

# A Strong Labor Market Has Narrowed Gaps in Participation and Employment between Black and White Non-College Men

*By Didem Tüzemen and Deepak Venkatasubramanian*

**B**lack and Hispanic workers faced disproportionately larger declines in labor force participation than white workers during the pandemic-led recession. Specifically, from February to April 2020, the labor force participation rates of Black and Hispanic workers fell by 4.5 and 4.7 percentage points, respectively, larger than a 2.6 percent fall for white workers. These gaps appear consistent with previous recessions: the labor market outcomes of racial and ethnic minorities tend to deteriorate more than those of white workers during recessions, widening gaps in participation, employment, and wages during downturns (see, for example, Cajner and others 2017; Aaronson and others 2019). To the extent that the gaps hold among prime-age workers (age 25 to 54), they may be especially concerning to policymakers. Prime-age individuals are in their most productive working years, and developments in their labor market outcomes have important implications for the future of the labor market and economic growth.

Widening disparities during the pandemic have indeed earned the attention of monetary policymakers. In August 2020, the Federal Open Market Committee (FOMC) announced that “maximum employment is a broad-based and inclusive goal.” At the time, Federal Reserve Governor Lael Brainard highlighted that this announcement was especially

---

*Didem Tüzemen is a senior economist at the Federal Reserve Bank of Kansas City. Deepak Venkatasubramanian is a research associate at the bank. This article is on the bank's website at [www.KansasCityFed.org](http://www.KansasCityFed.org)*

significant “for the groups that are most vulnerable to employment fluctuations,” such as Black and Hispanic workers. Since then, the labor market has experienced a strong recovery in employment above pre-pandemic levels. Have gaps in labor market outcomes between Black and white workers narrowed?

In this article, we use micro-level data from the U.S. Census Bureau’s Current Population Survey (CPS) to document changes in the labor force participation and employment rates of prime-age individuals across different race and ethnicity groups during the pandemic and subsequent recovery. Although aggregate statistics show that the labor force participation and employment rates of prime-age individuals have more than fully recovered since the start of the pandemic, we find important differences across race and ethnicity groups. First, Black individuals have experienced the largest improvement in their labor market outcomes during the recovery, especially during its later phase. Second, Black men without a bachelor’s degree had the largest increase in labor force participation, driven by strong employment gains. Third, Black men without a bachelor’s degree experienced larger wage gains compared with other men without a bachelor’s degree and compared with the average wage gains across all prime-age individuals. As a result of these gains, we find that gaps in labor force participation and employment between white and Black men without a bachelor’s degree have narrowed during the recovery from the pandemic recession. Our results provide additional support for previous research showing that when the labor market is already strong, a further tightening in labor market conditions can benefit some historically disadvantaged groups (Aaronson and others 2019; Hotchkiss and Moore 2022).

Section I documents the decline and subsequent recovery in labor market outcomes of prime-age individuals, revealing that Black individuals have experienced a stronger recovery than others. Section II shows that patterns in employment and labor force participation among Black individuals differed by sex and education level. Section III shows that Black men without a bachelor’s degree experienced the largest increases in employment and shifted to industries and occupations with higher pay.

## I. Patterns in the Labor Market Outcomes of Different Race and Ethnicity Groups since the Pandemic

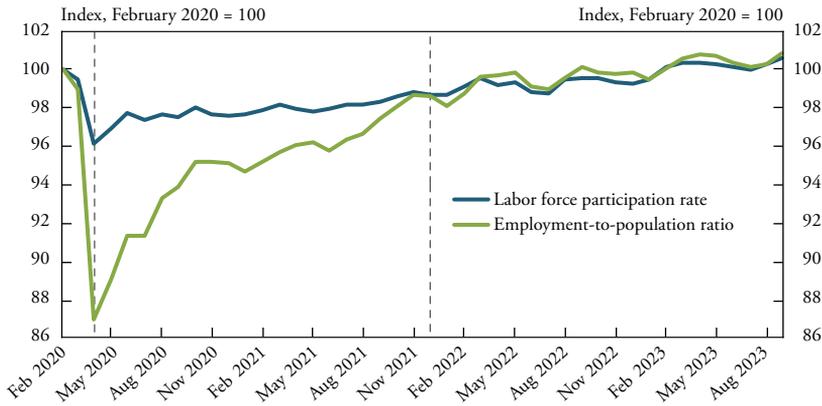
To assess differences in labor market outcomes across prime-age individuals, we focus on two key variables: the prime-age labor force participation rate, which corresponds to the share of the prime-age population either working (employed) or actively looking for work (unemployed), as well as the prime-age employment-to-population ratio (hereafter, the employment rate), which refers to the share of the prime-age population that is employed. To account for different labor market developments during the pandemic and subsequent recovery, we examine how these variables evolve over three distinct periods: the pandemic recession (February 2020 through March 2020), the initial recovery (April 2020 through December 2021), and the late recovery (January 2022 through September 2023).

Chart 1 plots the prime-age labor force participation rate alongside the prime-age employment rate, both indexed to their pre-pandemic levels, using micro-level data from the CPS. Between February and April 2020, the prime-age labor force participation and employment rates declined dramatically due to temporary shutdown orders and social distancing measures adopted to fight the COVID-19 pandemic. Specifically, the prime-age employment rate (green line) declined by almost 14 percent, while the prime-age labor force participation rate (blue line) declined by almost 4 percent. Both rates started to recover after April 2020 as businesses began to reopen and fiscal stimulus programs began to roll out. However, both rates remained around 2 percent below their pre-pandemic levels by the end of 2021, when the unemployment rate had already fallen to 3.9 percent. During the late recovery period, improvements in prime-age labor force participation and employment rates continued alongside job gains and tight labor market conditions. As of September 2023, both labor market outcomes had slightly exceeded their pre-pandemic levels.

Although these statistics help show how labor market conditions evolved for prime-age individuals as a group, they may mask large differences across different demographic groups. Historically,

Chart 1

## Prime-Age Labor Force Participation Rate and Employment Rate



Note: Dashed lines delineate the pandemic recession, initial recovery, and late recovery periods.  
Sources: U.S. Census Bureau and authors' calculations.

non-Hispanic Black (hereafter, “Black”) individuals have had lower labor force participation and employment rates than non-Hispanic white (hereafter, “white”) and Hispanic individuals. Moreover, the labor force participation and employment rates of racial and ethnic minorities have tended to decline more during economic downturns than those of white individuals.

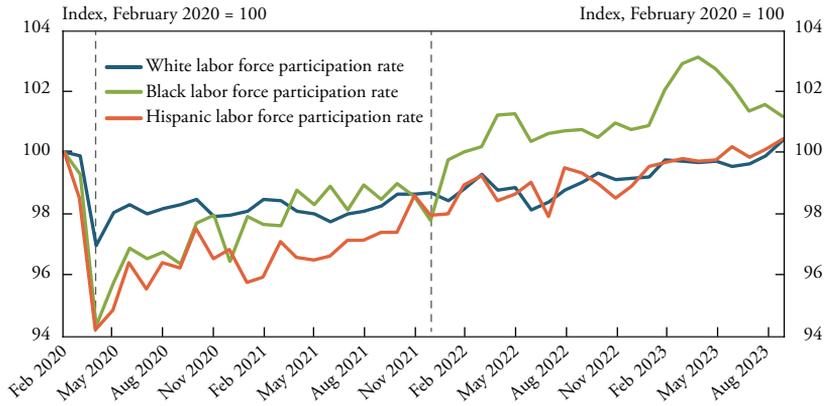
To account for these potential differences, we compare changes in the labor market outcomes of white, Black, and Hispanic prime-age individuals during the pandemic recession, the initial recovery, and the late recovery periods.<sup>1</sup>

Chart 2 plots the labor force participation rates for these prime-age race and ethnicity groups and illustrates three key developments. First, the pandemic recession hit minority groups harder than white individuals (Tüzemen 2021). Second, the participation rates of Black and Hispanic workers improved faster than that of white workers during the initial recovery period. Third, the labor force participation rate continued to increase for Black prime-age individuals during the late recovery period, while the increase in participation rates of Hispanic and white prime-age individuals slowed.

Table 1 shows the labor force participation rates in levels for all prime-age individuals as well as for different race and ethnicity groups.

Chart 2

## Prime-Age Labor Force Participation Rates by Race and Ethnicity



Note: Dashed lines delineate the pandemic recession, initial recovery, and late recovery periods.  
Sources: U.S. Census Bureau and authors' calculations.

The aggregate prime-age labor force participation rate declined 3.2 percentage points during the pandemic recession, from 83.1 percent to 79.9 percent, rose steadily during the recovery periods, and had more than fully recovered to 83.6 percent by September 2023. However, both the size of this initial decline and the speed of the recovery differed across race and ethnicity groups. During the pandemic recession, the labor force participation rates of Black and Hispanic prime-age individuals declined by 4.5 and 4.7 percentage points, respectively—substantially larger than the 2.6 percentage point decline for white individuals. These differences continued into the recovery period. As of September 2023, the participation rate of white individuals remained 0.4 percentage points above its pre-pandemic level, while the participation rate of Hispanic individuals recovered to 0.3 percentage points above its pre-pandemic level. In stark contrast, the participation rate of Black workers recovered to almost a full percentage point above its pre-pandemic level.

These changes in labor force participation rates were driven by large movements in employment. Table 2 shows that during the pandemic recession, the aggregate employment rate of all prime-age individuals dropped by 10.5 percentage points, from 80.3 percent to 69.8 percent. However, decomposing this employment rate by race and ethnicity shows that Black and Hispanic workers experienced larger declines in

*Table 1***Prime-Age Labor Force Participation Rates by Race and Ethnicity**

Labor force participation rate	February 2020 (percent)	Pandemic recession (percentage point change)	Initial recovery (percentage point change)	Late recovery (percentage point change)	September 2023 (percent)	Change since February 2020 (percentage point change)
All	83.1	-3.2	2.1	1.7	83.6	0.6
White	84.8	-2.6	1.5	1.4	85.2	0.4
Black	80.2	-4.5	2.7	2.7	81.1	0.9
Hispanic	81.2	-4.7	3.1	2.0	81.5	0.3

Sources: U.S. Census Bureau and authors' calculations.

employment than white workers during the pandemic recession. Specifically, the employment rate of Black and Hispanic individuals fell by 11.3 and 14.1 percentage points, respectively, while the employment rate of white individuals fell by 9.2 percentage points. Since then, employment rates have risen for all groups during the recovery periods, exceeding their pre-pandemic levels. Notably, the employment rate of Black workers reached 77.2 percent in September 2023—1.4 percentage points higher than its February 2020 level.

To summarize, while the labor force participation and employment rates of prime-age individuals as a whole have recovered to exceed their pre-pandemic levels, the speed and extent of this recovery have differed among different race and ethnicity groups. Black individuals in particular have experienced the largest increases in their labor force participation and employment rates during the recovery periods, especially during the late recovery. Currently, larger shares of Black individuals are in the labor force and employed than in early 2020. The substantial gains for Black workers in the late recovery suggest this group in particular has reaped the benefits of further strengthening in an already strong labor market.

## **II. Which Group Has Driven the Recovery for Black Workers?**

Given the especially strong recovery of prime-age Black individuals from the pandemic recession, we next assess whether this recovery differed by sex and educational attainment. Historically, women have had

*Table 2*  
**Prime-Age Employment Rates by Race and Ethnicity**

Employment rate	February 2020 (percent)	Pandemic recession (percentage point change)	Initial recovery (percentage point change)	Late recovery (percentage point change)	September 2023 (percent)	Change since February 2020 (percentage point change)
All	80.3	-10.5	9.5	1.8	81.1	0.8
White	82.6	-9.2	8.4	1.4	83.1	0.5
Black	75.8	-11.3	9.4	3.3	77.2	1.4
Hispanic	78.0	-14.1	12.3	2.5	78.7	0.7

Sources: U.S. Census Bureau and authors' calculations.

lower participation rates than men, and individuals with lower educational attainment have had lower participation rates than those with higher educational attainment. Moreover, the labor force participation rates of less educated individuals have tended to decline more during economic downturns than their more educated counterparts. To facilitate comparison, we group Black individuals into one of four groups: men with less than a bachelor's degree ("non-college men"), men with a bachelor's degree or higher ("college men"), women with less than a bachelor's degree ("non-college women"), and women with a bachelor's degree or higher ("college women").

Historically, higher educational attainment has been associated with higher labor force participation among Black individuals. Table 3 shows that prior to the pandemic, the participation rate of Black men with a college degree was 94.0 percent, around 18 percentage points higher than for non-college Black men. Similarly, in February 2020, the participation rate of college Black women was 87.1 percent, 12 percentage points higher than for non-college Black women.

Although the participation rates declined for all four groups during the pandemic recession, non-college men and college women were the least affected. Participation also recovered the most quickly for non-college men during the recovery periods. Notably, non-college men had the largest rise in participation during the late recovery period, when the labor market was already tight. By September 2023, the participation rate of non-college men reached 81.1 percent, 5.3 percentage points higher than its pre-pandemic level. In contrast, the participation rate of college men remained 0.9 percentage points below its

Table 3

### Labor Force Participation Rates of Black Individuals by Sex and Education

Labor force participation rate	February 2020 (percent)	Pandemic recession (percentage point change)	Initial recovery (percentage point change)	Late recovery (percentage point change)	September 2023 (percent)	Change since February 2020 (percentage point change)
All	80.2	-4.5	2.7	2.7	81.1	0.9
Non-college men	75.8	-2.6	2.6	5.3	81.1	5.3
College men	94.0	-7.9	3.6	3.4	93.1	-0.9
Non-college women	75.1	-6.0	3.4	1.0	73.4	-1.6
College women	87.1	-2.5	2.1	-1.2	85.6	-1.6

Sources: U.S. Census Bureau and authors' calculations.

pre-pandemic level. Turning to women, the participation rates of both college and non-college women remained 1.6 percentage points below their pre-pandemic levels.

The strong increase in labor force participation among non-college Black men was driven by strong employment gains. Table 4 shows that in February 2020, the employment rate of non-college Black men was 68.9 percent, the lowest of all four groups. However, non-college Black men experienced the largest gains in employment during the recovery periods. As of September 2023, the employment rate of non-college Black men was 75.4 percent, 6.5 percentage points higher than its pre-pandemic level. This stands in stark contrast to the September 2023 employment rates of the other three groups, which remained below their February 2020 levels. Therefore, the labor market gains for Black individuals in general were driven by improvements in the labor market outcomes of non-college Black men.

These positive developments in the labor market outcomes of non-college Black men have not been uniform across other racial and ethnic groups. Table 5 shows that the labor force participation rate of all non-college, prime-age men declined by 3 percentage points during the pandemic recession but rose above its pre-pandemic level by September 2023. This recovery was driven by a 5.3 percentage point increase in the participation of non-college Black men, as the labor force participation rates of non-college white and non-college Hispanic men remained at or below their pre-pandemic levels as of September 2023.

*Table 4*  
**Employment Rates of Black Individuals by Sex and Education**

	February 2020 (percent)	Pandemic recession (percentage point change)	Initial recovery (percentage point change)	Late recovery (percentage point change)	September 2023 (percent)	Change since February 2020 (percentage point change)
Employment rate						
All	75.8	-11.3	9.4	3.3	77.2	1.4
Non-college men	68.9	-8.7	9.6	5.7	75.4	6.5
College men	91.7	-14.5	9.8	3.6	90.6	-1.1
Non-college women	70.6	-14.5	11.2	2.2	69.5	-1.1
College women	85.5	-7.4	6.6	-1.0	83.7	-1.8

Sources: U.S. Census Bureau and authors' calculations.

*Table 5*  
**Labor Force Participation Rates of Non-College Men by Race and Ethnicity**

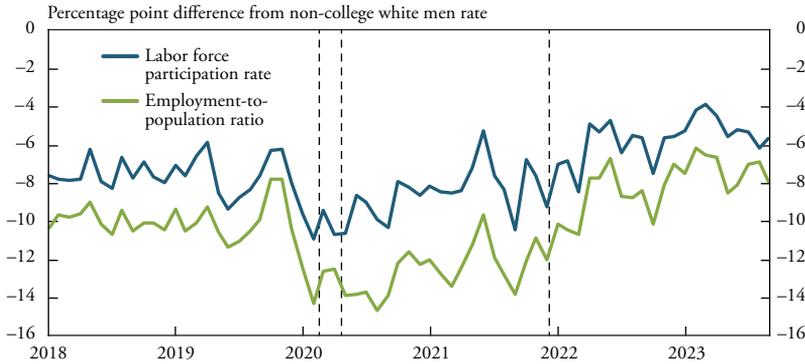
	February 2020 (percent)	Pandemic recession (percentage point change)	Initial recovery (percentage point change)	Late recovery (percentage point change)	September 2023 (percent)	Change since February 2020 (percentage point change)
Labor force participation rate						
All	85.8	-3.0	1.6	2.0	86.5	0.7
White	86.7	-2.9	1.2	1.6	86.7	0
Black	75.8	-2.6	2.6	5.3	81.1	5.3
Hispanic	89.7	-2.7	1.5	0.5	89.0	-0.7

Sources: U.S. Census Bureau and authors' calculations.

The strong recovery in participation and employment of non-college Black men led the gaps between the labor market outcomes of white and Black men to narrow. Chart 3 displays the gaps between the labor force participation rate (blue line) and employment rate (green line) of non-college Black and non-college white men, starting two years prior to the pandemic to provide a longer-term view. In January 2018, the labor force participation rate of non-college Black men was 7.6 percentage points lower than that of non-college white men. Although the gap widened around the pandemic, it started to narrow in the initial recovery and narrowed further during the late recovery, when additional labor market tightening led to larger employment gains and, accordingly, a higher participation rate of non-college Black men. Although the participation rate of non-college Black men was

Chart 3

### Black-White Gaps in the Labor Force Participation and Employment Rates of Non-College Men



Note: Dashed lines delineate the pandemic recession, initial recovery, and late recovery periods.

Sources: U.S. Census Bureau and authors' calculations.

11 percentage points below that of non-college white men in February 2020, the gap narrowed to 5.6 percentage points in September 2023. Similarly, the gap between the employment rates of non-college white and non-college Black men has narrowed significantly since the start of the pandemic, from 14 percent to 8 percent.

### III. Shifts in the Employment of Non-College Black Men across Industries and Occupations

The recovery in the labor force participation and employment rates of Black individuals has been largely driven by especially strong gains among non-college Black men. To better understand the forces driving this recovery, we examine how employment among Black individuals has changed since the pandemic across industries and occupations.

Table 6 shows the levels and changes in the employment of Black individuals by sex and education. On aggregate, the number of employed Black workers recovered to its pre-pandemic level by early 2022 and exceeded this level by 779,000 as of June 2023. Notably, the largest contribution to this net increase came from non-college Black men, who gained 542,000 jobs from February 2020 to September 2023. The next-largest contribution came from college-educated Black women, who gained 142,000 jobs by September 2023.

Table 6

### Employment Levels of Prime-Age Black Individuals by Sex and Education

Employment	February 2020 (level)	Pandemic recession (change)	Initial recovery (change)	Late recovery (change)	September 2023 (level)	Change since February 2020
All	12,173,000	-1,751,000	1,630,000	900,000	12,952,000	779,000
Non-college men	3,629,000	-377,000	560,000	358,000	4,171,000	542,000
College men	2,019,000	-394,000	231,000	275,000	2,131,000	112,000
Non-college women	3,922,000	-803,000	783,000	5,000	3,907,000	-15,000
College women	2,603,000	-177,000	56,000	261,000	2,745,000	142,000

Sources: U.S. Census Bureau and authors' calculations.

What explains the strong gains for non-college Black men in particular? One potential explanation could be changes in industries or occupations that have historically employed more workers from this demographic group. The first two columns of Table 7 show the composition of employment among non-college Black men by industry in the first half of 2019, as well as the change by the first half of 2023. We focus on the six industries in which non-college Black men have seen the largest increases or declines in employment.

In 2019, a large share of employed, non-college Black men worked in the transportation and utilities (17.8 percent), manufacturing (16.1 percent), and wholesale and retail trade (12.5 percent) industries. However, these industries are not entirely responsible for non-college Black men's post-pandemic gains in employment. Instead, the largest job gains for this group from 2019 to 2023 occurred in the transportation and utilities, professional and business services, and construction industries—industries that also experienced larger aggregate employment gains during the recovery (Table 7, fourth column). At the same time, the shares of non-college Black men working in the leisure and hospitality, manufacturing, and wholesale and retail trade industries declined from 2019 to 2023. The final column of Table 7—which shows the median hourly wages in each industry in 2023—indicates that non-college Black men have largely shifted to industries with higher wages.<sup>2</sup>

Different occupations within an industry may have very different wages. To better answer whether non-college Black men have shifted not only to higher-paying industries but also higher-paying jobs, we

Table 7

## Shares of Non-College Black Employment by Industry

Industry	Share among all non-college Black men		Aggregate employment		Median hourly wages
	2019:H1 share (percent)	Change by 2023:H1 (percentage point)	2019:H1 (level)	Change by 2023:H1 (level)	2023:H1 (\$/hour)
Transportation and utilities	17.8	1.91	5,808,000	777,000	26.7
Professional and business services	10.0	1.42	13,404,000	695,000	32.0
Construction	8.0	0.67	7,664,000	435,000	25.0
Wholesale and retail trade	12.5	-0.87	11,160,000	-205,000	18.6
Leisure and hospitality	10.5	-1.16	7,724,000	-509,000	15.0
Manufacturing	16.1	-1.70	10,593,000	-350,000	26.0

Note: Data on median hourly wages are from the Atlanta Fed's Wage Growth Tracker.  
Sources: U.S. Census Bureau, Federal Reserve Bank of Atlanta, and authors' calculations.

repeat a similar exercise as above and show the breakdown by occupation in Table 8. Again, we focus on the occupations with the largest changes in employment among non-college Black men. Relative to the pre-pandemic period, non-college Black men have shifted away from office and administrative support, services, and production occupations and toward management, business, and financial activities as well as professional and related occupations. These occupations had the largest increases in aggregate employment (fourth column) and are characterized by higher wages (fifth column).

Overall, employment of non-college Black men increased in industries and occupations in which the demand for workers and employment has grown strongly since the pandemic. Indeed, the labor supply of non-college Black men appears to have increased in response to the rise in demand for workers in these sectors. Moreover, shifts in industries and occupations suggest that non-college Black men have moved away from traditionally lower-paying occupations, such as service and administrative occupations, and toward higher-paying occupations, such as those pertaining to management, business, and financial activities. This conclusion is in line with the findings from the White House Council of Economic Advisors (2022), who not only conclude that Black workers have shifted toward higher-paying industries

*Table 8*  
**Shares of Non-College Black Employment by Occupation**

Industry	Share among all non-college Black men		Aggregate employment		Median hourly wages
	2019:H1 share (percent)	Change by 2023:H1 (percentage point)	2019:H1 (level)	Change by 2023:H1 (level)	2023:H1 (\$/hour)
Management, business, and financial activities	7.3	2.0	18,212,000	2,728,000	35.0
Professional and related occupations	7.0	1.0	25,962,000	2,198,000	35.5
Service occupations	21.4	-0.8	15,541,000	-903,000	17.3
Production occupations	11.9	-1.5	5,564,000	-408,000	25.0
Office and administrative support occupations	9.6	-2.6	10,847,000	-1,105,000	20.0

Sources: U.S. Census Bureau, Federal Reserve Bank of Atlanta, and authors' calculations.

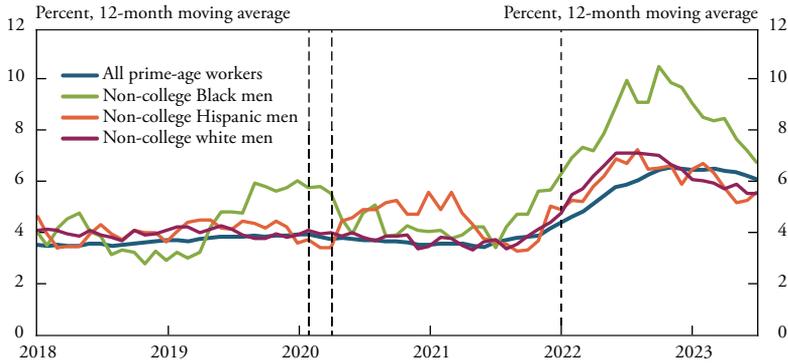
and occupations since the pandemic but also at a faster pace than the national average. Complementing their analysis, we show that non-college Black men have experienced more favorable gains in employment compared with other Black individuals.

The shifts in employment toward industries and occupations with higher pay have been supported by larger wage gains for non-college Black men. Chart 4 plots median nominal wage growth for white, Black, and Hispanic non-college men alongside median nominal wage growth for all prime-age workers. Although wage growth for non-college white (purple line) and Hispanic men (orange line) has kept pace with overall wage growth (blue line), wage growth for non-college Black men (green line) has soared above and sits nearly 2 percentage points higher than aggregate wage growth in 2023.

Fueled by high labor demand in higher-paying industries and occupations, employment for non-college Black men rose by a significantly greater amount than employment for other Black workers or for non-college workers in other racial and ethnic groups. In addition, non-college Black men experienced larger wage gains than other groups, as they were able to transition into historically higher-paying industries. These improvements have helped narrow white-Black gaps in labor market outcomes and earnings since the pandemic.

Chart 4

### Median Wage Growth for Non-College Men by Race and Ethnicity and Median Wage Growth for Prime-Age Workers



Note: Dashed lines delineate the pandemic recession, initial recovery, and late recovery periods.

Sources: Federal Reserve Bank of Atlanta and authors' calculations.

## Conclusion

As of September 2023, the labor force participation and employment rates of prime-age individuals have recovered and exceeded their pre-pandemic levels. We break down prime-age labor force participation rates by race and ethnicity and show that while minority groups were hit the hardest by employment losses during the onset of the pandemic, Black individuals have experienced the largest increases in their labor market outcomes during the recovery periods. Among Black individuals, men without a bachelor's degree experienced the largest increase in labor force participation driven by strong employment gains amid a persistent labor market recovery. Consistently, non-college Black men experienced larger wage gains compared with other non-college men and compared with the wage gains across all prime-age individuals. With these improvements, the gaps in labor force participation and employment between white and Black non-college men have narrowed during the recovery from the pandemic recession.

Our results complement those in Aaronson, Barnes, and Edelberg (2021), who show that strong labor market conditions are associated with significant reductions in racial and ethnic disparities in unemployment rates. However, as also cautioned by these authors, a strong labor market by itself is unlikely to eliminate all gaps in the labor market outcomes among different racial and ethnic groups.

## **Endnotes**

<sup>1</sup>In 2020–23, white individuals made up 58 percent of the prime-age labor force, while Black and Hispanic workers made up 13 and 20 percent. For ease of comparison, we omit other racial groups (which account for less than 10 percent of the prime-age labor force) from our analysis.

<sup>2</sup>The data are a longitudinally matched version of the CPS and track hourly earnings of individuals who are in their fourth and eighth months of the survey. Due to the design of the CPS, these survey months are one year apart. We calculate hourly earnings using a methodology similar to Daly, Hobjin, and Wiles (2012), and we calculate wage growth as a one-year percent change. We collapse data by educational attainment, sex, and race to calculate the weighted median wage growth for the demographic groups we consider. Finally, we calculate 12-month moving averages of wage growth.

## References

- Aaronson, Stephanie R., Mary C. Daly, William L. Wascher, and David W. Wilcox. 2019. "Okun Revisited: Who Benefits Most from a Strong Economy?" *Brookings Papers on Economic Activity*, vol. 2019, no. 1, pp. 333–404. Available at <https://doi.org/10.1353/eca.2019.0004>
- Aaronson, Stephanie R., Mitchell Barnes, and Wendy Edelberg. 2021. "A Hot Labor Market Won't Eliminate Racial and Ethnic Unemployment Gaps." Brookings Institution, September 2.
- Brainard, Lael. 2020. "Bringing the Statement on Longer-Run Goals and Monetary Policy Strategy into Alignment with Longer-Run Changes in the Economy." Speech at the Brookings Institution, Washington, DC, September 1.
- Cajner, Tomaz, Tyler Radler, David Ratner, and Ivan Vidangos. 2017. "Racial Gaps in Labor Market Outcomes in the Last Four Decades and Over the Business Cycle." Board of Governors of the Federal Reserve System, Finance and Economics Discussion Series, no. 2017–071, June. Available at <https://doi.org/10.17016/FEDS.2017.071>
- CEA (Council of Economic Advisors). 2022. "Pandemic Shifts in Black Employment and Wages." White House Council of Economic Advisors, August 24.
- Daly, Mary C., Bart Hobbj, and Theodore S. Wiles. 2012. "Dissecting Aggregate Real Wage Fluctuations: Individual Wage Growth and the Composition Effect." Federal Reserve Bank of San Francisco, working paper no. 2011–23, May. Available at <https://doi.org/10.24148/wp2011-23>
- FOMC (Federal Open Market Committee). 2020. "Statement on Longer-Run Goals and Monetary Policy Strategy." Board of Governors of the Federal Reserve System.
- Hotchkiss, Julie L., and Robert E. Moore. 2022. "Some Like It Hot: Assessing Longer-Term Labor Market Benefits from a High-Pressure Economy." *International Journal of Central Banking*, vol. 18, no. 2, pp. 193–243.
- Tüzemen, Didem. 2021. "Women without a College Degree, Especially Minority Mothers, Face a Steeper Road to Recovery." Federal Reserve Bank of Kansas City, *Economic Review*, vol. 106, no. 3. Available at <https://doi.org/10.18651/ER/v106n3Tuzemen>