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COVID-19 amplified gender disparities, hurting employment most for mothers and women of color

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Abstract

The COVID-19 pandemic and related recession layered a sudden economic shock atop persistent employment inequities. Beginning in March 2020, lockdowns shuttered businesses, schools, and many child-care providers. Steep employment loss and slow recovery hurt certain groups more than others, and women’s employment particularly suffered. To better understand the gendered effects of the pandemic-induced economic shock, we asked where gender employment gaps stood before the pandemic, which women were most impacted by employment loss, and who struggled most to recover employment as lockdowns lifted through June 2020.

We find that in June 2020, the gender employment gap stood at nearly 15 percentage points—over 3 percentage points wider than before the onset of the pandemic, a period of relatively high employment. In exploring variation in this overall trend, we find that steep employment loss more gravely impacted two groups of women: those already suffering from low employment before the pandemic, and mothers of school-aged children, whose recovery of employment lost during initial lockdowns was particularly poor relative to fathers.

The COVID-19 recession’s disparate impacts are less surprising when we consider the extent to which parental status and race/ethnicity shaped women’s employment before the pandemic. The dramatic increase in disparities during the recession serves as a reminder of the vulnerabilities of certain populations to economic events. While our findings focus on the immediate effects of the pandemic shutdowns, the implications continue to reverberate years later, further underscoring the need for policy that not only mitigates the disproportionate impacts of economic shocks but also addresses underlying labor market disparities. This analysis points us toward solutions that address fundamental barriers to maximum employment.

Key findings

- Mothers of very young children (under age six), Hispanic women, and non-Hispanic Asian American women entered the pandemic with particularly low employment rates. Relative to other groups of women and men, their employment fell to much lower levels during pandemic lockdowns, with only half of these populations working by April 2020.
- Mothers of school-aged children (youngest child aged 6–17) regained lost employment to a lesser degree than fathers. By June 2020, the gender employment gap for parents of school-aged children had widened to about 25 percentage points—over 8 percentage points wider than the gap prepandemic.
- Before the pandemic, non-Hispanic Black women and men had about the same employment rate. In the wake of initial lockdowns, a gender employment gap emerged, suggesting that non-Hispanic Black women recovered less employment than non-Hispanic Black men, though their gender employment gap was smaller than that for other groups.

Introduction

Beginning in March 2020, a sudden economic shock exacerbated existing employment inequities across the United States. Pandemic lockdowns shuttered businesses, schools, and many child-care providers. Like previous economic downturns, the pandemic hurt employment most for those who started further behind (Cuddy & Reeves, 2015; Lerman & Zhang, 2012; Long et al., 2020). For women, the pandemic exacerbated longstanding disparities both at work and in the home (Landivar et al., 2020). Women disproportionately fill service sector, low-wage, and part-time jobs that suffered during pandemic lockdowns (Bateman & Ross, 2020; Gould & Kassa, 2021; Naranjo & Sun, 2021; Tucker & Vogtman, 2020). When schools and child-care providers closed, it was widely documented that women sacrificed employment to shoulder additional caregiving responsibilities (see, for instance, Collins et al., 2021; Couch et al., 2020; Fabrizio et al., 2021; Gupta, 2020).

To better understand the gendered effects of the pandemic's sudden economic shock, we asked where gender employment gaps stood before the pandemic, which women were most impacted by employment loss, and who struggled most to recover employment when lockdowns lifted. We find that (1) gender employment gaps varied dramatically by parental status and race/ethnicity before the pandemic; (2) steep employment loss most severely impacted women who already had low employment, and (3) some women had outsized difficulties recovering employment lost during initial lockdowns.¹ Though others (e.g., Lim & Zabek, 2021) have conducted much more comprehensive analyses of such disparities in labor force participation across the span of COVID-19 closures, this brief offers an accessible, quick take on what happened among women and mothers across racial/ethnic groups as the initial shocks of the pandemic were unfolding. Importantly, to understand the pandemic's disproportionate impacts on employment, we consider preexisting employment disparities, such as who entered the pandemic with lower employment rates.

In our analysis, we use monthly survey data from the U.S. Census Bureau (Flood et al., 2021) to track gender² employment gaps, or differences between women's and men's employment rates.³ We examine gender employment gaps instead of gender job gaps because employment rates normalize by population size and count each working individual only once, regardless of the number of jobs held (see Box 1 below for more on this choice.) Our analysis spans the initial phase of the pandemic, from February through

¹ Importantly, many of these workers were eligible for coverage under CARES Act expanded unemployment insurance (see <https://blog.dol.gov/2021/01/11/unemployment-benefits-answering-common-questions/>).

² The U.S. Census provides two categories (male and female) for respondent gender, which they term "sex" but that reflect respondents' self-reported identity. For more information on this variable and its limitations, please see <https://www.census.gov/acs/www/about/why-we-ask-each-question/sex/>.

³ To calculate employment rates, we use the "at work" category of the Department of Labor's Current Population Survey (CPS) monthly data variable. Analysis is restricted to prime-age workers, ages 25–54. For more information on calculating employment rates in this brief, see Appendix A: Data and methods.

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June of 2020, or before, during, and shortly after initial pandemic lockdowns, similar to other research (see, for instance, Cho & Winters, 2020; Kim et al., 2021). We intentionally center on April 2020, the month when national employment experienced its sharpest dip (Rouse, 2021) and extend our analysis through June 2020, when national employment began to recover.⁴

Consistent with other research (see, for instance, Alon et al., 2021; Kochhar & Bennett, 2021), we find a wide prepandemic gap in employment that persisted amidst steep national employment loss from February to April 2020. The gap then widened over subsequent months as women recovered employment more slowly than men. To explore variation in the overall trend, we disaggregate gender employment gaps for parents⁵ by age of youngest child and for all adults by race/ethnicity. Similar to others (see, for instance, Heggeness, 2020; Luengo-Prado, 2021), we find that steep employment loss more gravely impacted mothers of young children (under age six), Hispanic⁶ women, and non-Hispanic Asian American⁷ women, who all entered the pandemic with lower employment rates. When initial lockdowns lifted, mothers of school-aged children in particular (youngest child aged 6–17) struggled to recover lost employment. The emergence of a non-Hispanic Black gender employment gap suggests that non-Hispanic Black women’s recovery stalled as well. Findings underscore the need for policy that not only mitigates the disproportionate impacts of economic shocks but also addresses underlying labor market disparities.

Box 1 | Why measure employment, not jobs?

We intentionally analyze gender employment gaps instead of gender job gaps. The former better captures labor market disparities because employment rates normalize by population size and count each working individual only once, regardless of how many jobs each individual holds at one time. To illustrate, consider December 2019, when women filled more jobs than men for the first time in over a decade. Although the job gap suggested gender parity, the employment gap did not. The number of women in the U.S.

⁴ For data on the timing of lockdowns and other public health restrictions, see Mathieu et al. (2020a). For data on COVID-19 cases, see Mathieu et al. (2020b).

⁵ “Parent” is defined as an adult who lives in the same household with at least one of their own children (biological, step, or adopted). Note that the CPS does not capture parents without child custody and foster children are not included.

⁶ We use the term Hispanic to describe anyone who self-identifies as having roots in a Spanish-speaking country or in Latin America. To remain consistent with how other researchers categorize race and ethnicity, we group Hispanic and Latin American populations together and use the term Hispanic. Non-Hispanic white, Black, and Asian American workers include only those who identify as one race and who are not ethnically Hispanic or Latin American.

⁷ Asian only; does not include Pacific Islander.

population was greater than the number of men,⁸ and more women held multiple jobs,⁹ with the result that in fact, the share of women employed was actually smaller than the share of men.¹⁰ This distinction is why we refer throughout this brief to less employment rather than fewer jobs. We should note that although the gender employment gap is a strong metric, it only captures whether someone works, not other employment characteristics such as job type, salary level, hours worked per day, days worked per week, and weeks worked per year.

Background

The impacts of recessions on employment often vary across different groups of workers and interact with existing labor market inequities. For example, the Great Recession of 2008 was coined a “mancession” because the economic impacts, such as shrinking manufacturing and construction industries and growth in service industries, caused employment loss for men and gains for women (Alon et al., 2021; Wall, 2009). Many women in heterosexual relationships also entered the labor force to compensate for their male partners’ job loss, further boosting women’s employment (Mattingly & Smith, 2010; Smith & Mattingly, 2014).

The COVID-19 recession, on the other hand, has been termed a “shecession” (Alon et al., 2021) due to its outsized impact on women. The pandemic exacerbated existing gender disparities, both at work and in the home, with grave consequences for women’s employment (Landivar et al., 2020). To help explain why women’s employment disproportionately suffered before, during, and shortly after pandemic lockdowns, we turn to research on gendered occupational segregation (England, 2005), the gendered division of domestic labor (Hochschild & Machung, 2012 [1989]), and gender and motherhood wage gaps (Blau & Kahn, 2007).

Gendered occupational segregation refers to the overrepresentation of women or men in certain jobs and industries (Alonso-Villar et al., 2012). This clustering stems from gender socialization, which fosters different job preferences for women and men, and discriminatory work environments that reflect and reinforce gendered preferences (Schieder & Gould, 2016). Research on occupational segregation shows that women tend to cluster in service industries (Weeden et al., 2018). Service sector jobs are often

⁸ In December 2019, 134,329,000 women and 125,852,000 men ages 16+ lived in the United States (FRED, n.d.).

⁹ In 2019, an estimated 4,141,000 women and 3,908,000 men ages 16+ held multiple jobs (U.S. Bureau of Labor Statistics, n.d.[c]).

¹⁰ See BLS Data Viewer (U.S. Bureau of Labor Statistics, n.d.[d]).

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low wage, have part-time or irregular hours (Schneider & Harknett, 2020), and are less likely to include access to paid sick and family leave (Chaganti, 2021; Long & Rae, 2020). During the pandemic, measures to slow the spread of COVID-19 hurt service sector, low-wage, and part-time jobs, disproportionately impacting female workers (Bateman & Ross, 2020; Gould & Kassa, 2021; Naranjo & Sun, 2021; Tucker & Vogtman, 2020).

The longstanding gendered division of domestic labor further sharpened employment disparities between mothers and fathers. Prior to the pandemic, mothers in the United States spent nearly twice as much time on child care and housework as fathers (Bianchi, 2000; Bianchi et al., 2006; Hochschild & Machung, 2012 [1989]; Livingston & Parker, 2019) and limited their labor force participation to compensate (Schochet, 2019). As schools and child-care providers closed during the spring of 2020, additional child-care and schooling responsibilities disproportionately fell on mothers, who in turn sometimes reduced paid work hours (Collins et al., 2021; Couch et al., 2020; Fabrizio et al., 2021; Gupta, 2020; Modestino et al., 2021), took temporary leave from paid work (Heggeness, 2020) and even left their paid work altogether (Petts et al., 2021; Russell & Sun, 2020).

Gender and motherhood wage gaps also help explain the pandemic's impact on mothers' employment. Before the pandemic, women earned about 84 cents for every dollar earned by men (Aragão, 2023), and mothers earned only 75 cents for every dollar earned by fathers (Ewing-Nelson, 2021). Wage gaps have persisted for many reasons, including occupational segregation (England, 2005; Hegewisch & Hartmann, 2014), gender discrimination (Schieder & Gould, 2016), and incentives linked to working less-flexible hours (Bolotnyy & Emanuel, 2022; Goldin, 2014). It may have made economic sense for the higher earner to continue working during the pandemic while the lower earner reduced their labor force participation (Budig, 2014; Gupta, 2020). In heterosexual couples, the consequences are gendered because women more often earn less than men, and this is most pronounced among parents of young children (Chung et al., 2017).

The COVID-19 recession not only exacerbated gender disparities, it also amplified racial/ethnic inequities (Gemelas et al., 2022; Maxwell & Solomon, 2020). Research shows patterned disparities in labor market outcomes by race/ethnicity and its intersection with gender (Amott & Matthaei, 1991; del Río & Alonso-Villar, 2015; Hamilton et al., 2011; Matthews & Wilson, 2018; Reskin & Cassirer, 1996). For example, relative to non-Hispanic white women, women of color are even more likely to hold low-wage and service sector jobs (Frye, 2020; Tucker & Vogtman, 2020). This brief builds upon the research on occupational segregation by gender and race/ethnicity, the division of domestic labor, and persistent wage gaps described above.

Results: COVID-19 closures further reduced employment for mothers and women of color

In line with other research (see, for instance, Luengo-Prado, 2021), we find that, on average, women entered the pandemic with a lower employment rate than men and experienced similar absolute declines in employment as men but then recovered less

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employment than men after initial lockdowns lifted (Figure 1). In January¹¹ and February 2020, weeks before the pandemic began, the gender employment gap stood at more than 11 percentage points. Once the pandemic hit, both men's and women's employment rates dropped about 14 percentage points. Because of the preexisting disparity, when employment bottomed out in April 2020, men's employment had only fallen slightly below women's prepandemic employment rate.

Figure 1 | Monthly employment rates for men, women, fathers, and mothers
January 2018–February 2023



Note: All estimates are weighted and restricted to noninstitutionalized civilians ages 25–54. Mothers and fathers are those with at least one child under age 18 at home. All within-month, between-gender differences in employment rate are statistically significant ($p < 0.05$). Employment rates reflect the “at work” employment rate (see Appendix A: Data and methods for more details on this calculation).

Source: Authors' analysis of U.S. Current Population Survey (IPUMS-CPS, University of Minnesota, www.ipums.org).

In the two months after initial lockdowns lifted—April to June 2020—women recovered less employment than men. By June 2020, men had recovered six percentage points of employment lost during the economic shutdown, from a low of 70.7 percent two months earlier to 76.7 percent, while women had regained only four percentage points of their lost employment, from a low of 58.1 percent to 62.0 percent. Consequently, the gender employment gap widened to nearly 15 percentage points, significantly larger than in both February and April 2020.

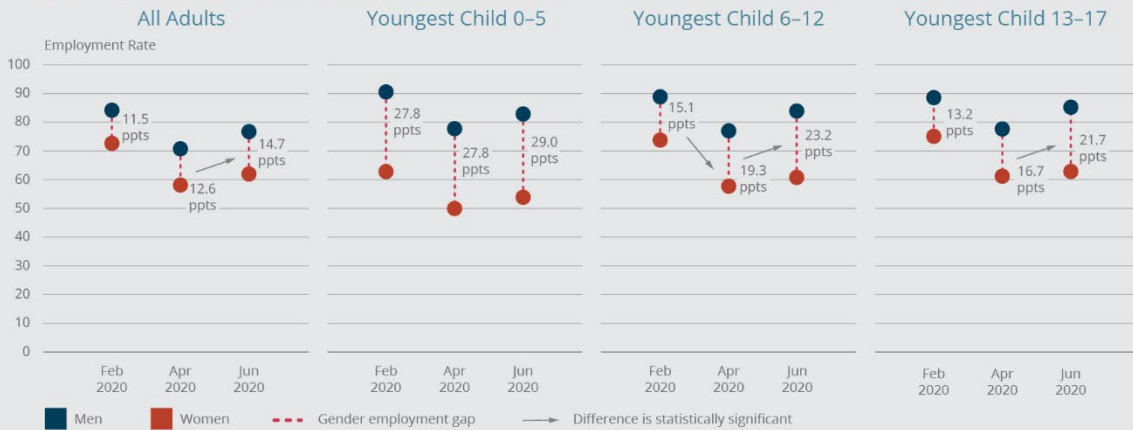
It is possible that this widening of the gender employment gap may in part be due to normal seasonal variation. The gender employment gap grows every June (note the yearly dip in women's employment in Figure 1) because more women than men leave employment for the summer months. It then shrinks again toward the end of summer.

¹¹ The analyses in this brief focus on February, April, and June 2020. This graph covers a longer time period—January 2018 to January 2023—in order to provide context for before and during the pandemic period. It illustrates a statistically significant gender employment gap in February 2020 similar to prepandemic trends.

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When we disaggregate the gender employment gap by parental status, we see, consistent with other research, that mothers experienced more employment loss in 2020 than both fathers and other women (Boesch et al., 2021; Dias et al., 2020).¹² Figure 2 provides more detail on the gender employment gap for parents in the early months of the pandemic. In February 2020, fewer than two-thirds (62.8 percent) of mothers with a child under age six were employed, relative to almost three-quarters (72.7 percent) of all adult women, and the gender employment gap for parents of young children was around 27.7 percentage points (Figure 2). During the pandemic’s initial months, mothers and fathers of young children lost employment at similar rates, meaning that the gender employment gap remained. But because the preexisting gap was so large, employment for mothers of young children fell to extremely low levels. By April 2020, only half of all mothers with a child under age six remained employed.

Figure 2 | Gender employment gaps for all adults and parents by age of youngest child, February to June 2020



Notes: All estimates are weighted and restricted to noninstitutionalized civilians ages 25–64. Parents are classified by the age of their youngest child. Employment rates reflect the “at work” employment rate (see Appendix A: Data and methods for more details).

Differences in employment rates between genders within each month are statistically significant ($p < 0.05$). Changes in gender employment gaps between February and April are statistically significant ($p < 0.05$) only for parents with Youngest Child 6–12 (indicated by arrow). Changes in gender employment gaps between April and June are statistically significant for All Adults, Youngest Child 6–12, and Youngest Child 13–17. For these same groups, changes in gender employment gaps between February and June are also significant. Changes in gender employment gap for parents with Youngest Child 0–5 are not significant. For data values, see Appendix B: Table B1.

Source: Authors’ analysis of U.S. Current Population Survey, 2020 (IPUMS-CPS, University of Minnesota, www.ipums.org).

Mothers of school-aged children (the two columns on the right in Figure 2) entered the pandemic with higher employment than mothers of younger children. There was also an evident gender gap between mothers and fathers of school-aged children. Although all parents of school-aged children lost employment, mothers of school-aged children recovered employment more slowly than fathers once lockdowns lifted: from April to June 2020, gender employment gaps for parents of school-aged children widened by four to five percentage points. For comparison, the gap for all adults widened by just two

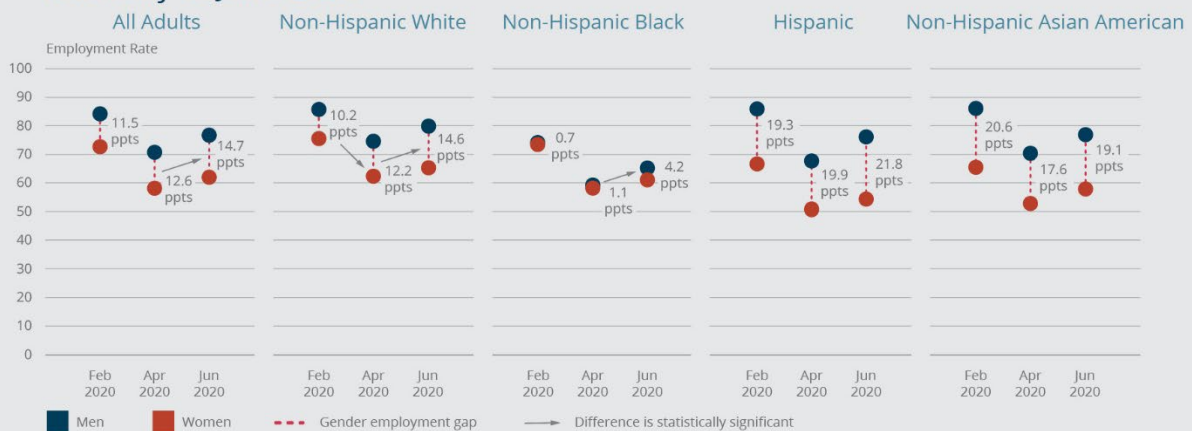
¹² Dias et al. (2020) find that fathers experienced a “fatherhood premium” during the pandemic: Fathers were less likely to lose employment than men without children and all women.

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percentage points. By June 2020, the gender employment gaps for parents of school-aged children were between 21 and 23 percentage points.

Prepandemic gender employment gaps also varied across racial/ethnic groups (Figure 3).¹³ Gender employment gaps for Hispanic and non-Hispanic Asian American adults stood at 20 percentage points, or nearly twice the gender employment gap for non-Hispanic white adults. Relative to Hispanic women and non-Hispanic Asian American women, non-Hispanic Black and white women were employed at relatively high rates (73.5 and 75.5 percent, respectively). Unlike other racial-ethnic groups, non-Hispanic Black adults had no discernable gender employment gap before the pandemic. This anomalous finding can be attributed to non-Hispanic Black women’s relatively high employment rate (73.5 percent in February 2020, similar to the rate of 72.7 percent for all adults), and non-Hispanic Black men’s relatively low employment rate (74.1 percent in February, compared to 84.2 percent for all adults).

Figure 3 | Gender employment gaps for all adults by race/ethnicity, February to June 2020



Notes: All estimates are weighted and restricted to noninstitutionalized civilians ages 25–64. Employment rates reflect the “at work” employment rate (see Appendix A: Data and methods for more details).

Differences in employment rates between genders within each month are statistically significant ($p < 0.05$) for all groups except non-Hispanic Black people in February and April. Changes in gender employment gaps between February and April are statistically significant ($p < 0.05$) only for non-Hispanic white people (indicated by arrow). Changes in gender employment gaps for All Adults, non-Hispanic white people, and non-Hispanic Black people between April and June are significant. For these same groups, changes in gender employment gaps between February and June are also significant. Changes in gender employment gaps for Hispanic and non-Hispanic Asian American people are not significant. For data values, see Appendix B: Table B2.

Source: Authors’ analysis of U.S. Current Population Survey, 2020 (IPUMS-CPS, University of Minnesota, www.ipums.org).

During the first months of the pandemic, gender employment gaps did not significantly change for either Hispanic or non-Hispanic Asian American adults. But, due to their lower levels of prepandemic employment, these women’s employment rates dropped to very low levels, with only half of these women employed during April 2020 lockdowns. For non-Hispanic white adults, the gender employment gap grew between April and June 2020, reflecting the overall trend. In other words, non-Hispanic white

¹³ Our analysis also explored gender employment gaps by race/ethnicity and parental status combined; however, these differences were not statistically different.

women recovered less prepandemic employment than men. It is worth noting that non-Hispanic white women started at a higher employment rate relative to Hispanic or non-Hispanic Asian American adults, so although they recovered less employment than their male counterparts, non-Hispanic white women still fared better than Hispanic women and non-Hispanic Asian American women. For non-Hispanic Black adults, a gender employment gap emerged by June 2020, which, though smaller than for other groups, suggests that non-Hispanic Black women may have had challenges returning to work or struggled more than non-Hispanic Black men to recover lost employment.

Conclusion: COVID-19 exacerbated challenges to maximum employment for women

The pandemic exacerbated longstanding disparities both at work and in the home, with sharp consequences for women's employment. When the service sector collapsed, so did employment for those overrepresented in the sector: women and people of color. Similarly, when schools and many child-care providers shuttered, additional caregiving responsibilities disproportionately fell to mothers, who already had lower employment and earnings than fathers. Steep national employment loss more severely impacted women, particularly mothers of young children, Hispanic women, and non-Hispanic Asian American women, who entered the pandemic with lower employment rates. Inequity also defined the initial economic recovery, as women, and especially mothers of school-aged children, struggled to recover lost employment.

During the COVID-19 recession, temporary federal emergency policies, such as increased access to paid sick and family leave and expanded unemployment benefits, aimed to mitigate the impacts of inequitable job loss and recovery. Our findings certainly underscore the need to respond to sudden economic shocks with inclusive emergency policy. However, findings most critically point us toward fully inclusive solutions that seek not only to address the systemic prejudices behind longstanding disparities and barriers to full participation in the labor market (see, for instance, England, 2005; Goldin, 1990; Hochschild & Machung, 2012 [1989]). Even before the pandemic began, disparities between women's and men's employment varied dramatically by parental status and race/ethnicity. Gaps persisted or worsened during and after the initial economic shock.

Promising policy solutions include permanent expanded access to paid sick and family leave, which would help all workers care for their families and themselves without risking job loss, and more flexible and robust child-care options, which would enable parents to better balance paid work with caregiving responsibilities (Fillion, 2022; Gould et al., 2017; Savage, 2019).

Appendix A | Data and methods

To analyze gender employment gaps, we use demographic and employment data for the months of February, April, and June 2020 from the Current Population Survey (CPS) (Flood et al., 2021) to track and compare the national “at work” prime-age employment rate (PER), which is the employment rate for adults ages 25–54 who were not absent from work during the survey reference week.¹⁴

It is worth noting here that the *unemployment* rate is historically the most commonly used measure of employment trends in the United States. The Bureau of Labor Statistics’ Employment Situation Summary, highly anticipated and reported on every month, provides unemployment rates as indicators of the health of the economy. In this study, we use the PER instead, following the caution issued by some scholars (Faberman & Rajan, 2020; Gould, 2020) that the unemployment rate and labor force participation rates are not the most accurate indicators of employment trends during the pandemic. These scholars argue that a segment of the population that was laid off in response to the pandemic would, in nonpandemic times, have been looking for work in response to the layoff, but because of the pandemic, they were not looking for work. This group does not fit into the category of unemployed because they were not looking for work, but they also do not fit into the category of “not in labor force” because their exit was temporary and only in response to the pandemic. Traditional unemployment or “not in labor force” indicators would misrepresent the pandemic’s impacts on the economy (see Table A1 for a comparison of these various measures of labor force attachment). In response to this issue, Faberman and Rajan (2020) developed a new measure of labor market *underutilization* to document the pandemic’s impact on unemployment. Similar to other work on employment trends during the early months of the pandemic (Cho & Winters, 2020; Kim et al., 2021), we opt to use a version of the employment rate. This simpler metric allows for between-group analyses, but it does not capture changes in the number of hours worked, shifts from full-time to part-time work, or trends for the population on paid leave. It also does not adjust for variables that could be associated with employment outcomes, such as level of education, occupation, industry, etc.

¹⁴ The CPS is funded by the Bureau of Labor Statistics (BLS) and conducted by the U.S. Census Bureau. Each month, census interviewers survey representatives of about 60,000 American households across all 50 states and the District of Columbia. The BLS then uses the data to calculate key labor statistics like the unemployment rate. For more information about the CPS, see United States Census Bureau (n.d.). Monthly CPS data accessed through IPUMS USA (Flood et al., 2021).

Table A1 | Comparison of labor force statistics of unemployment, employment, and “at work” employment rates

Labor Force Statistic	Unemployment Rate		Employment Rate		“At Work” Employment Rate	
Employed	D		D		D	
At Work			N		N	
<i>Part-time for Economic Reasons</i>						
<i>Part-time for Noneconomic Reasons</i>						
Absent from Work			N			
<i>On Paid Leave</i>						
<i>On Unpaid Leave</i>						
Unemployed	N	D	D		D	
Actively Looking for Work						
On Temporary Layoff						
Not in Labor Force			D		D	
Want Work but Not Looking						
<i>Marginally Attached</i>						
All Others Out of Labor Force						

N = included in rate numerator **D** = included in rate denominator

Note: The U.S. Bureau of Labor Statistics calculates official unemployment and employment rates using the civilian, noninstitutionalized population over age 15. In this brief, we calculate the “at work” employment rate for the civilian, noninstitutionalized population ages 25–54.

Source: Table adapted from Faberman & Rajan (2020).

Like other scholars (Cho & Winters, 2020; Kim et al., 2021), we account for a data misclassification error documented in the 2020 CPS data¹⁵ by limiting the employment rate to only those who were “employed and at work”¹⁶ for at least one hour of the survey reference week (for more information about the misclassification error, see U.S. Bureau of Labor Statistics, n.d.[b]). Finally, based on other work showing disparate trends for young adults (ages 16–25) (Cho & Winters, 2020; Gould & Kassa, 2020) and adults of retirement age (55 and above) (Coibion et al., 2020), we restrict the “at work” employment rate to the “prime-age” population (ages 25–54).

Using CPS data, we explore changes in gender employment gaps over the first five months of the pandemic between subsets of parents and between racial/ethnic groups. To focus on those parents most likely to grapple with the competing demands of work

¹⁵ For more information about the Bureau of Labor Statistics misclassification error, see U.S. Bureau of Labor Statistics (n.d.[b]).

¹⁶ For more on how the Current Population Survey defines employed, see U.S. Bureau of Labor Statistics (n.d.[a]).

and child care, we define parents as prime-age adults living with at least one of their own children (biological, step, or adopted) aged 17 or younger; those with foster children were not included. To compare employment trends for parents with children of different ages, we divide parents into three groups: those whose youngest child is under age 6, those whose youngest child is age 6–12, and those whose youngest is age 13–17. For all adults, we also compare employment trends across racial/ethnic groups: non-Hispanic white, Hispanic, non-Hispanic Black, and non-Hispanic Asian American.

We begin by calculating the “at work” PER for each group in February, April, and June 2020. Using bivariate ordinary least squares regressions, we determine whether there is a statistically significant difference between employment rates in a given month. We find the differences are all significant ($p < 0.05$), except for the non-Hispanic Black gender employment gap in March and April 2020. We then use difference-in-difference (DD) estimation (Angrist & Krueger, 1999, pp. 1296–1299; Angrist & Pischke, 2009, pp. 227–243; Columbia University, n.d.) to determine whether gender employment gaps significantly changed from one time period to the next for all adults and for each subset of parents and racial/ethnic group. While longitudinal data would allow us to see individual changes in employment, using DD with repeated cross-sectional data reveals population-level changes over time. DD estimations are useful for assessing aggregate changes in response to an intervention, such as a policy change or new program. The approach requires two populations and rests on the central assumption that, but for the intervention, the two groups would have trended similarly (known as the parallel trend assumption [Columbia University, n.d.]). As long as other new factors occurring during the same time period should be expected to affect both groups equally, any difference in outcome between the two groups can be attributed to the intervention.

In this study, we use DD to estimate the difference in the effect of the pandemic on men’s and women’s employment rates. DD is most often used in natural experiment situations where one group is exposed to an intervention and a similar group is not (Angrist & Krueger, 1999; Angrist & Pischke, 2009; see, most notably, Card & Krueger, 1994). It has also been widely used to estimate variation in impacts of an intervention between population sub-groups (e.g., by gender, race-ethnicity, etc.), both generally (see, for instance, Chaganti & Waddell, 2015; Gaddis & Pieters, 2017) and during the pandemic (see, for instance, Couch et al., 2020; Luengo-Prado, 2021).

The following equation shows our estimation strategy:

$$Y_{it} = \beta_0 + \beta_1 Month_t + \beta_2 Gender_i + \beta_3 (Gender_i * Month_t) + \varepsilon_i$$

For all prime-age adults, Y_{it} is a binary outcome indicating if individual i is working at time t . $Month_t$ is a binary dummy variable representing February, April, or June, depending on which month is of interest in our analysis. And $Gender_i$ is a binary variable, where 1 indicates female and 0 indicates male. Finally, β_3 tells us if changes in the gender gap between time periods are significant. The equation is estimated separately for each racial/ethnic group and for parents by age range of youngest child. All estimates are

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weighted using person-level survey weights,¹⁷ which adjust for differences between the sample population and the general population.

It is important to note that this study suffers from some important limitations in both measurement and estimation. First, while using a simple dichotomous employment variable to generate employment rates allows for detailed between-group analyses, it does not capture important nuances in employment status for those who are employed, including changes in the number of hours worked, shifts from full-time to part-time work, or trends for the population employed on paid leave. Similarly, our broad definition of parenthood obscures possible within-group variations that could contribute to employment outcomes, such as whether a parent works remotely, number of children in the household, and access to child-care support.

Also of note, we do not isolate the extent to which gender, parental status, and race/ethnicity contributed to changing employment gaps. Other socioeconomic and demographic characteristics, such as income, occupation, and age, may help explain why some employment gaps widened more than others. Finally, the time period selected for this project suffers from a significant limitation: declining response rates in the Current Population Survey across the time period examined (IPUMS, n.d.). Given that nonresponse was more common among younger people, people of color, the less educated, and those with low household income (see Ward & Edwards, 2021), we anticipated our findings are biased toward zero. That is, because nonresponse is more common among groups more likely impacted by the COVID-19 pandemic (see, for instance, Chaganti et al., 2020) and unable to combine work with child care, our findings likely underestimate the impact on women's and mothers' employment. In spite of these limitations, the analysis offers important evidence of unequal employment outcomes before, during, and shortly after initial pandemic lockdowns.

¹⁷ We use the survey weight COMPWT, which is a person-level weight that is designed for use in calculating month-to-month changes in employment statistics. See https://cps.ipums.org/cps-action/variables/COMPWT#description_section for more information on this weight.

Appendix B | Tables

Table B1 | Employment rates and changes in gender employment gaps for all adults and parents (by age of youngest child), February to June 2020

Numbers correspond to Figure 2

Group	Sex	Employment rate			Change in gender employment gap		
		Feb	Apr	Jun	Feb–Apr DD	Apr–Jun DD	Feb–Jun DD
All adults	Men	84.2%	70.7%	76.7%	-1.1	-2.1*	-3.2*
	Women	72.7%	58.1%	62.0%			
Youngest child 0–5	Men	90.5%	77.8%	82.9%	-0.0	-1.2	-1.3
	Women	62.8%	50.0%	53.9%			
Youngest child 6–12	Men	88.8%	77.0%	83.9%	-4.2*	-3.9*	-8.1*
	Women	73.8%	57.8%	60.8%			
Youngest child 13–17	Men	88.9%	77.9%	85.2%	-3.5	-5.0*	-8.5*
	Women	75.7%	61.2%	63.5%			

Note: All estimates are weighted and restricted to noninstitutionalized civilians ages 25–54. Parent is defined as living with at least one of their own children in the specified age range. Employment rates reflect the “at work” employment rate (see Appendix A: Data and methods for more details).

“DD” indicates difference-in-difference, or the difference in the gender employment gaps over the two months indicated. The tests of significance are calculated using the DD estimation technique (* $p < 0.05$; see Appendix A for more details).

Source: Authors’ analysis of U.S. Current Population Survey (IPUMS-CPS, University of Minnesota, www.ipums.org).

Table B2 | Employment rates and changes in gender employment gaps for all adults (by race/ethnicity), February–June 2020

Numbers correspond to Figure 3

Group	Sex	Employment rate			Change in gender employment gap		
		Feb	Apr	Jun	Feb–Apr DD	Apr–Jun DD	Feb–June DD
All adults	Men	84.2%	70.7%	76.7%	-1.1	-2.1*	-3.2*
	Women	72.7%	58.1%	62.0%			
Non-Hispanic white	Men	85.7%	74.6%	79.9%	-2.0*	-2.4*	-4.4*
	Women	75.5%	62.4%	65.3%			
Non-Hispanic Black	Men	74.1%	59.3%	65.2%	-0.4	-3.1	-3.5
	Women	73.5%	58.2%	61.1%			
Hispanic	Men	85.9%	67.7%	76.1%	-0.6	-1.9	-2.6
	Women	66.7%	47.8%	54.3%			
Non-Hispanic Asian American	Men	86.1%	70.3%	76.9%	3.1	-1.5	1.6
	Women	65.5%	52.8%	57.8%			

Note: All estimates are weighted and restricted to noninstitutionalized civilians ages 25–54. Employment rates reflect the “at work” employment rate (see Appendix A: Data and methods for more details).

“DD” indicates difference-in-difference, or the difference between the gender employment gaps over the two months indicated. The tests of significance are calculated using the DD estimation technique (* $p < 0.05$; see Appendix A for more details).

Source: Authors’ analysis of U.S. Current Population Survey (IPUMS-CPS, University of Minnesota, www.ipums.org).

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