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Understanding the Economic Impact of COVID-19 on Women

ABSTRACT Compared with previous recessions, the recession induced by COVID-19 had a greater impact on women's employment and labor force participation relative to men. But the big divide was less between men and women than it was between the more and the less educated. Contrary to many accounts, women did not exit the labor force in large numbers, and they did not greatly decrease their hours of work. The aggregate female labor force participation rate did not plummet. That said, the ability to balance caregiving and work differed greatly by education, occupation, and race. The more educated could work from home. Those who began the period employed in various in-person service occupations and establishments experienced large reductions in employment. Black women experienced a more negative impact beyond other factors considered, and the health impact of COVID-19 is a probable reason. The estimation of the pandemic's impact depends on the counterfactual used. The real story of women during the pandemic is that employed women who were educating their children and working adult daughters who were caring for their parents were stressed because they were in the labor force, not because they left.

The economic downturn that resulted from our self-induced COVID-19 coma has had economic effects different from those of any other recession or national crisis in US history. This time really has been different. Never before have we needed to shut down the economy to get it running again.[1]

1. The Great Influenza epidemic of 1918 was not accompanied or followed by an economic recession of any magnitude, possibly because of World War I or because the economy was not placed in as extreme a coma as ours has been. In addition, the virus may have rapidly mutated to a less virulent form, although not until after 1919.

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Never before have those working on the front lines been asked to bring danger back into their homes, not even in time of war. Never before inpeacetime have the caring sectors of education and health been as intertwined with the economic sectors of production and services. And never before has a recession had a greater impact on women than on men in a host of ways.

It seems safe to say that no one was untouched by the pandemic. But much of the deepest economic impact and personal pain was experienced by women. Many were caregivers for their own children and parents; some worked as aides for other people. Their jobs put them on the front lines in hospitals, nursing homes, and grocery stores. Others worked in restaurants, hospitality, retail, and personal service and saw their workplaces shuttered.

These women are of all types. But those who experienced the greatest impact were the mothers of school-age and younger children, Black and Hispanic women, single moms, and adult daughters who cared for parents. They may bear the marks of the pandemic for some time.

Women today are almost half of the total US labor force—47 percent just prior to March 2020, according to the Current Population Survey (CPS) data.[2] It is because of their great importance to the labor force that issues of caring and K-12 education took on greater significance during the pandemic and were seen as a means of restarting the economy. For the same reasons, uncertainty about the economic recovery was driven by the possibility that schools and day care centers would not fully open in fall 2021 or that parents would be fearful of sending their children to them. At the same time, it is because the vast majority of women 25 to 54 years old are in the labor force—76 percent in 2019—and half of them have children younger than age 18—that the care and education of children have been paramount to them.

The only time previously in US history that childcare was viewed as essential to the nation's economic health was during World War II. In 1940, only 18 percent of married women were in the labor force (Goldin 1991), and the overwhelming majority of Americans (both men and women born before 1930) agreed with the statement: "A preschool child would likely suffer if the mother worked for pay" (Goldin 2021).[3] But in 1942, firms

2. The fraction of the labor force by hours worked that is female is less than 47 percent since working women of all ages report working for pay 10 percent fewer hours than do working men (similarly for women age 25–54), using data for 2019 and "hours usually worked per week at all jobs," truncating at 84 hours.

3. From General Social Survey data for those born before 1930, although the question was asked in the 1970s and 1980s when the individuals were considerably older and they may have tempered their agreement with the statement.

across the nation encountered obstacles fulfilling contracts for war production. Firms entreated the federal government for the means to increase the labor supply with an untapped reserve—mothers.

The federal government responded by redeploying funds from the 1940 Lanham Act to set up thousands of nursery schools for children 2 to 5 years old and provide extended school programs for older children.[4] The policy appears to have done the trick. By 1944, 55 percent of servicemen's wives age 25–44 were in the labor force.[5]

Even in ordinary times, the care of children uses far more hours of mothers' time than of (custodial) fathers, and that is true even if both are college graduates and are fully employed. Thus, even though school and day care closings during the pandemic have had disproportionate impacts on most parents, the absolute time demands on mothers were extraordinary. By the estimates I will later offer, childcare (including education) time for children younger than age 18 increased from 8.7 hours per week before the pandemic, to 17.3 hours early in the pandemic, to around 22.4 hours by fall 2020 for college-graduate women (who were full-time workers with elementary school–age children in different sex, two-parent households). Childcare hours of custodial fathers also greatly increased early in the pandemic. But the increased hours of childcare of working women created an exceedingly heavy load (even weightier when ordinary housework is included).

The pandemic resulted in considerable burdens and stresses from its dual impact on people's health and jobs. The closing of schools and day care facilities, the furloughing of nannies and house cleaners, and the reduction of home health care workers intensified time demands on mothers and other women. Even though work from home was safer, it was filled with interruptions, prompting some to cleverly dub WFH as "work from hell."

It is no wonder that in the first year of the pandemic, especially in its first six months, news media and policy reports were jam-packed with alarming

4. On the Lanham Act, see Derrington, Huang, and Ferrie (2021). In a similar manner, many states used CARES Act funds to set up childcare facilities for the children of hospital workers, EMTs, first responders, and other workers deemed essential during the early months of the pandemic. These programs also served to buoy the hard-hit childcare sector.

5. According to official estimates, about 26 percent of all women (age 15 and older) were in the labor force in 1940. But by 1944—from estimates implicit in Goldin (1991)—the female labor force rapidly increased to 40 percent among those age 18 and older. It subsequently fell to 30 percent by 1947, about as rapidly as it had risen. It subsequently began its secular rise, reaching 34.5 percent by 1951. There has been no other time in recorded US history of so rapid a change in female labor force participation. We do not yet know whether the Lanham Act nursery schools had an impact on later female labor supply. On the role of mobilization rates on women's labor supply, see Goldin and Olivetti (2013).

headlines: "Pandemic Could Scar a Generation of Working Mothers" and "Pandemic Will 'Take Our Women 10 Years Back' in the Workplace."[6] A McKinsey-LeanIn Report that surveyed more than 40,000 employees from forty-seven companies issued a dire set of predictions, concluding that "1 in 4 women are contemplating . . . downshifting their careers or leaving the workforce" and "one in three mothers may be forced to scale back or opt out" (Thomas and others 2020, 6, 21). These prophecies became part of a media echo chamber, repeated again and again as if they had actually occurred.[7]

Even in March 2021, as vaccines were just entering arms of the under-65 crowd in most states, the news media continued to emphasize the reduction in women's employment and a future in which these reductions would be made permanent: "Pushed Out by Pandemic, Women Struggle to Regain Footing in U.S. Job Market" and "In One Year, Coronavirus Pandemic Has Wreaked Havoc on Working Women."[8]

Some even offered the disturbing possibility that female labor force participation has already dropped to 57 percent—levels not seen since 1988 (Forman 2022). One headline stated: "Women's Labor Force Participation Rate Hit a 33-Year Low in January," even though there was almost no sustained growth in that rate during those three decades (Connley 2021).

6. Patricia Cohen and Tiffany Hsu, *New York Times*, June 30, 2020, https://www.nytimes.com/2020/06/03/business/economy/coronavirus-working-women.html; Amanda Taub, *New York Times,* September 26, 2020, https://www.nytimes.com/2020/09/26/world/covid-women-childcare-equality.html.

7. The comments from the report that one in four women or one in three mothers might be leaving the workforce or cutting back were repeated in numerous news reports (for example, Kathryn Vasel, "The Pandemic Could Push an Alarming Number of Women Out of the Workforce," CNN Business, September 30, 2020, https://www.cnn.com/2020/09/30/success/women-senior-level-pandemic/index.html; Catherine Thorbecke, "1 in 4 Women Considering Leaving Workforce or Downshifting Careers because of COVID-19, Report Warns," ABC News, September 29, 2020, https://abcnews.go.com/Business/women-leaving-workforce-downshifting-careers-covid-19-report/story?id=73310740; Courtney Connley, "1 in 4 Women Are Considering Downshifting Their Careers or Leaving the Workforce due to the Coronavirus," CNBC, September 30, 2020, https://www.cnbc.com/2020/09/30/1-in-4-women-are-thinking-about-altering-their-careers-due-to-covid-19.html). Few, if any, also cited data in the McKinsey-LeanIn report showing that one in five fathers were also considering reducing hours or switching to a less demanding job (Thomas and others 2020, 21).

8. Jonnelle Marte and Aleksandra Michalska, *Reuters*, March 5, 2021, https://www.reuters.com/article/us-health-coronavirus-women-jobs/pushed-out-by-pandemic-women-struggle-to-regain-footing-in-u-s-job-market-idUSKBN2AW19Y; Tim Smart, *US News,* March 8, 2021, https://www.usnews.com/news/economy/articles/2021-03-08/in-one-year-coronavirus-pandemic-has-wreaked-havoc-on-working-women.

Versions of this headline were replayed across media outlets for months.[9] The enormous impact by race was also noted: "Taken together, the coronavirus proved to be a double whammy for Black women, robbing them of their jobs as well as threatening their health" (Smart 2021, par. 12). There was, unfortunately, considerable truth to that.

In the spring of 2021, we took off our masks and breathed in deeply, thinking we were on a straight road to economic recovery and health. We are less certain of that now, even as schools, day care centers, businesses, and offices have reopened. As the nation's labor force is slowly shifting to a new normal, it is prudent to look back and assess damage while exploring the potential for positive change.

In the year that followed, many researchers have examined the facts behind these headlines.[10] Although there is some variation in the findings, a consensus has developed around the economic impact of the pandemic on women and the veracity of these stories. I will summarize the main findings, explain some differences, and add a few additional considerations. My intention is to clarify the impact of the pandemic on women rather than evaluate the differential impact of the pandemic on women relative to men or relative to other recessions, a task capably accomplished by others.[11]

The consensus that has emerged regarding the actual economic impact of the pandemic on women generally includes the following five points, which are developed more fully below.

First, female labor force participation greatly increased in the half year preceding the pandemic, making judgments about changes after the pandemic began dependent on the starting point and the assumed counterfactual. The claim that the female labor force participation rate was rolled back to levels not seen for more than thirty years does not consider the fact

9. "This brings the total number of women who have left the labor force since February 2020 to more than 2.3 million, and it puts women's labor force participation rate at 57%, the lowest it's been since 1988" (Connley 2021, par. 2). "Now, 56 percent of American women are working for pay, the lowest level since 1986" (Miller 2021, par. 2).

10. The literature on the gendered features of the pandemic recession is now extensive. Among the pioneers in the scholarly literature who wrote on the subject as early as March 2020, Alon and others (2020a) were probably the first. That piece was followed by Alon and others (2020b), and then by a revealing work, Alon and others (2021), using comparable data for six countries (United States, Canada, Germany, Netherlands, Spain, and United Kingdom), exploring the impact of COVID-19 across nations with different social insurance systems. Heggeness (2020) was among the first to recognize the impact of leave-taking on employment.

11. See Albanesi (2021) and Albanesi and Kim (2021).

that female labor force participation had been flat for some time, and male labor force participation actually decreased. The female labor force participation rate, for those age 25–54 was about 75 percent in the early 1990s and has not been much different in more recent years. In fact, the rate was 75.6 percent before the pandemic in November 2018 and was also 75.6 percent in November 2021 (the last available month at the time of this writing).[12]

Second, compared with previous recessions, the one induced by COVID-19 affected women's employment and labor force participation somewhat more relative to men's and thus deserves the moniker "shecession." But the big divide is less between men and women and more between the more educated and the less educated. Although educational differences have been present in other recessions, the ability of the educated to work remotely and more safely would be expected to have exacerbated educational differentials relative to those in typical recessions.

Third, childcare time across all families with school-age and younger children probably doubled around the start of the pandemic. Childcare time for custodial fathers probably more than doubled for the first several months after March 2020, in part because their hours began at a lower level than those of custodial mothers. Childcare time for mothers probably increased further as some workplaces reopened in fall 2020 and custodial fathers reduced their childcare hours, yet schools did not remain open everywhere.

Fourth, labor market outcomes for women with young children were more affected than for others, but the pandemic had a great impact on all women. The employment and labor force participation of mothers with school-age and younger children varied by the mother's level of education and the year and season during the pandemic. An important finding is that employed mothers, by and large, did not leave the labor force despite their greatly increased time demands due to school and day care closings, and those who remained employed did not downshift as much as has been thought. But caregivers of children, the elderly, and the sick were burdened in a multitude of ways that became part of the media's headline stories.

Fifth, occupation and industry mattered considerably to women's employment. Prior to the pandemic, and relative to men, women were disproportionately employed in establishments—such as restaurants, retail, beauty salons, child day care services, and home health care services—that were shuttered or had restricted service by state mandates at the start of the pandemic. Even after they could open, these businesses had reduced demand,

12. Bureau of Labor Statistics, "Series Reports," https://data.bls.gov/cgi-bin/srgate, LNS11300062.

and many had permanently closed their doors. Race and ethnicity mattered to women's employment and labor force status independent of the age of their youngest child, occupation, and education.[13] Why that is the case may concern social disparities in COVID-19 health outcomes and the greater exposure of their jobs to disease transmission.

I. Five Points on the Economic Impact of the Pandemic and Recession on Women

1. The Pandemic's Impact on Female Labor Force Participation Rates and the Run-up before the Pandemic: *What Is the Correct Counterfactual?*

I will begin the elucidation of the impact of the pandemic on women with a discussion of female labor force participation rates. The existence of a sharp and unparalleled, in recent history, run-up in participation prior to the pandemic will influence the choice of a hypothetical to understand the impact of the pandemic.

The claim that the female labor force participation rate fell during the pandemic is not incorrect. But the implication that female labor force participation plummeted from a much higher level before the pandemic to one that was extremely low during the pandemic is highly mistaken.

First off, the 57 percent figure often mentioned in the media is for all women age 16 and older. Although that is a customary way of expressing the data and is done for historical consistency, it is not a meaningful age group to use. However, even using the age 16 and older group, the statistic for women fell by only 1 percentage point from April 2019, when it was 57.1 percent, to April 2021, when it was 56.1 percent. The same statistic fell by 1.4 percentage points for men, from 69.0 percent to 67.6 percent.[14]

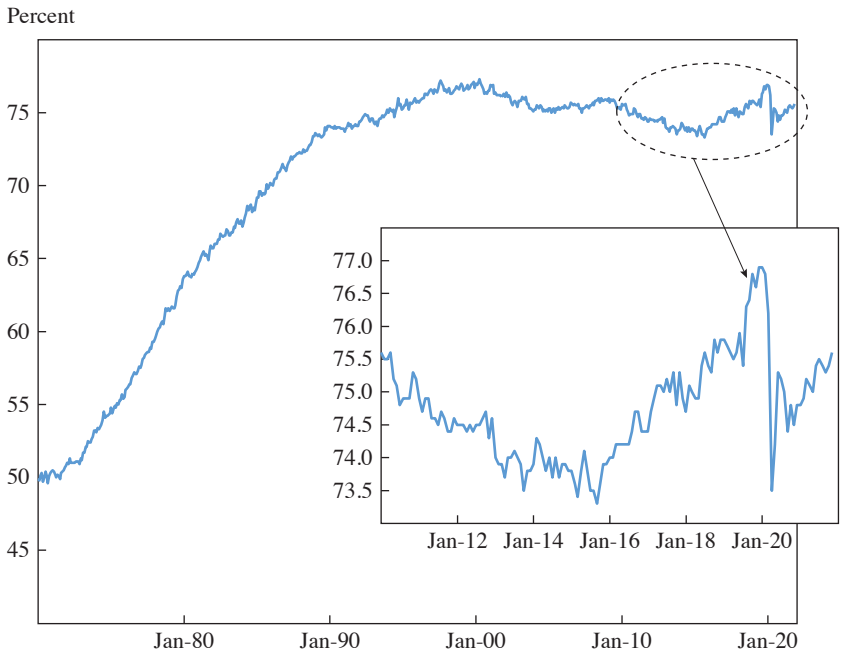
The reason that recent participation rates for women take us back many decades is that women's participation rates have not changed much during the past thirty years, and for some demographic groups, they actually decreased.[15] But men's participation rates have fallen almost every year since at least the 1960s.

13. I am not claiming that race and ethnicity mattered any more in the pandemic recession than in any previous one.

14. Data are seasonally adjusted from the Federal Reserve Bank of St. Louis, Economic Research Division (FRED), https://fred.stlouisfed.org, LNS11300002 series for women and LNS11300001 for men.

15. For data on the female labor force in general, see Goldin and Mitchell (2017). For information on the increase in female participation for those age 55 and older, see Goldin and Katz (2018).

Figure 1. Female Labor Force Participation Rate, January 1970 to November 2021



Source: Bureau of Labor Statistics, series LNS11300062, accessed March 2022.
Note: Seasonally adjusted, civilian labor force participation rate (expressed as a percentage), women age 25–54.

Labor force participation rates make more sense for a group of workers who are post-school, preretirement, say 25 to 54 years old, as depicted in figure 1 for the period since 1970. The labor force participation rate for women expressed in this manner shrank a bit from 75.5 percent in April 2019 to 75.1 percent in April 2021, comparing data for the same months both before and after the pandemic began, using the approximate month of the many media reports on the statistics. Expressed that way, the rate declined by just 0.4 percentage point. The rate for men, using the same age group, fell by 1.3 percentage points, considerably more. Comparing, say, November 2018 to November 2021 (the latest month for which data exist at the time of this writing) gives no change for women and a 0.7 percentage point decrease for men. The reason for using 2018 for this calculation rather than 2019 concerns a critically important run-up in women's labor force participation.[16]

16. Using 2019 gives a decrease of 1.0 percentage point for women and the same for men.

As is clear in figure 1, the January and February 2020 labor force participation rates for women are distinct outliers across a long period (see the enlarged portion of figure 1). The figure for January 2020 is 76.9 percent. Out of the 383 monthly numbers from January 1990 to November 2021, just ten exceed the January 2020 figure of 76.9 percent, and seven equal that figure, including the rate for December 2020. The February 2020 figure is 76.8 percent.[17]

The increase in female labor force participation rates in the mid-2010s was a return to a more normal era after the apparently delayed response of the female labor force to the Great Recession. By around September 2019, female labor force participation rates were approaching their level from before the Great Recession. Then came a boom in women's entry to the workforce.

Female labor force participation rates soared from late fall 2019 to early winter 2020, when the economy had exceptionally low unemployment. We may never know whether that increase in women's participation would have persisted in the absence of the pandemic or whether it would have ended up being another transitory blip.

We can, however, discern who entered the labor force in the period of run-up and what happened to the recent entrants during the pandemic. If those who entered largely remained in during the pandemic, then the increase might have been sustained. But if those who entered largely dropped out in the next several months, then the run-up consisted primarily of women who were marginally attached to the labor force. Comparisons with January 2020 would give an overstatement of the hypothetical impact of the pandemic in the absence of the run-up.

The answer, we will see, is that a substantial fraction of those who entered in the period immediately preceding the pandemic left during it. It is to be expected that recent entrants are, on average, less attached. But this group was large and somewhat less attached than in more ordinary times.

Consider, first, a simple descriptive summary of who entered just before the pandemic. According to the monthly Current Population Survey (CPS), not seasonally adjusted, the increase in participation among all women 20 to 54 years old from April 2019 to December 2019 was 1.86 percentage

17. The failure of the aggregate participation rate to return to its prepandemic levels is explored in Cooper and others (2021), but that paper emphasizes the aging of the population since November 2017 in the decreased aggregate participation rate rather than the run-up in participation by women, even though the run-up is evident in the authors' data.

points.[18] But among those age 20–29 who were not college graduates and had a child age 0–4, it was 6.32 percentage points. Therefore, the increase in labor force participation in the second half of 2019 was greatest among less-educated, young women with young children.[19]

To explore further, I use the longitudinal feature of the monthly CPS to understand the demographic characteristics of the women who entered the labor force just before the pandemic began and who among them remained in the labor force during the pandemic. The answer is that the new entrants were distinctive in the ways just described. In addition, they left the labor force during the pandemic at far greater rates than those who had not recently entered. It seems plausible, therefore, that the January and February 2020 figures are anomalous.

Each of the CPS respondents takes part in the CPS rotation, during which they are interviewed for four straight months and then for another four months after an eight-month hiatus. I first find all women age 20–54 who entered the labor force any time from April 2019 to February 2020. Each must have been interviewed at least twice in that period and been observed out of the labor force and then in. In addition, because they must have been last observed to have been in the labor force on or before February 2020, they would likely have been in the labor force at the start of the pandemic, in March 2020. Each of these women must also have had at least one observation in the pandemic period to determine if she remained in the labor force or left during the pandemic. The collection of the women who meet these conditions is labeled group 1.

As a control, I next identify women age 20–54 who were always in the labor force when interviewed between April 2019 and February 2020. They must have had at least one observation in the prepandemic period and another during or after March 2020 to observe their pandemic experience. That collective is labeled group 2.

Group 2 women, therefore, are always in the labor force when observed after April 2019 but before March 2020, whereas group 1 women enter the labor force at some point before the pandemic begins. Both groups are observed before and after the pandemic.

18. I use age 20 as the lower bound here and going forward because I would like to include parents with very young children. Beginning with 25-year-olds would exclude many parents of infants and toddlers.

19. This is not to say that college graduate women did not also have increased participation. It was just greater for other groups. Among college graduate women age 25–34 with a child younger than age 5, the increase from December to April was 3.69 percentage points, but it was 5.59 percentage points among those without a college degree.

Table 1. Characteristics of Women in the Labor Force

	Women age 20–54	
	Group 1 Entered the labor force from April 2019 to February 2020 and remained in to March 2020	*Group 2 Always in the labor force when observed from April 2019 to February 2020*
College graduates	0.326	0.452
With no children	0.518	0.478
With children under age 5	0.198	0.154
With children age 5–14	0.166	0.216
Ages 20–29	0.401	0.287
Left labor force March 2020 to last month observed	0.427	0.120
Number of observations	1,045	21,534

Source: CPS Monthly.

Note: Given the sample design, the initial interview could have occurred from April 2019 to January 2020, and the last interview from July 2020 to April 2021. As an example, consider an individual who began her CPS interviews in May 2019 (month 1) when she was out of the labor force. In July she entered the labor force and remained in at her August interview. We see her again eight months later in May 2020 (her CPS month 5) during the pandemic, and she would remain in the rotation until August 2020. She would be included in group 1 because she began out of the labor force but entered before the pandemic. She can then be observed after the pandemic. Group 2 women are always in the labor force when they are observed in the prepandemic period. See online appendix note 2 for details on the construction.

The results of the exercise, given in table 1, show that group 1 and group 2 were, not surprisingly, rather different demographically. The women of group 1 were less educated, were younger, and had more young children. Of real importance, 43 percent of group 1 left the labor force at least once after March 2020, whereas just 12 percent of group 2 did.[20]

An important implication of these findings is that the impact of the pandemic measured as a simple comparison of employment or labor force participation in any month after March 2020 with the same statistic in January or February 2020 will produce a larger estimate than one that differences from that month in, say, 2018. The simple difference leads to estimates that are overstated relative to an ideal counterfactual.

20. Recent entrants would be expected to be less attached to the labor force than the more established ones. I created a placebo pandemic in March 2018 and constructed two groups equivalent to those just described and for an equal set of months. Among the placebo group 1 women, 38 percent left the labor force at least once, but just 9 percent of placebo group 2 did. The impact is smaller than in the treatment period. The big difference is the relative size of the recent entrants.

In addition, the simple comparison or difference of a pandemic month with one in early 2020 just before the pandemic conflates seasonal changes with the pandemic impact.[21] In what follows, I will make comparisons with the same month or season in a prepandemic period, before the run-up in female labor supply, with that during the pandemic.

I will demonstrate that the comparison with winter 2019–2020 yields larger estimates of the labor force participation and "at work" rate declines for women in every season, but not for men, and that the estimates are larger for the less educated. Although I use months or seasons in 2018 as a standard, there are very few differences when 2019 is used as the reference year.[22]

2. Impact of the Pandemic and the Recession on Women Relative to Men: *Was the Pandemic Recession a She-cession?*

There are several ways to estimate the impact of the pandemic, each constructing a counterfactual concerning what employment or labor force participation would have been in the absence of COVID-19. The most reasonable estimate of what a group would have been doing in the absence of the pandemic is what the group had been doing in the same month in a previous, more normal, year. As just explained, using a period that preceded the run-up in women's labor force participation eliminates a potentially spurious component, and differencing on the same month removes seasonality.[23]

I have grouped months by season and performed a simple difference from the season in question to the same season in 2018–2019. I use the seven seasons from spring 2020 to fall 2021. Figure 2 shows the results for women and men 20 to 54 years old by education (college graduate versus not) for employment: "at work" in panel A and labor force participation in panel B.[24]

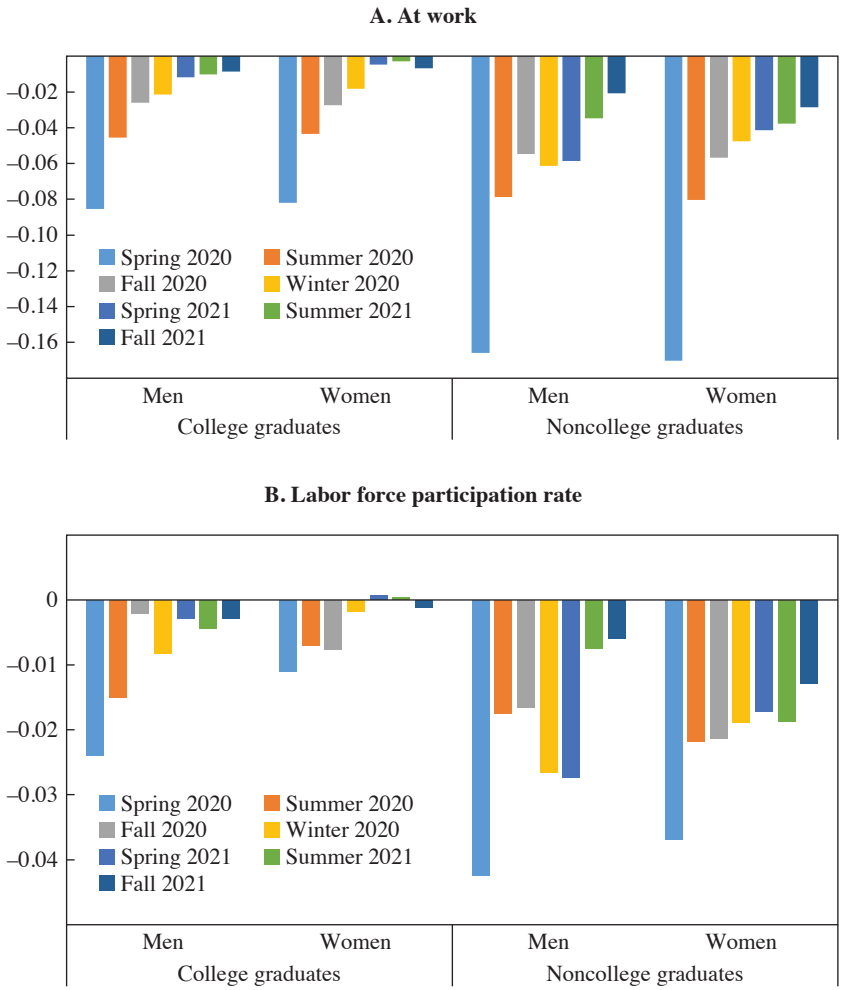
21. The seasonality issue arises from the use of the CPS micro data to look at subgroups, instead of using the Bureau of Labor Statistics' seasonally adjusted data or constructing a seasonally adjusted series from the micro data.

22. Because winter includes January and February of the following year, I will refer to December 2019 to February 2020 as winter 2019–2020. The full reference years will be termed 2018–2019 (March 2018 to February 2019) and 2019–2020 (March 2019 to February 2020).

23. Counterfactual estimates that difference each month show no relative increase by gender during the summer, suggesting seasonality is a major factor. Price and Wasserman (2022) explore why data for college graduate women show summer seasonality in employment and the possibility that K-12 teachers hired on twelve-month salaries report they are not at work in the summer.

24. The results are not much different if the age 25–54 group is used. I employ the age 20–54 group for consistency with later results that add the impact of young children.

Figure 2. "At Work" and Labor Force Participation Rate Changes, by Season, Education, and Sex



Source: CPS Monthly (Flood and others 2021).

Note: For men and women age 20–54. The values given for difference from the same season in 2018. Seasons are defined as spring (March–May), summer (June–August), fall (September–November), and winter (December–February), except spring 2020 excludes March 2020 and so does the comparison season in 2018. See online appendix table 1 for sample summary statistics.

Panel A excludes individuals who stated that they had a job but were not at work that week. That category is often high during the summer when many workers take vacation, and it could also indicate a parental or medical leave, but at the outset of the recession it was the work status given by many who were furloughed and did not know if they would be rehired. The base numbers for at work in 2018–2019 are useful for gauging the importance of the changes. In general, male college graduates have "at work" rates around 0.90 whereas female college graduates have rates around 0.80. Summer rates are lower for both: 0.87 for men and 0.74 for women. For the group who are not college graduates, the rates are around 0.78 for men and 0.64 for women. The notes to online appendix figure 1 provide "at work" base numbers for each of the seasons and groups shown here.

The fraction of the population at work excludes those who were out of the labor force or unemployed or who stated they had a job but were not at work during the CPS week. The latter category generally includes workers on short-term leave or vacation, but the group increased substantially during the pandemic. Thus, the most conservative estimate, and one that has become conventional in work on the pandemic, excludes this group from the "at work" population.

In absolute levels, the fraction at work declined significantly in spring 2020 for all groups but it declined considerably more for the less educated. The fraction at work decreased by a bit more than 8 percentage points for both male and female college graduates but by about 17 percentage points for the noncollege graduate group. The decrease had lessened a year later in spring 2021 when it was −1 percentage point for male college graduates and just −0.5 percentage points for female college graduates. It was approximately −6 for men and −4 percentage points for women in the noncollege graduate group.

Because men's "at work" base is larger than women's, the relative decrease was larger for women.[25] For college graduates, the magnitudes relative to the base levels are −9.45 percent for men and −10.35 percent for women for spring 2020 and −1.31 percent for men and just −0.61 percent for women in spring 2021. For the noncollege graduate group the relative magnitudes are larger: −21.2 percent for men and −26.5 percent for women in spring 2020 and −7.2 percent for men and −6.5 percent for women in spring 2021.

The (absolute) decrease in the fraction at work for college-graduate men was approximately the same as for college-graduate women 20 to 54 years old for all seasons and was actually lower for women in the most recent three seasons shown. Noncollege-graduate women experienced a slightly more negative impact in some seasons relative to men but not in others.

There does not seem to be a large difference in "at work" losses by gender in absolute terms using the counterfactual provided in figure 2, panel A. Rather, the large differences are by education. College graduates experienced half the decline in the fraction at work than did those with less education from spring 2020 to fall 2020. From winter 2020 to fall 2021, the less-educated group recovered somewhat less and had deficits in "at work" rates of around 4 percentage points.

25. The base "at work" rates by season in 2018–2019 for male college graduates are around 90 percent, whereas for female college graduates they are around 80 percent. Summer "at work" rates are lower for both: 87 percent for males and 74 percent for females. For the group who are not college graduates, the rate is around 78 percent for males and 64 percent for females for all seasons.

Employing, instead, the method that differences from winter 2019–2020 (see online appendix figure 1, panel A) produces larger changes in at work for women in every season. There are fewer differences among men, as should be expected since the substantial run-up occurred among women, not men. Furthermore, the absolute declines in at work for women are considerably higher in the summer, especially for college-graduate women, who were more likely than those without a college degree to have had paid vacation days.

Using the difference from winter 2019–2020 adds a whopping −6 percentage points to the estimates for summer 2020 and 2021, since the seasonal effect is not eliminated by this form of differencing. Seasonality is also apparent for the more-educated men, for the same reason. In this case, using the difference from winter 2019–2020 adds −3 percentage points for summer 2020 and 2021. Among the less educated, differences are apparent only for women for whom the difference is −1 to −2 percentage points. The main point is that differencing from winter 2019–2020 produces considerably larger estimates of the decrease in at work and also for labor force participation (see online appendix figure 1, panel B).

The difference in the two methods is essentially the "at work" number for each season in 2018–2019 minus that for winter 2019–2020. Since at work in winter 2019–2020 was relatively high, the number is negative. For less-educated women the value is −1.34 percentage points, averaged across all seasons. The value for more-educated women is even more negative when the summer months are included and is −1.11 percentage points excluding them. These are substantial differences and amount to about a 20 percent greater decline among less-educated women relative to the method that differences by the same season. I should note that using 2019–2020 as the reference year, rather than 2018–2019, does not produce substantially different results (see online appendix figure 2, panels A and B).[26]

But even using the differencing method from winter 2019–2020, which probably overstates the economic impact of the pandemic and incorrectly credits seasonal changes to it, the most apparent disparity is still by education. For women, the decrease in at work for the noncollege graduate group is almost twice what it is for college graduates, disregarding the summer months. Similar differences exist by education for men.

Differences for labor force participation rates, computed identically to those for at work, are also much smaller by gender than are the differences

26. The largest difference for less-educated women between the 2019–2020 and 2018–2019 reference years is 1.7 percentage points in the summer months. The average difference is just 0.6 percentage points.

by education (figure 2, panel B). For college graduates, labor force participation rates by spring 2021 were about the same as they were in 2018, and that is true for both men and women. In fact, men had slightly larger decreases than did women. For the noncollege graduate group, decreases were considerably greater, and the differences between men and women are not large except in the most recent seasons shown. In fall 2021, the latest season for which we currently have data, women were behind by 1.3 percentage points relative to 2018 and men were behind by 0.6 percentage points. Earlier in the pandemic and through spring 2021, the college graduate group was far more shielded than those without a college degree.

As was the case for the "at work" differences, labor force participation rate declines using the difference from winter 2019–2020 are considerably larger for every season for women but not for men (compare figure 2, panel B with online appendix figure 1, panel B). The differences for some seasons are quite large and reflect the seasonality issue raised earlier.

There are several takeaways. One is that education produced a big divide in the pandemic, gender less so. Another is that the counterfactual used changes the answers substantially. Many researchers who have differenced from January or February 2020 (winter 2019–2020) probably did not realize the potential biases in doing so, particularly regarding the issue of seasonality.[27]

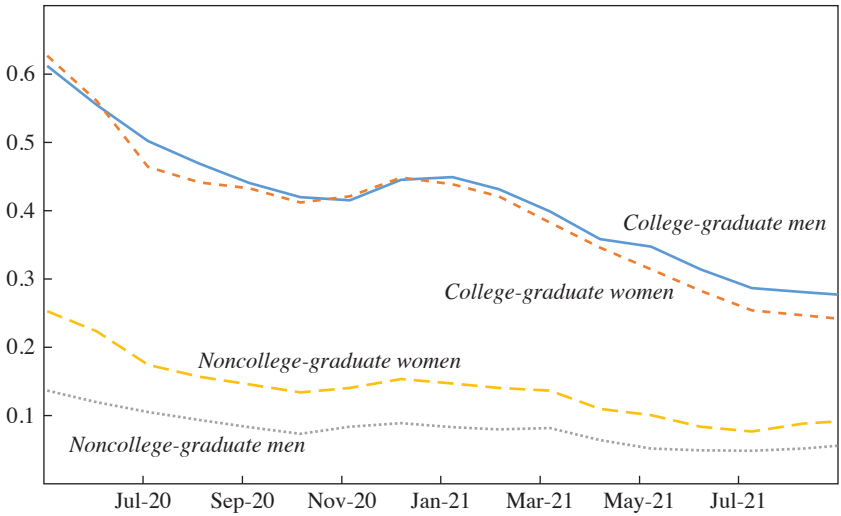
Education inoculated workers from the economic impact of the pandemic long before the vaccine was developed. The reason can be seen in figure 3, which graphs the answers to a CPS question, first asked in May 2020, about whether workers teleworked or worked for pay from home at any time during the previous four weeks "because of the coronavirus pandemic."[28]

Working remotely aided workers by enabling them to have safer jobs that could be done from home, and it enabled their firms and institutions to continue in operation. About 62 percent of employed college-graduate women and college-graduate men in May 2020 were working from home

27. Many papers have reported changes in employment and labor force rates using the difference from January or February 2020 or using one as a reference month. These include Couch, Fairlie, and Xu (2022), although the authors also difference by month; Furman, Kearney, and Powell (2021); Bauer, Estep, and Yee (2021); and Bauer and others (2021). Hansen, Sabia, and Schaller (2022), in research that uses the Safegraph data, give a time series that differences from January 2020 as motivation. Luengo-Prado (2021) generally differences from February 2020 but sometimes by month in the previous year.

28. Dingel and Neiman (2020), at the start of the pandemic, and before the CPS question was asked, produced estimates regarding which occupations could probably be done remotely.

Figure 3. Fraction of Employed Men and Women Who Worked Remotely, by Education



Source: CPS Monthly (Flood and others 2021).

Note: The full question asked is: "At any time in the last four weeks, did you telework or work at home for pay because of the coronavirus pandemic?" (The question was asked of people 16 years or older who were employed at the time of the survey; this figure includes men and women age 25–54.) See online appendix figure 3 for the full series by education level for men and women combined from BLS tabulations from May 2020 to January 2022.

at least part of the time due to COVID-19. But among those without a college degree, just 25.3 percent of employed women and 13.7 percent of employed men were working from home in May 2020 due to the virus. Because the CPS question was whether work was done remotely specifically because of COVID-19, the total fraction working at home would have been greater.[29]

By fall 2020, according to the CPS question, about 42 percent of the college graduate group continued to work from home, whereas around 13 percent of the noncollege-graduate women and just 7 percent of noncollege-graduate men did. In September 2021, around a quarter of college-graduate women worked remotely at least part of the time, but less than 10 percent of the noncollege-graduate women did and about only one in twenty of the noncollege-graduate men did.

29. To approximate an estimate that includes remote work in the absence of the pandemic, one can add to the CPS data an estimate of the usual fraction who worked remotely using American Time Use Survey (ATUS) data for 2017 and 2018. That would add about 10 percentage points (8 percentage points) to the numbers for college-graduate men (women), and 2 percentage points (3 percentage points) for noncollege-graduate men (women).

Interestingly, the fraction working remotely due to COVID-19 shot up in January 2022 for all education groups because of the Omicron variant (see online appendix figure 3). At that time, 29 percent of all college graduates (men and women) were working from home due to COVID-19, which was an increase of 33 percent from the previous month, December 2021.

It was C. Nicole Mason, president and chief executive of the Institute for Women's Policy Research, who first used the moniker "she-cession," a wordplay on the "man-cession" nickname for the 2008 recession.[30] There are many reasons why this recession was bound to be different.

State mandates at the start of the pandemic shut down or limited the density of many in-person services, such as those provided by restaurants, bars, hair salons, and retail stores. The travel and hospitality industries had greatly reduced demand. Jobs in these service sectors had seemed more immune to past cyclical downturns and other vagaries of the economy, such as the China trade shock and automation, than had those in goods-producing sectors. Prior to March 2020, women were more than 60 percent of employees in these sectors and occupations (see online appendix note 1: "Occupations Coded as 'Service'"). Men were in the more cyclically sensitive industries, such as manufacturing and construction.[31]

But the pandemic produced both a he-cession and a she-cession. Relative to previous recessions, women have been harder hit. But the largest differences in pandemic effects on employment are found between education groups rather than between genders within educational groups.

The other reason the pandemic should have impacted women more than men is that the care sectors—K-12 schooling, day care, and elder care—were also shut down or made remote. With limited in-person schooling, childcare, and elder care, mothers and adult daughters largely filled the gap. Economic changes due to the pandemic in labor force participation and at work rates are those we can measure. But they are only part of the time demands on parents, especially women. I turn now to the home front.

3. Childcare Hours for Working Parents in the Pandemic's First Year: *Did Childcare Hours Double Initially and How Did Hours Change by Fall/Winter 2020–2021?*

When schools closed, day care centers were shuttered, nannies were sent packing, and grandparents were sequestered, childcare demands on parents

30. "We should go ahead and call this a 'shecession'" (Gupta 2020, quoting Mason). https://www.nytimes.com/2020/05/09/us/unemployment-coronavirus-women.html.

31. See, for example, Albanesi and Kim (2021).

soared. The same is true for adult children, disproportionately daughters, who cared for elderly parents when home health care aides could no longer work and when residents were removed from toxic nursing homes.

A problem in assessing just how much caring time increased is that many of the facts are not yet known and may never be known for a large enough group. The American Time Use Survey (ATUS) stopped during the pandemic, and although it commenced again in May 2020, the sample size from the early pandemic period is small.

The good news is that several surveys were executed in the United States and Europe during the pandemic, and some were continuing surveys that had existed before the pandemic. But samples vary regarding whether both parents were present, whether they worked, if they worked remotely, the ages of the children, and what gets included in childcare hours.

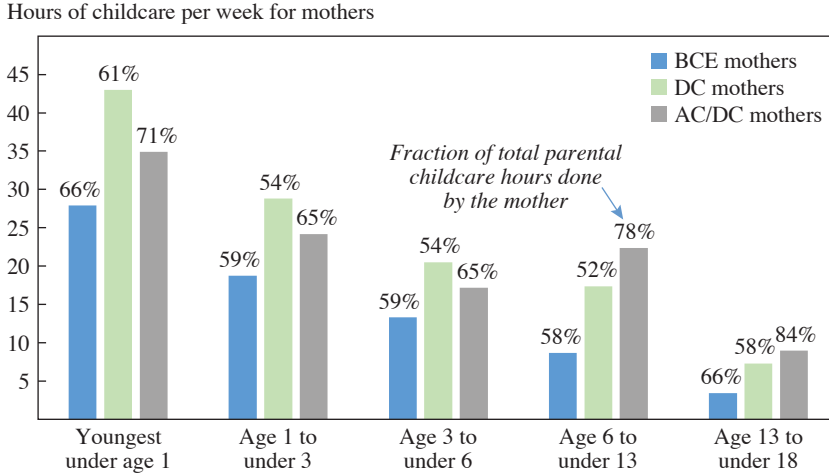
By piecing together the evidence from the ATUS, available before the pandemic, with surveys in the United States and Britain during the pandemic for which sufficient consistency exists, it does appear that childcare hours doubled in families of working parents in the immediate aftermath of the lockdown in spring 2020. Not only did the childcare hours of mothers increase but also the share of the total done by (custodial) fathers, at least for a while.

To create a consistent sample before and during the pandemic, I consider college-graduate, employed (different sex) parents who have at least one resident child younger than 18 years and who live together. The reason I chose college graduates is that each would have had a high probability of being able to work remotely during the pandemic, and much of the survey evidence concerns those who worked at home. In addition, the college graduate group would have had a high probability of maintaining their jobs during the pandemic, and many of the surveys consider only those who were employed.

I have used the ATUS to compute prepandemic childcare hours of (custodial) mothers and fathers by the age of their youngest child regardless of the number of children.[32] The first bar in figure 4, for each of the child ages, gives (weekly) childcare hours of the mother before the COVID-19 era (BCE), as gleaned from the ATUS. The years 2010 to 2019 are used to obtain a large enough sample to stratify by couple characteristics. The fraction of total parental childcare hours for mothers is given above each bar. Before March 2020, college-graduate employed mothers did around

32. I use the main activity and do not add secondary childcare time (for those less than age 13, the group included in the question), which allocates all main activity time to childcare if it contains any secondary childcare time.

Figure 4. Childcare Hours of College-Graduate, Employed Women with College-Graduate Employed Husbands, by the Age of Their Youngest Child



Sources: ATUS for 2010–2019; Andrew and others (2020).

Note: BCE = before the COVID-19 era (2010–2019); DC = during COVID-19 (spring 2020); AC/DC = after COVID-19 but during COVID-19 era (fall 2020 through winter 2021 = September 2020 to February 2021). BCE hours come from a sample of women in the ATUS who were currently employed, college graduates, with at least one child less than 18 years old and a husband who was also a college graduate and currently employed. Daily childcare amounts are multiplied by seven. Children are "household" children (children who live in the household, independent of whether one or more of the parents live there), and childcare includes all types of care, including educational. All days of the week are included. Numbers above the bars are the percentage of total parental childcare hours provided by the mother. DC hours are estimated by increasing BCE hours by 1.54 for mothers and 1.9 for fathers, which are the ratios from Andrew and others (2020), and then adding an additional four hours per week (per parent) when the youngest child is age 6 to under 13 and two hours when the youngest is age 13 to under 18. AC/DC hours for the couple are an average of BCE and DC hours, but fathers are given only BCE childcare hours under the assumption that they are back at work full-time. Mothers are assumed to be doing the rest of the childcare. The average is one-quarter the difference between BCE and DC hours for children under age 6, but three-quarters for those age 6 to under 18.

60 percent of total childcare hours (not including housework, laundry, and food prep and cleanup, the addition of which would increase the fraction since women in the ATUS did around 70 percent).

The second bar in figure 4, for each of the child ages, denotes childcare hours of mothers during COVID-19 (DC) in spring 2020, when almost 90 percent of US school-age children were in school remotely and most childcare facilities were shuttered. The data come in part from Andrew and others (2020) because that study extended time budget results from the prepandemic era and provides changes in hours with the pandemic. The authors find that childcare hours for (custodial) fathers increased by about 1.9 times and by 1.54 times for mothers.

Many aspects of Andrew and others' (2020) sample families are consistent with the ones I am using from the ATUS, but some are not. In addition, the ATUS requests the actual time period, but the survey used in Andrew and others (2020) allocates a task to a block of time, independent of the actual time spent at it. Increasing the ATUS childcare time by the fractions in the study resulted in time use that seemed low given home schooling reported in other surveys. In consequence, I added four hours per week to two-parent families with a youngest child age 6–12 and two hours for those with a youngest child age 13–17 for consistency with other surveys.[33] That produced the data for the DC period.

Since many of these households had both parents (college graduates) at home full time, parental sharing increased. Consequently, the fraction of childcare performed by mothers fell, even as total parental childcare hours doubled and as the childcare hours of mothers increased by around 1.7 times (more than 1.54 because of the additional child education hours).

In fall 2020, we moved into the after COVID-19 but during COVID-19 era (AC/DC). Draconian pandemic restrictions were partially lifted, and some offices allowed workers to return, others demanded they do. Day care centers were allowed to open in most states, although some had already gone out of business. Schools in many large districts did not fully open, and some that opened had in-person instruction only intermittently.

The third bar, for each child age group, provides estimates of childcare hours in fall 2020 through winter 2021, the AC/DC period. The bars contain underlying data whose levels are somewhere between the values shown in the BCE and DC bars. The assumptions are that total childcare levels decreased for the youngest children more than for school-age children since day care was generally open for more time than were elementary, middle, and high schools. Custodial fathers are assumed to have returned to their prepandemic levels of childcare; mothers absorb the entire difference.[34]

33. Pre-March 2020 childcare hours in Andrews and others (2020), created to be consistent with their COVID-19 sample, are high, and thus the ratio of post- to pre- may not be high enough. Even with the added hours, the totals are far less than those in Adams-Prassl and others (2020), who give a whopping 6.1 hours per workday for mothers (and 4.8 hours for fathers) of children age 4–15. But Carlson, Petts, and Pepin (2021) interviewed 1,025 US parents with at least one biological child and asked about changes in housework and childcare after COVID-19 restrictions were implemented. They found (using CPS weights) that the vast majority said that they did about the same amount of childcare, with just 27 percent of mothers and 36 percent of fathers saying they did more. Sevilla and Smith (2020) interviewed 2,782 parents in the United Kingdom, again with a before-and-after question, and found large increases in childcare time. A survey by Krentz and others (2020) asked about the combination of childcare and household tasks and found a doubling after the pandemic for working parents but provided no information on child ages.

34. See figure 4 notes for the assumptions used.

There was probably no net gain for working mothers in the move from the DC world (spring 2020) to the AC/DC world in fall 2020 through winter 2021. What they gained from partial and often sporadic school and day care openings, they likely lost from less parental help at home as more men than women went back to their offices and work sites or worked more intensively on their jobs from home. In consequence, mothers' total childcare hours remained about the same, but their share of the total increased.

The statement by many that parents of young and school-age children doubled their childcare time overnight in spring 2020 is likely correct.[35] Mothers greatly increased their housework and care hours, and even if their childcare hours may not have fully doubled, the sheer number of hours became an enormous burden, especially for those with full-time jobs. Custodial fathers' childcare time also increased and probably more than doubled, having started out at lower levels than mothers'. There was greater sharing among parents as time burdens increased for both.

The shift back to offices and job sites left mothers in fall 2020/winter 2021 with a larger fraction of childcare time even as the total number of their childcare hours remained the same. Much of the frustration expressed by mothers in the AC/DC era concerned the fact that schools in many parts of the United States had not yet reopened or had only partly opened, but many fathers had returned to their workplaces or had ramped up their remote job hours to full time.[36]

I mentioned earlier that the ATUS resumed in May 2020 and is currently available to December 2020 (the ATUS pandemic period). Because sample sizes are small, I have used all cohabiting individuals with a child younger than age 18, classified in the child groups given in figure 4. The ATUS also provides data for a prepandemic period (January 2019 to February 2020) using the same weights as in the pandemic months.

Using data for the non-summer pandemic months shows that relative to the prepandemic period, educational care of children increased and accounted for all of the increased childcare time.[37] For example, women with a spouse and a youngest child age 3–5 stated they spent 16.0 hours per week caring for their children before the pandemic and 18.2 hours per week

35. Meakin (2020), based on data from a Boston Consulting Group (BCG) survey conducted from March 20 to April 3, 2020, referring to both childcare and housework time.

36. Pabilonia and Vernon (2022), using the 2020 ATUS detailed diary data, find that by fall 2020 only mothers put in more childcare hours when both parents worked for pay from home although at the start of the pandemic both did.

37. Sample sizes are small and few cells exceed fifty observations. I have used data for the same months in 2019 as in 2020 (May and September to December).

during the pandemic. Educational childcare, included in the total, increased from 2.2 to 5.9 hours. Therefore, additional educational time exceeded the total childcare hours increase. Similarly, for the age 6–12 group, the total increase was from 9.1 to 10.4, and education time increased by more, from 1.0 to 3.7 hours. Fathers during the pandemic reported increased childcare time with their newborns by about 25 percent (from 12.6 to 15.9 hours).

But the total increase in childcare time among all ATUS parents is far less than in other studies. Whereas total parental time doubled using the assumptions underlying figure 4, the pandemic 2020 ATUS increase in primary childcare time is puny. In fact, there are groups for which childcare time apparently decreases. The reason appears to concern the distinction between primary and secondary childcare time in the ATUS.[38] Secondary childcare time allocates all time in a non-childcare task to childcare if any time is spent watching or helping children 12 years and younger.

With more parents at home, secondary childcare time increased even as primary childcare time did not. For employed mothers with a child younger than age 13, secondary childcare time increased from 4.1 hours per weekday (for non-summer months) in 2019 to 6.1 in 2020. The increase for employed fathers was from 3.0 to 3.7 hours. Primary care for these parents actually decreased a small amount as more parents were working at home. But secondary childcare time is difficult to compare across time when remote work changes and hard to equate with its primary analogue.[39] More data from the ATUS are needed to make better sense of how the increase in remote work has had an impact on childcare and will continue to have an impact on all time uses.

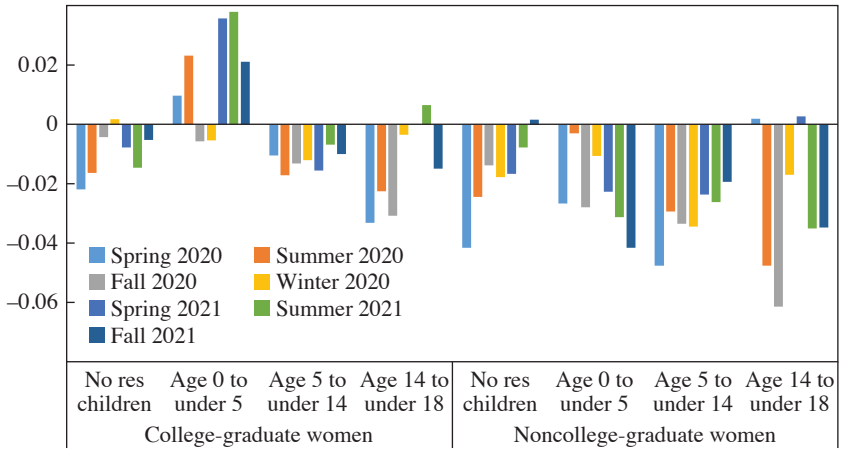
4. Impact of the Pandemic on Women: *How Did Employment and Labor Force Participation Change for Mothers by the Age of Their Youngest Child and for Women without Residential Children?*

Relative to other national economic crises, the pandemic produced more stresses and setbacks for women. The reasons are several. Women were disproportionately in the more vulnerable jobs and their time as caregivers for children and others greatly expanded. How their labor force participation rates and fraction at work varied by the age of their youngest child is given in figures 5 and 6. The data demonstrate, once again, that those with

38. Bauer, Estep, and Yee (2021) compute primary and secondary childcare time for the 2020 ATUS.

39. Sample sizes are small (two hundred respondents). Secondary childcare expands on weekends to include almost all non-sleep and personal care time, demonstrating that parents, especially mothers, often double task.

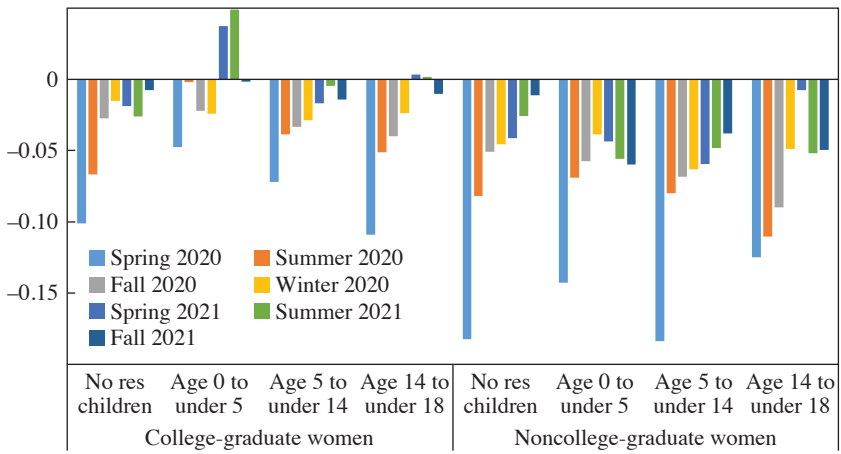
Figure 5. Labor Force Participation Rate Changes by Education Level and Age of Youngest Child



Source: CPS Monthly (Flood and others 2021).

Note: For women age 20–54. Seasons are defined as spring (March–May), summer (June–August), fall (September–November), and winter (December–February), except spring 2020 excludes March 2020 and so does the comparison season in 2018. "No res children" refers to no residential children under 30 years old; a woman with no residential children could have children. Information for women with residential children age 18–29 years was omitted from the figure. See online appendix table 1 for sample summary statistics.

Figure 6. "At Work" Rate Changes for Women, by Education Level and Age of Youngest Child



Source: CPS Monthly (Flood and others 2021).

Note: For women age 20–54. Seasons are defined as spring (March–May), summer (June–August), fall (September–November), and winter (December–February), except spring 2020 excludes March 2020 and so does the comparison season in 2018. "No res children" refers to no residential children less than 30 years old; a woman with no residential children could have children. Information for women with residential children age 18–29 is omitted from the figure. See online appendix table 1 for sample summary statistics.

a college degree weathered the storm far better than those who lacked one, in part because they could (and did) work remotely. Note that, as before, differences are taken from a particular season in 2018–2019 to a season during the pandemic to avoid using a period during the run-up in women's labor force participation as well as to adjust for seasonality.[40]

Beginning first with changes in labor force participation rates given in figure 5, decreases were relatively small for the college graduate group, except for those with teenage children at the start of the pandemic. In fact, college-graduate women with infants and toddlers had increased participation rates relative to 2018–2019, particularly after winter 2020. Working at home may have opened doors and options for them. Note that there was even an immediate increase, which may have resulted from having both parents working at home (the pandemic ATUS shows that fathers with infants increased their childcare time more than did fathers with older children). Perhaps new mothers who would have left the labor force in ordinary times decided to stay.

Not so for similar mothers without a college degree for whom work at home was often not an option, for them or for their spouses, and new jobs that could be done with added childcare demands were less available. In fact, noncollege-graduate women with a youngest child under age 5 had decreased labor force participation rates in summer and fall 2021, while the college graduate group experienced the opposite.

For all noncollege-graduate women with children under age 18, labor force rates remained 2 to 4 percentage points (or more) below their 2018–2019 levels even by fall 2021, the last season for which we currently have data.[41]

Labor force participation is a bellwether of future employment, whereas unemployment is a measure of current harm and income loss. Leaving the labor force means greater costs to reenter employment. That is why the possibility that women's participation had substantially decreased during the pandemic has been so concerning and may be why the McKinsey-LeanIn survey responses (Thomas and others 2020) were accorded great attention

40. As noted before in the discussion of the robustness of the results by sex and education, the use of 2019–2020 as the reference year does not greatly change the results by the age of the youngest child. See online appendix figure 4, panels A and B.

41. Other researchers have also found that the role of children differed for college-graduate and noncollege-graduate women and that occupation was more important for the noncollege graduate group (Alon and others 2021; Luengo-Prado 2021). Although not shown, Black college-graduate women fared relatively well, but Black women without a college degree had larger declines than their white counterparts.

and filled headlines with dire predictions. But the evidence is clear. Women by and large did not leave employment at the extensive margin.

I'll demonstrate the point quite simply. The labor force participation rate for all college-graduate women, 25 to 34 years old, in fall 2021 was 85.5 percent, and it had been 85.4 percent in fall 2018. It had actually increased. For those with children, the figures are 78.2 percent in fall 2021 and 77.2 percent in fall 2018. Once again, the rate increased.

Using, instead, the hardest-hit months in 2020 (April and May), the labor force participation rate was 82.7 percent; it was 84 percent for the same months in 2018. It fell by 1.3 percentage points. Using the 2018 base, this implies that one in sixty-five college-graduate women in the 25–34 age group had exited the labor force. For those with a child, the participation rate was 73.6 percent in 2020 (again just April and May) and 74.3 percent in 2018 (same months). In that case about one in a hundred had left.

For the entire noncollege graduate group 25 to 34 years old, the numbers are 69.7 percent for fall 2021 and 70.8 percent for fall 2018, a decline of just 1.1 percentage points. For the worst months of the pandemic, spring 2020 (April and May), the labor force participation rate was 66.1 percent; it was 70.9 percent for spring 2018, a decline of 4.8 percentage points—a lot more than for the college graduate group. For those with children, the labor force participation rate was 61.5 percent in spring 2020 but 65.9 percent in spring 2018, a decline of 4.4 percentage points.

Even the largest decrease, for the hardest-hit group—noncollege graduates in spring 2020—meant that about one in fifteen had exited the labor force. These statistics, while lamentable, are a far cry from the one in four and the one in three figures cited in the McKinsey-LeanIn survey (Thomas and others 2020) and broadcast widely and persistently by the media.

The McKinsey-LeanIn survey, although substantial in size, consisted of employees who occupied six job levels: executives, senior VPs, VPs, senior managers, managers, and entry-level office and corporate employees, such as customer service reps (Thomas and others 2020, 59). These are occupational titles of a highly educated, occupationally elite group. The one in four and one in three numbers, in this widely cited survey, seem even more ludicrous.

Many reports, including the survey just cited, mentioned a scaling back in hours by women, especially mothers. In addition to a reduction in labor force participation, the pandemic could also have had an impact on the intensive margin through a change in hours. Among college-graduate women 25 to 34 years old who were at work a year or less before March 2020 and who remained at work a year later, about 32 percent reported

Table 2. Share of Group with Changes in Hours Worked

	Pandemic phase		
	(1) Pre-pre	*(2) Pre-pan*	*(3) Pan-pan*
	Decrease in hours		
College graduate			
Age 25–34	0.267	0.322	0.246
Age 25–54	0.280	0.326	0.255
Age 25–54 with child under age 13	0.257	0.297	0.228
Not college graduate			
Age 25–34	0.269	0.328	0.246
Age 25–54	0.271	0.333	0.249
Age 25–54 with child under age 13	0.265	0.326	0.266
	Increase in hours		
College graduate			
Age 25–34	0.257	0.227	0.307
Age 25–54	0.272	0.244	0.309
Age 25–54 with child under age 13	0.262	0.243	0.320
Not college graduate			
Age 25–34	0.306	0.267	0.337
Age 25–54	0.294	0.252	0.340
Age 25–54, with child under age 13	0.330	0.272	0.342

Source: CPS Monthly.

Note: All were at work at the start and end of phase. "Pre-pre" indicates that the period is entirely before March 2020; "pre-pan" indicates that the period traverses March 2020; "pan-pan" means that the period is entirely after February 2020. The numbers in the table are the fraction with a decrease or increase in hours, with no change being the omitted group. The sample is restricted to those who were employed in both t and $t + 1$. Actual hours on all jobs are differenced between start month and end month a year later if the respondent was at work in both periods. See online appendix note 3 for details on the data construction.

some reduction in hours (see table 2, column 2). But 27 percent of those in the same demographic group reported a reduction in hours before the pandemic (column 1), also across a year for which they were at work at the start and the end (therefore 41 percent reported no change in hours). Not surprisingly, workers report changes in their hours in non-pandemic times as well as in pandemic times.

Therefore, 5 percent (32 – 27 percent) or one in twenty college-graduate women 25 to 34 years old who were at work both before and after the pandemic decreased their hours at the start of the pandemic relative to an ordinary period of an equivalent length. For those without a college degree, it was 6 percent (33 – 27 percent) or one in seventeen. It should be noted that the fraction of the college graduate group who increased hours during the

pandemic is almost identical to what it was before the pandemic among those at work. I discuss the construction of the sample used in table 2.

The belief that more-educated women would drop out of the labor force persisted despite evidence to the contrary. In large part, the notion remained because mothers and other caregivers were stressed and increasingly made that known to reporters, who were also often mothers and were stressed. But the reporters and their sources were strained and frazzled because they *didn't* drop out of the workforce. Employed women who were helping to educate their children and working adult daughters who were caring for their parents were stressed because they were in the labor force, not because they had left.[42] The real story of women during the pandemic is that they remained in the labor force. They stayed on their jobs, as much as they could, and persevered.

Findings for "at work" rates can be seen in figure 6, which gives results using a counterfactual similar to that on labor force participation. Deficits were substantial at the start of the pandemic for all women, even those without young children. But they were, as before, especially large for noncollege-graduate women, often double those of the college graduate group. The college graduate group managed to make up considerable ground across the pandemic whereas noncollege-graduate women often lost ground (as occurred for those with children age 0–4) or made little headway (as occurred for the group with children age 14–17).

For the most recent months, college-graduate women with children had an employment deficit relative to 2018 of only around −1 percentage point, but the noncollege graduate group with children had a deficit of around −5 percentage points. For much of the pandemic period, however, even the noncollege graduate group without residential children had about the same employment deficits as those with young and school-age children.[43] But by fall 2021, the group without residential children (or with children older than 17) had largely returned to work, whereas noncollege-graduate women with younger children continued to lag.

Some of the lag in the "at work" numbers can be seen in the continued high unemployment rates for the less-educated group. Among women 25 to 34 years old without a college degree, 6.9 percent were still unemployed

42. Garcia and Cowan (2022) find that school closures had little impact on whether parents worked at all but did have an impact on the intensive margin among lower-educated parents.

43. I use the term "residential" children rather than "dependent" children because they are identified as children of a mother or father because they are living in the household.

in fall 2021. Even though that is substantially lower than the 10.2 percent they experienced in fall 2020, it is higher than the 5.6 percent figure from fall 2018.

An important point for both college-graduate and noncollege-graduate women is that even women without residential children fared poorly for much of the pandemic and that was particularly true for less-educated women through winter 2020. But like the previous analysis, the big divide in employment recovery was less about children and more about education and the ability of women to have jobs that were protected in more ways than one. I will unpack this further in the next section.

5. Putting It All Together: *What Were the Separate Impacts of Children, Education, Occupation, Race, and Marital Status on Employment Transitions before, at the Inception of, and during the Pandemic?*

To explore the joint roles of the various forces already discussed, such as parenthood, occupations, education, and race, in the pandemic period, I created an additional extract using the longitudinal feature of the monthly CPS. The data track individuals from exactly one year to the next for the same month. The age group used is 20 to 54 years old to include more women with young children.

Due to the panel structure of the CPS in which individuals are interviewed for four consecutive months and an additional four months after an eight-month hiatus, the individuals in the extract would have been interviewed in month 1 in year t and month 5 in year $t + 1$, or month 2 in year t and month 6 in year $t + 1$, and so forth using CPS-month notation. In creating the data set in this fashion, I observe the same individual in the same month but a year later. Some will traverse the period before the pandemic, some will begin before the pandemic but be interviewed again after it began, and others will have data from within the pandemic period. These are the same data that were used in table 2 on changes in hours of work.

The full period I explore begins in January 2018 and extends to November 2021. There are three possible pandemic phases:

Within the prepandemic period, that is, prepandemic to prepandemic (termed pre-pre; 43 percent of observations), with t from January 2018 to February 2019, so that an individual can be tracked across January 2019 to February 2020, ($t + 1$), just before the pandemic began.

Prepandemic to pandemic period (termed pre-pan; 35 percent of observations), with t from March 2019 to February 2020, so that an individual can be tracked from March 2020 to February 2021, ($t +1$), beginning before the pandemic and ending during the pandemic.

Within the pandemic period (termed pan-pan; 23 percent of observations), with t from March 2020 to November 2020, so that an individual can be tracked from March 2021 to November 2021, $(t + 1)$, during the pandemic. The last month and year of the data used are November 2021.

The resulting extract produces the dependent variable in the equation, $\Delta y^{m}_{i,t}$, which is the change in either "at work" or labor force participation for individual i in month m for year t relative to the same month a year later in $(t + 1)$. It is defined here as a (1, 0) variable for which the individual is either (in, in) = 1 or (in, out) = 0. Thus, I restrict the sample to begin with individuals at work or in the labor force. I will discuss only the "at work" results since those on the labor force are similar in kind and smaller in magnitude. The setup ensures that information on the individual's prior occupation is available even if the person exited employment or the labor force by $(t + 1)$.

The variables included in the equation are all indicator variables and are intended to gauge the separate strength over the pandemic periods of a set of variables that covary, such as education, race, parental status, age, and occupation:

$$\begin{aligned}\left(y^{m}_{i,t} - y^{m}_{i,t+1}\right) &= \Delta y^{m}_{i,t} \\ &= \alpha + \sum_{\varphi=1}^{2}\left[\beta \times I(\varphi)\right] + \gamma I^{i,t}(C) + \delta I^{i}(E) + \theta I^{i,t}(O) + \rho I^{i}(R) \\ &\quad + \mu I^{i,t}(M) + \eta I^{i}(X) + \lambda + \kappa + \epsilon_{i,t}.\end{aligned}$$

The value of β gives the role of each of the pandemic phases (φ) relative to the pre-pre group. Main effects are given by indicators for the youngest child's age in five bins (C), where "no residential children" (grouped with "residential children older than 29") is omitted; an indicator for college graduate (E); an indicator for pandemic-impacted occupations (O), mainly in the service sector and defined in online appendix note 1; indicators for Black and Hispanic (R); and an indicator for unmarried or unpartnered (M). All main effects (C, E, O, R, M) are interacted with the two pandemic phases pre-pan and pan-pan, as is the interaction between marital status and a youngest child under age 5. X is a set of indicators for the individual's age in five-year bins, λ is a set of year dummies, and κ is season dummies, defined in the table 3 notes (online appendix table 2 provides summary statistics).

The regression in table 3 includes only women (a pooled regression is later discussed). Table 3, column 1, contains the main effects and an interaction of the pandemic phases with college graduate. The interaction

Table 3. Annual Changes in "At Work" Rates for Women, January 2018 to November 2021

	Women at work in year t, *month* m			
	Main effects	*Plus child interactions*	*Plus race and occupation interactions*	*Plus marital interactions*
Respondent's age				
20–24	–0.0788***	–0.0788***	–0.0787***	–0.0849***
	(–23.21)	(–23.23)	(–23.19)	(–24.37)
25–29	–0.0182***	–0.0182***	–0.0180***	–0.0219***
	(–5.92)	(–5.91)	(–5.86)	(–7.04)
30–34	–0.0154***	–0.0153***	–0.0152***	–0.0180***
	(–5.02)	(–4.99)	(–4.97)	(–5.86)
35–39	0.00991**	0.0100***	0.0104***	0.00775*
	(3.28)	(3.32)	(3.43)	(2.55)
40–44	0.00887**	0.00895**	0.00941**	0.00798**
	(3.02)	(3.05)	(3.21)	(2.72)
45–49	0.00935***	0.00944***	0.00968***	0.00915**
	(3.34)	(3.37)	(3.46)	(3.27)
Youngest child's age				
0–4 years	–0.0277***	–0.0194***	–0.0197***	–0.0137***
	(–11.40)	(–5.37)	(–5.46)	(–3.65)
5–13 years	–0.00870***	–0.00631*	–0.00547	–0.00141
	(–3.94)	(–1.97)	(–1.71)	(–0.43)
14–17 years	0.00815**	0.000809	0.00215	0.00551
	(2.67)	(0.18)	(0.48)	(1.20)
18–29 years	0.00654*	0.00533	0.00721	0.00984*
	(2.05)	(1.14)	(1.55)	(2.09)
College graduate	0.0173***	0.0169***	0.0242***	0.0256***
	(6.98)	(6.80)	(9.43)	(9.92)
Black	–0.0205***	–0.0205***	–0.00920*	–0.0129***
	(–8.77)	(–8.76)	(–2.56)	(–3.54)
Hispanic	–0.0311***	–0.0311***	–0.0298***	–0.0309***
	(–14.61)	(–14.61)	(–9.23)	(–9.56)
Service occupation	–0.0562***	–0.0562***	–0.0253***	–0.0263***
	(–25.45)	(–25.46)	(–7.71)	(–7.98)
Start year is 2018	–0.0298***	–0.0298***	–0.0298***	–0.0298***
	(–4.69)	(–4.69)	(–4.69)	(–4.69)
Start year is 2019	–0.0334***	–0.0335***	–0.0333***	–0.0334***
	(–8.05)	(–8.06)	(–8.03)	(–8.05)
Spring	–0.0185***	–0.0186***	–0.0186***	–0.0186***
	(–6.64)	(–6.65)	(–6.67)	(–6.68)
Summer	–0.0236***	–0.0236***	–0.0237***	–0.0239***
	(–8.39)	(–8.38)	(–8.44)	(–8.51)
Fall	0.00825**	0.00826**	0.00828**	0.00819**
	(2.98)	(2.98)	(2.99)	(2.96)
Prepandemic to pandemic (pre-pan)	–0.103***	–0.0994***	–0.0719***	–0.0714***
	(–23.14)	(–20.34)	(–13.70)	(–12.21)

(*continued on next page*)

Table 3. Annual Changes in "At Work" Rates for Women, January 2018 to November 2021 (*Continued*)

	Women at work in year t*, month* m			
	Main effects	*Plus child interactions*	*Plus race and occupation interactions*	*Plus marital interactions*
Pandemic to pandemic (pan-pan)	−0.0463*** (−6.47)	−0.0480*** (−6.42)	−0.0425*** (−5.47)	−0.0418*** (−5.02)
Pre-pan × college	0.0576*** (16.10)	0.0582*** (16.22)	0.0398*** (10.49)	0.0385*** (10.08)
Pan-pan × college	0.00925* (2.28)	0.00973* (2.39)	0.00633 (1.48)	0.00512 (1.19)
Pre-pan × children under age 5		−0.0218*** (−4.15)	−0.0211*** (−4.01)	−0.0130* (−2.14)
Pan-pan × children under age 5		−0.00374 (−0.63)	−0.00365 (−0.61)	0.00356 (0.52)
Pre-pan × children age 5–13		−0.00859 (−1.87)	−0.0105* (−2.28)	−0.0103* (−2.14)
Pan-pan × children age 5–13		0.00237 (0.45)	0.00142 (0.27)	0.00143 (0.26)
Pre-pan × children age 14–18		0.0141* (2.15)	0.0107 (1.64)	0.0104 (1.56)
Pan-pan × children age 14–18		0.0107 (1.42)	0.00950 (1.27)	0.00918 (1.20)
Pre-pan × children age 18–30		−0.00174 (−0.26)	−0.00419 (−0.62)	−0.00458 (−0.66)
Pan-pan × children age 18–30		0.00789 (1.03)	0.00647 (0.85)	0.00595 (0.77)
Pre-pan × Black			−0.0243*** (−4.57)	−0.0229*** (−4.24)
Pan-pan × Black			−0.0133* (−2.16)	−0.0118 (−1.89)
Pre-pan × Hispanic			−0.0103* (−2.13)	−0.00969* (−1.99)
Pan-pan × Hispanic			0.00859 (1.55)	0.00920 (1.66)
Pre-pan × service occupation			−0.0786*** (−15.92)	−0.0781*** (−15.79)
Pan-pan × service occupation			−0.0164** (−2.79)	−0.0155** (−2.64)
No spouse				0.0147*** (3.78)
Pre-pan × no spouse				0.000470 (0.09)
Pan-pan × no spouse				0.000856 (0.18)
Pre-pan × no spouse × children under age 5				−0.0304*** (−3.70)

Table 3. Annual Changes in "At Work" Rates for Women, January 2018 to November 2021 (*Continued*)

	Women at work in year t*, month* m			
	Main effects	*Plus child interactions*	*Plus race and occupation interactions*	*Plus marital interactions*
Pan-pan × no spouse × children under age 5				–0.0311** (–2.95)
Constant	0.963*** (166.22)	0.962*** (163.60)	0.951*** (159.65)	0.944*** (153.71)
Number of observations	174,226	174,226	174,226	174,226

Source: CPS Monthly (Flood and others 2021).

Notes: Dependent variable (0, 1) indicates whether a respondent who was at work in year *t*, month *m*, was also at work in the same month in year $t + 1$. All observations begin at work. The period is divided into three phases: before the pandemic (pre-pre, beginning January 2018 to February 2019); prepandemic to pandemic (pre-pan, beginning March 2019 to February 2020); and pandemic to pandemic (pan-pan, beginning March 2020 to November 2020). The last month of the data is November 2021. "No spouse" includes individuals not currently married or partnered. Omitted variables: respondents age 50–54; no children resident or resident child is older than 29 years; not a college graduate; white; start year 2020; winter; phase 1. Service occupations are those that were most negatively affected by state mandates that restricted the operation of businesses or were in industries that were; they are listed in the online appendix note 1. See online appendix note 3 for details of the construction.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

with college graduate reinforces the results from the cross section data (discussed above) showing that more-educated women were substantially inoculated from job loss. The shift into the pandemic (pre-pan) decreased the fraction at work among all women by –0.103 but college-graduate women experienced less than half that reduction (–0.103 + 0.0576).

Interactions of the pandemic phases with the age of the youngest child are added in column 2. Relative to the omitted group, only those with the youngest and high school–age children have an additional impact from the shift into the pandemic. The finding that children have little added impact as the pandemic spread should not be surprising given that women with no residential children (either no children or no younger children at home) had as large or larger employment shortfalls throughout the pandemic, with the exception of the most recent months (see figure 6). Although the finding is strongest for the less educated, it also holds for the college graduates. All women were greatly impacted by the pandemic.

Column 3 adds interactions with the race and ethnic groups and also with service occupations, a set of occupations and those in particular industries that were often shut down at the start of the pandemic and have continued

to experience negative impacts from the pandemic. About 18 percent of all employed women in the pre-pre sample (2018 and early 2019) were in these occupations, as were 27 percent of the noncollege graduate group and 33 percent of Black noncollege-graduate women. These were important occupations especially for less-educated women and for Black women.

Women in these service occupations and industries have always experienced greater employment instability, as can be seen from the main effect. But they experienced an even greater negative shock in the transition to the pandemic. Similarly, Black and Hispanic women have always experienced greater instability of employment than white women, but the change going into the pandemic was an additional effect, separate from having been employed in one of the more-severely impacted occupations, having children of various ages, and so forth.[44] Column 4 adds interactions with the variable "no spouse," for which the interactions identify being a single mother. The sign and magnitude demonstrate that the youngest children had a large impact because many had single moms.

The main takeaways are illustrated in figure 7. The descent into the pandemic period had a great impact on all women, and the fraction who were at work fell by 7.2 percentage points, although a college degree cushioned the fall by 4 percentage points. Having a youngest child under age 5 produced a negative impact of 2.1 percentage points and having a youngest child age 5–13 reduced at work by 1 percentage point. The largest changes were experienced by those who began in one of the service occupations, as they suffered an additional decline of 7.9 percentage points.[45] Given all the included variables, Black women experienced an additional 2.4 percentage points decline and Hispanic women a 1 percentage point decline.[46]

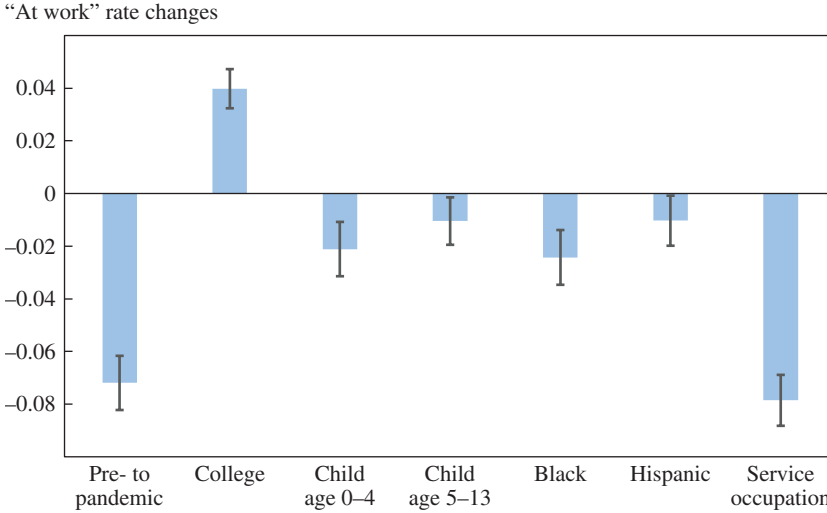
There is little additional effect during the pandemic period (pan-pan) among those who began that phase at work. All women (using column 3 in table 3) had a decrease of 4.3 percentage points. There was no added cushion for the college graduates. Workers in service occupations had an additional 1.6 percentage point decrease in being at work during this period.

44. I also ran a version (not shown) with the race variables but not the occupation variable and then compared the results with column 3, showing that race and occupation are orthogonal in this analysis.

45. Including a full set of two-digit occupation dummies does not reduce the protective role of being a college graduate in the pre-pan phase.

46. Luengo-Prado (2021) also finds that occupation was more important than children in mothers' employment.

Figure 7. Impact of the Pandemic on "At Work" Rates of Women



Source: Author's calculations.

Note: Bars indicate the strength of the interaction of the variable with "Pre- to pandemic," which refers to whether individuals employed from March 2019 to February 2020 ("pre-") remained at work or not a year later (March 2020 to February 2021). Child variables refer to the age of the youngest child in the household. "Service occupation" is a group of particular occupations, as well as those in some industries, that were generally shut down or had limited density of operation at the start of the pandemic by state mandates (see online appendix note 1). Since all individuals were employed at the start of the period considered, the occupation refers to that in the prepandemic period. Confidence intervals at 95 percent are shown.

The US Census Household Pulse Survey data provide complementary evidence about why Black women in the pandemic recession experienced an impact beyond the variables included in the regression. The data demonstrate that the health of Black women and of those in their households were key factors.[47] Respondents were asked the most important reason they were not employed. Black women, 25 to 44 years old with children younger than age 18, were far less likely than similar white women to say they could not work because they were caring for children. But they were more likely to have been laid off or furloughed, and they were far more likely to have said they were sick with COVID-19 or caring for someone who was as reasons for nonemployment.

47. The survey data were designed to provide rapid evidence on the impact of COVID-19 on individuals. The micro data are used here for September 29 to October 11, 2021, and December 29, 2021, to January 10, 2022. See US Census Bureau, "Household Pulse Survey Public Use File (PUF)," https://www.census.gov/programs-surveys/household-pulse-survey/datasets.html.

Among those without children younger than age 18, 34 percent of Black women were either ill (with COVID-19 or another ailment), caring for someone, or feared getting ill at work, whereas 22 percent of white women gave these reasons. The data for surveys from December 2021 to January 2022 reveal the damage the Omicron variant has done, especially in the Black community. Among women 25 to 44 years old, 10 percent of white women, but 20 percent of Black women, said that COVID-19 had kept them out of work.

This paper began with the finding that the impact on "at work" and labor force rates for men and women was about equal in absolute value during the pandemic and that the largest differences were by education. I also noted that the impact of having a youngest child at particular ages varied by season and year of the pandemic and that race was an additional factor.

Because the economic impact of the pandemic was about the same by sex, combining men and women in an analysis similar to that from the equation used here with the full range of interactions does not add much to the discussion from the previous analysis, which used data from repeated cross sections (results are given in online appendix table 3). Both men and women had a decline of 6.1 percentage points in the fraction at work going into the pandemic. Given the covariates, women had an additional decrease in their fraction at work of 1.38 percentage points, but women with a college degree had a lesser impact by 1.39 percentage points—almost the same amount—than similar men (all college graduates experienced a 2.6 percentage point boost).

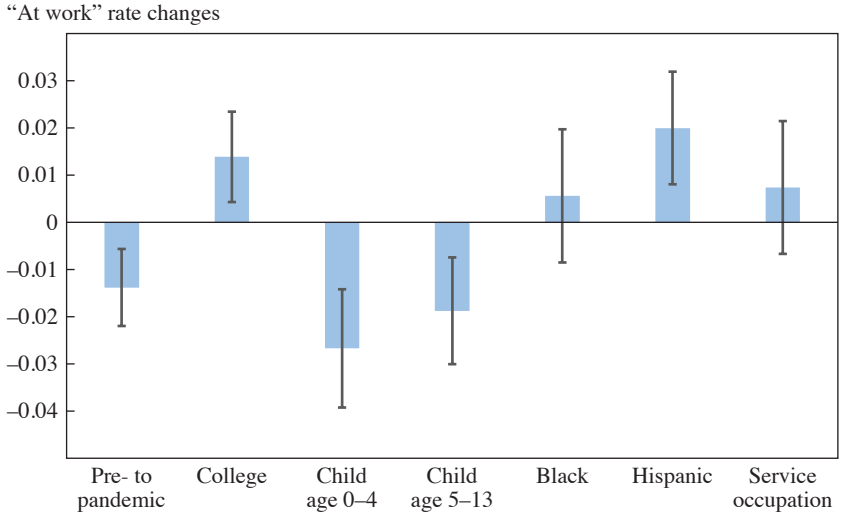
Thus, lower-educated women were the ones who did less well than their equivalently educated male counterparts. Differences by race and ethnicity were substantial in the pandemic phase, but differences by gender do not reveal much in addition. The same is true for the service occupations. Figure 8 summarizes the results.

What about the role of children? Women with children age 0 to 4 experienced an impact 2.7 percentage points greater in the pre-pan phase than did men with residential children of those ages, and those with children age 5–13 experienced an impact 1.9 percentage points greater.[48]

An additional word must be said about which men are in the comparison group. Many who have contributed to the literature on the impact of

48. Couch, Fairlie, and Xu (2022) find a similar effect for those with children age 0–4.

Figure 8. Impact of the Pandemic on "At Work" Rates of Women Relative to Men



Source: Author's calculations.
Note: The coefficient is the interaction of gender with the variable given and the pre-pan phase. Confidence intervals at 95 percent are shown.

the pandemic have looked at differences between men and women by the age of their youngest residential child. The list of papers is long, yet few have recognized that the CPS does not identify all fathers. Men (and women) who do not reside with children may still have and care for children. In fact, according to the US Census more than 30 percent of all children younger than 18 years who reside with a woman (generally their mother) do not live with their father.[49] But their fathers live somewhere. Thus, men without children in their household may be fathers, albeit noncustodial ones.

In discussing results from estimations that use child ages and interactions with gender, one must identify the individuals as residential parents or guardians. As such, the comparison is not to those without children but

49. See Hemez and Washington (2021), who give the fraction of children living with one parent.

rather to those without residential children. The findings are that women with a youngest child under age 5 had reduced "at work" rates in the year they went into the pandemic relative to men with residential children under age 5. Similarly for those with the youngest age 5–13, although the effects are considerably smaller.

II. Summing Up and Looking Ahead

There is no question that the pandemic had a greater impact on women than other recessions have done. It was a she-cession relative to other recessions and also relative to the January (or February) 2020 labor force and "at work" statistics. But gender differences month by month in employment outcomes, relative to prepandemic levels, are not large. The big differences are by education rather than gender, and that makes it more similar to previous recessions.

Mothers greatly increased their time spent in childcare during the pandemic, but custodial fathers did as well. Female labor force participation in the United States did not plummet to its lowest level since the late 1980s. Its growth had been anemic for some time relative to that experienced in comparable nations. With the exception of older women, the female labor force participation rate in the United States has not increased in three decades. It decreased during the pandemic but actually by less than it did for men.

Far more mothers and other women who are caregivers have been stressed, frustrated, and anxious because they did *not* leave their jobs than have been forced to exit the workforce or cut back on their hours. Black women who were not college graduates were hardest hit in terms of their employment and labor force participation.

As noted earlier, the fraction of women who had decreased their paid work hours in the prepandemic-to-pandemic phase is larger than in the other phases. But it is not much larger, and a substantial group increased their hours. In addition, the fraction with decreased hours was generally a bit smaller, not larger, for the group with children. Changes in the intensive margin were not substantial going into the pandemic (starting prepandemic and ending in the pandemic) relative to equivalent changes in a more normal period (ending prepandemic).

What accounts for the excessive statements in the popular press, even from veteran writers who know the territory well? One reason is that individual accounts reported in the news are from those experiencing the most adversity. Another is that surveys such as that done by McKinsey-LeanIn

(Thomas and others 2020) captured the stresses and frustrations of the moment rather than actions.

It is precisely the mothers who did not drop out who expressed the greatest anxieties about their future careers. Because these women still had jobs, they worried about their current productivity and whether they could do enough to merit the raise or promotion, make partner or tenure.[50] They have been torn between being a good parent and doing their own paid work, an issue that predated the pandemic but has been magnified. Finally, the CPS—the primary data source that I and many others have used—reveals nothing about what individuals do with their time spent not at work or their mental well-being.[51]

There is the possibility that we will emerge on the other side of darkness with benefits. The cost of workplace flexibility will probably fall as workers, firms, managers, clients, and customers use what they have learned during lockdown to work more effectively as we open up.[52] If a contract can be signed without the expensive trip to Tokyo or Beijing, parents of young children will benefit from less travel time and firms will profit from lower costs. Given the current division of household labor, mothers will reap the greatest returns and will be able to take on more lucrative positions that once required considerable time away from home and were outside the realm of possibility for many.

Work at home, Zoom meetings, telemedicine and teletherapy, workouts and more online may have taught us how to work and live more efficiently without travel, overnight stays, and in-person meetings. A reduction in the cost of temporal and geographic flexibility may be part of a silver lining to the pandemic for women.

Surveys from late spring 2021 found that the majority of workers did not want to return to the office or job site five days a week and would rather

50. Deryugina, Shurchkov, and Steans (2021) surveyed academics from May to July 2020 and showed that research time decreased for all parents but decreased more for mothers. Flaherty (2020) used Elsevier journal data for the early pandemic months to show that publications of women generally lagged those of men.

51. Zamarro and Prados (2021) use data from the USC Dornsife Center for Economic and Social Research on household division of labor and mental health measures among parents.

52. "Flexibility" is a multidimensional concept that involves both temporal and geographic flexibility. It often means the ability of workers to control their hours in terms of the number and the moment in time. It can also mean the ability of employees to work from home as well as in a different city.

continue working at home one or two days.[53] A recent Gallup poll (March 2022) found that just 9 percent of workers want to return in person full time, and the majority (59 percent) would like a hybrid model (of course, these are workers who can work remotely).[54] The Bureau of Labor Statistics, in February 2022, reported that of the 34.5 percent of establishments that increased telework for some or all employees, 60.2 percent expected to maintain increased telework when the pandemic recedes (BLS 2022). The Survey of Working Arrangements and Attitudes found, as of January 2022, that workers who could work from home believed their employer will have them work remotely around two days a week after the pandemic ends.[55] These possibilities should be a plus for those with caregiving demands.

Many corporate leaders have been bullish on workplace flexibility. Last year's headlines on the subject were almost universally positive (David 2021; Anders 2021).[56] More recent headlines show less certainty and concern over productivity and fairness in workplaces fractured by time and space. Workers not only want to work at home, they also want to work in places often geographically distant from their previous offices. Above all, they want to work hours they choose (Bindley and Cutter 2022).

We are two years into the pandemic, and we do not yet know how it will play out for women. If, in the new normal, men go to the office five days a week and women go to the office three days a week and work from home two days, women won't be part-timers in terms of hours, but they will be part-timers in terms of face time and time spent with colleagues in the office. Women will do the client-facing meetings on Zoom, and men will go to Zürich to close the deal. The new normal at work may increase female labor force participation in the short run, but, like its part-time hours equivalent, it may not come with the same bonuses, pay increases, and promotions.

53. Barrero, Bloom, and Davis (2021), using survey data, estimate that 20 percent of full workdays will be work from home after the pandemic ends, whereas 5 percent were before. They also estimate productivity boosts that will show up in conventional productivity measures and cost savings from less commuting that will not show up. Bloom and others (2015) measure productivity increases from telecommuting. Emanuel and Harrington (2021) demonstrate negative selection to telework but productivity boosts given negative selection. The last two papers mentioned concern call centers, which probably do not have much increased productivity and creativity from group interactions.

54. Ben Wigert, "The Future of Hybrid Work: 5 Key Questions Answered With Data," *Gallup Workplace* (March 15, 2022). https://www.gallup.com/workplace/390632/future-hybrid-work-key-questions-answered-data.aspx

55. Barrero, Bloom, and Davis (2021); see also WFH Research, "Data," https://wfhresearch.com/data/ for the most recent data.

56. "There are early signs that remote work can help level the playing field" (Thomas and others 2020, 51).

Until more workers take advantage of work flexibility in all its forms, women who take the amenity could pay a career price in the long run. They may not lose as much as when they worked part-time, and they may not lose as much as when they changed jobs and firms to enhance their work flexibility. All depends on whether the pandemic will soften the greediness of work by making flexible jobs more productive, reducing the premium from the greedier jobs, and lowering the penalty from the more flexible ones.[57]

In addition, the gains to women from added flexibility will depend on keeping schools and day care facilities open and making elder care safer. Even among the fortunate who could work from home during the worst of the pandemic, productivity appears to have been related to their parental status. Recent studies have shown that mothers with academic jobs issued fewer working papers during the pandemic and published fewer journal articles than did fathers with academic jobs and female colleagues without school-age children.[58] But the worst-hit women in terms of health concerns and job security have been those who could not work from home. They disproportionately served others in hospitals and grocery stores, had incomes and education levels that were low, and had children with the least access to remote learning technology. They won't gain as much from the new normal.

We know considerably more about what happened to workers and in workplaces during the past two years. We still know little about what will happen and what the shape of the new normal will be for women.

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57. By "greedy work," I mean work that pays more, implicitly, on an hourly basis when workers work long hours or work specific hours, such as in the evenings, on vacation, or on weekends. For more on "greedy work" and a historical perspective, see Goldin (2021).

58. See, for example, Deryugina, Shurchkov, and Steans (2021).

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Online Appendix to
"Understanding the Economic Impact of COVID-19 on Women"
Claudia Goldin (Harvard University)

Appendix Note 1. Occupations Coded as "Service"

The list of occupations and industries given below are those for which employees were impacted beginning in April 2020 across a large number of states due to mandates for cessation of or limited business. To create the list, I examined reopening plans for seven large states, across various regions (CA, FL, IL, MA, NY, PA, TX). The establishments mentioned in almost all reopening plans included retail, restaurants, bars, nightclubs, movie theaters, casinos, museums, professional sports, gyms, fitness clubs, salons, barbershops, and places of worship. Some plans also included construction and manufacturing, and many mentioned reduced density in offices. Health facilities were also mentioned but with less detail.

Most of the occupations and industries I have included on the list are those in the establishments just listed and are called "service" in this paper because most are in the service sector. As noted, some businesses (e.g., construction, some in manufacturing) that were initially impacted resumed in many states in late spring or early summer and are not included. I have also not included some in the health sector (e.g., dentistry) because they always had emergency service and resumed operations in most states by May or June.

The specific occupations, and those included in certain industries, coded as "service" are those that were most impacted by the pandemic at its start. These include all employees in NAICS/SIC codes:

8680 Restaurants
8690 Drinking places
8970 Barber shops
8980 Beauty salons
8990 Nail salons and other personal care services

In addition, SOC codes for the following occupations are included, some of which overlap with those already coded through the industry codes:

4000 to 4160 (food preparation)
4330 to 4655 (personal services; e.g., hairdressers; manicurists; theater attendants; childcare workers; personal care aides; fitness instructors)
4760: Retail salespersons
3600: Home health aides

To get consistent occupations for the 2018 to 2021 years, I used occ2010. But I identified certain key occupations in occ2020 that were impacted, such as home health aides (personal care aides = 3602 in occ2020 but was 4610 in occ2010), that were treated differently in occ2010. Similarly, "nursing, psychiatric, and home health aides" are in 3601 in occ2020, but are 3600 in occ2010. Among all employed women in 2018, 19% of them had an occupation included in the listed "service" group and the figure is 28% for women without a college degree.

Appendix Note 2: Constructing CPS linkages to evaluate the role of the increased female labor force from April 2019 to February 2020 on the impact of the pandemic

Purpose of the linkage construction: A data set was created to ascertain which women entered the labor force during the low unemployment economy of late 2019 to early 2020, prior to the pandemic, and whether the new entrants remained in the labor force after the pandemic began. The individuals are then followed for as long as the longitudinal part of the CPS allows. For example, if a woman in Dec. 2019 was out of the labor force in Month 1 of her CPS interview and then entered the labor force in Jan. 2020 (in her Month 2), she could be followed for two additional months to March and again, eight months later, starting in Dec. 2021 until March 2021. The new entrants can be compared with individuals who began the same period in the labor force. In addition, data for previous years are explored by creating a placebo pandemic in March 2018 to explore differences in the new and existing labor force participants between the actual and the placebo pandemic.

Details of the linkage: The two initial periods (2019-2020 and 2017-2018) were treated identically; only one will be used in the example. Observations were linked using *cpsidp* and validated through the IPUMS validation file of longitudinal data through *race, sex, age,* and having at least two observations.

In order for the IPUMS validation file to allow matches of at least two observations and up to eight, the validation file was edited such that instead of *age_total_match, sex_total_match*, or *race_total_match* being exactly equal to *expected_obs*, the condition was expanded to greater than or equal to *expected_obs*, with the number of expected observations being two. Observations failing this validation are indicated by the variable "exclude."

To identify labor force transitions, *lfpchanged* was generated to indicate if the labor force participation status of an individual changed from one month to another, where *lfpchanged* equals 1 if an individual entered, and -1 if an individual left. Next, a flag for each month/year was created (ex: April_flag to indicate April 2019). Using the month/year flag and the lfpchanged variable, two new variables were constructed to indicate if the individual entered or left the labor force (ex: April_entered and April_left).

Using the *month_entered variables, a new indicator called April_February_enter was generated to flag individuals who entered the labor force sometime between April 2019 and February 2020. As the *month_entered variable only flags the single month observation where there was a transition, egen max was used to append the existence of a transition into the labor force to all observations of each individual. The variable was named *AprilFebruaryenterall*. The following conditions were stipulated: (1) regardless of when the person entered the labor force, the last observation recorded on or before February 2020 must have indicated that the person was still in the labor force, and (2) the CPS data for these individuals had to contain at least one observation in the "pandemic" period, defined as March 2020 and beyond.

To check if they were still in the labor force, egen and lastnm(*lfp*) were used for each *cpsidp*, and this was called *checklast*. The procedure was then extended to all observations,

so that *checklastall* flagged all observations of an individual who was in the labor force in their last observation. To ensure there was at least one observation in the pandemic period, an indicator was created for observations from the pandemic (March 2020 and beyond) and was extended to all observations of the individual (*pandemicall*).

Using the three criteria: (1) the individual entered the labor force sometime between April 2019 and February 2020, as indicated by *AprilFebruaryenterall*, (2) the last observation recorded on or before February 2020 must have indicated that the person was still in the labor force, as indicated by *checklastall*, and (3) the individual must have had at least one observation in the "pandemic" period, as indicated by *pandemicall,* created the "Group1" sample.

Next, women were identified who were always in the labor force between April 2019 to February 2020, meaning they had no identified labor force status change, and who also had at least one observation month in the pandemic period.

To do so, a variable *inlfp* was created, defined as 1 if an individual was recorded to be in the labor force during the pre-pandemic period. Next, egen and min were used to identify individuals who were always in the labor force from April 2019 to February 2020, and then that variable was added to all observations for that individual. The final variable was called *alwaysinall.* The variable *aprilfeball* indicates that an individual was observed between April and February. Using *alwaysinall*, *pandemicall*, and *aprilfeball*, "Group2" was created, including all individuals who were always in the labor force between April 2019 to February 2020.

For these two groups, a variable called *pandemic_transitions* was created to count the number of times individuals moved in and out of the labor force during the pandemic. To do so, the absolute values of lfpchange were summed. As such, *pandemic_transitions* would = 0 if no change, 1 if the individual left (as all individuals start the pandemic by being in the labor force), 2 if the individual left and then entered, and so forth.

The 2017 to 2018 placebo construction follows exactly the same procedure, except using the dates of April 2017 to February 2018 as the transition period, and March 2018 and beyond as the "pseudo-pandemic" period.

Finally, the separate 2019 to 2020 and 2017 to 2018 files were created through append. There are some duplicate observations that can be separated using "newvar", where newvar = 0 indicates the 2019 to 2020 group and newvar = 1 indicates the 2017 to 2018 group. While the observations may be duplicates, the group to which they belong may be different given the different timelines. For example, an observation from May 2019 may indicate an individual's labor force transitions in the 2019-2020 group but could be an individual during the "pseudo pandemic" period for the 2017-2018 group.

Appendix Note 3: Constructing CPS linkages by month across years to traverse before the pandemic (pre-pre), into the pandemic (pre-pan), and during the pandemic (pan-pan).

Purpose of linkage creation: To follow the labor force participation and at work status of individuals from one year to the next before the pandemic, into the pandemic, and during the pandemic.

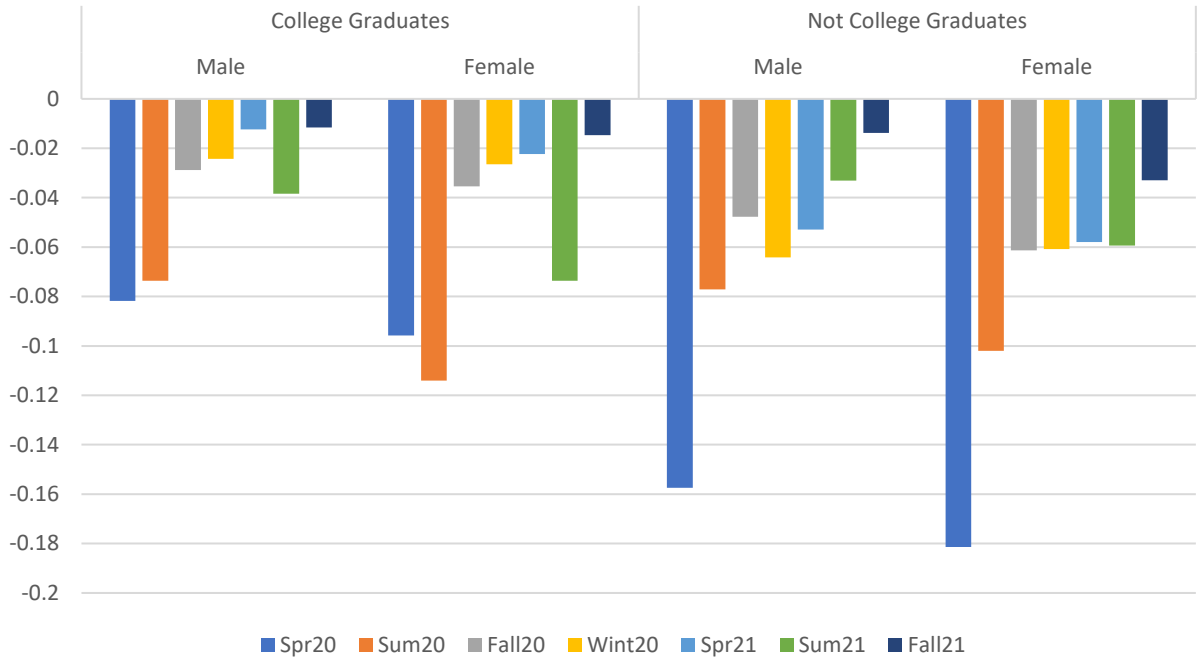
Details of the linkage: The monthly CPS was used with individuals aged 18-55 (later limited to 20 to 54) from January 2018 to November 2021, the last month CPS data were available at the time of this writing from the IPUMS. Observations were linked using *cpsidp* and validated through the IPUMS validation file of longitudinal data through *race, sex, age,* and having at least two observations. In order for the IPUMS validation file to allow matches of at least two observations and up to eight, the validation file was edited such that instead of *age_total_match, sex_total_match*, or *race_total_match* being exactly equal to *expected_obs*, the condition was expanded to greater than or equal to *expected_obs*, with the number of expected observations being two.

In order for each observation to contain the data for each person/month, the entire dataset was first divided into two, with one half containing observations from mish 1-4 and the second half containing observations from mish 5-8. For the second half of the dataset, all variables were renamed to contain an added _2.

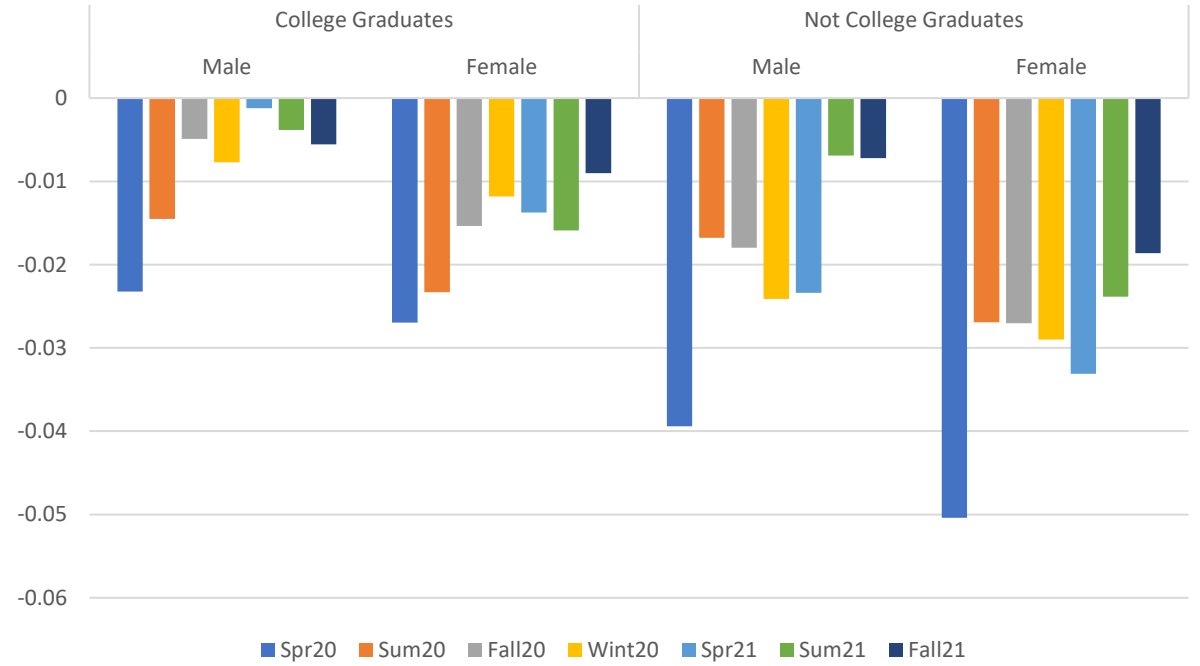
The two halves of the dataset were merged using cpsidp and month as unique identifiers. Only observations where _merge == 3 were kept, as this would be a full match of person/month across the observation period of the CPS. Transitions were identified using egen and diff between *occ*, *lfp*, and *empstat*.

Online Appendix Figure 1: "At Work" and Labor Force Participation Changes (Season 2020/21 – Winter 2019/20), 20 to 54 Years Old: By Education Level and Sex

A. "At Work" Changes



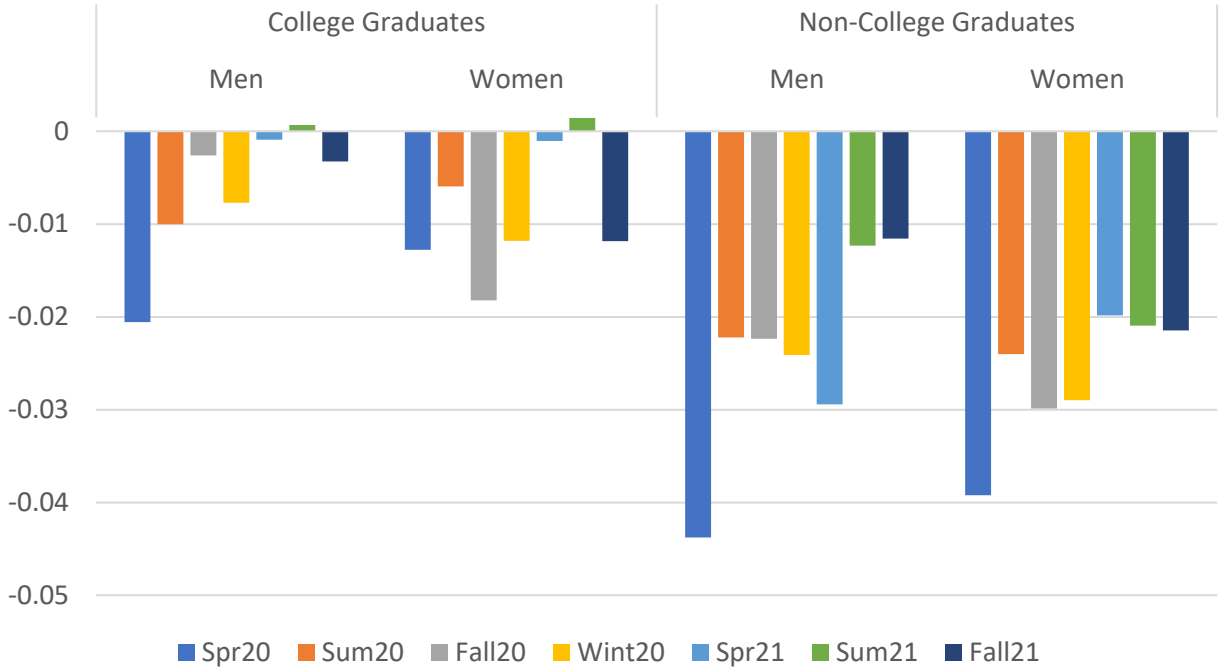
B. Labor Force Participation Changes



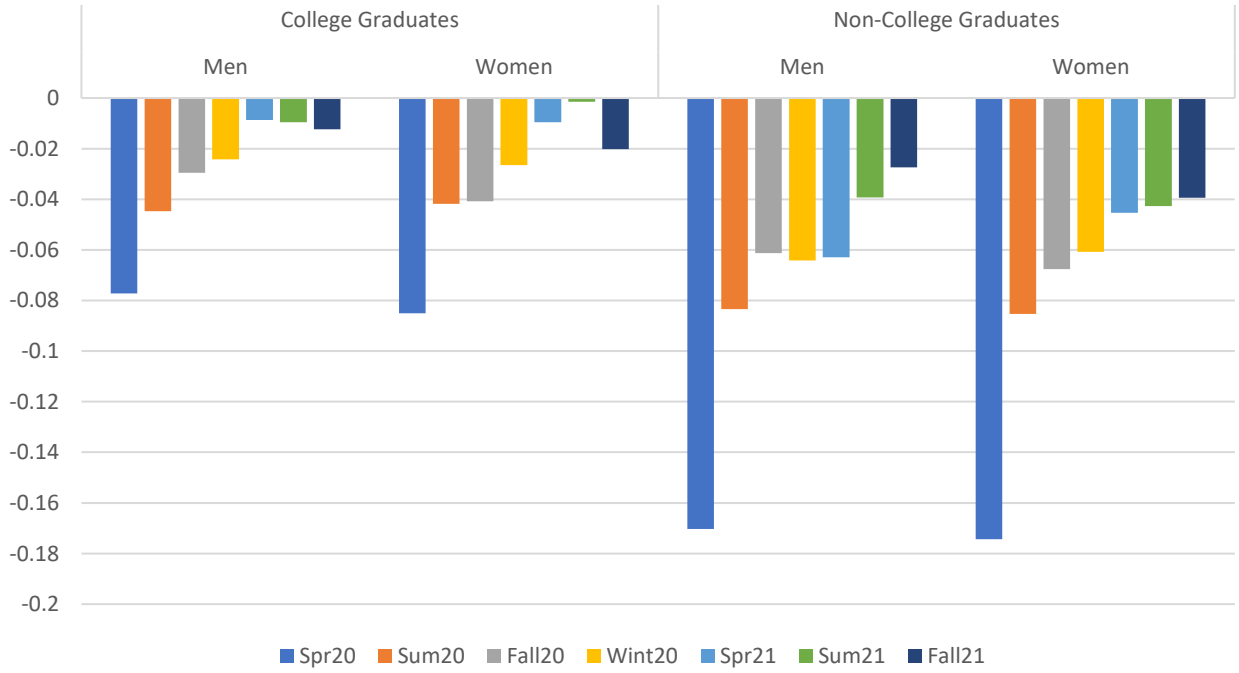
Sources and Notes: See Figure 1 of text.

Online Appendix Figure 2: "At Work" and Labor Force Participation Changes (Season 2020/21 – Season 2019/20) for Males and Females 20 to 54 Years Old: By Education Level

A. Labor Force Participation Rate Changes

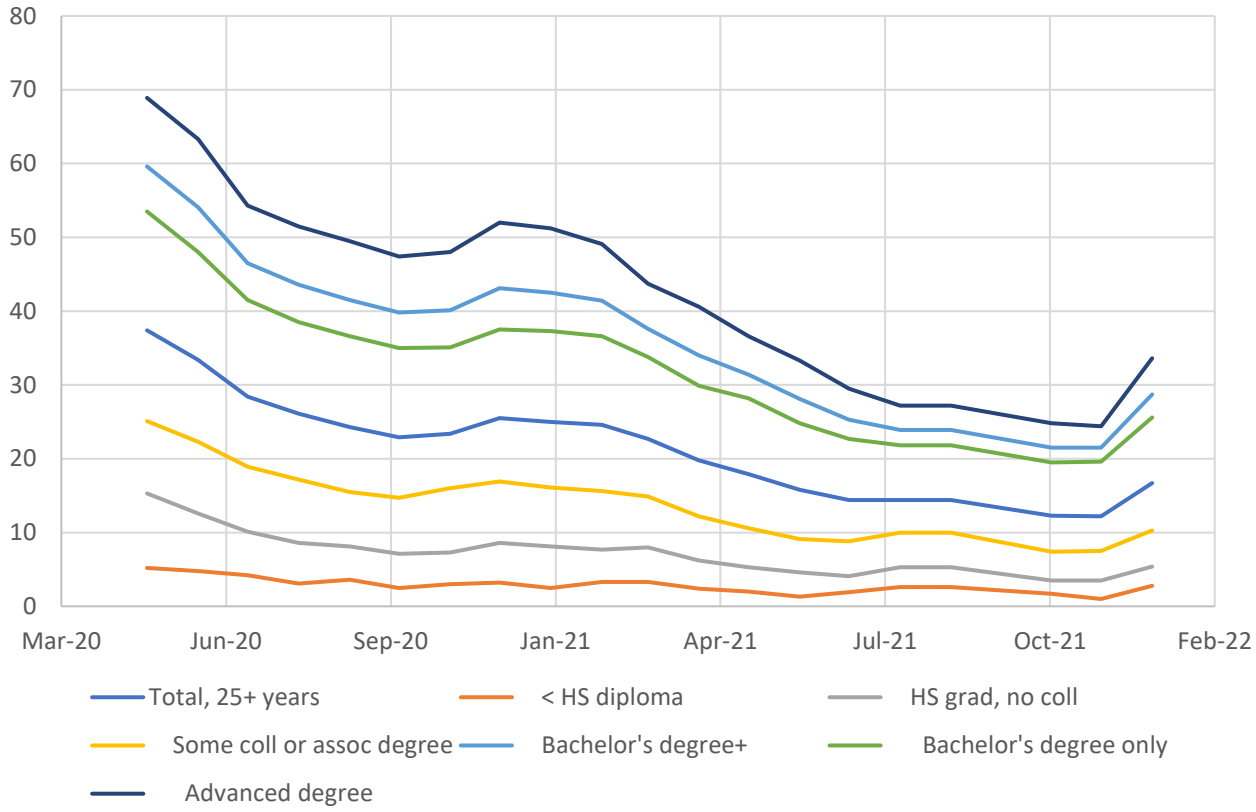


B. "At Work" Changes



Source: CPS Monthly, IPUMS.org
Notes: See notes to (text) Figure 2; replace the words "season in 2018" with "season in 2019."

Online Appendix Figure 3: Working Remotely among Men and Women by Education: May 2020 to January 2022

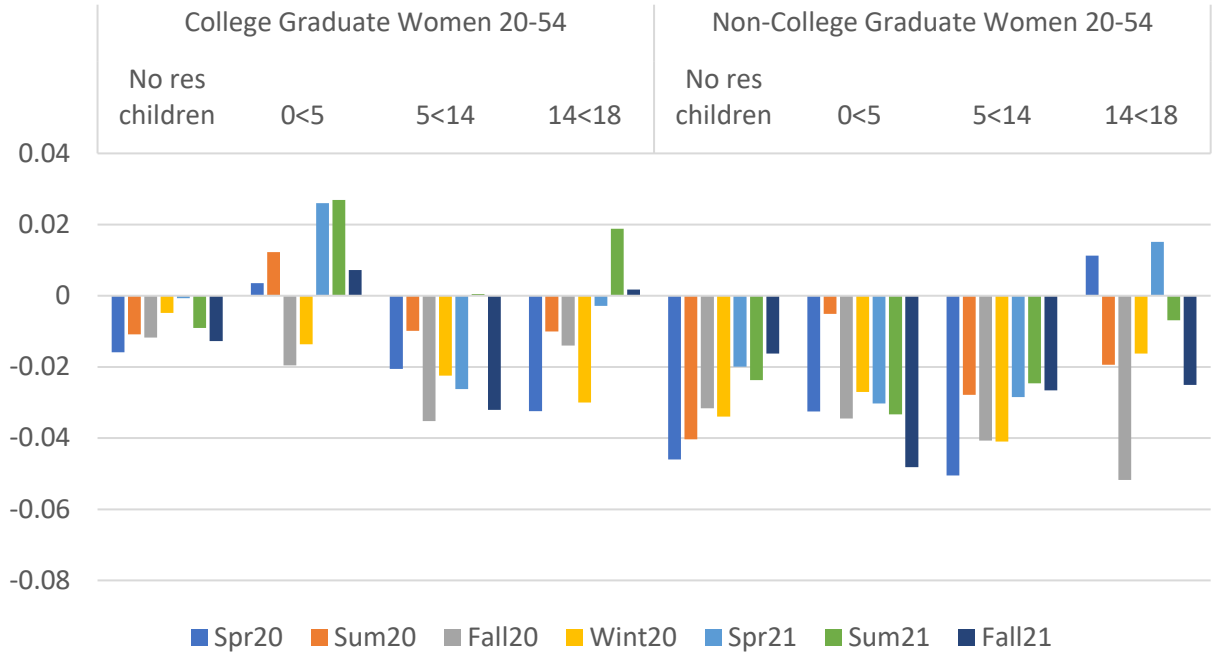


Source: CPS Monthly Surveys. https://www.bls.gov/cps/effects-of-the-coronavirus-covid-19-pandemic.htm#data

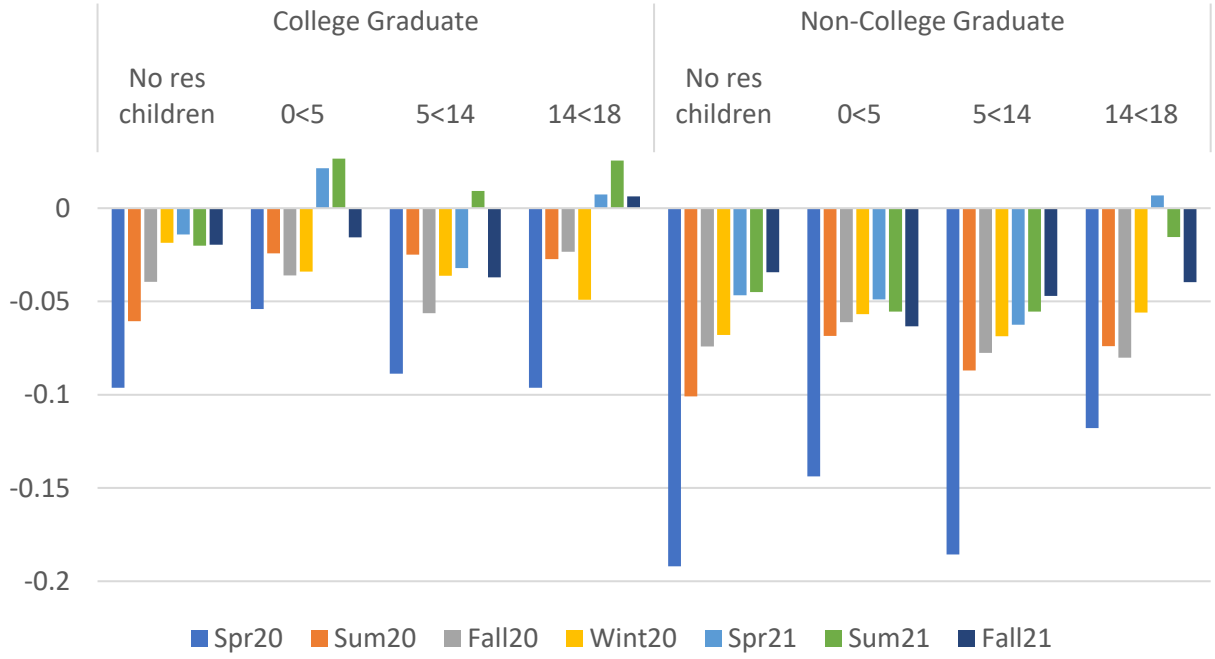
Notes: Tabulations from BLS are used because, at the time of this writing, the IPUMS had the question only to September 2021. The full question, asked since May 2020, is: "At any time in the last 4 weeks, did you telework or work at home for pay because of the coronavirus pandemic?"

Online Appendix Figure 4: Labor Force and "At Work" Changes (Season 2020/21 – Season 2019/20) for Females 20 to 54 Years: By Education Level and Age of Youngest Child

A. Labor Force Participation Using Season 2019/20 as the Reference



B. "At Work" Using Season 2019/20 as the Reference



Source and Notes: CPS Monthly, IPUMS. See notes to Figure 5.

Appendix Table 1: Summary Statistics for the Repeated Cross-Section Sample, January 2018 to November 2021 (used in text Figures 2, 5, 6)

Variables (all 0, 1)	Female	Male
College graduate	0.3997	0.3355
Black	0.1469	0.1312
Hispanic	0.1978	0.2088
At Work	0.6773	0.7946
In labor force	0.7468	0.8623
Age of youngest child		
Child 0<5	0.1736	0.1476
Child 5<14	0.2055	0.1644
Child 14<18	0.0730	0.0529
Child 18<30	0.0723	0.0474
Seasons Winter 2018/19 to Fall 2021		
Winter 2018/19	0.0639	0.0639
Spring 2019	0.0426	0.0426
Summer 2019	0.0639	0.0639
Fall 2019	0.0639	0.0639
Winter 2019/20	0.0637	0.0637
Spring 2020	0.0425	0.0425
Summer 2020	0.0637	0.0637
Fall 2020	0.0637	0.0638
Winter 2020/21	0.0637	0.0638
Spring 2021	0.0636	0.0637
Summer 2021	0.0636	0.0638
Fall 2021	0.0636	0.0638
Age of respondent		
20-24	0.1411	0.1443
25-29	0.1520	0.1558
30-34	0.1493	0.1510
35-39	0.1452	0.1445
40-44	0.1356	0.1336
45-49	0.1367	0.1338
50-54	0.1400	0.1370
Observations	1,179,291	1,115,331

Notes: Means for the seasons are illustrative and do not exhaust the sample. Winters include Dec of the previous year and Jan and Feb of the following one. Spring of 2019 excludes March for the comparison with 2020.

Appendix Table 2: Summary Statistics for Variables (All 0, 1) in Text Table 2, col. (3) Regression of Annual Changes in "At Work" for Women 20 to 54 Years, Jan. 2018 to Nov. 2021

Variable	Mean	Standard Deviation
Dependent variable: At Work Change	0.8748	0.3309
Respondent's age group		
20 to 24 years	0.0978	0.2970
25 to 29	0.1362	0.3430
30 to 34	0.1449	0.3520
35 to 39	0.1507	0.3578
40 to 44	0.1510	0.3581
45 to 49	0.1587	0.3654
Youngest child's age		
0 to 4 years	0.1539	0.3608
5 to 13	0.2251	0.4176
14 to 17	0.0881	0.2835
18 to 29	0.0826	0.2752
College graduate	0.4678	0.4990
Black	0.1304	0.3368
Hispanic	0.1712	0.3767
Service occupation	0.1634	0.3697
Start year is 2018	0.3654	0.4815
Start year is 2019	0.3469	0.4760
Spring	0.2484	0.4321
Summer	0.2371	0.4253
Fall	0.2677	0.4428
Pre-pandemic to pandemic	0.3464	0.4758
Pandemic to pandemic	0.2281	0.4196
Number of observations	174,226	

Notes: The sample is constructed so that all respondents begin the period "at work." The length of the period is one year and "at work change" is 0 if the individual leaves work and 1 if the individual remains "at work." Women 20 to 54 years old are included. The period is January 2018 to November 2021. Individuals can traverse three possible phases: pre-pandemic to pre-pandemic (all months before March 2020); pre-pandemic to pandemic (one month before March 2020 and one after February 2020); pandemic to pandemic (all months after February 2020. (See notes to Table 2.)

Appendix Table 3: Annual Changes in "At Work" for Women and Men 20 to 54 Years, Jan. 2018 to Nov. 2021

	Men and Women 20 to 55 Years, at Work in Year *t,* Month *m* Dependent variable: Change in at Work from Year *t*, Month *m* to Year (*t* + 1), Month *m* (0, 1)		
	(1)	(2)	(3)
Female	-0.0300***	-0.0315***	-0.0170***
	(-19.31)	(-20.09)	(-6.11)
Respondent's age			
20 to 24	-0.0685***	-0.0686***	-0.0683***
	(-30.33)	(-30.40)	(-30.30)
25 to 29	-0.00593**	-0.00587**	-0.00488*
	(-2.95)	(-2.93)	(-2.43)
30 to 34	-0.00344	-0.00332	-0.00226
	(-1.76)	(-1.70)	(-1.16)
35 to 39	0.0123***	0.0125***	0.0126***
	(6.39)	(6.51)	(6.56)
40 to 44	0.00850***	0.00890***	0.00848***
	(4.52)	(4.73)	(4.51)
45 to 49	0.00889***	0.00926***	0.00888***
	(4.93)	(5.14)	(4.93)
Youngest child's age			
0 to 4 years	-0.00167	0.000215	0.0203***
	(-1.03)	(0.09)	(6.77)
5 to 13 years	0.00389**	0.00244	0.0104***
	(2.60)	(1.15)	(3.64)
14 to 17 years	0.0144***	0.00687*	0.00724*
	(6.87)	(2.21)	(2.34)
18 to 29 years	0.0123***	0.0102**	0.00994**
	(5.50)	(3.11)	(3.04)
College graduate	0.0352***	0.0222***	0.0206***
	(32.69)	(13.44)	(9.08)
Black	-0.0305***	-0.0181***	-0.0299***
	(-19.04)	(-7.38)	(-8.48)
Hispanic	-0.0186***	-0.0115***	0.00221
	(-14.03)	(-5.69)	(0.81)
Service occupation	-0.0526***	-0.0201***	-0.00935*
	(-33.26)	(-8.50)	(-2.52)
No spouse	-0.0100***	-0.00994***	-0.00848***
	(-8.21)	(-8.17)	(-6.93)
Start year is 2018	-0.0247***	-0.0247***	-0.0247***
	(-6.04)	(-6.03)	(-6.06)
Start year is 2019	-0.0267***	-0.0263***	-0.0265***
	(-10.03)	(-9.89)	(-9.95)
Spring	-0.0153***	-0.0155***	-0.0157***
	(-8.50)	(-8.63)	(-8.73)
Summer	-0.0160***	-0.0165***	-0.0166***
	(-8.86)	(-9.12)	(-9.21)
Fall	0.0105***	0.0104***	0.0103***

	(5.86)	(5.82)	(5.77)
Pre-pandemic to Pandemic	-0.0634***	-0.0620***	-0.0605***
	(-22.05)	(-18.37)	(-16.45)
Pandemic to Pandemic	-0.0369***	-0.0372***	-0.0363***
	(-8.06)	(-7.45)	(-6.90)
Pre- to Pan × female	-0.0135***	-0.0104***	-0.0138***
	(-5.88)	(-4.46)	(-3.32)
Pan to Pan × female	-0.00158	-0.000337	-0.00203
	(-0.61)	(-0.13)	(-0.43)
Pre- to Pan × College		0.0327***	0.0261***
		(13.41)	(7.79)
Pan to Pan × College		0.00691*	0.00753*
		(2.52)	(2.00)
Pre- to Pan × 0<5		-0.00444	0.00724
		(-1.36)	(1.68)
Pan to Pan × 0<5		-0.00180	-0.000512
		(-0.49)	(-0.11)
Pre- to Pan × 5<13		0.00102	0.00982*
		(0.34)	(2.40)
Pan to Pan × 5<13		0.00421	0.00672
		(1.24)	(1.45)
Pre- to Pan × 14<18		0.0172***	0.0164***
		(3.87)	(3.68)
Pan to Pan × 14<18		0.00509	0.00497
		(1.00)	(0.98)
Pre- to Pan × 18<30		0.00139	0.000890
		(0.30)	(0.19)
Pan to Pan × 18<30		0.00751	0.00719
		(1.42)	(1.36)
Pre- to Pan × Black		-0.0276***	-0.0296***
		(-7.66)	(-5.70)
Pan to Pan × Black		-0.0130**	-0.0119*
		(-3.12)	(-1.97)
Pre- to Pan × Hispanic		-0.0212***	-0.0304***
		(-6.99)	(-7.53)
Pan to Pan × Hispanic		0.0000687	-0.00719
		(0.02)	(-1.57)
Pre- to Pan × Service occupation		-0.0817***	-0.0855***
		(-23.16)	(-15.58)
Pan to Pan × Service occupation		-0.0176***	-0.0217**
		(-4.17)	(-3.28)
0<5 × female			-0.0445***
			(-10.38)
5<13 × female			-0.0147***
			(-3.81)
College × female			0.00304
			(0.92)
Black × female			0.0224***
			(4.59)
Hispanic × female			-0.0320***
			(-7.87)

Service occ × female			-0.0163***
			(-3.39)
Pre- to Pan × 0<5 × female			-0.0267***
			(-4.18)
Pan to Pan × 0<5 × female			-0.00334
			(-0.46)
Pre- to Pan × 5<13 × female			-0.0188**
			(-3.25)
Pan to Pan × 5<13 × female			-0.00565
			(-0.86)
Pre- to Pan × College × female			0.0139**
			(2.84)
Pan to Pan × College × female			-0.00124
			(-0.23)
Pre- to Pan × Black × female			0.00560
			(0.78)
Pan to Pan × Black × female			-0.00104
			(-0.12)
Pre- to Pan × Hispanic × female			0.0200**
			(3.28)
Pan to Pan × Hispanic × female			0.0159*
			(2.31)
Pre- to Pan × Service occ × female			0.00738
			(1.03)
Pan to Pan × Service occ × female			0.00565
			(0.66)
Constant	0.968***	0.967***	0.960***
	(256.32)	(249.86)	(239.68)
Number of observations	365,539	365,539	365,539

* p<0.05, ** p<0.01, *** p<0.001

Source and *Notes*: See Table 2.