The Uneven Recovery in Prime-Age Labor Force Participation

By Didem Tüzemen and Thao Tran

The labor force participation rate of prime-age individuals (age 25 to 54) in the United States declined dramatically during and after the Great Recession. From 2008 to 2015, the share of prime-age individuals either working or actively looking for work decreased from 83.1 percent to 81.0 percent, the lowest rate since the 1980s. In 2008, 21 million prime-age individuals did not participate in the labor force. By 2015, this number had risen to almost 24 million. Although the labor force participation rate of prime-age individuals has been increasing since mid-2015, it remains below its pre-recession level.

Prime-age individuals are in their most productive working years, and a decline in their labor force participation has important implications for the future of the labor market and economic growth. However, understanding the decline requires detailed analysis; aggregate statistics on labor force participation may mask differences in labor market outcomes by sex and educational attainment. Identifying these differences is crucial to both evaluating potential labor market implications and designing targeted policies to encourage labor force participation.

In this article, we use data from the U.S. Census Bureau's Current Population Survey (CPS) to document recent changes in the labor force participation rates of prime-age individuals across sex and education levels during the Great Recession and the subsequent recovery. Our analysis yields two key findings. First, prime-age men and women without a bachelor's degree experienced larger deteriorations in their

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labor force participation rates during the recession than their college-educated counterparts. These rates are still well below their pre-recession levels, likely due to the long-term shift in employment away from routine occupations and toward non-routine occupations. Second, only prime-age women with a bachelor's degree have seen their labor force participation rate fully recover. Notably, although the prime-age participation rate of college-educated women has recovered to its pre-recession level, it still remains well below the participation rates of both college-educated and non-college-educated men. A greater share of women who report caring for family as their reason for nonparticipation may explain this discrepancy.

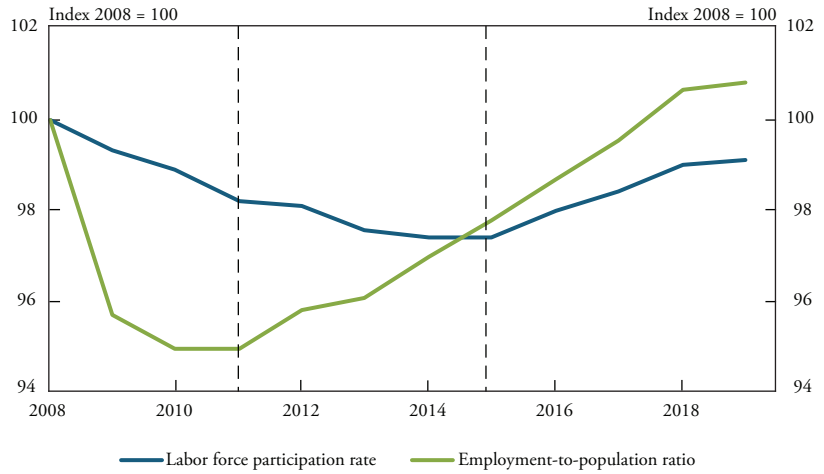
Section I documents the sharp decline and subsequent recovery in the prime-age labor force participation rate during and after the Great Recession, revealing stark differences in the labor market outcomes of prime-age individuals of different sex and education groups. Section II shows how long-term shifts in the composition of jobs have caused declines in employment and labor force participation among prime-age individuals. Section III argues that policies that equip workers with the new skills and education demanded by employers, or that provide help with family care, may support higher labor force participation among prime-age individuals.

I. Patterns in the Prime-Age Labor Force Participation Rate during the Great Recession and Recovery

During the Great Recession, prime-age labor force participation and employment declined dramatically due to large-scale layoffs (Aaronson and others 2015; Van Zandweghe 2012). Chart 1 plots the prime-age labor force participation rate alongside the prime-age employment-to-population ratio, both indexed to their pre-recession levels, using data from the CPS.[1] Both rates show a similar pattern during the recession, declining steeply after 2008. However, in 2011, the two rates diverged: the prime-age employment-to-population ratio began to increase, while the prime-age labor force participation rate continued to decline until 2015. Since 2015, both rates have been increasing, though the employment-to-population ratio has risen much more quickly than the labor force participation rate.

Chart 1

Prime-Age Labor Force Participation Rate and Employment-to-Population Ratio



Notes: All rates correspond to monthly observations averaged for each year. Dashed lines separate the three time periods used in the analysis: recession (2008–11), early recovery (2011–15), and late recovery (2015–19).
Sources: CPS and authors' calculations.

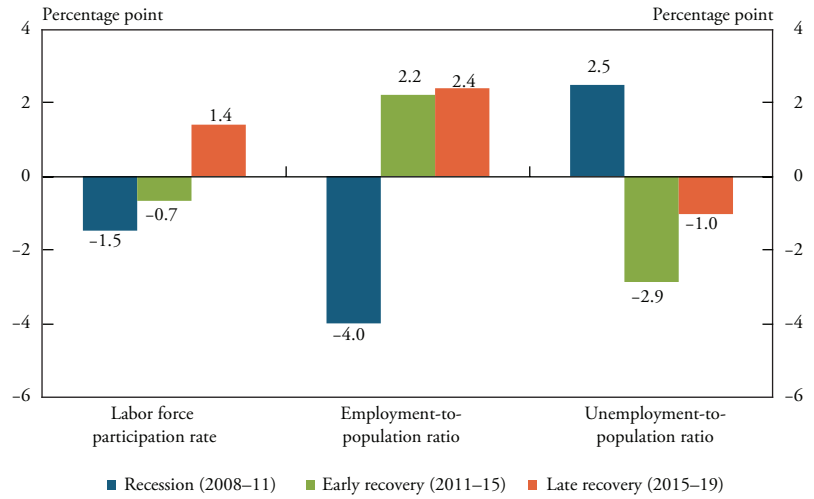
To account for the different trends in the labor force participation rate and employment-to-population ratio over time, we break our sample into three distinct periods, timed to major movements in the rates: recession (2008–11), early recovery (2011–15), and late recovery (2015–19).[2]

The prime-age labor force participation rate corresponds to the share of prime-age population either working (employed) or actively looking for work (unemployed). To provide further insights into the differing patterns in prime-age labor force participation during the three periods, we decompose the changes in the prime-age labor force participation rate into the changes in the prime-age employment-to-population ratio and the changes in the prime-age unemployment-to-population ratio. Chart 2 illustrates this breakdown during the three periods considered, while Table 1 lists the actual employment changes.

Through the recession period (2008–11), the prime-age labor force participation rate declined alongside employment, as 5.7 million prime-age individuals lost their jobs (Table 1). While some of these displaced workers joined the pool of the unemployed, others temporarily or permanently left the labor force. Chart 2 shows that the prime-age

Chart 2

Decomposing Changes in the Prime-Age Labor Force Participation Rate



Note: All rates correspond to monthly observations averaged for each year.
Sources: CPS and authors' calculations.

Table 1

Changes in Prime-Age Employment

Period	Employment changes
Recession (2008–11)	−5,707,615
Early recovery (2011–15)	3,052,145
Late recovery (2015–19)	3,927,883

Note: Employment changes are calculated using annual averages for the corresponding years.
Sources: CPS and authors' calculations.

labor force participation rate declined 1.5 percentage points by 2011, due to a 4.0 percentage point decline in the prime-age employment-to-population ratio and a 2.5 percentage point increase in the prime-age unemployment-to-population ratio.

During the early recovery period (2011–15), the prime-age labor force participation rate declined despite overall improvement in the labor market. For example, the prime-age employment-to-population ratio increased by 2.2 percentage points as about 3 million more individuals found jobs (Chart 2; Table 1). However, some prime-age workers continued to leave the labor force over this period, and the decline in the share of prime-age individuals looking for a job was greater than

the increase in the share of prime-age individuals working. More specifically, the prime-age unemployment-to-population ratio declined by 2.9 percentage points, while the prime-age employment-to-population ratio increased by only 2.2 percentage points. As a result, the prime-age labor force participation rate declined by 0.7 percentage point by 2015.

In contrast, during the late recovery period (2015–19), the prime-age labor force participation rate increased alongside a strengthening labor market. The prime-age employment-to-population ratio increased by 2.4 percentage points over this period as nearly 4 million more people found jobs (Chart 2; Table 1). This increase more than offset a small, 1 percentage point decline in the unemployment-to-population ratio. As a result, the prime-age labor force participation rate rose 1.4 percentage points from 2015 to 2019.

While the prime-age employment-to-population ratio recovered to its pre-recession level by 2019, the prime-age labor force participation rate remained 0.7 percentage point below its pre-recession level. This suggests that some prime-age individuals have remained out of the labor force instead of actively searching for jobs or working.

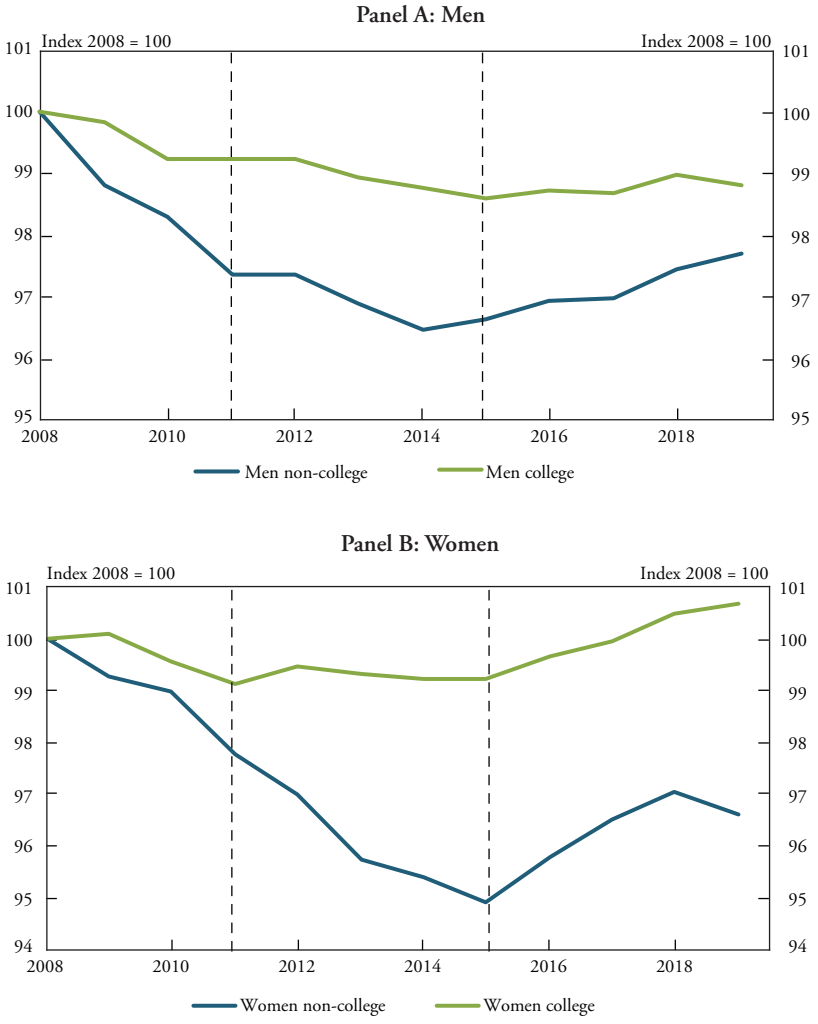
Changes in prime-age labor force participation by sex and education

Changes in the aggregate labor force participation rate and employment-to-population ratio mask large differences across different demographic groups. Women historically have lower participation rates than men, and individuals with lower educational attainment historically have lower participation rates than their more-educated counterparts. To account for these differences, we compare changes in labor market outcomes across sex and education levels. To facilitate comparison, we group prime-age 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).

Chart 3 shows the labor force participation rates over time for all four groups. The chart illustrates three striking results. First, prime-age men and women without a bachelor's degree saw larger deteriorations in their labor force participation rates during the recession than their college-educated counterparts. This result is likely related to the severity

Chart 3

Prime-Age Labor Force Participation Rates by Sex and Education Groups



Notes: All rates correspond to monthly observations averaged for each year. Dashed lines separate the three time periods used in the analysis: recession (2008–11), early recovery (2011–15), and late recovery (2015–19).
Sources: CPS and authors' calculations.

of job losses, as prime-age men and women without a bachelor's degree saw larger employment losses during the recession than college-educated prime-age men and women. Indeed, Table 2 shows that in the non-college group, 2.8 million men and 2.6 million women lost jobs during the recession. In contrast, in the college group, 385,318 men lost jobs during the recession, while 76,456 women actually gained jobs.

Second, the labor force participation rates of prime-age men and women without a bachelor's degree have remained well below their pre-recession levels during the two recovery periods. This, too, is likely related to job losses and lack of new job opportunities for their skill sets: Table 2 shows that sizeable employment losses continued for non-college individuals during the recovery periods, though the losses were particularly steep for women. Non-college men may have been more willing to accept lower wages during this period of high unemployment than their female counterparts, in line with the evidence that women are more likely to stop working if their wages fall (Kimmel and Kniesner 1998).

As a result, during the early recovery, the labor force participation rate of prime-age women without a bachelor's degree declined by 2.1 percentage points, from 70.8 percent in 2011 to 68.7 percent in 2015 (Table 3). In contrast, the labor force participation rate of prime-age men without a bachelor's degree declined by only 0.6 percentage point, from 86.1 percent in 2011 to 85.5 percent in 2015. Interestingly, the labor force participation rate for both groups ticked up during the late recovery, a time when their employment losses continued. The slight increases in labor force participation rates during this period are due not to increasing employment but a declining number of prime-age men and women without a bachelor's degree.

Third, among prime-age individuals with a bachelor's degree, only women have seen their labor force participation rate recover to its pre-recession level. Why has the participation rate for women rebounded more rapidly? While both college-educated men and women faced slight declines in their labor force participation rates during the economic downturn, women's labor force participation remained stable during the early recovery period, a time when men's labor force participation continued to decline. Moreover, prime-age women with a bachelor's degree saw greater employment gains during both recovery

Table 2
Changes in Prime-Age Employment by Sex and Education Groups

Employment changes	Non-college men	College men	Non-college women	College women
Recession (2008–11)	–2,848,038	–385,318	–2,550,715	76,456
Early recovery (2011–15)	–16,977	1,701,656	–949,029	2,316,496
Late recovery (2015–19)	–38,416	1,986,352	–815,653	2,795,598

Note: Employment changes are calculated using annual averages for the corresponding years.
Sources: CPS and authors' calculations.

Table 3
Prime-Age Labor Force Participation Rates

Prime-age group	2008 (percent)	2011 (percent)	2015 (percent)	2019 (percent)	Change 2008–19 (percentage point)
All	83.1	81.6	81.0	82.4	–0.7
Non-college men	88.4	86.1	85.5	86.4	–2.0
College men	95.2	94.5	93.9	94.1	–1.1
Non-college women	72.4	70.8	68.7	69.9	–2.5
College women	83.1	82.4	82.4	83.7	0.6

Note: Monthly data are averaged for each year.
Sources: CPS and authors' calculations.

periods, preventing further deterioration in their labor force participation rate. While prime-age men with a bachelor's degree gained 2 million jobs from 2015 to 2019, their female counterparts gained 2.8 million jobs. As a result, the labor force participation rate of prime-age women with a bachelor's degree rose by 1.3 percentage points, from 82.4 percent in 2015 to 83.7 percent in 2019, while the rate for men rose by 0.2 percentage point, from 93.9 percent in 2015 to 94.1 percent in 2019 (Table 3).

In summary, prime-age men and women without a bachelor's degree experienced larger declines in their employment and labor force participation rates during the recession and further deterioration in their labor market outcomes during the recovery. Only prime-age women with a bachelor's degree have seen their labor force participation rate fully recover, though their participation remains lower than men's.

II. Changes in Labor Demand: Job Polarization

Although the decomposition highlights important differences in labor force participation by sex and education, it does not reveal the

factors driving changes in employment for these groups across the three periods in our analysis. One possible explanation for these changes could be a shift in labor demand toward jobs that favor the skills and education of prime-age individuals (Tüzemen 2019).

Skills demanded by employers and the composition of job opportunities have changed dramatically over the past several decades. The employment share of middle-skill jobs has declined significantly, while the employment shares of low- and high-skill jobs have increased. This aggregate shift in employment away from middle-skill jobs and toward low- and high-skill jobs is called "job polarization" (Goos and Manning 2007; Autor and others 2006; Autor 2010; Acemoglu and Autor 2011; Tüzemen and Willis 2013; Tüzemen 2018).

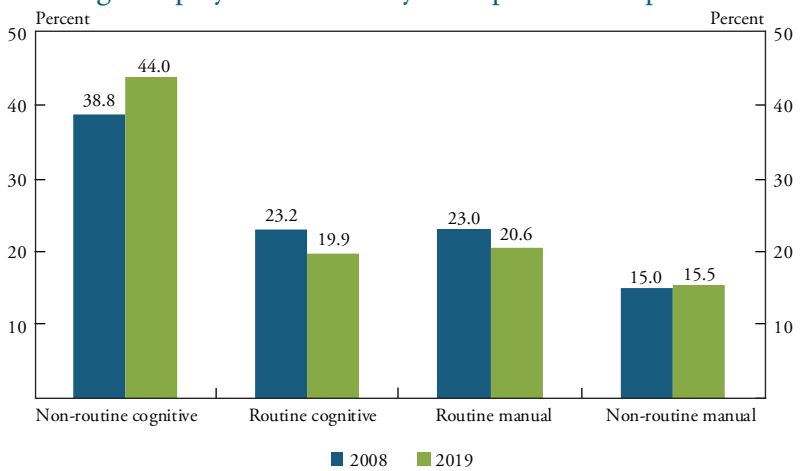
Technological advancements help explain why the share of workers employed in middle-skill jobs has fallen so sharply. Middle-skill jobs are considered "routine" jobs, as workers typically perform tasks that are procedural and rule-based. These jobs may be "routine cognitive jobs," such as sales and administrative support occupations, or "routine manual jobs," such as construction and production occupations. The tasks performed in many of these jobs have become automated by computers and machines.

International trade and weakening unions have also contributed to the decline in routine jobs. Many jobs in this category, particularly those in the manufacturing industries, have been off-shored to countries where workers can perform similar tasks for lower wages (Goos and others 2011; Oldenski 2012). In addition, some firms have contracted out portions of their businesses to workers in foreign countries through outsourcing.

In contrast, tasks performed in high- and low-skill jobs are more difficult to automate, making them "non-routine" jobs. Workers in high-skill or "non-routine cognitive" jobs are typically highly educated and perform tasks requiring analytical ability, problem solving, and creativity. Many of these jobs are managerial and technical in nature in fields such as engineering, finance, and medicine. In contrast, workers in low-skill or "non-routine manual" jobs typically have no formal education beyond high school and work in jobs that are physically demanding. Many of these jobs are service-oriented in fields such as food preparation, cleaning, and security and protective services.

Chart 4

Prime-Age Employment Shares by Occupation Groups



Notes: Workers who are self-employed, employed in military or agricultural occupations or industries, and work without pay are excluded from the sample. Monthly data are averaged for each year.
Sources: CPS and authors' calculations.

Effects of job polarization on prime-age employment

Over the past decade, job polarization has led to a large increase in demand for highly educated workers and a decline in demand for less-educated workers, many of whom were employed in routine jobs. Chart 4 shows how prime-age employment in each skill category has changed since the Great Recession. In 2008, 46.2 percent of employed prime-age individuals worked in routine jobs: 23.2 percent worked in routine cognitive jobs, and 23.0 percent worked in routine manual jobs.[3] By 2019, this share had declined to 40.5 percent: 19.9 percent of employed prime-age individuals worked in routine cognitive jobs and 20.6 percent worked in routine manual jobs.

The decline in employment in routine jobs was accompanied by an increase in employment in non-routine cognitive jobs. The share of employed prime-age individuals in non-routine cognitive jobs rose from 38.8 percent in 2008 to 44.0 percent in 2019. Over the same period, the share of employed prime-age individuals in non-routine manual jobs remained around 15 percent.

Non-college individuals bore the brunt of the employment losses during the 2008–11 period, when most employment losses were in routine jobs. The rapid decline in routine employment is in line with the

observation that job polarization accelerates during economic downturns (Tüzemen and Willis 2013; Jaimovich and Siu 2012). Table 4 shows that 1.5 million prime-age workers lost jobs in routine cognitive occupations, 1.3 million of whom were non-college women. Over the same period, 2.3 million prime-age workers lost jobs in routine manual occupations, 1.8 million of whom were non-college men.

During the early and late recovery periods, non-college women continued to lose jobs, while non-college men saw only modest improvements. Over 1.6 million non-college women (832,111 + 805,710) lost jobs in routine cognitive occupations over the two periods, more than offsetting slight increases in their employment in non-routine manual occupations (Table 4). In contrast, non-college men recovered some of their losses in routine manual jobs due to the rebound in construction and transportation occupations. Moreover, their employment in non-routine cognitive occupations slightly increased.

Prime-age women and men with a bachelor's degree fared much better across all three periods and were only slightly affected by the decline in routine employment during the recession. Interestingly, college-educated women gained jobs on net during the recession period, as their job gains in non-routine occupations, especially in non-routine cognitive or high-skill occupations, more than offset their job losses in routine manual and routine cognitive occupations. In contrast, college-educated men lost jobs on net during the recession period, as their gains in non-routine manual jobs fell short of offsetting their job losses in all other occupation categories.

College-educated individuals accrued almost all of the job gains during the two recovery periods. As employment opportunities shifted toward high-skill occupations, firms' demand for more-educated workers increased. Employment among college-educated prime-age men and women rose by 3.6 million (1.7 + 1.9) and 4.7 million (2.2 + 2.5), respectively, during the two recovery periods, and three-fourths of these job gains were in non-routine cognitive or high-skill occupations (Table 4). Interestingly, the majority of employment gains in routine employment also accrued to college-educated prime-age individuals. This pattern suggests that firms' demand for more-educated workers increased even for routine occupations. In other words, a large pool of unemployed workers searching for jobs during the recovery periods may have led firms to become more selective.

Table 4
Changes in Prime-Age Employment by Occupation Groups

Prime-age group	Total	Non-routine cognitive	Routine cognitive	Routine manual	Non-routine manual
All prime-age					
Recession (2008–11)	–4,222,147	–613,040	–1,491,980	–2,320,731	203,603
Early recovery (2011–15)	3,083,690	2,832,984	–449,360	451,007	249,060
Late recovery (2015–19)	3,738,653	3,545,176	–443,332	312,272	324,537
Non-college men					
Recession (2008–11)	–2,051,021	–346,031	–149,881	–1,847,200	292,091
Early recovery (2011–15)	–20,443	206,558	–193,965	168,619	–201,655
Late recovery (2015–19)	66,403	113,627	49,184	–9,918	–86,490
College men					
Recession (2008–11)	–109,033	–75,246	–18,294	–73,141	57,648
Early recovery (2011–15)	1,706,947	1,139,123	167,589	253,543	146,693
Late recovery (2015–19)	1,906,219	1,585,596	87,786	131,525	101,312
Non-college women					
Recession (2008–11)	–2,259,293	–429,441	–1,304,880	–360,276	–164,696
Early recovery (2011–15)	–840,523	–129,000	–832,111	–60,786	181,374
Late recovery (2015–19)	–766,279	–187,900	–805,710	120,468	106,863
College women					
Recession (2008–11)	197,199	237,679	–18,924	–40,115	18,559
Early recovery (2011–15)	2,237,709	1,616,304	409,127	89,631	122,648
Late recovery (2015–19)	2,532,310	2,033,853	225,408	70,198	202,852

Notes: Workers who are self-employed, employed in military or agricultural occupations or industries, or who work without pay are excluded from the sample. Employment changes are calculated using annual averages for the corresponding years.
Sources: CPS and authors' calculations.

In summary, the recent economic downturn led to large employment losses in routine occupations that did not return during the recovery. These losses were largely felt by men and women without a bachelor's degree, who lost jobs in routine manual and routine cognitive jobs, respectively. As the demand for workers in routine jobs declined, some displaced workers were able to transition to high-skill jobs, while other workers moved to low-skill service sector jobs. However, a majority of displaced workers without a bachelor's degree were unable to find employment in their skill levels and eventually dropped out of the labor force (Cortes and others 2015; Foote and Ryan 2015; Tüzemen 2018). Therefore, the disappearance of routine occupations contributed to the decrease in the labor force

participation rates among prime-age individuals without a bachelor's degree (Tüzemen 2019). In contrast, the shift in the composition of jobs toward high-skill, non-routine cognitive jobs during the recovery increased employment and labor force participation among college-educated individuals, especially women.

Prime-age workers' response to the shift toward high-skill occupations

Prime-age workers have responded to job polarization and shifting employment opportunities toward high-skill occupations by increasing their educational attainment. Both the number and the share of prime-age individuals with a college education have increased over the past decade, especially among women. In 2008, 63.6 million women were prime-age, 32.9 percent of whom had a bachelor's degree or higher (Table 5). By 2019, the population of prime-age women had risen to almost 64 million, while the share with a bachelor's degree or higher had risen to 42.2 percent. Men have followed a similar pattern, though their population and college shares remain below those of women. In 2008, 62.1 million men were prime-age, 30.3 percent of whom had a bachelor's degree or higher. By 2019, the population of prime-age men had increased modestly to 62.3 million, while the share with a bachelor's degree or higher had risen to 36.2 percent. As a result, the total population of college-educated, prime-age men was 22.6 million compared with 27 million for women.

The larger increase in the share of prime-age individuals with a bachelor's degree was accompanied by an increase in their share in the prime-age labor force. The share of college-educated women in the prime-age labor force rose from 16.6 percent in 2008 to 21.7 percent in 2019, while the share of college-educated men rose from 17.1 percent in 2008 to only 20.4 percent in 2019. As a larger share of prime-age women have obtained a bachelor's degree than men, the share of non-college women in the prime-age labor force has subsequently declined by more than the share of non-college men. Specifically, the share of non-college women in the prime-age labor force declined from 29.5 percent in 2008 to 24.8 percent in 2011, while the share of non-college men declined from 36.7 percent in 2008 to 33.0 percent in 2019.[4] Nevertheless, non-college men still have the largest share in the prime-age labor force.

Table 5

Changes in Prime-Age Population, Employment, and Labor Force Compositions by Sex and Education Groups

Sex/education group	2008 (percent)	2019 (percent)	Change 2008–19 (percentage point)
Women			
Population (number)	63,580,812	63,978,852	398,040
College-educated (number)	20,932,984	27,020,544	6,087,560
College share	32.9	42.2	9.3
Men			
Population (number)	62,107,180	62,284,345	177,165
College-educated (number)	18,821,718	22,567,705	3,745,987
College share	30.3	36.2	5.9
Non-college women			
Prime-age employment share	29.3	24.6	–4.7
Prime-age labor force share	29.5	24.8	–4.7
College women			
Prime-age employment share	17.1	22.0	4.9
Prime-age labor force share	16.6	21.7	5.1
Non-college men			
Prime-age employment share	36.1	32.8	–3.3
Prime-age labor force share	36.7	33.0	–3.7
College men			
Prime-age employment share	17.6	20.7	3.1
Prime-age labor force share	17.1	20.4	3.3

Note: Monthly data are averaged for each year.
Sources: CPS and authors' calculations.

The shift toward college education among prime-age men and women appears to have supported the recent uptick in the prime-age labor force participation rate. A simple counterfactual exercise shows that had the population shares of college-educated men and women stayed at their 2008 levels, the prime-age labor force participation rate would be at 81.5 percent instead of 82.4 percent in 2019. In other words, 1.1 million fewer prime-age individuals would be in the labor force.

However, the increasing share of prime-age individuals with a bachelor's degree was not enough to offset the sharp decline in the labor force participation rate of individuals without a bachelor's degree. Non-college men and women have been hit the hardest by the disappearance of routine occupations during the economic downturn. With

the exception of college-educated women, the labor force participation rates for all groups have remained below their 2008 levels. A similar counterfactual exercise shows that had the participation rates of all groups stayed at their 2008 levels, 1.8 million more prime-age individuals would be in the labor force.

III. Self-Reported "Situations" of Nonparticipants and Policy Implications

The increased demand for highly educated workers contributed to the labor force participation rate of prime-age women with a bachelor's degree exceeding its pre-recession level. As college-educated women have had historically lower labor force participation rates than men, we might interpret this as college-educated women "catching up" with their male counterparts. However, the labor force participation rate of college-educated women has remained lower than both college-educated and non-college-educated men. While changes in labor demand seem to be a significant factor behind recent patterns in labor force participation, studying the self-reported situations of nonparticipants could provide further insight for policymakers into how to bring more prime-age individuals into the labor force.

The CPS provides a useful way to gauge prime-age individuals' reasons for nonparticipation. Each month, the CPS asks respondents about their labor force status (employed, unemployed, or not in the labor force). Those who report their status as "not in the labor force" also respond to another question, which asks, "what best describes your situation at this time? For example, are you disabled, ill, in school, taking care of house or family, or something else?" Based on responses to these questions, we group prime-age individuals who are not in the labor force into one of five categories: retired, disabled or ill, in school, taking care of family, and other reasons.

Throughout the sample period, the most common situation reported by prime-age women of all education levels was taking care of family. In 2008, 60.2 percent of nonparticipating prime-age women without a bachelor's degree reported they were taking care of family, while 26.6 percent said they were disabled or ill (Table 6). From 2008 to 2019, these shares were mostly unchanged. Even more strikingly, 71.5 percent of nonparticipating women with a bachelor's degree reported they were

Table 6
Situations Reported among Nonparticipating Prime-Age Individuals

Sex/education group	Situations	2008 (percent)	2019 (percent)	Change, 2008–19 (percentage point)
Women				
Non-college	Disabled or ill	26.6	25.6	–1.0
	Family care	60.2	60.2	0.0
	In school	5.3	5.5	0.2
	Retired	4.8	5.3	0.5
	Other	3.1	3.4	0.3
College	Disabled or ill	8.1	9.2	1.1
	Family care	71.5	67.8	–3.7
	In school	8.9	9.5	0.6
	Retired	6.6	7.6	1.0
	Other	4.9	5.9	1.0
Men				
Non-college	Disabled or ill	58.0	53.8	–4.2
	Family care	12.6	15.1	2.5
	In school	8.4	9.6	1.2
	Retired	8.7	9.3	0.6
	Other	12.3	12.2	–0.1
College	Disabled or ill	23.7	20.2	–3.5
	Family care	14.7	15.8	1.1
	In school	28.6	28.0	–0.6
	Retired	17.6	17.5	–0.1
	Other	15.4	18.6	3.2

Note: Monthly data are averaged for each year.
Sources: CPS and authors' calculations.

taking care of family in 2008, while only 8.1 percent said they were disabled or ill. By 2019, the share of college-educated women reporting family care declined to 67.8 percent, countered by small increases in all other categories.

In contrast, the most common situation reported by nonparticipating prime-age men without a bachelor's degree was disability or illness, while the most common situation reported by men with a bachelor's degree was being in school. In 2008, 58.0 percent of nonparticipating prime-age men without a bachelor's degree reported they were disabled or ill, while 12.6 percent said they were taking care of family. By

2019, the share who reported they were disabled or ill declined to 53.8 percent, while the share taking care of family rose to 15.1 percent. For nonparticipating prime-age men with a bachelor's degree, 28.6 percent reported they were in school in 2008 compared with 28.0 present in 2019. The share reporting that they were disabled or ill declined from 23.7 percent in 2008 to 20.2 percent in 2019.

These self-reported responses offer further insights into the reasons for nonparticipation among prime-age individuals. First, consistent with job polarization, prime-age men and women without bachelor's degrees may have a harder time returning to the labor force because they are unable to find jobs suitable for their skills and education levels (Cortes and others 2015; Foote and Ryan 2015; Tüzemen 2018). The stress of long-term unemployment or inactivity could lead to mental or physical problems, which may contribute to the large share of prime-age men reporting disability or illness as their reason for not participating in the labor market. Moreover, some individuals who recovered from disability or illness may have become dependent on pain medication, rendering them unable to work (Krueger 2017). Ending this vicious cycle may require equipping workers with the new skills and higher education demanded by employers in the face of rapid technological advancements.

Second, self-reported responses suggest family care remains a major obstacle for labor force participation among prime-age women, regardless of their educational attainment. Family care could involve taking care of young children or an elderly parent, which are responsibilities more often shouldered by women than men. However, overcoming this obstacle seems plausible given the experiences of other countries. The labor force participation rate of prime-age women is lower in the United States than in other countries in the Organisation for Economic Co-operation and Development (OECD) such as France, Canada, the United Kingdom, and Japan (Black and others 2017). Research shows that family-friendly policies in these countries have been successful in pulling more prime-age women into the labor force, suggesting family-friendly labor market policies could also help increase labor force participation among prime-age women in the United States.

Conclusion

During the Great Recession, large-scale layoffs caused a sharp decline in the employment of prime-age individuals, resulting in a dramatic decline in their labor force participation rate. Although the prime-age labor force participation rate began to recover in 2015, it remains below its pre-recession level. We break down the prime-age labor force participation rate by sex and education level and show that the labor force participation rates are lower than their pre-recession levels for all groups except for college-educated women. Moreover, we emphasize that the disappearance of routine occupations contributed to the decrease in the labor force participation rates among prime-age individuals, especially those without a bachelor's degree (Tüzemen 2019). Had the participation rates for all groups stayed at their 2008 levels, 1.8 million more prime-age individuals would be in the labor force in 2019.

Over the past decade, nonparticipating prime-age men reported disability or illness as the most common situation explaining their participation, while prime-age women reported taking care of family. These situations represent significant barriers to labor force participation. For men, a lack of job opportunities may lead to depression and illness, and these health conditions may, in turn, become further barriers to employment. Similarly, a lack of affordable family care may prevent many prime-age women from joining the labor force. Policymakers may have the scope to address both obstacles. Policies geared toward equipping workers with the new skills and education demanded by employers, or toward providing support for family care, may encourage higher participation among prime-age individuals.

Endnotes

[1]The CPS is the primary source of labor force statistics and demographic data for the U.S. population. The U.S. Census Bureau collects survey data for the Bureau of Labor Statistics at a monthly frequency from approximately 60,000 households. The survey has a response rate ranging from 91 to 93 percent, one of the highest response rates among government surveys.

[2]Our recession period covers a longer horizon than the recession period determined by the National Bureau of Economic Research's Business Cycle Dating Committee, which covers December 2007–June 2009, from the peak of the business cycle to the trough.

[3]In calculating these skill shares, we exclude workers who are self-employed, employed in the military or agricultural industries or occupations, and working without pay.

[4]Similar changes are observed in the sex and education composition of employed prime-age individuals (Table 5).

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