage change in the labor share} = \text{real wage growth} - \text{productivity growth}$$

Just as the fall in the wage share implies a period of below-productivity wage growth, a rise in the wage share necessarily implies a period of above-productivity wage growth. Any period of rising labor share will see wages growing faster than productivity—that is simply what a rise in the labor share means.

Once we recognize that different rates of wage growth can, and historically do, result in changes in the wage share rather than simply lower or higher inflation, the fall in the wage share over the past 20 years means there is considerable space to run the labor market hot. Concretely, to return the labor share to where it was in 2020, we would need 10 years of real wages growing 1 point faster than productivity.

To the extent that faster wage growth is passed on to prices, it is not clear that this is necessarily a bad thing. It is quite possible that inflation over the next decade will be

undesirably low, rather than high. The Cleveland Fed's inflation expectations estimate, which is based on a mix of survey data and asset yields, suggests that inflation over the next decade will be just 1.57 percent, well short of the Fed's 2 percent target (Federal Reserve Bank of Cleveland 2021).

Of course, it is possible that labor markets tight enough to deliver the levels of employment growth we describe might generate undesirably high inflation. Even in that case, though, there is a broader set of tools that could be deployed in response beyond the traditional approach of raising interest rates and thereby reducing employment and workers' bargaining power. Historically, inflation has been addressed by a wide range of measures, including wage and price controls, competition policy, and targeted programs to raise supply in bottleneck areas.

The bottom line is that while it is likely that employment growth on the scale we are suggesting would be associated with faster increases in wages and prices, these should not be a cause for concern. Rising wages are likely to be passed on to a lower profit share and faster productivity growth as much or more than to higher prices. And to the extent that inflation might rise in this scenario, that should not be considered an absolute barrier to bringing employment much higher than conventional estimates of the potential labor force.

CONCLUSION

A central question for macroeconomic policy debates in coming years is the size of the potential labor force. If the economy of 2019 was still leaving many potential workers on the sidelines, as we have argued, there is the possibility of a sustained economic boom with many years of rapid growth.

There are two immediate implications of our results. First, sufficient demand is a necessary condition for eliminating the labor market disadvantages of BIPOC, women, and people without BAs. Eliminating these employment gaps would require additional employment growth to the degree shown alongside legal, administrative, and labor policies to counteract discrimination and the other barriers different groups face. Second, the existence of these gaps suggests there is much more labor market slack than conventional estimates imply.

The employment gaps discussed in this report result from the interaction of weak labor demand and structural inequalities in the labor market.



There is no conflict between focusing on racial and gender justice and placing a high priority on full employment at the macroeconomic level. Indeed, these two priorities are mutually reinforcing. If you think the employment gaps along lines of race, gender, and education can and should be closed, you should demand macroeconomic policy that delivers annual employment growth on the order of 2 percent for a decade.

There is no reason to accept the employment rate as of 2019 as the maximum possible level of employment. It is possible that in the coming months, growth will falter, and the economy will slide back into recession—particularly if the Delta variant or other variants reverse our progress against COVID. But as of July 2021, it appears more likely that—despite some bumps—post-lockdown growth, the extraordinary stimulus measures of the past year, and, with luck, a major wave of investment in decarbonization will combine to deliver a historic boom. This will create new challenges for macroeconomic policy and will require new tools to manage. But it has the potential to deliver a dramatic improvement in material living standards and economic security, especially for those who have been historically excluded from full participation in the economy.

If you think the employment gaps along lines of race, gender, and education can and should be closed, you should demand macroeconomic policy that delivers annual employment growth on the order of 2 percent for a decade.

If policymakers treat the recent performance of the economy as the best possible, there is a danger this will become a self-fulfilling prophecy, as fiscal austerity and premature interest rate hikes lock in the semi-depressed conditions of recent years. Avoiding this danger requires a critical look at familiar measures of economic potential. If we want to do better, we need to take seriously the possibility that for most of the past decade or more, the economy has been operating well below capacity.



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