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COVID-19 and the Labor Market Outcomes for Prime-Aged Women

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This paper documents labor market outcomes for prime-aged women relative to those for prime-aged men since the COVID-19 pandemic officially started. The pandemic-induced recession has played out very differently compared with previous recessions, with women initially losing jobs at higher rates than men. While the pandemic has been hard for everybody, it has resulted in a widening of the gender gaps in employment and labor force participation of roughly 2 percentage points. The gaps grew initially due to occupation distribution differences across genders as well as school closings. Women without children started to close the incremental gender gaps after the summer months, but the larger gender gap persists for mothers. The safe reopening of in-person K–12 education is critical for this group of women to regain employment as the economy recovers.

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1 Introduction

In this paper, we document COVID-19's impact in the labor market of prime-aged (25 to 54) workers by gender from March 2020 through February 2021. In past US recessions, employment fell more for men than for women because women typically held jobs in less cyclical industries and occupations (Albanesi 2019). Gender disparities in labor market experiences associated with childbearing existed before the pandemic; however, investment in education by women and family planning (delayed childbearing, smaller families), both of which facilitated advancement in careers, produced progress toward convergence (Goldin and Mitchell 2017). In addition, married women were more likely to remain in the labor force during recessions for household insurance purposes (Ellieroth 2019). The pandemic-induced recession has played out very differently so far (the popular press has coined the term "shecession"), and the fear is that the consequences for women will be long lasting.

The evidence from the early part of the pandemic points toward mothers with school-aged children experiencing a larger reduction in weekly work hours relative to comparable fathers. Collins et al. (2021) find that between March and April 2020, mothers' work hours fell about five times more than fathers' hours. Additionally, among parents who had children 1 to 5 years old and were able to work from home, the reduction in hours worked between February and April 2020 was almost 4.5 times larger for mothers. Even with both parents working from home, the burden of childcare and housework fell much more heavily on mothers. Couch et al. (2020) document that mothers of school-aged children experienced a greater reduction in weekly work hours compared with men, with 50 to 97 percent of this difference explained by increased childcare responsibilities.

Several additional papers also study the impact of school and childcare facility closures during the first few months of the pandemic on working mothers. Amuedo-Dorantes et al. (2020) argue that while business closures affected employment at the extensive margin (job losses and labor force participation levels), school closures affected employment at the intensive margin through reduced weekly work hours of employed parents. These closures had a greater impact on mothers who were unable to work from home, those not considered essential workers, and those who did not have another adult in the household. No differential effects were found for fathers, which again suggests that the burden of increased childcare fell more heavily on mothers. Heggeness (2020) finds that mothers living in "early school closure" states were 68.8 percent more likely to have a job but be absent from it compared with mothers in "late school closure" states. The author finds no effects for working fathers

or working women without school-aged children. Russell and Sun (2020) focus on the impact of childcare center closures and mandated reduced class sizes on the unemployment rate of new mothers. They find that these state-level policies increased the unemployment rate of mothers of young children in the short term, and that the effect persisted months after these policies were rescinded.

In a more recent paper, Albanesi and Kim (2021) document that women experienced a large reduction in labor supply, separate from losses in employment due to the decline in labor demand in the service occupations most affected by the pandemic. The decline in labor supply in the fall of 2020 was concentrated among married women, which was likely driven by increased childcare needs due to many children not going back to school in person.

This paper combines an empirical specification similar to that of Couch et al. (2020) with the occupation classification in Albanesi and Kim (2021) to obtain a more recent picture of the job market for prime-aged individuals during the pandemic. The main highlights of this paper are as follows.

- Pre-pandemic, the prime-aged gender gap in employment was 11 percentage points, and in labor force participation it was 12 percentage points. The gender gaps were larger between fathers and mothers: 19 and 19.5 percentage points for employment and labor force participation, respectively.

- The pandemic has been hard for everybody—employment and labor force participation remain well below February 2020 levels for both men and women.

- Unlike previous recessions, the pandemic has resulted in a widening of the gender gaps in employment and labor force participation. Each has grown roughly 2 percentage points.

- The gender gaps widened initially due to both occupation distribution differences across genders and school closings.

- While the widened gender gap for women without children started to close after the summer months, the larger gap for mothers persists. The safe reopening of in-person K–12 education is critical for this group of women to regain employment as the economy recovers.

2 Data and Methodology

Data

The main data for the analysis in this paper come from the basic monthly files of the Current Population Survey (CPS), the primary monthly household survey used to derive national labor statistics. It is conducted by the US Census Bureau for the Bureau of Labor Statistics. Each month, the survey samples about 60,000 households that, when weighted appropriately, represent the civilian non-institutional population aged 16 and older.[1] We focus on prime-aged respondents (25 to 54) and make use of family structure information within the CPS to link adults to children. (The family structure information in the CPS allows researchers to know the ages of children who are present in the household at the time of the interview.) For our analysis, we use data from January 2017 through February 2021, the last release before this paper was written.

Tables 1 through 3 highlight the systematic gender gaps in labor market indicators that existed before the pandemic. In February 2020, the employment-to-population ratio in the 25–54 age group was about 86 percent for men and 75 percent for women, a gap of 11 percentage points. The gap between men and women was larger if children were present in the household, about 19 percentage points.[2] Gaps in hours worked and labor force participation rates also existed, and similarly the gaps were larger between men and women with children. These tables also illustrate how these initial gender gaps widened during the early part of the pandemic both for parents and for individuals without children. However, the experiences of women with children and those without children diverged as the months passed. Both men and women without children in their households are more likely to be out of the labor force or jobless now than they were before the pandemic, and the gender gap in hours, conditional on employment, is lower in February 2021 than in February 2020 for individuals without children in their households. According to these metrics, fathers are the group of workers hurt least by the pandemic, while mothers are the most affected group. Figure 1, which depicts year-over-year changes in employment and labor force participation during the pandemic, illustrates these points.

Later in the paper, we study whether gender differences in occupations partly explain women's outcomes. For that purpose, we classify workers into four occupation categories

[1] The data are collected in a reference week containing the 12th day of the month.

[2] As of February 2020, 48 percent of employed individuals in the prime-aged group were women, and 48 percent of those women had children. Black/Hispanic women represented 25 percent of female employment, and 50 percent of those minority women had children.

following Albanesi and Kim (2021). Those authors use data from a survey conducted by the Occupational Information Network (O*NET) to elicit information on whether work can be performed remotely. The survey also has a question about proximity to others, customers or coworkers, while at work. The four occupation groups they consider are (1) flexible/high-contact, (2) flexible/low-contact, (3) inflexible/high-contact, and (4) inflexible/low-contact.[3] Figure 2 lists the different occupations in each group. For example, occupations in the education field are classified as flexible/high-contact, while occupations in farming, fishing, and forestry belong to the inflexible/low-contact category.

Table 4 shows that while most men and women worked in flexible/low-contact occupations in February 2020, women were disproportionately represented in high-contact occupations (both flexible and inflexible). Men were represented more heavily in the inflexible/low-contact category. The occupation distribution was not vastly different between women with children and women without children, but there was a small tilt toward high-contact occupations for mothers. Minority women were disproportionately represented in the inflexible/low-contact category. For completeness, we also consider the gender distribution across industries more and less affected by the pandemic as defined in previous briefs.[4] The gender distributional differences along this dimension are less dramatic than those across the occupations considered by Albanesi and Kim (2021).

Methodology

To illustrate the differences between the experiences of comparable women and men during the pandemic, we estimate difference-in-difference models similar to Couch et al. (2020). The first estimated equation is:

$$\begin{aligned} Y_{it} &= \alpha + \gamma \text{Female}_i + \pi_p \text{Pre-COVID} + \delta_p \text{Female}_i \times \text{Pre-COVID} \\ &+ \sum_{m=1}^{11} \pi_m \text{COVID}_m + \sum_{m}^{12} \delta_m \text{Female}_i \times \text{COVID}_m \\ &+ \beta X_{it} + \rho_s + \gamma_t + \theta_t + \epsilon_{it}, \end{aligned} \tag{1}$$

where Y_{it} is one of the outcomes considered for individual i in month t (employed, not in

[3]Relating to flexibility, the survey consists of 15 questions, which respondents answer on an ordinal scale. Albanesi and Kim (2021) use an above/below median cut-off after averaging all questions.

[4]Most affected industries include arts, entertainment, and recreation; accommodation and food services; some retail trade; and some transportation sectors.

the labor force, log hours worked conditional on employment, and being at work conditional on employment). Female_i is a dummy variable equal to 1 if the respondent is a woman. Pre-COVID is a dummy variable equal to 1 for months from January 2017 through January 2020, and 0 otherwise. COVID_m is a dummy variable for month m from March 2020 through February 2021. X_{it} denotes variables measuring personal characteristics including age, marital status, education, and race. ρ_s, γ_t, and θ_t are state, month, and year fixed effects, respectively.[5] Given this specification, the π_m and δ_m coefficients should be interpreted as deviations for the outcome of interest from February 2020. All specifications are estimated using CPS sample weights and robust standard errors. The results are similar when we include additional controls (even person fixed effects) as well as when we allow for different treatment of the standard errors (for example, clustering errors by state, time period, or an interaction of the two).

Equation (1) is estimated separately for all prime-aged men and women, for men and women without children, and for men and women with children. The separate samples allow for comparisons of different groups of men and women after controlling for individual characteristics. To directly compare the experiences of women who have children in their households with those of women who don't, we also consider the triple-difference model:

$$\begin{aligned} Y_{it} &= \alpha + \gamma \text{Female}_i + \varphi \text{Child}_{it} + \pi \text{Female}_i \times \text{Child}_{it} \\ &+ \delta_1 \text{pre-COVID} + \delta_2 \text{pre-COVID} \times \text{Child}_{it} \\ &+ +\delta_3 \text{Female}_i \times \text{pre-COVID} + \delta_4 \text{Female}_i \times \text{pre-COVID} \times \text{Child}_{it} \\ &+ \sum_{m=1}^{12} \delta_{1m} \text{COVID}_m + \sum_{m=1}^{12} \delta_{2m} \text{COVID}_m \times \text{Child}_{it} \\ &+ \sum_{m=1}^{12} \delta_{3m} \text{Female}_i \times \text{COVID}_m + \sum_{m=1}^{12} \delta_{4m} \text{Female}_i \times \text{COVID}_m \times \text{Child}_{it} \\ &+ \beta X_{it} + \rho_s + \gamma_t + \theta_t + \epsilon_{it}, \end{aligned} \tag{2}$$

where all variables are defined as before, and the additional control, Child_{it}, is a dummy variable indicating whether the respondent is the father or the mother of a child younger than 18 who resides in the same household.

[5] Since we have only two observation from 2021, the year FE for those months is set to 2020.

3 Labor Market Outcomes during the Pandemic

Comparing Women with Men

We present results from our regressions graphically. We first plot the estimates and standard errors of the COVID-month effects in equation (1)—π_m for men and $\pi_m + \delta_m$ for women. Each panel represents a different regression based on the sample identified in the panel title. To more easily see the differential effects between men and women in the various samples, we also plot the added effect for women, δ_m, and combine the estimates from the different sample splits in the same graph.

Figures 3 and 4 focus on employment. Figure 3 illustrates that the pandemic has been hard for everybody, and employment remains well below February 2020 levels for both men and women. In addition, the pandemic has resulted in a widening of the gender gap in employment, particularly for women with school-aged children. The estimates in Figure 4 more clearly show that while all women experienced a widening of the employment gap early in the pandemic, women without children have fared relatively better over time. For example, the gap between men and women with children had widened by 2.7 percentage points by July, compared with 1.3 percentage points between men and women without children. By February 2021, the gender gap increase for women without children had disappeared, while the gender gap remained 2.2 percentage points higher than in February 2020 for women with children. The right panel of Figure 4 also illustrates that mothers of very young children fared relatively better earlier on in the pandemic, but their employment gap relative to men has converged to levels similar to those of mothers of school-aged children.[6]

Figures 5 and 6 present results for labor force participation. The pandemic has pushed both men and women out of the labor force. However, there is a clear widening of the gender gap for women with children, particularly for those with school-aged offspring. Figure 6 shows there is no evidence that women without children are leaving the labor force at higher rates than men without children (although there are more childless individuals out of the labor force now than there were before the pandemic). The evidence of a widening gender gap is clear for women with school-aged children throughout the pandemic, and for mothers of

[6]Regressions for parents with younger children are restricted to parents with *only* children younger than 6. Similarly, regressions for parents of school-aged children are restricted to parents with *only* kids 6 and older. Similar to Couch et al. (2020), we do not find evidence of the effects becoming weaker when children are older, nor do we find additional effects for multiple children. The first finding might have to do with the fact that the younger the children, the more likely they are to have at least some in-person schooling. With regard to the number of children, the fixed cost of any child at home on labor supply might be larger than the incremental costs of additional children at home.

younger children more recently. For all mothers, the gender gap in labor force participation was approximately 2.1 percentage points greater in February 2021 relative to February 2020. The more recent trend, where the widening gender gap for mothers of younger children has converged toward levels for mothers of school-aged children, is striking.

Figures 7 and 8 focus on hours worked. The logarithmic specification allows parameter estimates to be interpreted as percentage changes relative to February 2020. Early in the pandemic, hours worked significantly declined for all employed individuals. During the summer, men's hours recovered to pre-pandemic levels, but the recovery was short lived. Between September and December, hours for this group fell about 10 percent relative to February 2020. They recovered partially in January only to decrease again in February 2021. For women, there has been steady progress since the low levels of April 2020 (a 32 percent decline in hours relative to February 2020). The gap in hours between men and women widened significantly during the summer months, particularly for women with children. After the summer, the gender gap in hours narrowed to pre-pandemic levels for all women, with both employed men and employed women working fewer hours than they did before the pandemic. By February 2021, the gender gap in hours for parents had narrowed relative to February 2020.

Finally, Figures 7 and 8 depict changes in being at work (versus being absent from work), also conditional on employment. The overall pattern of results is similar to that of hours worked. Men were more likely to be at work during the summer months, which resulted in a widening of the gender gap. The gender gap returned to pre-pandemic levels after the summer, and both men and women with children were slightly less likely to be at work in February 2021 relative to February 2020 (1.2 percent less likely).

Comparing Women with Children and Women without Children

The triple-difference specification in equation (2) allows us to study how the presence of children in the household affects the gender gap by directly comparing women with and women without children. For the outcomes related to the extensive margin (employment and labor force participation), the difference between women with children and women without children has hovered around 2 percentage points throughout the pandemic period. Focusing on the intensive margin (hours worked and being at work), the differences between women with children and women without children were large during the summer months. However, the differences disappeared after the summer. In other words, later in the pandemic, the presence of children in the household has not played a role in the gender gap at the intensive

margin. This is not surprising, as our previous regressions show that the gender gap in the intensive margin had returned to pre-pandemic levels (but at lower levels for both men and women). Perhaps in cases where both spouses remained employed, some bargaining within the household occurred, although this explanation would need to be explored further. Nevertheless, the findings about the extensive margin point to the pandemic's disproportionate impact on women with children even in the later months.

4 Disentangling the Roles of Occupations and School Closings

As of February 2020, men and women were not distributed equally across occupations. Women were more likely to be employed in high-contact occupations and were probably more likely to work for businesses that were deemed "nonessential" and subject to mandated closures. As Figure 12 shows, employment plummeted in inflexible/high-contact occupations, which employed 25 percent of women compared with 8 percent of men. Inflexible/low-contact occupations were also greatly affected, but these occupations employed relatively more men. Flexible/high-contact occupations, which came third in terms of initial employment losses, also employed relatively more women. This third category, however, has recovered better than other categories since the end of the summer.

Some interesting patterns emerge when we decompose employment losses by gender and the presence of children in the household. Men, especially those without children, were particularly hit in the inflexible/high-contact occupations, while the biggest shock for women with children was observed in the inflexible/low-contact category. (This is the category that disproportionately employs minority women.) Even in the flexible/low-contact category, the one that fared better overall, women took a larger hit initially. Within the flexible/high-contact category, some substitution between men and women may be playing out. When we consider industries instead of occupations, the initial larger hit to women is more apparent, although the shock seems to be larger for individuals without children in the most affected industries.

Figure 15 highlights the state of school operations across the nation. The data used to produce these maps come from the Oxford COVID-19 Government Response Tracker, a partnership that employs numerous research assistants to read through school-district websites as well as state legislation. The tracker includes an index of school operations that is comparable across states. The index ranges from 0 to 3, with 0 indicating "schools operating normally," 1 indicating "recommended closing or all schools open with alterations resulting

in significant differences compared to non-Covid-19 operations," 2 meaning "required closing (only some levels or categories, e.g. just high school, or just public schools)," and 3 "required closing all levels." As of February 2021, there were no states with schools operating normally, but some variation across states was apparent. The unprecedented closure of all schools and childcare facilities throughout the country by May 2020 has been followed by unequal partial reopening schemes.

In Tables 5 and 6, we present results of regressions analogous to equation (1) that allow for a horse race between occupation and school closing controls. In order to simplify the exposition, we divide the pandemic period into an early part,"March20–Aug20," and a later period, "Sep20–Feb21." Both tables have three panels: (1) all respondents, (2) respondents without kids, and (3) respondents with kids. We also include an additional control, COVID-19–related deaths per capita in a given state during the seven days preceding the week of the interview. This control is meant to capture the state of the pandemic locally at a given point in time, and it is standardized. (Including cases averaged over a longer period delivers similar results.) The first column of each panel presents results before the additional controls (other than COVID-19–related death counts), the second column is for regressions that control for occupations (the four categories and their interactions with the COVID-19 period dummies), and the third column adds the Oxford tracker school closing index interacted with gender.

COVID-19–related deaths correlate negatively with employment (and positively with not being in the labor force). A one standard deviation higher death count shaves off 4/10 of a percentage point from employment and 1/10 of a percentage point from labor force participation (column 1 in Tables 5 and 6). When it comes to employment, there is a significant widening of the gender gap during the early part of the pandemic. The widening is larger for respondents with kids. For individuals without children, the gap closes in the later part of the pandemic. For mothers, the gap decreases by about 20 percent in the later part of the pandemic, but it remains statistically significant and 2 percentage points higher than it was before the pandemic. Occupation differences help account for the widening of the gender gap in employment of childless individuals in the early part of the pandemic, but school closings are more important for explaining the later gap. Note that school closings seem to affect the employment of childless individuals, likely because this index correlates with other state-level restrictions that might affect employment more generally. However, this control does not have a differential effect for men and women without children, unlike the case of individuals with children. (In this case, the effect is significantly larger for women.) Regarding labor force participation, the widening of the gender gap is driven by women with

children, and school closings likely account for this result. For brevity, we do not tabulate results for hours worked or being at work outcomes, but gender gaps for these two outcomes are present only during the first part of the pandemic. Also, occupation controls account for the majority of the early differences.

To more directly compare women with and women without children in their households, we present results from regressions analogous to equation (2) in Table 7. The gap between these two groups of women widens in the later part of the pandemic, and again, school closings seem to be the main driver. In this case, including occupation controls accounts for only a small portion of the difference. This is not surprising given that the occupation distribution of women with children is not vastly different from the distribution of women without children.

We also tried specifications that look for differential effects for minority women. The results are not tabulated for brevity, but there was an initial larger effect for minority women that can be accounted for by the differential occupation distribution between minority and non-minority women. We do not find an incremental effect for minority women with children beyond the general effect for all women with children. This finding might seem at odds with the fact that employment losses have been proportionally larger for minority women with children (see Figure 16 for an illustration), but our setup controls for worker characteristics including education and marital status. Minority women, on average, differ from non-Hispanic white women along these characteristics as well as in terms of occupations. There is no doubt minority women, especially those with children, are lagging behind at this point.

5 Takeaways

Unlike previous recessions, women have lost jobs and left the labor force at higher rates than men during the pandemic. Distributional differences by gender across occupations explain a large part of the initial differential response. After the summer, we observe an improvement in labor market outcomes for women without children. In contrast, for mothers, the gender gap in labor market outcomes that measure the extensive margin (employment and labor force participation) is still larger than the pre-pandemic gap. School closures have been particularly harmful for working mothers, who accounted for almost a quarter of prime-aged workers before the pandemic hit. Mothers may be picking up the slack because the initial shock affected them more due to their occupations, due to gender norms, because they are

more likely than men to be single parents, or because of gender wage gaps—if only one spouse can work due to childcare responsibilities, it makes sense for the spouse who can make the most money to participate in the labor market. The longer (any) worker stays on the sidelines, the harder it might be to come back. Also, reduced wages at re-entry are likely, particularly for workers changing industry and/or occupation—see J.Ruhm (1991), Tope (1990), Autor and Duggan (2003), Davis and von Wachter (2011), and Yang (2019) for some examples of a large literature that documents the long-term employment and earnings effects of transitory adverse aggregate shocks.

If women re-enter the labor force soon after schools reopen, the recovery in employment could be faster than in previous recessions. However, this might not happen for various reasons: (1) as documented by Albanesi and Kim (2021), some jobs traditionally done by women are highly susceptible to automation, and the pandemic might have accelerated job automation such that these jobs do not come back; (2) workplaces might never be the same, and related jobs might never come back; and (3) children and their mothers might be scarred from the pandemic, and so these mothers may need time to adjust before returning from the sidelines, even if their children go back to school full-time. On the positive side, the work-from-home forced experiment might have shifted views in favor of more flexible work arrangements, which could be beneficial for many workers in the long term. Alon et al. (2020) also argue that social norms might change in ways favorable to women. Employers are becoming more aware of the childcare needs of their employees. Also, many fathers have been forced to become the primary providers of childcare. In any case, reopening schools in a safe manner sooner rather than later will be beneficial for parents and children alike.

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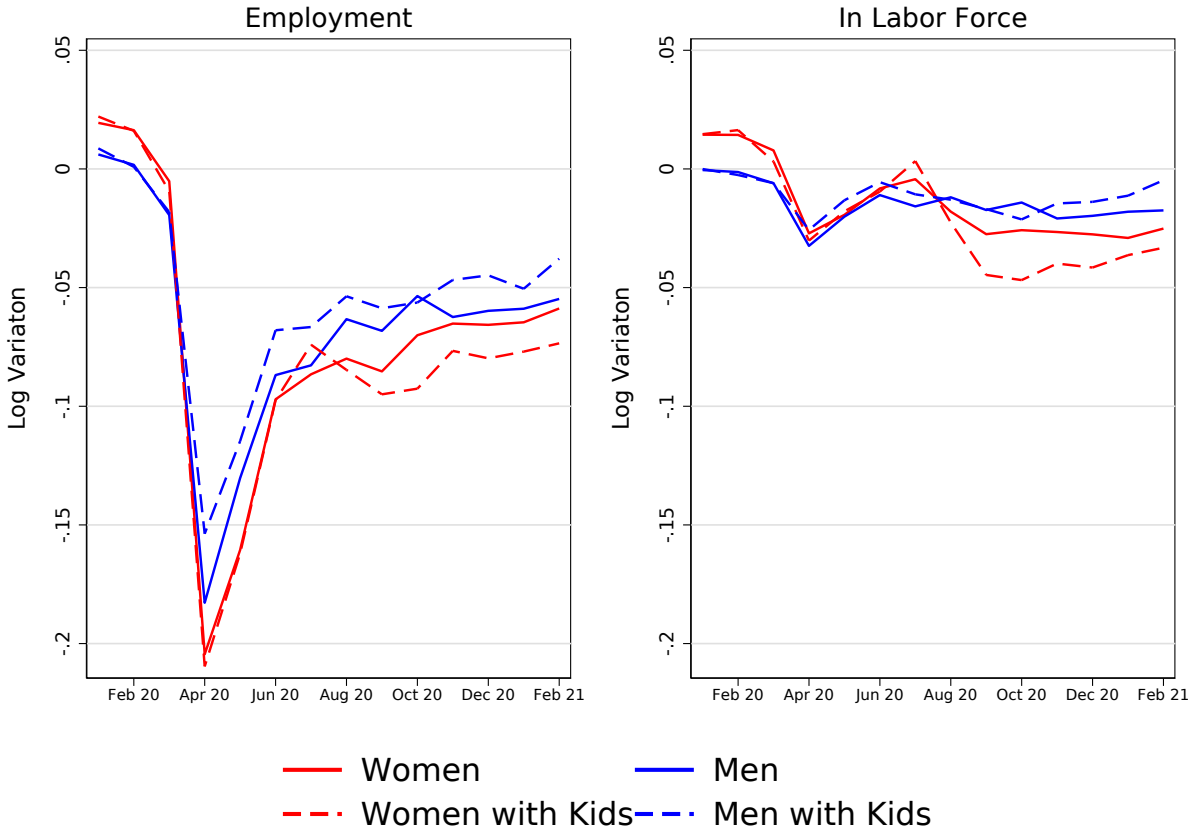
Figure 1. Employment and Labor Force Participation Changes by Gender during the Pandemic



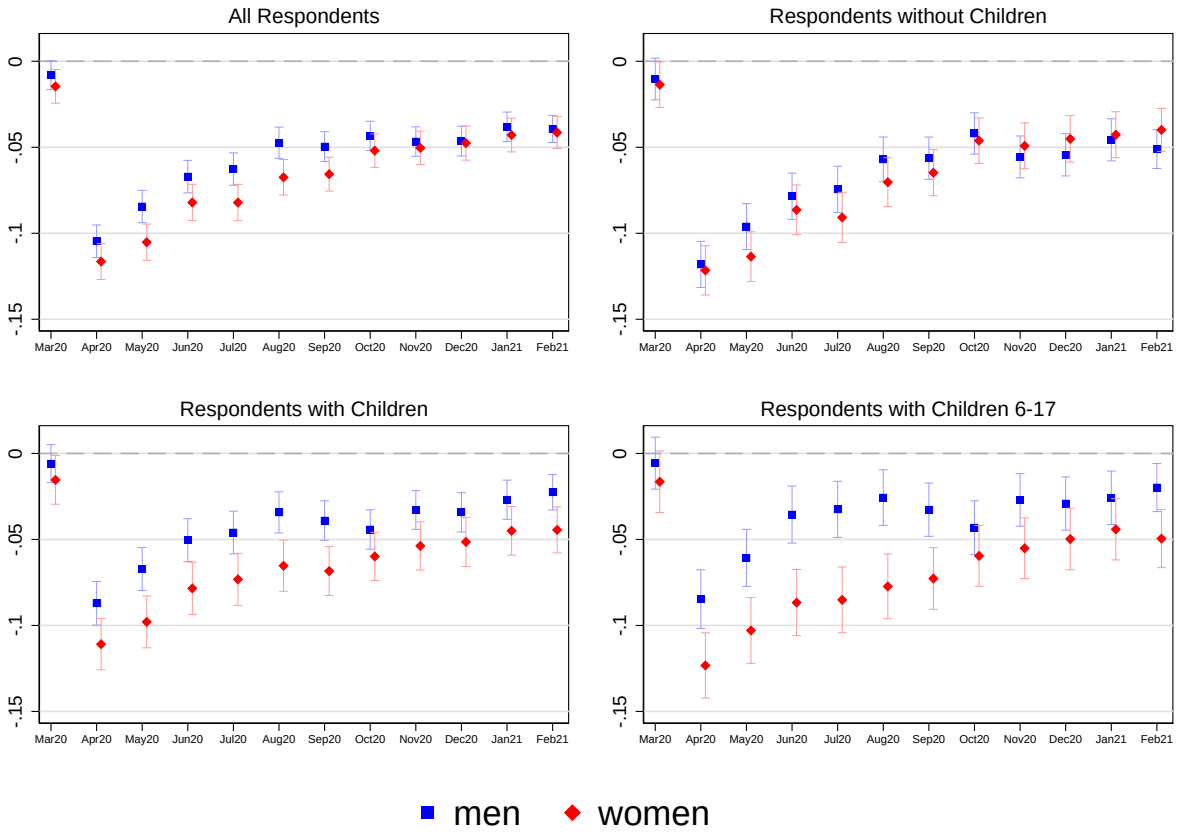
Notes: Log variation from same month in the previous year. Data from the monthly files of the Current Population Survey.

Figure 2. Occupation Classification in Albanesi and Kim (2021)

	Flexible	Inflexible
High-contact	Education, Training, and Library	Healthcare Practitioners and Technical
		Healthcare Support
		Food Preparation and Serving
		Personal Care and Service
Low-contact	Management	Protective Service
	Business	Building and Grounds Cleaning and Maintenance
	Computer and Mathematical	Farming, Fishing, and Forestry
	Architecture and Engineering	Construction Trades, Extraction
	Life, Physical, and Social Science	Installation, Maintenance, and Repair
	Community and Social Services	Production
	Legal	Transportation and Material Moving
	Arts, Design, Entertainment, Sports, and Media	
	Sales and Related	
	Office and Administrative	

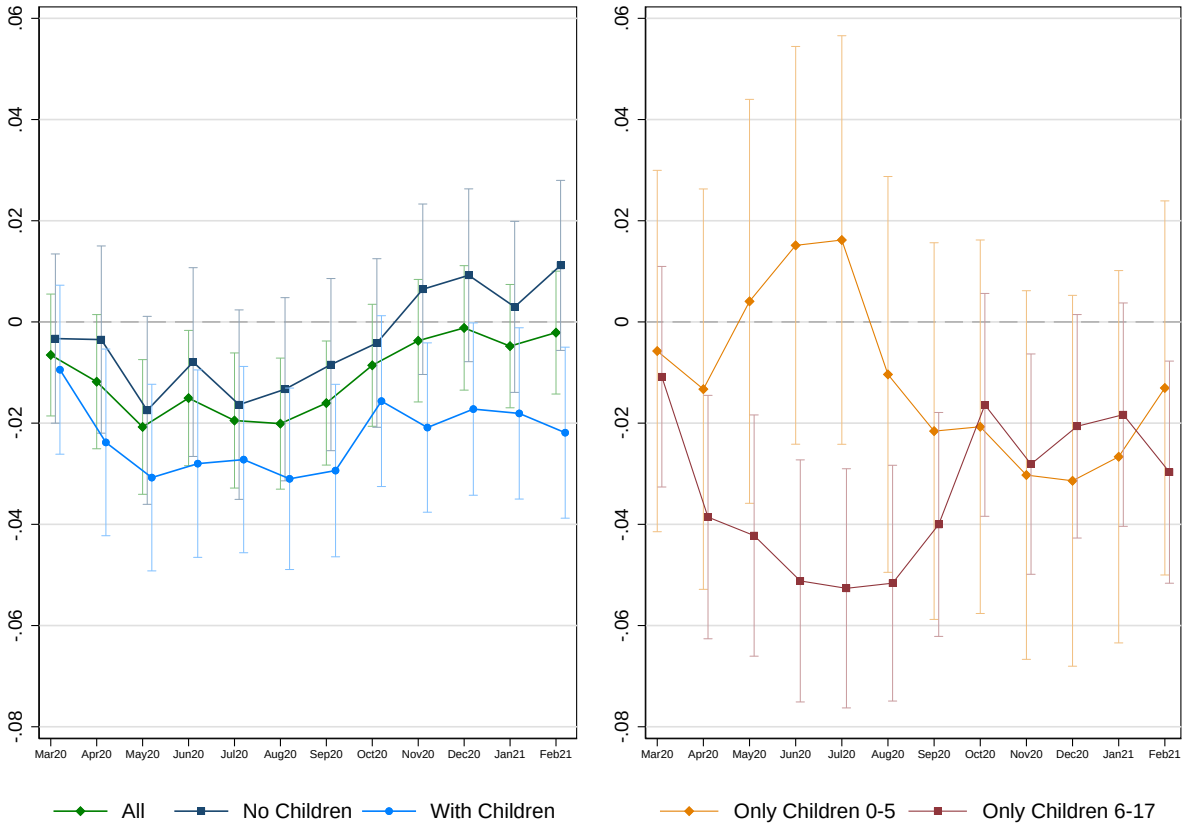
Notes: Classification based on O*NET. Occupations are flexible if their flexibility score is above the median, and inflexible otherwise. Occupations are high-contact if the contact intensity score corresponds to a distance of less than 6 feet.

Figure 3. Employment Relative to February 2020



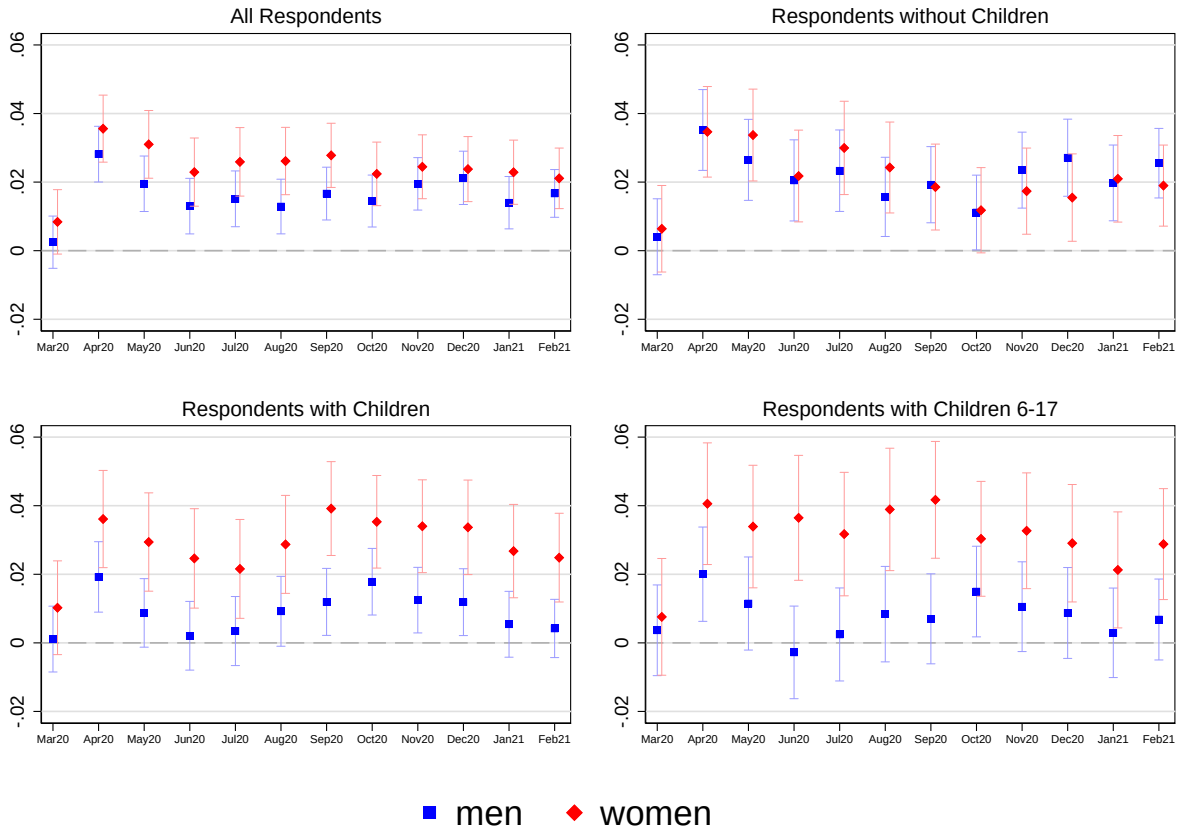
Notes: The figure plots the estimates and standard errors of the COVID-month effects in equation (1)—π_m for men and $\pi_m + \delta_m$ for women. Each panel represents a different regression based on the sample identified in the panel title.

Figure 4. Employment Relative to February 2020. Difference between Men and Women



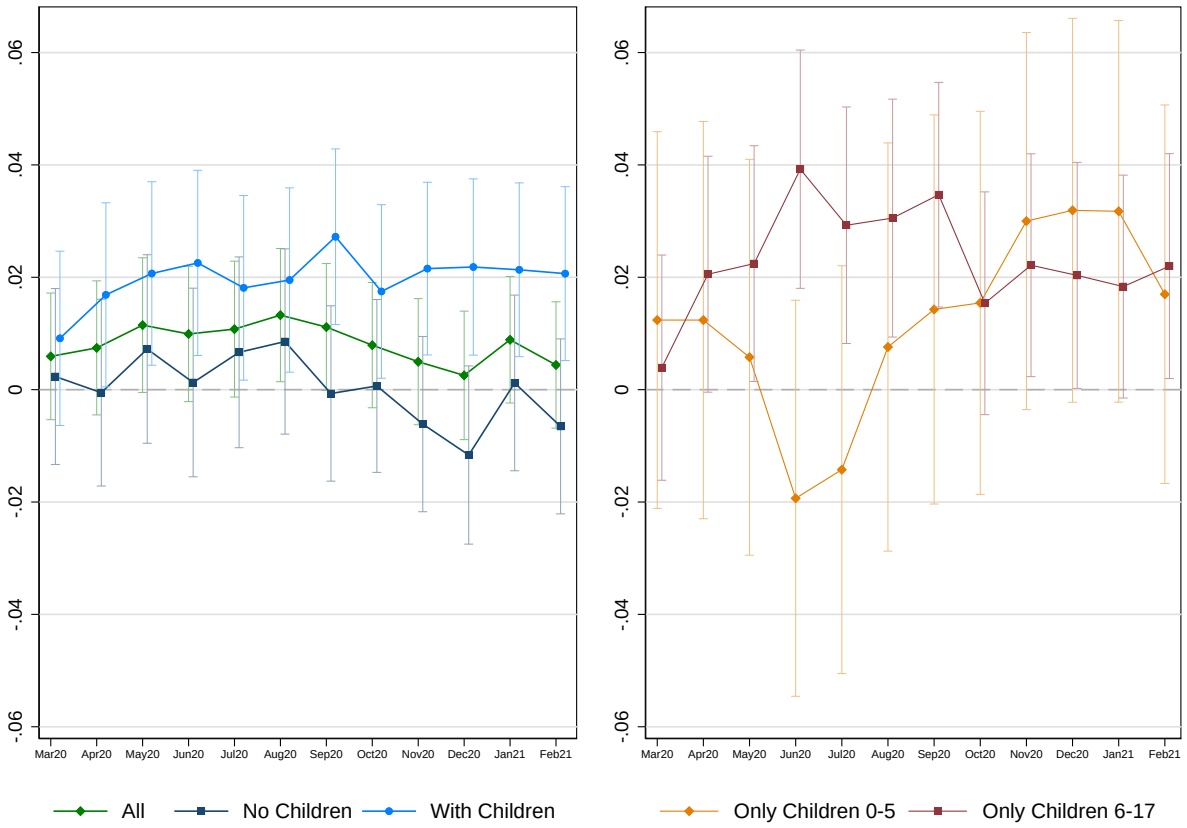
Notes: The figure plots the estimates and standard errors of the differential COVID-month effects between men and women in equation (1), δ_m. Each line represents a different regression based on the sample identified in the panel legend.

Figure 5. Not in the Labor Force Relative to February 2020



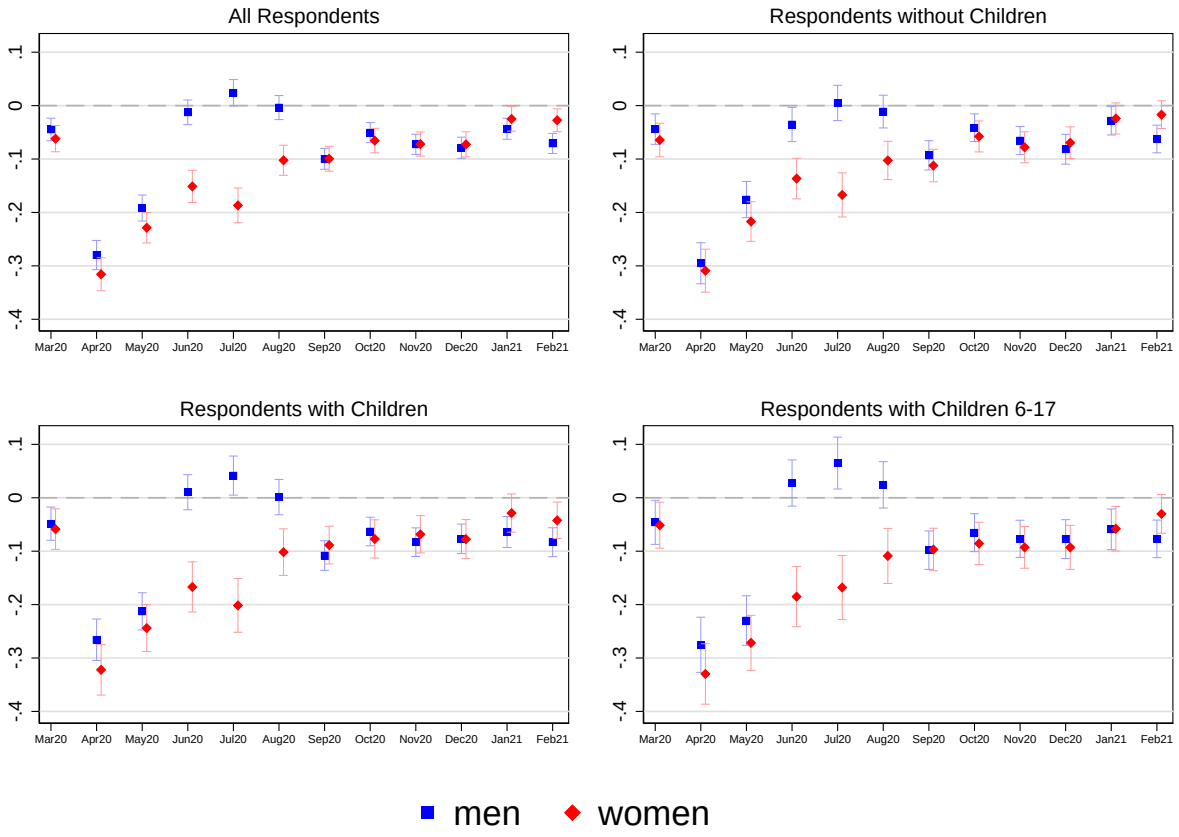
Notes: The figure plots the estimates and standard errors of the COVID-month effects in equation (1)—π_m for men and $\pi_m + \delta_m$ for women. Each panel represents a different regression based on the sample identified in the panel title.

Figure 6. Not in the Labor Force relative to February 2020. Differences between Men and Women



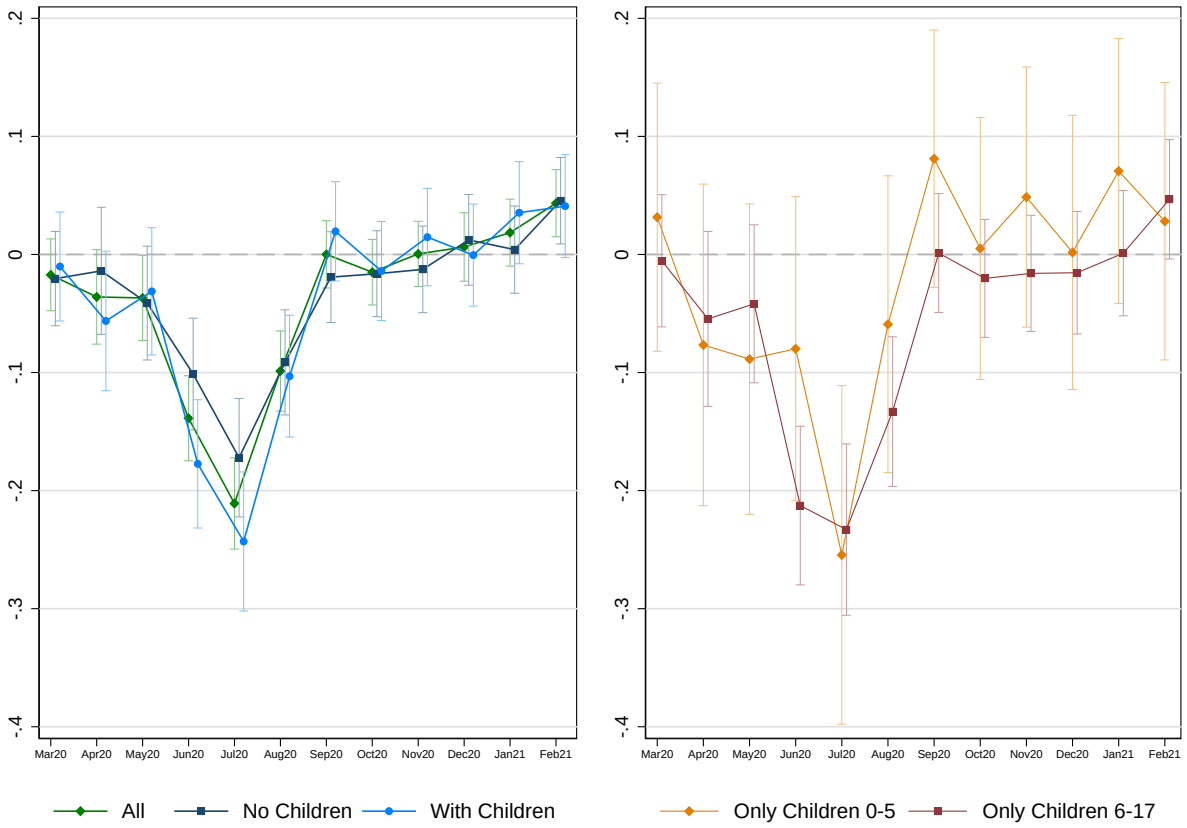
Notes: The figure plots the estimates and standard errors of the differential COVID-month effects between men and women in equation (1), δ_m. Each line represents a different regression based on the sample identified in the panel legend.

Figure 7. Log Hours Worked Relative to February 2020 (Conditional on Employment)



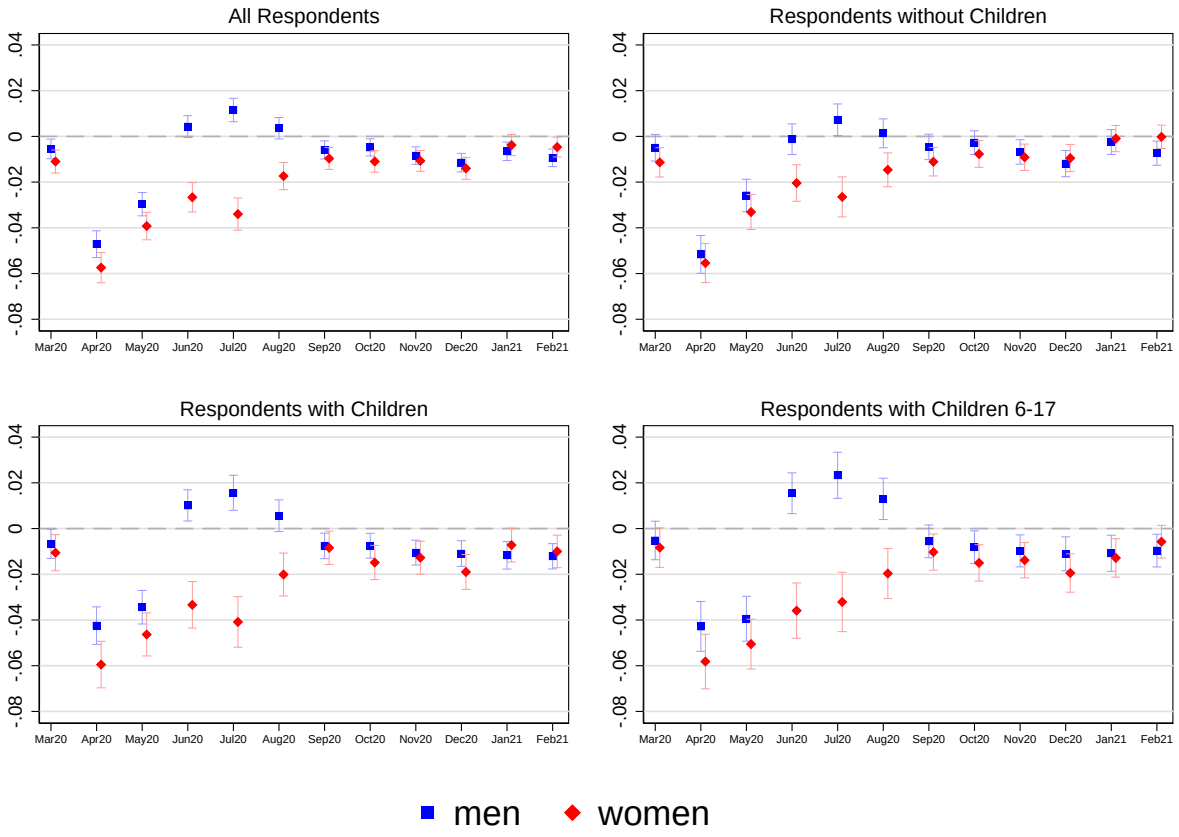
Notes: The figure plots the estimates and standard errors of the COVID-month effects in equation (1)—π_m for men and $\pi_m + \delta_m$ for women. Each panel represents a different regression based on the sample identified in the panel title.

Figure 8. Log Hours Worked Relative to February 2020. Differences between Men and Women



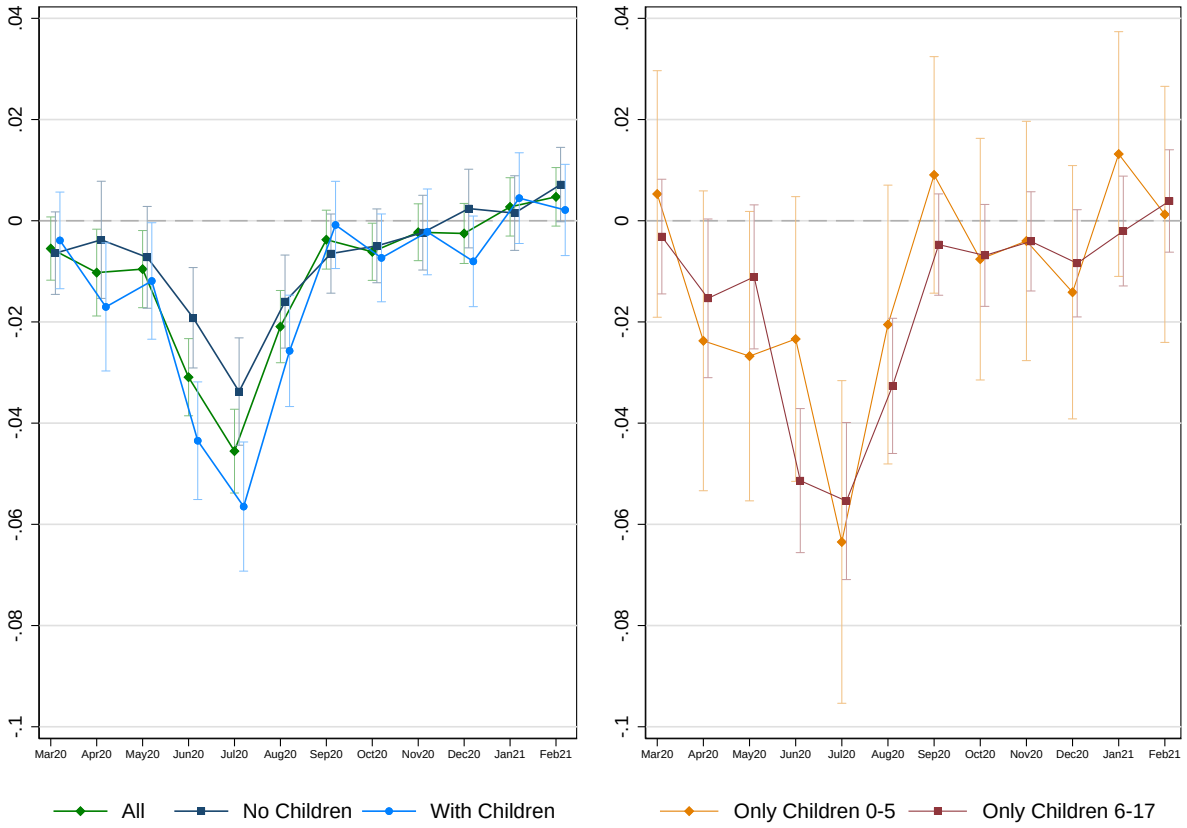
Notes: The figure plots the estimates and standard errors of the differential COVID-month effects between men and women in equation (1), δ_m. Each line represents a different regression based on the sample identified in the panel legend.

Figure 9. At Work Relative to February 2020 (Conditional on Employment)



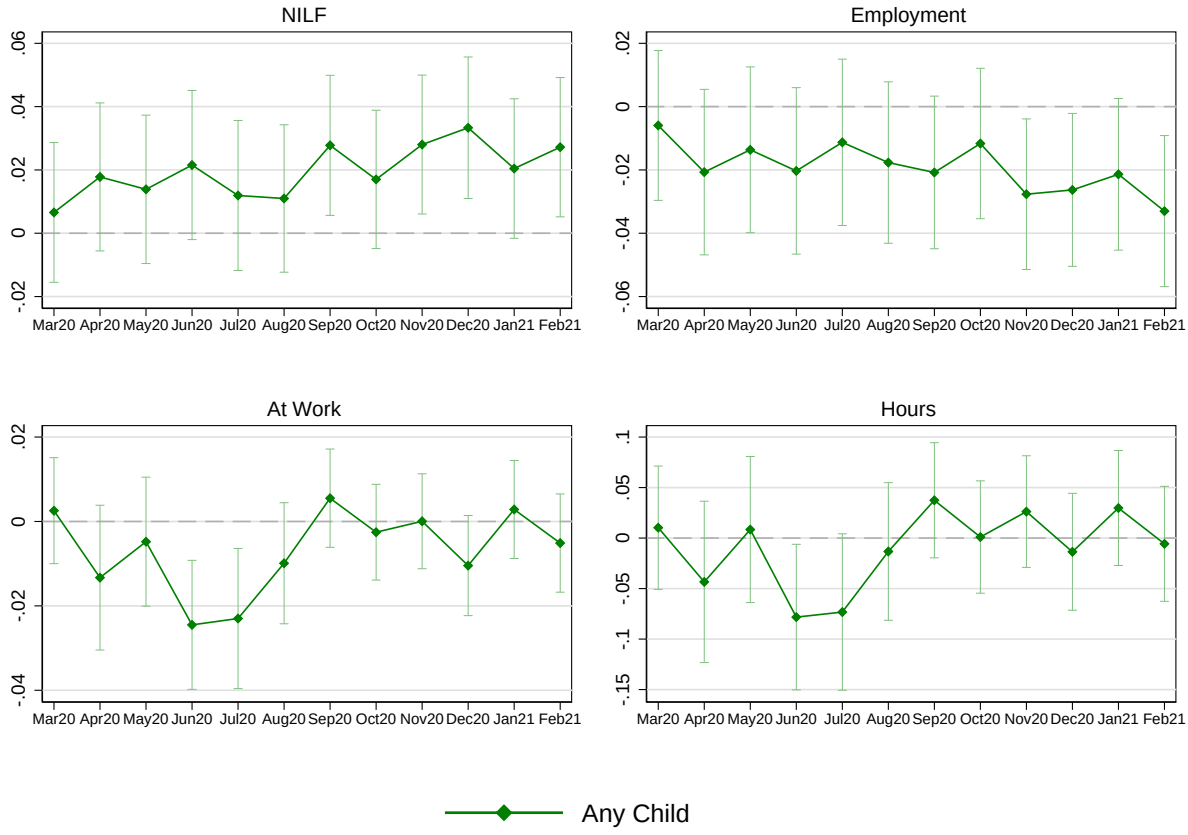
Notes: The figure plots the estimates and standard errors of the COVID-month effects in equation (1)—π_m for men and $\pi_m + \delta_m$ for women. Each panel represents a different regression based on the sample identified in the panel title.

Figure 10. At Work Relative to February 2020. Differences between Men and Women



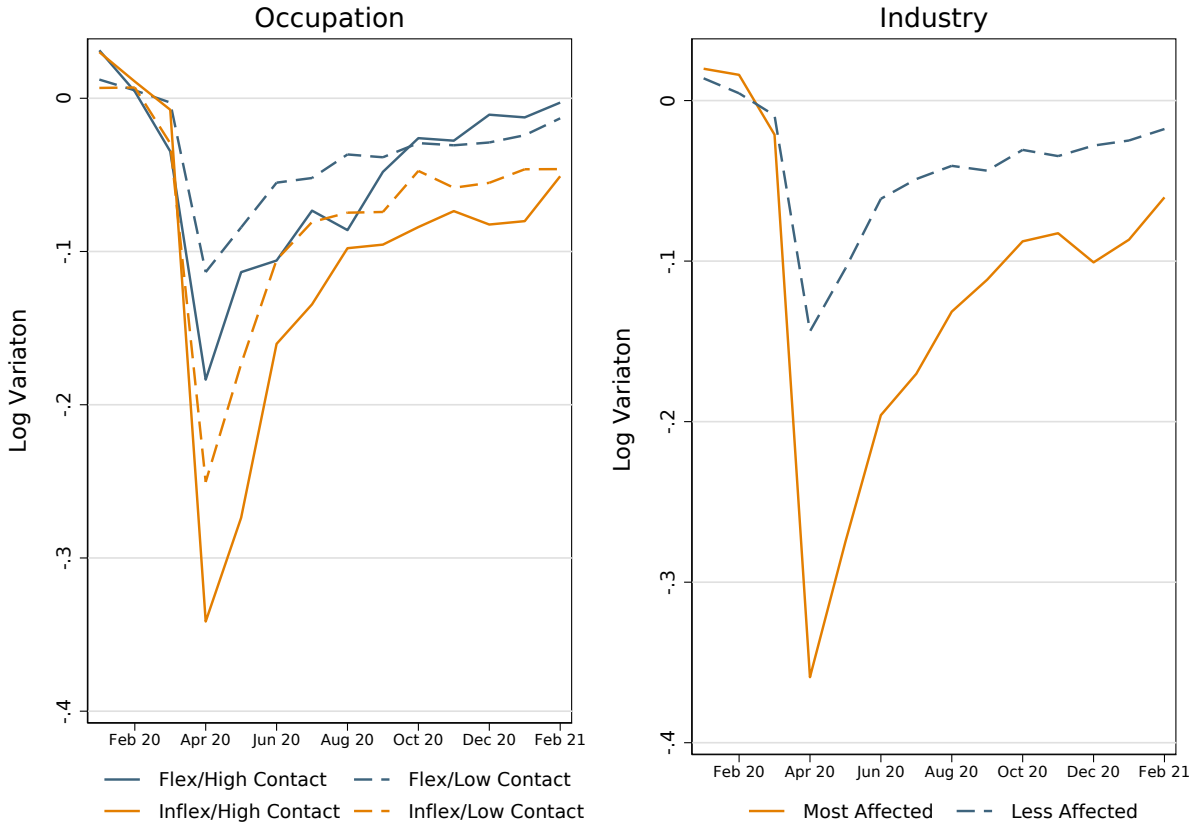
Notes: The figure plots the estimates and standard errors of the differential COVID-month effects between men and women in equation (1), δ_m. Each line represents a different regression based on the sample identified in the panel legend.

Figure 11. Differences in Labor Market Outcomes between Women with and without Children Relative to February 2020



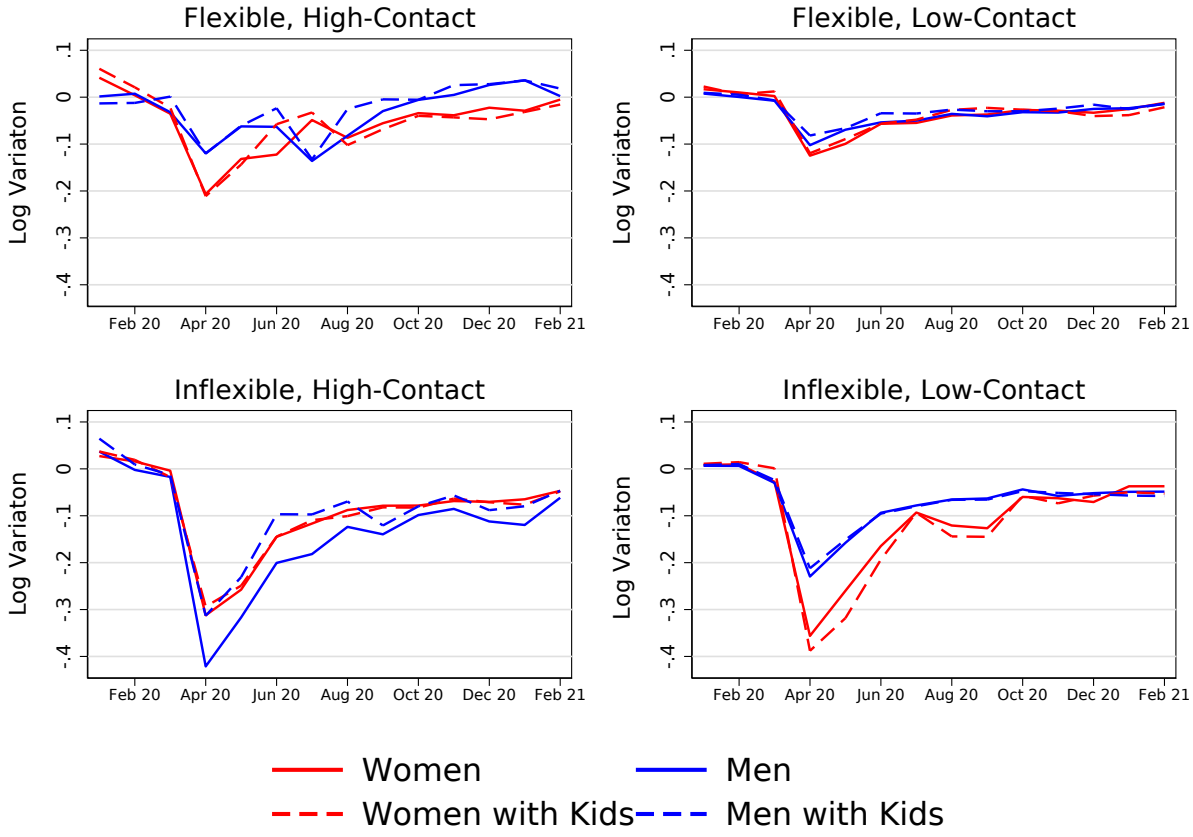
Notes: The figure plots the estimates and standard errors of the differential COVID-month effects between women with children and women without children in equation (2), δ_{4m}. Each panel presents a different outcome. NILF stands for "Not in the Labor Force."

Figure 12. Employment Changes by Occupation/Industry during the Pandemic



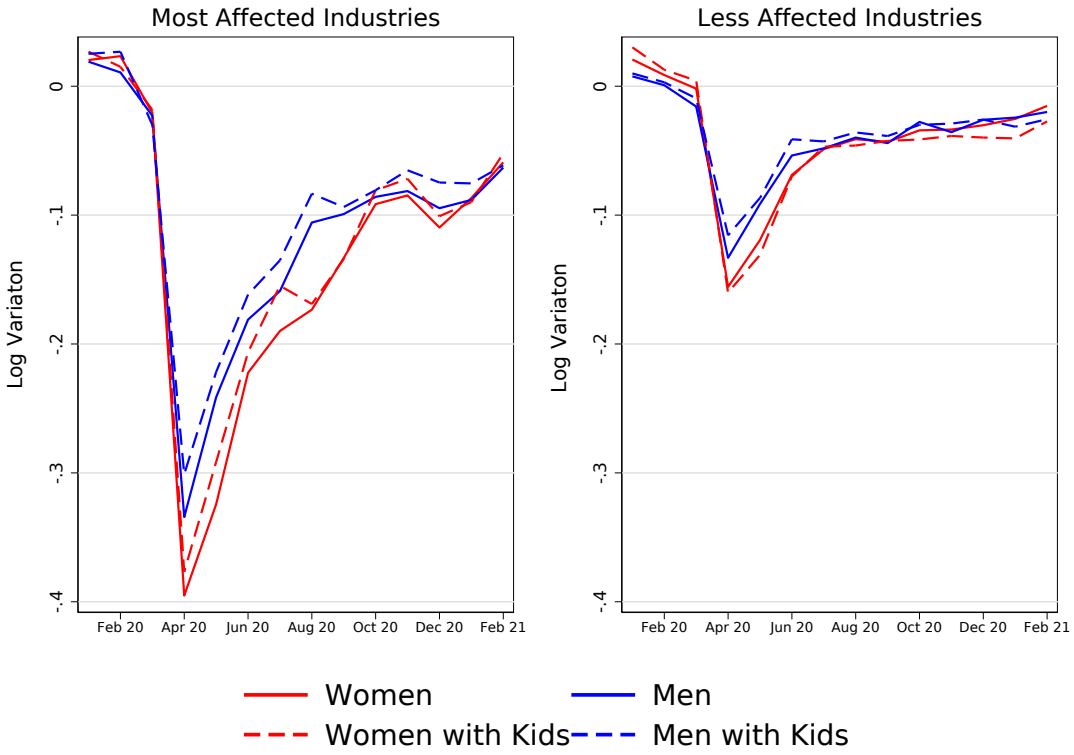
Notes: Log variation from same month in the previous year. Data from the monthly files of the Current Population Survey.

Figure 13. Employment Changes by Occupation and Gender during the Pandemic



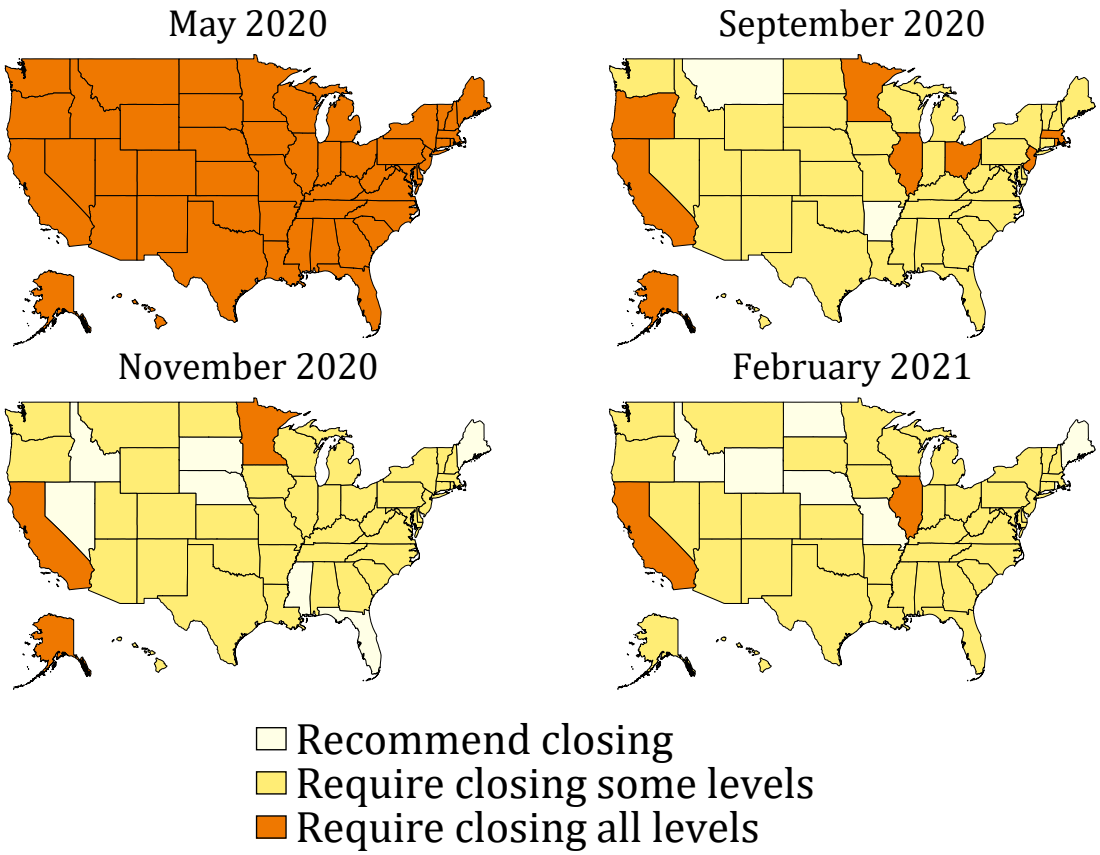
Notes: Log variation from same month in the previous year. Data from the monthly files of the Current Population Survey.

Figure 14. Employment Changes by Industry and Gender during the Pandemic



Notes: Log variation from same month in the previous year. Data from the monthly files of the Current Population Survey.

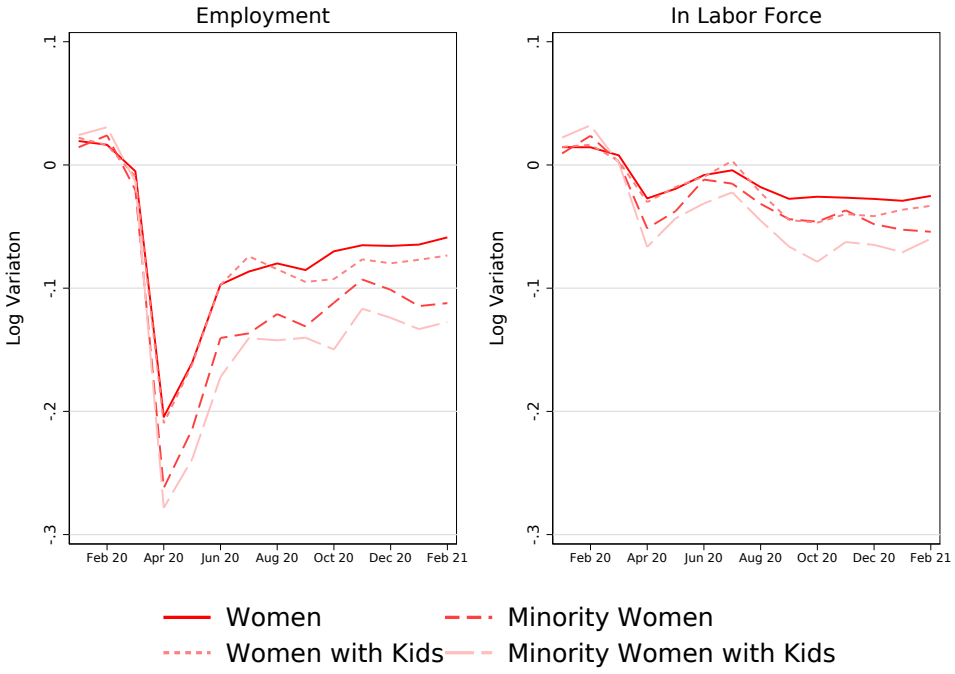
Figure 15. School Closings



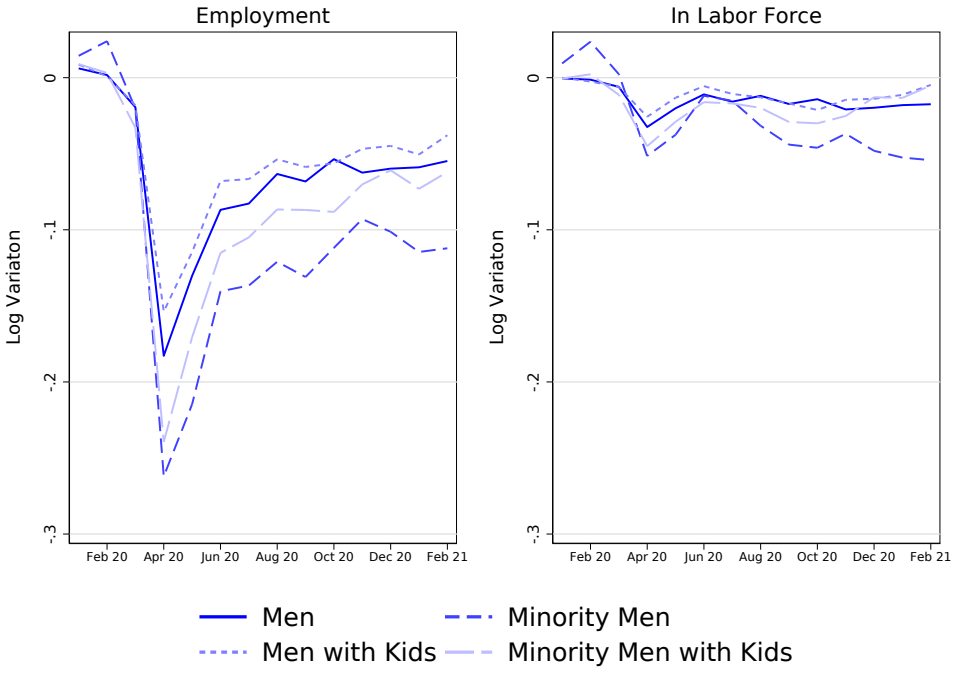
Notes: School Closing Index from the Oxford COVID-19 Government Response Tracker.

Figure 16. Employment and Labor Force Participation Changes by Gender and Race

(a) Women



(b) Men



Notes: Log variation from same month in the previous year. Data from the monthly files of the Current Population Survey.

Table 1. Employment-to-Population Ratio of Individuals 25 to 54 Years Old

	Male	Female	Male-Female Gap	Total
Panel A. Everyone				
Jan 2017 - Jan 2020	85.8	72.7	13.1	79.2
February 2020	85.7	74.6	11.1	80.1
April 2020 (COVID)	75.9	63.6	12.3	69.7
May 2020 (COVID)	78	64.9	13	71.4
June 2020 (COVID)	79.4	66.9	12.6	73.1
July 2020 (COVID)	79.7	66.8	12.9	73.2
August 2020 (COVID)	81.4	68.3	13	74.8
September 2020 (COVID)	81.6	69	12.6	75.2
October 2020 (COVID)	82.3	70.3	12	76.2
November 2020 (COVID)	82.1	70.6	11.5	76.2
December 2020 (COVID)	82	70.6	11.4	76.2
January 2021 (COVID)	81.7	70.3	11.5	75.9
February 2021 (COVID)	82.1	70.7	11.4	76.3
Panel B. With No Children				
Jan 2017 - Jan 2020	81.5	75.2	6.3	78.6
February 2020	81.9	77.1	4.8	79.6
April 2020 (COVID)	71	66	5	68.7
May 2020 (COVID)	73	66.9	6.1	70.1
June 2020 (COVID)	74.5	69	5.4	71.9
July 2020 (COVID)	74.8	68.5	6.3	71.9
August 2020 (COVID)	76.7	70.6	6.1	73.8
September 2020 (COVID)	77.2	71.6	5.6	74.5
October 2020 (COVID)	78.4	73.2	5.3	76
November 2020 (COVID)	77.4	73.3	4.1	75.4
December 2020 (COVID)	77.4	73.5	3.9	75.6
January 2021 (COVID)	77.3	73	4.2	75.3
February 2021 (COVID)	77.4	73.8	3.6	75.7
Panel C. With Children				
Jan 2017 - Jan 2020	91.8	70.2	21.6	79.9
February 2020	91.1	72	19.2	80.6
April 2020 (COVID)	82.8	61.2	21.6	70.9
May 2020 (COVID)	85.1	62.8	22.3	72.9
June 2020 (COVID)	86.6	64.6	22	74.5
July 2020 (COVID)	86.7	65	21.7	74.7
August 2020 (COVID)	87.9	65.9	22	75.9
September 2020 (COVID)	88.1	66.3	21.8	76.1
October 2020 (COVID)	88	67.3	20.7	76.5
November 2020 (COVID)	89	67.8	21.2	77.2
December 2020 (COVID)	88.6	67.7	20.9	77
January 2021 (COVID)	88.3	67.4	20.9	76.7
February 2021 (COVID)	88.9	67.5	21.4	77.1

Notes: Data from the basic monthly files of the Current Population Survey. Numbers are percents.

Table 2. Average Weekly Hours of Work on All Jobs for Employed Respondents 25 to 54 Years Old

	Male	Female	Male-female Gap	Total
Panel A. Everyone				
Jan 2017 - Jan 2020	41.1	36.2	4.9	38.7
February 2020	41	36.7	4.3	38.9
April 2020 (COVID)	37.7	33.2	4.5	35.6
May 2020 (COVID)	39	34.5	4.5	36.9
June 2020 (COVID)	39.8	34.2	5.6	37.1
July 2020 (COVID)	39.5	33.2	6.3	36.5
August 2020 (COVID)	40.1	34.7	5.5	37.5
September 2020 (COVID)	38.9	34.9	4	37
October 2020 (COVID)	40.5	36.2	4.2	38.4
November 2020 (COVID)	40.1	36.1	4	38.2
December 2020 (COVID)	40.3	36.5	3.9	38.5
January 2021 (COVID)	40.2	36.4	3.7	38.4
February 2021 (COVID)	39.8	36.3	3.5	38.1
Panel B. With No Children				
Jan 2017 - Jan 2020	40.5	37.5	3	39.1
February 2020	40.2	38	2.2	39.2
April 2020 (COVID)	37.2	34.4	2.7	35.9
May 2020 (COVID)	38.5	35.7	2.9	37.2
June 2020 (COVID)	39.3	35.7	3.6	37.7
July 2020 (COVID)	39.1	35	4.2	37.2
August 2020 (COVID)	39.7	36.1	3.6	38
September 2020 (COVID)	38.1	35.8	2.4	37
October 2020 (COVID)	39.9	37.4	2.5	38.8
November 2020 (COVID)	39.4	37.1	2.3	38.4
December 2020 (COVID)	39.6	37.6	2	38.7
January 2021 (COVID)	39.6	37.6	2	38.7
February 2021 (COVID)	39.2	37.5	1.7	38.4
Panel C. With Children				
Jan 2017 - Jan 2020	41.8	34.8	7	38.3
February 2020	41.9	35.1	6.7	38.5
April 2020 (COVID)	38.4	31.9	6.5	35.3
May 2020 (COVID)	39.6	33.2	6.3	36.5
June 2020 (COVID)	40.4	32.5	7.9	36.5
July 2020 (COVID)	39.9	31.4	8.5	35.8
August 2020 (COVID)	40.6	33.1	7.5	36.9
September 2020 (COVID)	39.8	33.9	5.9	36.9
October 2020 (COVID)	41.2	34.9	6.3	38
November 2020 (COVID)	40.8	34.9	5.9	37.9
December 2020 (COVID)	41.2	35.3	5.9	38.3
January 2021 (COVID)	40.9	35.2	5.8	38.1
February 2021 (COVID)	40.5	34.9	5.6	37.8

Notes: Data from the basic monthly files of the Current Population Survey.

Table 3. Percent of Individuals 25 to 54 Years Old Not in the Labor Force

	Male	Female	Male-female Gap	Total
Panel A. Everyone				
Jan 2017 - Jan 2020	11.3	24.7	13.4	18.1
February 2020	11.1	23.1	12	17.2
April 2020 (COVID)	13.8	26.6	12.7	20.3
May 2020 (COVID)	13.1	26.1	13	19.7
June 2020 (COVID)	12.5	25.4	12.9	19
July 2020 (COVID)	12.7	25.7	13	19.3
August 2020 (COVID)	12.3	25.5	13.2	19
September 2020 (COVID)	12.5	25.5	13	19.1
October 2020 (COVID)	12.3	25.1	12.8	18.8
November 2020 (COVID)	12.7	25.2	12.5	19.1
December 2020 (COVID)	12.9	25.2	12.4	19.1
January 2021 (COVID)	12.6	25.4	12.8	19.1
February 2021 (COVID)	12.5	25	12.5	18.8
Panel B. With No Children				
Jan 2017 - Jan 2020	15.1	22.3	7.1	18.5
February 2020	14.5	20.6	6.1	17.4
April 2020 (COVID)	17.8	23.7	5.9	20.6
May 2020 (COVID)	17.3	23.7	6.5	20.3
June 2020 (COVID)	16.7	22.8	6.1	19.6
July 2020 (COVID)	16.9	23.6	6.7	20.1
August 2020 (COVID)	16	22.9	6.9	19.3
September 2020 (COVID)	16.3	22.4	6.1	19.1
October 2020 (COVID)	15.7	21.9	6.1	18.6
November 2020 (COVID)	16.8	22.2	5.4	19.3
December 2020 (COVID)	16.9	22	5	19.3
January 2021 (COVID)	16.5	22.5	6	19.3
February 2021 (COVID)	16.6	22	5.4	19.1
Panel C. With Children				
Jan 2017 - Jan 2020	5.9	27.2	21.2	17.6
February 2020	6.2	25.7	19.5	16.9
April 2020 (COVID)	8.2	29.5	21.3	19.9
May 2020 (COVID)	7	28.6	21.6	18.8
June 2020 (COVID)	6.4	28.1	21.7	18.3
July 2020 (COVID)	6.8	27.8	21	18.3
August 2020 (COVID)	7.2	28.3	21.2	18.7
September 2020 (COVID)	7.1	28.9	21.8	19.1
October 2020 (COVID)	7.3	28.4	21.1	18.9
November 2020 (COVID)	6.8	28.4	21.6	18.8
December 2020 (COVID)	7	28.6	21.6	19
January 2021 (COVID)	6.9	28.4	21.5	18.8
February 2021 (COVID)	6.6	28.2	21.6	18.5

Notes: Data from the basic monthly files of the Current Population Survey.

Table 4. Occupation and Industry Distributions by Gender in February 2020

Occupation	Employed Women %	Employed Men %	Total Employed %	Women Share %	Women no Kids Share %	Women Minority Share %	Total Employed Feb 2021, %
Flexible, High-Contact	10	3	7	75	47	16	7
Flexible, Low-Contact	54	49	51	50	54	22	53
Inflexible, High-Contact	25	8	16	74	47	27	15
Inflexible, Low-Contact	10	40	26	19	53	42	25
Industry							
Most Affected	19	22	21	44	55	27	21
Less Affected	81	78	79	49	51	24	79

Notes: Data from the basic monthly files of the Current Population Survey, February 2020. Occupation classification based on Albanesi and Kim (2021). Most affected industries include arts, entertainment, and recreation; accommodation and food services; some retail trade; and some transportation sectors. To help interpret the numbers in the table, as of February 2020, 48 percent of employed individuals in the prime-aged group were women, and 48 percent of those women had children. Employed minority women represented 25 percent of female employment, and 50 percent of these women had children.

Table 5. Employment: Occupations versus Schools as Explanations of the Gender Gap

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	All			No Kids			Kids		
Mar20–Aug20 × Woman	–0.016***	–0.011**	0.002	–0.010	–0.005	0.001	–0.025***	–0.022***	0.004
	(0.005)	(0.005)	(0.006)	(0.006)	(0.007)	(0.009)	(0.006)	(0.007)	(0.009)
Sep20–Feb21 × Woman	–0.006	–0.004	0.007	0.003	0.004	0.009	–0.020***	–0.018***	0.004
	(0.005)	(0.005)	(0.006)	(0.006)	(0.007)	(0.008)	(0.006)	(0.007)	(0.008)
Covid Deaths	–0.004***	–0.003***	–0.002***	–0.004***	–0.004***	–0.002***	–0.004***	–0.003***	–0.002***
	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Men × School Closing Index			–0.018***			–0.021***			–0.013***
			(0.001)			(0.002)			(0.002)
Woman × School Closing Index			–0.024***			–0.024***			–0.023***
			(0.001)			(0.002)			(0.002)
R sq.	0.07	0.13	0.13	0.07	0.13	0.13	0.11	0.17	0.17
Observations	2230954	2230954	2230954	1181464	1181464	1181464	1049490	1049490	1049490
Dep. var mean	0.78	0.78	0.78	0.78	0.78	0.78	0.79	0.79	0.79
School p-val	.	.	0.001	.	.	0.275	.	.	0.000
Occupation Controls	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes

Notes: Estimates of equation (1) with COVID-19 months collapsed into two periods and added controls as indicated in each column. The sample consists of respondents aged 25 to 54. The dependent variable is a dummy variable for being employed. The sample period covers January 2017 through February 2021. The reference period is February 2020. All specifications control for age, age squared, education level, marital status, and race. Fixed effects for month, year, and state are included. "Covid Deaths" is a standardized measure of COVID-19–related deaths per capita in a given state, averaged over the seven days preceding the survey week. The school closing index comes from the Oxford COVID-19 Government Response Tracker. Estimates with CPS sample weights and robust standard errors. Standard errors in parentheses. * (**) [***] significant at the 10 (5) [1] percent level.

Table 6. Not in the Labor Force (NILF): Occupations versus Schools as Explanations of the Gender Gap

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	All			No Kids			Kids		
Mar20–Aug20 × Woman	0.010**	0.009*	0.001	0.004	0.004	0.005	0.018***	0.016**	–0.005
	(0.004)	(0.005)	(0.006)	(0.006)	(0.006)	(0.008)	(0.006)	(0.006)	(0.008)
Sep20–Feb21 × Woman	0.007	0.005	–0.001	–0.004	–0.004	–0.003	0.022***	0.019***	0.001
	(0.004)	(0.004)	(0.005)	(0.006)	(0.006)	(0.008)	(0.006)	(0.006)	(0.008)
Covid Deaths	0.001***	0.001***	0.001*	0.001**	0.001**	0.001	0.001**	0.001*	0.001
	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Men × School Closing Index			0.003***			0.005***			–0.000
			(0.001)			(0.001)			(0.001)
Woman × School Closing Index			0.006***			0.005***			0.008***
			(0.001)			(0.002)			(0.002)
R sq.	0.07	0.15	0.15	0.06	0.15	0.15	0.11	0.19	0.19
Observations	2230954	2230954	2230954	1181464	1181464	1181464	1049490	1049490	1049490
Dep. var mean	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18
School p-val	.	.	0.044	.	.	0.825	.	.	0.000
Occupation Controls	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes

Notes: Estimates of equation (1) with added controls as indicated in each column. The sample consists of respondents aged 25 to 54. The dependent variable is a dummy variable for not being in the labor force (NILF). The sample period covers January 2017 through February 2021. The reference period is February 2020. All specifications control for age, age squared, education level, marital status, and race. Fixed effects for month, year, and state are included. "Covid Deaths" is a standardized measure of COVID-19–related deaths per capita in a given state, averaged over the seven days preceding the survey week. The school closing index comes from the Oxford COVID-19 Government Response Tracker. Estimates with CPS sample weights and robust standard errors. Standard errors in parentheses. * (**) [***] significant at the 10 (5) [1] percent level.

Table 7. Employment and Not in the Labor Force : Occupations versus Schools. Women With and Without Children

	(1)	(2)	(3)	(4)	(5)	(6)
	NILF			Employment		
Mar20–Aug20 × Woman × Child	0.014	0.011	–0.013	–0.015	–0.012	0.010
	(0.008)	(0.008)	(0.011)	(0.009)	(0.009)	(0.012)
Sep20–Feb21 × Woman × Child	0.026***	0.020**	0.000	–0.023***	–0.018**	–0.000
	(0.008)	(0.008)	(0.010)	(0.009)	(0.009)	(0.011)
Covid Deaths	0.002***	0.001***	0.001***	–0.005***	–0.005***	–0.003***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
R sq.	0.08	0.16	0.16	0.08	0.14	0.14
Observations	2230954	2230954	2230954	2230954	2230954	2230954
Dep. var mean	0.18	0.18	0.18	0.78	0.78	0.78
School p-val	.	.	0.000	.	.	0.000
Occupation Controls	No	Yes	Yes	No	Yes	Yes
School Closing Controls	No	No	Yes	No	No	Yes

Notes: Estimates of equation (2) with added controls as indicated in each column. The sample consists of respondents aged 25 to 54. The dependent variable is a dummy variable for not being in the labor force (NILF) or for being employed (Employment). The sample period covers January 2017 through February 2021. The reference period is February 2020. All specifications control for age, age squared, education level, marital status, and race. Fixed effects for month, year, and state are included. "Covid Deaths" is a standardized measure of COVID-19–related deaths per capita in a given state, averaged over the seven days preceding the survey week. The school closing index comes from the Oxford COVID-19 Government Response Tracker. Estimates with CPS sample weights and robust standard errors. Standard errors in parentheses. * (**) [***] significant at the 10 (5) [1] percent level.