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Why Is Mommy So Stressed? Estimating the Immediate Impact of the COVID-19 Shock on Parental Attachment to the Labor Market and the Double-Bind of Mothers

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Estimating the Immediate Impact of the COVID-19 Shock on Parental Attachment to the Labor Market and the Double Bind of Mothers

By MISTY L. HEGGENESS*

I examine the impact of the COVID-19 shock on parents' labor supply during the initial stages of the pandemic. Using difference-in-difference estimation and monthly panel data from the Current Population Survey (CPS), I compare labor market attachment, non-work activity, hours worked, and earnings and wages of those in areas with early school closures and stay-in-place orders with those in areas with delayed or no pandemic closures. While there was no immediate impact on detachment or unemployment, mothers with jobs in early closure states were 68.8 percent more likely than mothers in late closure states to have a job but not be working as a result of early shutdowns. There was no effect on working fathers or working women without school age children. Mothers who continued working increased their work hours relative to comparable fathers; this effect, however, appears entirely driven by a reduction in fathers' hours worked. Overall, the pandemic appears to have induced a unique immediate juggling act for working parents of school age children. Mothers took a week of leave from formal work; fathers working fulltime, for example, reduced their hours worked by 0.53 hours over the week. While experiences were different for mothers and fathers, each are vulnerable to scarring and stunted opportunities for career growth and advancement due to the pandemic.

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I. Introduction

The COVID-19 pandemic brought economic markets to their knees. Entire industries completely shut down in many parts of the country, along with schools and daycare facilities. Many working parents lost their jobs or were forced to work from home, simultaneously balancing work and childcare responsibilities while their kids transitioned to online learning and home schooling. Even parents with in-home nannies were forced to provide around-the-clock care for their children as stay-at-home orders and social distancing became the new norm.

Parents everywhere stepped up; they are the unsung heroes of this crisis. Moms in particular went into multitask mode with color-coordinated home-school schedules that attempted to track and organize what their kids would be doing each hour of the weekday. Many of these schedules went viral on social media. Moms do, after all, have a reputation for being the queen bees of multitasking. But one has to ask: How much can we pack onto parents' backs before they break?

Pop culture and news media have circulated stories about the negative impact of this pandemic on parents, and mothers in particular, describing stories of harried and exhausted women attempting to hold down the house, oversee their kids' schooling, and manage their own work. In the parenting section of the *New York Times*, an article asked if the new pandemic will change anything regarding home and work for mothers. It shared a story of a woman who admitted that if either she or her husband had to quit his or her job to take care of the children, it would be her since she earns less than him (Bennett 2020). Another news story from *National Public Radio* highlighted what it called "grotesque" gender inequalities for household work during the pandemic and the double bind faced by many working women with families (Gross 2020). At the same time, new preliminary research is highlighting that while mothers spend more time engaged in childcare than fathers,

fathers have been performing more domestic childcare tasks relative to mothers during the current crisis (Sevilla and Smith 2020).

While media stories like these and research on gender inequality in household production are not new or uncommon (Luscombe 2017, Carpenter 2018, Hinchliffe 2019, Sayer & Pepin 2019, Cain Miller 2020), a question remains as to whether and to what extent they held up for a majority of mothers (or parents) during the initial shock of the pandemic shutdown. Early work by Alon, Doepke, Olmstead-Rumsey, & Tertilt (2020a, 2020b) discusses anticipated implications of the pandemic on labor market outcomes for men and women, arguing that women would be disproportionately affected by the economic downturn because service and related sectors are dominated by women's employment and school and daycare closures would increase household work. They highlight the particularly vulnerable position of single working parents due to COVID-19 restrictions, identify longer term macroeconomic implications of the gendered impact of COVID-19 on the labor market, and provide evidence suggesting the possibility of a more equitable balance by gender post-pandemic driven by dads engaging in higher levels of childcare during the pandemic.

Other studies also hint at the unique impact of the pandemic on mothers' labor supply (Barkowski, McLaughlin, & Dai 2020; Collins, Landivar, Ruppanner, & Scarborough 2020; Landivar, Ruppanner, Scarborough, & Collins 2020). Collins et al. (2020) use monthly panel data to examine trends in hours worked in early months, finding that mothers in dual-career couples reduced hours worked in the late spring compared to the first few months of the year. Barkowski et al. (2020) compare labor supply of working parents to both working adults without children and working parents with childcare support at home and find some evidence that working mothers increased hours worked.

In this paper, I examine the immediate impact of the shutdown, which led to an unanticipated exogenous shift in work environments, household chores, and

childcare responsibilities. I test the effect the shutdown had on the labor supply of parents. Using state-level variation in the timing of school closings and stay-at-home orders, I study the extent to which increased domestic responsibilities for parents shifted their work habits in ways unparalleled to other working adults without children. Did parents receive an additional penalty in the workplace? Were they more or less likely to detach from the labor market at the start of the pandemic? Did mothers and fathers experience the immediate impact differently?

More broadly, I use a natural experiment, the COVID-19 shock, to ask what life would be like for working parents, particularly mothers, if care for their children outside the household did not exist. Would their labor supply shift (at least in the short run)? Would they detach from labor markets, take leave from work, or use some other mechanism to cope with their new reality?

II. Background

The research from the 1990s on mothers' joint decision-making regarding work and childcare focuses on young mothers and the relevance of childcare. Blau and Robins (1991) showed that young mothers in particular "appear to respond to [economic and demographic] changes by altering their labor supply and childcare behavior" (p. 333). Young mothers experience volatile episodes of moving in and out of the labor force, influenced to some extent by other adults moving in and out of the household and the availability of babysitters or other childcare arrangements. These mothers enter and exit the labor market at a higher frequency than others and are influenced by childcare availability. In another study from around the same time, Berger and Black (1992) showed that in Kentucky, mothers who received childcare support were more likely to work, but the support had little effect on hours worked. They found that the availability of subsidies for quality childcare increased

mothers' labor supply. Looked at another way, those without a childcare subsidy for quality care of their children were less likely to be engaged in employment.

A decade later, a study by Powell (2002) built on this evidence, showing that mothers are jointly sensitive to the price of childcare and wages in making choice decisions to labor market entry. More recent studies using natural experiments have found that childcare availability and affordability matter for workforce attachment, but with mixed results. Agüero and Marks (2008) used infertility shocks to estimate the effect of children on women's labor supply, finding that there was generally no effect. Lefebvre and Merrigan (2008) use a natural experiment of childcare subsidies in Canada to show that the availability of affordable childcare has a statistically significant impact on the labor supply of mothers with preschool-age children.

In this paper, I am less interested in testing the already established (although slightly mixed) literature on the joint decisions of mothers regarding childcare and work. Instead, I test whether the complete and unexpected cutoff to school had an immediate impact on parents' engagement with the workforce. I compare parents in early shutdown states with other parents in states that shut down late or not systematically at all. More generally, the policy question asked here is: If a generalized space for child supervision and learning is taken away, what happens to the labor supply of parents? How do they adjust? Do mothers adjust differently than fathers? How important is it for parents to have a safe space for children to grow and learn every day while they work? In today's environment stressing gender equality in the workforce, does a dramatic shift in household production responsibilities still hinder mothers' engagement with labor markets more than fathers'? What can we learn from this pandemic? The answers to these questions have broad policy implications beyond the current pandemic and touch on how society supports and adapts to the childcare and schooling needs of working parents—in particular, as these measures relate to policy goals like the Federal

Reserve's full employment mandate. I provide additional evidence that childcare and schooling are not just essential for the human capital development of our youth; they are also critical policy interventions for the full employment of parents, especially mothers.

III. Methodology and Data

A. Standard Household Utility Model

To fix ideas, I start with a basic household model (Becker 1981) where the family maximizes one (additive) household utility function subject to typical budget and time constraints (24 hours in a day with a minimum amount of time needed for sleep and dependent children care). This standard utility function includes time in work, leisure, childcare, and sleep. In normal times, parents have the option to do the childcare themselves as unpaid labor or pay another entity or person for childcare. A rational parent will choose to work in the formal labor market and pay for childcare if the cost of childcare is less than what the parent earns at his or her job. Exceptions to this exist if, for example, the parent's utility or intrinsic value of doing the childcare him- or herself is higher than the parent's reservation wage or the wage he or she could earn in the formal labor market. Under this model, an exogenous shift in time allocation and resources due to the COVID-19 pandemic forces parents to realign their limited resources to meet the basic needs of their children (and themselves) in a different way – particularly with respect to childcare.

B. Hedonic Marriages, Household Bargaining, and Gendered Preferences

While one can assume today that many dual-earning couples are in hedonic marriages sharing consumption preferences rather than household production complementarities (Stevenson & Wolfers 2007), exogenous changes in household responsibilities under a national crisis are bound to shift bargaining over resources

and household tasks. The traditional model discussed above assumes one decision-making parent. Under the hedonic preferences assumption, the model can easily be extended for households with more than one parent. Even if parents have hedonic preferences, however, an extension of this simple model toward a more realistic bargaining model allows for intrahousehold bargaining to occur (Manser & Brown 1980; McElroy & Horney 1981; Lundberg & Pollak 1993, 1994, 1996). In particular, whether or not parents have similar consumption preferences, during a pandemic they still bargain over who takes on the additional chores and childcare responsibilities.

Prior research has given ample evidence demonstrating that adults within a household bargain for resources and that shifting resources can influence household consumption patterns (Lundberg et al. 1996, Voena 2015, Wong 2016, Heggeness 2020a). Research has also shown that on average, mothers tend to shift more resources toward children's education, clothes, and other household goods than fathers when they control resources (Lundberg et al. 1996, Quisumbing & Maluccio 1999, Rubalcava et al. 2004, Rangel 2006, Rosero & Schady 2007, Nunley & Seals 2011, Heggeness 2020a). An extension of this artifact in the current situation is that during a national crisis that closes schools, mothers will invest more of their own time and resources into home schooling, childcare, and domestic tasks than fathers (Sevilla & Smith 2020). One would be concerned about equality in the household if, for example, more mothers shift out of the labor market to assume childcare responsibilities, especially if they do not return to the labor market.

C. Juggling It All: Pandemic Household Bargaining

Time spent in non-paid childcare activities and household production tasks increases for parents when schools are closed and stay-at-home ordinances are enforced. Even if parents are willing to outsource childcare under normal

circumstances, doing so is not an option in a national crisis like COVID-19. Children under age 18 need varying levels of general supervision. While younger, non–school age children require more direct and intense supervision, school age children require additional supervision of activities associated with a new world of online schooling. These increased non-paid childcare activities by nature induce a decrease in time spent in other activities—for example, paid labor or leisure. In the short run, hourly wages are assumed exogenous and should not change, even though one's time spent working (and therefore one's total earnings) might.

Many working parents lost employment because their employer shut down and they had jobs for which remote work was not feasible (e.g., waitresses or retail clerks). Although these parents now had additional time to take on more childcare tasks, a reduced income combined with these new household responsibilities, may have decreased overall wellbeing and consumption. For parents for whom remote work was feasible, work hours shifted. Hours were either reduced to compensate for the increased childcare responsibilities or increased if, for example, there was a need to compensate for lost income of other working age adults in the household. An equally plausible outcome is that their work hours may not have changed if remote work allowed flexibility in working flexible hours (e.g. evenings and weekends). Either way, for all parents, balancing increased household production activities with work could increase stress, reduced sleep and leisure time, or induce a decrease (or increase) in work hours and work productivity. If these shifts took place within a household bargaining framework, those with less bargaining power would acquire the majority of the additional domestic tasks.

In the analysis below, I test for the impact of additional parenting responsibilities on short-run parental labor supply. For mothers and fathers, I look at both the extensive margin (employment) and the intensive margin (hours worked). In the short run, I expect the effect to reduce working parents' employment, and, for those who stay attached to the labor market, I expect to see a sharp decline on the

intensive margin of hours worked. All of this assumes that childcare and helping children with online schooling imply that parents either shift their time in other activities or increase involvement in multiple activities at once. I expect to see a sharper decline in mothers' employment and hours worked compared with those of fathers for two reasons. First, on average, mothers carry a heavier burden of childcare responsibilities in the household and are more willing to invest in household production (Lundberg et al. 1996, Quisumbing & Maluccio 1999, Rubalcava et al. 2004, Rangel 2006, Rosero & Schady 2007, Nunley & Seals 2011, Heggeness 2020a). Second, prior studies have shown that in around 70 percent of married couple households, wives are the lower earning spouse (Winkler et al. 2005, Murray-Close & Heggeness 2019), and lower earning spouses would leave the labor market to care for children before higher earning spouses would (Bennett 2020).

D. Data

I use monthly panel data from the Integrated Public Use Microdata Series, Current Population Survey (IPUMS-CPS) (Flood et al. 2020).[1] The CPS is a monthly survey annually administered to approximately 60,000 households. Respondents enter the survey in month *t* and answer the survey consecutively in months *t*, *t+1*, *t+2*, and *t+3*. They then move to an out round of the survey for eight months, during which they do not respond to survey questions. They reenter at *t+12* and are in the survey for *t+12*, *t+13*, *t+14*, and *t+15* before they exit the survey entirely. Each month, during the week including the 19th, data are collected in field and questions are asked referencing the week prior—that is, the week containing the 12th. The survey is fielded primarily via telephone. However, households in *t*

[1] Full replication files including the data and code are publicly available here: https://doi.org/10.5281/zenodo.3893241 (Heggeness 2020b).

and *t+12* months of their survey are interviewed in person, as are households that cannot be reached via telephone in other months.[2]

The CPS asks questions about household members' economic activity, education, demographics, and program participation. In addition, each month, special topic modules are included. This survey design and its topic coverage are ideal for this analysis because they include workforce, sociodemographic, and household data on the same individuals before and during the initial stage of the pandemic. It has questions on hours worked the previous week, reasons why one is absent from work, and other relevant questions on economic activity, as well as details about other members of the household. I construct an unbalanced panel for the months of January, February, March, April, and May of 2019 and 2020.

To the IPUMS-CPS dataset, I append data on the date of school closures and stay-at-home ordinances (Appendix Table 1). I divide the school closure data into two categories: schools that closed early and those that closed late. I use the week including March 12th as the cutoff for states closing early. By the following week, most states began closing, either because they were following the lead of the earlier states or because it became clear the pandemic was a nationwide crisis. The timing of the CPS data collection fits nicely within this timeframe. The monthly survey asks its respondents (during the week of the 19th) about their experiences from the prior week (that of the 12th). This allows me to discern which households were immediately affected by school closings before or during the reference period in question and which were not (but would soon be in the following weeks).

The full nationally representative sample includes almost 400,000 individuals (approximately 1.1 million observations over the first five months of 2019 and 2020). After cleaning the panel, I delete around 33,000 observations because of

[2] While telephone interviews were not disrupted during stay-at-home ordinances, in-person interviews were halted halfway through data collection in March, and they were not conducted at all in April, resulting in a drop of more than 10 percent in response rates during those months.

inconsistencies in the panel person-link relating to age, sex, race, or ethnicity. Group quarter observations and children under age 15 are excluded. I then drop individuals not in the universe or with missing data for the employment status variable. The final analysis sample includes around 900,000 observations from more than 314,000 unique individuals aged 15 or older (Table 1). The final analysis sample of parents of school age children includes 175,969 observations from 62,702 unique parents.

Parents of infants and toddlers face more complicated joint decisions around work and childcare since no universal childcare system exists in the United States; parents who work must have sufficient resources to pay for private care. Because public schooling is mandatory and universal in the U.S., all parents of school age children had care for their children during school hours before the shutdown (and then did not). I focus the parental analysis on parents of school age children because the decisions between work and childcare are, in some sense, clearer.

E. Estimation Methods

Two factors drive changes in labor hours or employment during a pandemic: external circumstances influenced by a shutdown and related to the employer (changes in labor demand) or internal household circumstances that affect the employee's ability to work (changes in labor supply)—for example, becoming sick, providing childcare, or related reasons. The change in labor demand during the current pandemic is driven by an external health shock to everyone and is not caused by individual employers alone. The impact would be felt equally across all households, conditional on the type of industry and job for which the labor was supplied. I assume the demand of labor is constant or changing at a similar rate for everyone, conditional on type of industry, job, and labor in states as they became exposed to closure ordinances. Assuming the general shift in the demand for labor

was standard for all, I disentangle the additional impact on the labor supply of parents, and mothers in particular, by running the analyses described below.

$$y = \beta_1 early + \beta_2 year + \beta_3 (early \cdot year) + \gamma_{month} + \mu + \varepsilon \quad (1)$$

I start with a standard difference-in-difference equation (Equation 1). I compare individuals from early-closure and late-closure states in 2019 and 2020 along six outcome variables. Specifically, I compare states that had school closures announced during or before the week including March 12th to those with announcements the following week or later (or none at all). I include monthly controls to account for seasonal trends and individual-level fixed effects (μ) to handle any unobserved variation at the individual-level.

The outcome variables ($\boldsymbol{y}$) are (i) not in the labor force (detached), (ii) unemployed conditional on being in the labor force, (iii) not working the prior week conditional on being employed, (iv) hours worked the prior week conditional on being employed, (v) weekly earnings from the prior week conditional on being employed, (vi) hourly wage from the prior week conditional on being employed. Outcome variables (i)–(iii) provide a general measure of the impact of school closures and stay-at-home orders on the extensive margin of labor (staying in the labor force). Outcome variables (iv)–(vi) provide a more nuanced effect at the intensive margin on the amount of labor provided and the value of that labor.

In this model, β_1 is the general effect associated with living in an early closure state. β_2 is the overall effect on the outcome in 2020, compared with 2019. β_3 is the coefficient of interest as it reports the specific effect of the early closure policy regime on the immediate impact of the outcome variable compared to those who were not exposed to early intervention. In general, since closures had a large and intense impact on work, I would expect the effect of early closures, β_3, to be

significant on most outcome variables except wages, which are considered exogenous in the short run.

(2) $y = \beta_1 early + \beta_2 year + \beta_3 (early \cdot year) + \gamma_{month} + \delta_{nadults} + \theta_{educ} + \lambda_{industry} + \mu + \varepsilon$

A difference-in-difference estimation differences out time invariant factors like age and race. However, any time variant characteristics that differ by treatment group may confound the true effect on the outcome variables if they are not explicitly accounted for. To adjust for time variant changes in household and individual characteristics, I include controls for the presence of least one other working age adult in the household, educational attainment, and industry of employment (Equation 2).

Household decisions regarding how and when to engage with the labor market are influenced by multiple factors. Perhaps the most salient, however, is whether there is another working age adult in the home. During a time of crisis when the household must provide its own childcare, households with only one working adult face a different set of choices than households where there is at least one other working age adult. Because of this and the fact that household composition can change with time, I include a control variable for whether there is another working age adult in the household. Educational attainment can also change with time, and so I include controls for it. Finally, I include industry controls because the shutdown had major across-the-board differential effects by industry. For example, all retail stores shut down, but roofing companies were allowed to remain open as an essential service.

Women experience the labor market differently than men, in terms of type of employment, amount of labor supplied, and wages and earnings received. To account for this, I run Equation (2) separately for women and men. In these cases,

I am comparing women in early closure states with their counterparts in late closure states; I do the same for men. To the extent that school closures and shutdowns had an adverse effect on women (or men) due to bargaining decisions within the household, we would expect to see the impact through the β_3 coefficient. If intrahousehold bargaining does not influence interactions with labor markets during a major, complete shutdown early on, then the effect on both men and women should be similar in early and late closure states.

Next, to account for the additional impact of school closings on parents, I run Equation (2) separately for mothers and fathers, defined as women and men living with at least one own child between the ages of five and seventeen. This analysis allows for the comparison of the impact on mothers in early closure states with that on mothers in late closure states. The same is true for fathers. Here, differential impacts on β_3 between mothers and fathers indicate both shifts in intrahousehold bargaining and the differential impacts of mothers and fathers' labor market participation due to childcare and household responsibilities.

$$(3)\ y = \beta_1 early + \beta_2 year + \alpha_1 sex + \beta_3(early \cdot year) + \alpha_2(early \cdot sex) + \alpha_3(year \cdot sex) + \alpha_4(early \cdot year \cdot sex) + \gamma_{month} + \delta_{nadults} + \theta_{educ} + \lambda_{industry} + \varepsilon$$

Equation (3) is a difference-in-difference-in-difference ("triple diff") estimation. It is similar to Equation (2) but includes a gender interaction term on the full analytical sample and the reduced sample of parents, instead of separate regressions on subsamples by gender. Equation (3) tells us the general effect of early closures overall, β_3, and early closures' additional effect on women or mothers relative to men or fathers, α_4. If mothers (or fathers) do not carry an additional burden of childcare and household production responsibilities, α_4 should be small and insignificant. If α_4 is positive and significant, mothers either exhibited less

bargaining power than fathers by carrying the weight of the additional domestic responsibilities or have preferences that align with a desire to take on the additional domestic tasks. If α_4 is negative and significant, then fathers did.

IV. Analysis

In the immediate response to the pandemic, there appears to have been no short-term impact on detachment from the labor force (Table 2). Model 1 shows a significant impact of the early closures; however, once I control for other adults, education, and industry, the significance goes away (Model 2). There was no significant difference for women (Model 3) or men (Model 4), nor were there any significant differences between mothers (Model 5) or fathers (Model 6) in early and late closure states. These results could be driven by the fine granularity of the timing of the school closures and stay-at-home orders, or the fact that it was not yet apparent in the initial stages of the pandemic that the stay-at-home orders would linger for months.

In terms of unemployment (Table 3), early closures had no effect on unemployment for anyone. At the very beginning of the pandemic, the magnitude and duration of the closures was still unclear. Because of this, employers may not have let their staff go during the initial days of the pandemic. It was only after the reality set in with regard to the nationwide effect and magnitude that those employers officially began furloughing and laying off staff. Given the granularity with which the data are divided into early and late closures (in many cases, the difference is only a matter of days), the fact that employers may have had a delayed reaction, and the amount of time it takes to apply for and receive unemployment, these results make sense. In fact, there have been numerous media reports describing the difficulties in applying for unemployment in the initial stages of the pandemic.

More interesting, perhaps, is the rate with which those with a job began taking temporary leave (Table 4). Those in early closure states were 20.0 percent more likely to take leave and 20.2 percent more likely after controlling for other adults, education, and industry. That rate, however, appears to be driven solely by women, and in particular, mothers who temporarily stopped working. Women in early closure states were 31.8 percent more likely to stop working the prior week compared with women in late closure states. There was no statistically significant difference for men. Mothers of school age children who maintained jobs in early closure states were 68.8 percent more likely than mothers in late closure states to not be working.[3] In other words, mothers of school age children in early closure states were much more likely to take leave from work than women in general. There was no significant difference in leave time between fathers from early closure and late closure states.

The impact on short-term work productivity and engagement appeared to be borne uniquely on the backs of mothers of school age children. This gendered result is surprising given recent efforts towards gender equality within society at large. However, most efforts toward gender equality focus on activities outside the household, including formal labor market participation and advancing more women in positions of political influence. More recent reports, however, have continued to document a persistence of gendered inequalities in domestic tasks within the household (Luscombe 2017, Carpenter 2018, Hinchliffe 2019, Sayer & Pepin 2019, Cain Miller 2020).

[3] As a robustness check, I rerun the analysis on women with any children under age 18 in the household (Appendix Table 10, Model 1) and the magnitude is weaker for mothers, 33.1 percent ($p<0.05$). There is no significant effect on fathers (Appendix Table 10, Model 2). To check if there is any effect on college age women who may be older siblings that could potentially take care of school age siblings or women still actively working but whom may be a grandparent, I also run a check on women age 18 to 24 without their own school age children (Model 4) and women age 55 to 64 without their own school age children (Model 5) and find no effect. These robustness checks help verify that the impact of the school closure on leave time from work was particular to mothers of school age children taking time off work at the onset of the crisis.

Interestingly, women in early closure states who continued working that week experienced an increase in hours worked, compared with their late closure states counterparts (Table 5). Average hours worked in the previous week increased by 1.0 percent for women in early closure states (Model 3). Men's overall hours decreased by 0.6 percent (Model 4). Fathers' hours decreased by 1.3 percent (equivalent to 0.52 hours in a 40-hour work week) in early closure states compared with fathers in late closure states while mothers' hours were not affected (Models 5 and 6). Women's hours worked in early closure states increased by 1.6 percent compared to relative men (Model 7). Overall, mothers' hours increased by 1.8 percent in early closure states compared with fathers (Model 9), but the effect appears to be entirely driven by a reduction in fathers' hours working.

To examine the dynamic of work hours further, I ran these same regressions on a subset of mothers living with a spouse and divided the sample based on whether the spouse was actively working or not the previous week. The results are in Appendix Table 3. They show no difference in hours worked for mothers, regardless of whether they live with a working or non-working spouse, or whether they have no spouse.

The situation for working mothers is complex. They, unlike any other group, were more likely to take temporary leave at the onset of this pandemic. The immediate impact on labor market outcomes experienced by mothers during the COVID-19 closures does not appear to be the same as that experienced by fathers or men and women more generally. For mothers and fathers, their experience, while different, leaves them vulnerable to career scarring. Research has shown, for example, that men in the bottom half of the earnings distribution who experienced a decline in hours worked during recession-years exhibit scarring on future career outcomes that exacerbated income inequality over time (Heathcote & Perri 2020). Those with the flexibility to take leave probably have higher earnings than those whose job does not allow for leave. However, when mothers must take leave for

childcare purposes during a national crisis while their colleagues continue working, it has detrimental effects on opportunities for career advancement and leaning in at work. Similarly, when fathers' hours are reduced, it leaves them vulnerable to stunted career advancement. It is worth noting, though, that taking the entire week off (as mothers did) is very different than reducing one's work hours by half an hour (under the assumption of a 40-hour work week). It is possible this difference is driven by the simple fact that in most dual-earner couple households, men make more than women, and, therefore, it would make the most rationale sense for the mother to take leave in order to maximize household income. There was, after all, only a need for one adult to be at home supervising the children. As we will see below, however, the results on earnings do not support this hypothesis. It is worth noting that this difference in the magnitude of hours "leaning out" to deal with the loss of schooling and, therefore, childcare for school age children has the potential to negatively impact mothers' future career outcomes much more than fathers.

As expected, there was no immediate impact on hourly wages (Table 6), which are assumed exogenous in the short run. Similarly, there was no immediate impact on weekly earnings (Table 7), suggesting that mothers who took leave from work took paid leave. Interestingly, even though fathers hours reduced slightly, they did not experience a reduction in weekly earnings. If the hypothesis of the rational household maximizing its earnings does not hold (as demonstrated by no significant changes in weekly earnings), there is another plausible explanation related to social norms. It is more socially acceptiabel for mothers in the workplace to take leave for family obligations, but less so for fathers. Even though fathers did not formally take leave, it is possible they reduced their hours worked slightly to help mitigate the household dilemma associated with school closures. It may also be likely that those fathers most able to reduce hours worked are those that are either salaried employees or those with the ability to work remotely unexpectedly (who also are probably more likely to be salaried employees). These fathers may have been able

to reduce slightly their hours worked, and report it as such in a survey, without having it negatively impact their salary for the reference week. This issue of societal norms mitigating or driving gendered responses to school closures or a lack of childcare, especially during a national crisis like a global pandemic, is a ripe area for future investigation.

Finally, because it is possible that other characteristic differences between states that closed early and those that closed late are driving these results, even after controlling for important time variant elements like having another working adult in the household, educational attainment, and industry, I conduct a robustness check on the results to test whether this may be true. I rerun the analysis on the not-working outcome variable using data only from January and February 2020—months that occur before major shutdowns driven by COVID-19. Table 8 shows that there is no significant different between early and late closure states in the months before the pandemic for any of the groups. These results provide additional assurance that the original analysis correctly identifies the immediate impact of school closures and stay-at-home ordinances rather than other characteristic differences between the two state groups.

V. Conclusion

While advancements have been made over recent decades regarding women's rights, wage equality, and participation in formal labor markets, this pandemic has made it clear that something has got to give. Moms are trying to juggle multiple responsibilities: the job they get paid to do in the formal labor market alongside the responsibilities of parenting and childcare. In this analysis, I have shown how gender inequality in the domestic sphere of one's life influences inequality outside the household. It is not enough to strive for gender equality in corporate boards and among workforce management, and it is likely that major domestic issues like

disruptions in childcare influence the gender wage gap over time. Parents—especially mothers—remain ever vulnerable to the availability of affordable childcare while they work. Without more formal and intentional systems of care, mothers will forever be vulnerable to career scarring during any major crisis like this pandemic or any other event that triggers an increase in domestic tasks within her household.

I do not examine the impact of the collapse of the childcare industry on long-run employment and labor market attachment of mothers, but it is clear that if we expect a future where mothers reach full employment, public discussions should include explicit plans for affordable and comprehensive quality childcare and strong school infrastructure. The consequences of not creating this environment are immediately relevant for at-risk working mothers. Today, around 70 percent of mothers actually work in the formal labor market, compared with over 90 percent of fathers (author's calculations; not shown). Parents, especially mothers, are one of the groups that are most vulnerable to post-pandemic detachment from the labor market. If we do not include their needs in our public policy discussions of post-pandemic full employment, it will be a missed opportunity for the economy and society at large.

If we are ever going to even the playing field for women and parents in the workforce, we need to prioritize discussions of childcare. The economy can never fully open if schools and childcare remain closed. A gender-equal labor market will never be fully realized unless we acknowledge the double bind of mothers and the dual responsibilities of household production and formal labor market activities that are disproportionately distributed toward women, particularly mothers.

A. Limitations

I do not examine the longer-term impact of the pandemic on parental employment. Rather, I assess the immediate impact on parents by using difference-

in-difference approaches and variation in state closures, which in some cases occur just days apart from one another. I analyze a limited number of outcomes related to economic activity and labor market attachment. Future research should include an analysis of the pandemic's longer-term impact on labor market attachment and earnings, as well as an analysis of any permanently shifted effects on time use within households in the long run. Will mothers be able to keep their jobs as the pandemic continues and they are continually forced to balance childcare, household production, online schooling, and work? Will they experience scarring from having to disengage from work or multitask work with online schooling oversight for their children? Additionally, what role do fathers play in the intermediate and long term? Larger policy discussions should address other factors of wellbeing, including mental health, stress, and material wellbeing.

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TABLE 1—DESCRIPTIVE STATISTICS BY PARENTHOOD AND STATE CLOSURE TIMING

Panel A: Total Population Age 15+ and Parents of School Age Children

	Population Age 15+						Parents of School Age Children					
	Early			*Late*			*Early*			*Late*		
	N		(%)	N		(%)	N		(%)	N		(%)
	Ind	Obs	or Mean	Ind	Obs	or Mean	Ind	Obs	or Mean	Ind	Obs	or Mean
Age	118,471	341,150	47.6	195,860	558,528	48.1	23,590	66,809	41.9	39,112	109,160	41.8
			[19.03]			[19.15]			[8.56]			[8.76]
Female	118,471	341,150	51.9	195,860	558,528	52.2	23,590	66,809	54.7	39,112	109,160	55.3
			[49.96]			[49.95]			[49.78]			[49.71]
Living with at least One Other Adult Age 18-64	118,471	341,150	36.3	195,860	558,528	35.3	23,590	66,809	49.0	39,112	109,160	48.5
			[48.10]			[47.78]			[50.00]			[50.00]
Has at least One Own School-Age Child	118,471	341,150	19.6	195,860	558,528	19.5	23,590	66,809	100.0	39,112	109,160	100.00
			[39.68]			[39.65]			[0.00]			[0.00]
Educational Attainment												
Less than High School	118,471	341,150	14.1	195,860	558,528	13.3	23,590	66,809	10.2	39,112	109,160	8.7
			[34.80]			[33.98]			[30.27]			[28.14]
High School Diploma or Equivalent	118,471	341,150	43.8	195,860	558,528	44.7	23,590	66,809	39.4	39,112	109,160	40.1
			[49.61]			[49.72]			[48.87]			[49.01]
Associates Degree	118,471	341,150	9.4	195,860	558,528	10.1	23,590	66,809	11.3	39,112	109,160	12.0
			[29.21]			[30.09]			[31.70]			[32.49]
Bachelor Degree or Higher	118,471	341,150	32.7	195,860	558,528	31.9	23,590	66,809	39	39,112	109,160	39.2
			[46.92]			[46.62]			[48.78]			[48.83]
Employment Status												
Not in Labor Force	118,471	341,150	39.0	195,860	558,528	39.7	23,590	66,809	18.3	39,112	109,160	17.7
			[48.78]			[48.93]			[38.69]			[38.17]
Unemployed	76,756	207,998	5.6	126,110	336,758	5.1	19,883	54,561	4.4	33,179	89,831	3.9
			[22.96]			[21.94]			[20.59]			[19.48]
Employed, Not Working Prior Week	73,249	196,381	3.8	120,790	319,684	3.7	19,197	52,141	3.3	32,116	86,281	3.2
			[19.19]			[18.83]			[17.79]			[17.61]
Of Those Working…												
Hours Worked Last Week	71,849	188,862	38.3	118,565	307,917	38.7	18,883	50,436	39.8	31,607	83,516	40.1
			[13.04]			[13.14]			[12.23]			[12.37]
Earnings Last Week	37,799	45,324	$1,065.77	61,952	73,864	$1,006.03	10,004	12,035	$1,185.48	16,542	19,784	$1,126.04
			[743.60]			[703.27]			[768.42]			[728.61]
Hourly Wage	22,344	25,618	$19.40	36,581	41,665	$18.72	5,484	6,254	$21.06	10,048	10,048	$20.36
			[11.00]			[10.60]			[11.81]			[11.43]

Panel B: Mothers and Fathers

	Mothers of School-Age Children						Fathers of School-Age Children					
	Early			*Late*			*Early*			*Late*		
	N		(%)	N		(%)	N		(%)	N		(%)
	Ind	Obs	or Mean	Ind	Obs	or Mean	Ind	Obs	or Mean	Ind	Obs	or Mean
Age	12,988	36,567	40.7	21,735	60,413	40.6	10,602	30,242	43.4	17,377	48,747	43.4
			[8.22]			[8.46]			[8.73]			[8.87]
Female	12,988	36,567	100.0	21,735	60,413	100.0	10,602	30,242	0.0	17,377	48,747	0.00
			[0.00]			[0.00]			[0.00]			[0.00]
Living with at least One Other Adult Age 18-64	12,988	36,567	47.0	21,735	60,413	46.0	10,602	30,242	51.5	17,377	48,747	51.7
			[49.91]			[49.84]			[49.98]			[49.97]
Has at least One Own School-Age Child	12,988	36,567	100.0	21,735	60,413	100.0	10,602	30,242	100.0	17,377	48,747	100.0
			[0.00]			[0.00]			[0.00]			[0.00]
Educational Attainment												
Less than High School	12,988	36,567	9.8	21,735	60,413	8.2	10,602	30,242	10.7	17,377	48,747	9.3
			[29.70]			[27.41]			[30.94]			[29.01]
High School Diploma or Equivalent	12,988	36,567	38.4	21,735	60,413	38.9	10,602	30,242	40.7	17,377	48,747	41.6
			[48.64]			[48.74]			[49.12]			[49.29]
Associates Degree	12,988	36,567	12.4	21,735	60,413	12.6	10,602	30,242	10.0	17,377	48,747	11.2
			[33.00]			[33.19]			[29.98]			[31.59]
Bachelor Degree or Higher	12,988	36,567	39.4	21,735	60,413	40.35	10,602	30,242	38.6	17,377	48,747	37.9
			[48.86]			[49.06]			[48.69]			[48.51]
Employment Status												
Not in Labor Force	12,988	36,567	27.2	21,735	60,413	25.8	10,602	30,242	7.6	17,377	48,747	7.6
			[44.50]			[43.77]			[26.50]			[26.58]
Unemployed	9,968	26,617	5.0	16,892	44,812	4.4	9,915	27,944	3.9	16,287	45,019	3.5
			[21.83]			[20.54]			[19.32]			[18.36]
Employed, Not Working Prior Week	9,554	25,282	3.9	16,246	42,835	3.7	9,643	26,859	2.7	15,870	43,446	2.7
			[19.32]			[18.97]			[16.18]			[16.14]
Of Those Working…												
Hours Worked Last Week	9,341	24,300	36.3	15,933	41,233	36.8	9,542	26,136	43.1	15,674	42,283	43.4
			[11.99]			[11.78]			[11.54]			[12.06]
Earnings Last Week	5,008	5,992	$965.66	8,530	10,133	$915.98	4,996	6,043	$1,403.45	8,012	9,651	$1,346.58
			[687.61]			[625.75]			[782.18]			[763.02]
Hourly Wage	2,982	3,402	$19.12	4,908	5,559	$18.33	2,502	2,852	$23.38	3,937	4,489	$22.87
			[11.60]			[10.47]			[11.65]			[12.06]

Source: Author calculations using IPUMS-CPS, University of Minnesota, ipums.org.

TABLE 2—IMMEDIATE IMPACT ON NOT BEING IN THE LABOR FORCE (DETACHMENT)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
2020	1.6765***	2.3237***	2.4480***	2.2265***	3.6630***	4.0388**	2.2322***	3.3690***
	(0.0649)	(0.1565)	(0.2263)	(0.2330)	(0.9955)	(2.4138)	(0.2328)	(1.3238)
Early*2020	0.8694***	0.852	0.8872	0.8124	0.8068	1.0049	0.8077	0.9517
	(0.0437)	(0.0888)	(0.1439)	(0.1458)	(0.2909)	(0.7650)	(0.1545)	(0.7213)
2020*Female							1.0812	1.0183
							(0.1627)	(0.4901)
Early*2020*Female							1.0969	0.825
							(0.2888)	(0.7490)
Controls	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	94,949	94,949	52,315	42,634	10,611	4,289	94,949	14,900
Number of individuals	23,408	23,408	12,832	10,576	2,663	1,072	23,408	3,735

Notes: Models (1), (2), and (7) use an analytical sample of the total working-age population (15+). Models (3) and (4) use a sample of working-age population (15+) women (3) and men (4), respectively. Models (5), (6), and (8) are constructed using an analytical sample of adults with at least one own school age child living with them in the household. Model (5) is mothers only. Model (6) is fathers only. Controls include month, the presence of at least one other working age adult in the household, education level, and industry. All models include individual-level fixed effects and bootstrapped standard errors.

Source: Author calculations using IPUMS-CPS, University of Minnesota, ipums.org.

*** Significant at the 1 percent level.

** Significant at the 5 percent level.

* Significant at the 10 percent level.

TABLE 3—IMMEDIATE IMPACT ON UNEMPLOYMENT CONDITIONAL ON BEING IN THE LABOR FORCE

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
2020	3.4264***	3.8145***	4.4205***	3.3684***	4.5614***	3.7250***	3.4351***	3.7808***
	(0.1996)	(0.2226)	(0.4002)	(0.2251)	(0.6056)	(0.6372)	(0.2474)	(0.6737)
Early*2020	1.0428	1.0378	1.0625	1.0192	1.0988	0.7169	1.0169	0.7122
	(0.0899)	(0.0825)	(0.1504)	(0.1049)	(0.2671)	(0.1964)	(0.1103)	(0.2385)
2020*Female							1.2484**	1.1859
							(0.1306)	(0.3668)
Early*2020*Female							1.0461	1.5501
							(0.2147)	(0.7098)
Controls	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	45,608	45,608	22,417	23,191	5,389	4,467	45,608	9,856
Number of individuals	11,592	11,592	5,669	5,923	1,369	1,128	11,592	2,497

Notes: Models (1), (2), and (7) use an analytical sample of the total working-age population (15+) in the labor force. Models (3) and (4) use a sample of working-age population (15+) women (3) and men (4), respectively, in the labor force. Models (5), (6), and (8) are constructed using an analytical sample of working-age adults in the labor force with at least one own school age child living with them in the household. Model (5) is mothers only. Model (6) is fathers only. Controls include month, the presence of at least one other working age adult in the household, education level, and industry. All models include individual-level fixed effects and bootstrapped standard errors.

Source: Author calculations using IPUMS-CPS, University of Minnesota, ipums.org.

*** Significant at the 1 percent level.

** Significant at the 5 percent level.

* Significant at the 10 percent level.

TABLE 4—IMMEDIATE IMPACT ON NOT WORKING THE PRIOR WEEK CONDITIONAL ON HAVING A JOB

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
2020	1.6784***	1.6785***	1.7562***	1.5977***	1.5963***	1.7922***	1.6061***	1.8042***
	(0.0642)	(0.0759)	(0.0954)	(0.0858)	(0.1407)	(0.2423)	(0.0841)	(0.2132)
Early*2020	1.1998***	1.2023***	1.3184***	1.092	1.6876***	1.1387	1.0931	1.1393
	(0.0800)	(0.0783)	(0.1305)	(0.0933)	(0.2827)	(0.2520)	(0.1046)	(0.2091)
2020*Female							1.087	0.8687
							(0.0847)	(0.1687)
Early*2020*Female							1.2032	1.5041
							(0.1690)	(0.4610)
Controls	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	48,651	48,651	25,621	23,030	6,384	5,242	48,651	11,626
Number of individuals	12,352	12,352	6,520	5,832	1,616	1,288	12,352	2,904

Notes: Models (1), (2), and (7) use an analytical sample of the total working-age population (15+). Models (3) and (4) use a sample of working-age population (15+) women (3) and men (4), respectively, with a job. Models (5), (6), and (8) are constructed using an analytical sample of adults with at least one own school age child living with them in the household. Model (5) is mothers only. Model (6) is fathers only. Controls include month, the presence of at least one other working age adult in the household, education level, and industry. All models include individual-level fixed effects and bootstrapped standard errors.

Source: Author calculations using IPUMS-CPS, University of Minnesota, ipums.org.

*** Significant at the 1 percent level.

** Significant at the 5 percent level.

* Significant at the 10 percent level.

TABLE 5—IMMEDIATE IMPACT ON HOURS WORKED THE PREVIOUS WEEK CONDITIONAL ON HAVING A JOB

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
2020	0.9744***	0.9740***	0.9769***	0.9716***	0.9845***	0.9727***	0.9715***	0.9728***
	(0.0015)	(0.0015)	(0.0023)	(0.0020)	(0.0043)	(0.0037)	(0.0020)	(0.0037)
Early*2020	1.001	1.001	1.0099***	0.9940*	1.0043	0.9869**	0.9940*	0.9867**
	(0.0025)	(0.0025)	(0.0037)	(0.0033)	(0.0069)	(0.0059)	(0.0033)	(0.0059)
2020*Female							1.0058*	1.0121**
							(0.0031)	(0.0058)
Early*2020*Female							1.0159***	1.0175*
							(0.0050)	(0.0093)
Controls	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	438,700	438,700	208,408	230,292	57,730	61,348	438,700	119,078
Number of individuals	132,335	132,335	63,237	69,098	17,471	18,145	132,335	35,616

Notes: Models (1), (2), and (7) use an analytical sample of the total working-age population (15+). Models (3) and (4) use a sample of working-age population (15+) women (3) and men (4), respectively, with a job. Models (5), (6), and (8) are constructed using an analytical sample of adults with at least one own school age child living with them in the household. Model (5) is mothers only. Model (6) is fathers only. Controls include month, the presence of at least one other working age adult in the household, education level, and industry. All models include individual-level fixed effects and robust standard errors.

Source: Author calculations using IPUMS-CPS, University of Minnesota, ipums.org.

*** Significant at the 1 percent level.

** Significant at the 5 percent level.

* Significant at the 10 percent level.

TABLE 6—IMMEDIATE IMPACT ON LOG HOURLY WAGES CONDITIONAL ON HAVING A JOB

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
2020	1.0556***	1.0531***	1.0494***	1.0571***	1.0489***	1.0607***	1.0579***	1.0603***
	(0.0060)	(0.0060)	(0.0084)	(0.0085)	(0.0173)	(0.0190)	(0.0085)	(0.0190)
Early*2020	1.0028	1.0025	0.9993	1.0073	0.9991	0.9908	1.0062	0.9921
	(0.0088)	(0.0088)	(0.0120)	(0.0128)	(0.0240)	(0.0276)	(0.0128)	(0.0276)
2020*Female							0.9912	0.9882
							(0.0113)	(0.0239)
Early*2020*Female							0.9926	1.0056
							(0.0174)	(0.0367)
Constant	16.3672***	15.2175***	14.0304***	15.8407***	15.3814***	17.9576***	15.2256***	16.5347***
	(0.0329)	(0.4684)	(0.6770)	(0.6297)	(1.3634)	(1.7786)	(0.4686)	(1.1126)
Controls	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	67,283	67,283	34,561	32,722	8,961	7,341	67,283	16,302
Number of individuals	58,925	58,925	30,245	28,680	7,890	6,439	58,925	14,329

Notes: Models (1), (2), and (7) use an analytical sample of the total working-age population (15+). Models (3) and (4) use a sample of working-age population (15+) women (3) and men (4), respectively, with a job. Models (5), (6), and (8) are constructed using an analytical sample of adults with at least one own school age child living with them in the household. Model (5) is mothers only. Model (6) is fathers only. Controls include month, the presence of at least one other working age adult in the household, education level, and industry. All models include individual-level fixed effects and robust standard errors.

Source: Author calculations using IPUMS-CPS, University of Minnesota, ipums.org.

*** Significant at the 1 percent level.

** Significant at the 5 percent level.

* Significant at the 10 percent level.

TABLE 7—IMMEDIATE IMPACT ON LOG WEEKLY EARNINGS CONDITIONAL ON HAVING A JOB

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
2020	1.0451***	1.0422***	1.0462***	1.0382***	1.0313*	1.005	1.0380***	1.0058
	(0.0071)	(0.0071)	(0.0099)	(0.0102)	(0.0184)	(0.0193)	(0.0102)	(0.0192)
Early*2020	1.0101	1.0097	1.0194	1.0013	1.0306	1.0181	1.0008	1.0167
	(0.0096)	(0.0096)	(0.0139)	(0.0133)	(0.0248)	(0.0253)	(0.0133)	(0.0253)
2020*Female							1.0082	1.025
							(0.0137)	(0.0268)
Early*2020*Female							1.0184	1.0129
							(0.0194)	(0.0351)
Constant	762.6126***	629.9357***	532.1945***	745.5637***	700.5322***	1,083.6064***	629.7561***	837.1549***
	(1.7722)	(24.6473)	(37.0802)	(36.0022)	(97.2025)	(95.0877)	(24.6425)	(61.2878)
Controls	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	119,188	119,188	58,663	60,525	16,125	15,694	119,188	31,819
Number of individuals	99,751	99,751	49,144	50,607	13,538	13,008	99,751	26,546

Notes: Models (1), (2), and (7) use an analytical sample of the total working-age population (15+). Models (3) and (4) use a sample of working-age population (15+) women (3) and men (4), respectively, with a job. Models (5), (6), and (8) are constructed using an analytical sample of adults with at least one own school age child living with them in the household. Model (5) is mothers only. Model (6) is fathers only. Controls include month, the presence of at least one other working age adult in the household, education level, and industry. All models include individual-level fixed effects and robust standard errors.

Source: Author calculations using IPUMS-CPS, University of Minnesota, ipums.org.

*** Significant at the 1 percent level.

** Significant at the 5 percent level.

* Significant at the 10 percent level.

TABLE 8—ROBUSTNESS CHECK: IMPACT ON NOT WORKING CONDITIONAL ON HAVING A JOB USING ONLY MONTHS PRIOR TO SHUTDOWN

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
2020	0.9302	0.9322	0.9992	0.8611*	0.8612	0.6836	0.8647*	0.7094*
	(0.0647)	(0.0630)	(0.1065)	(0.0700)	(0.1642)	(0.1639)	(0.0743)	(0.1352)
Early*2020	0.9215	0.9241	0.9579	0.9020	1.0285	1.1008	0.9023	1.0627
	(0.1000)	(0.1178)	(0.1299)	(0.1311)	(0.2977)	(0.3641)	(0.1480)	(0.3391)
2020*Female							1.1601	1.243
							(0.1283)	(0.3272)
Early*2020*Female							1.0554	0.988
							(0.2286)	(0.4348)
Controls	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	9,665	9,665	4,893	4,772	1,139	1,018	9,665	2,157
Number of individuals	3,715	3,715	1,887	1,828	445	394	3,715	839

Notes: Models (1), (2), and (7) use an analytical sample of the total working-age population (15+). Models (3) and (4) use a sample of working-age population (15+) women (3) and men (4), respectively, with a job. Models (5), (6), and (8) are constructed using an analytical sample of adults with at least one own school age child living with them in the household. Model (5) is mothers only. Model (6) is fathers only. Controls include month, the presence of at least one other working age adult in the household, education level, and industry. All models include individual-level fixed effects, bootstrapped standard errors, and only the months of January and February.

Source: Author calculations using IPUMS-CPS, University of Minnesota, ipums.org.

*** Significant at the 1 percent level.

** Significant at the 5 percent level.

* Significant at the 10 percent level.

TABLE 9—STATES BY CLOSURE STATUS

Early Closure (N=18)	Late/No Closure (N=33)
California	Alabama
Colorado	Alaska
Delaware	Arizona
District of Columbia	Arkansas
Indiana	Connecticut
Kentucky	Florida
Louisiana	Georgia
Michigan	Hawaii
Ohio	Idaho
Oregon	Illinois
Pennsylvania	Iowa
Rhode Island	Kansas
South Dakota	Maine
Utah	Maryland
Virginia	Massachusetts
Washington	Minnesota
West Virginia	Mississippi
Wisconsin	Missouri
	Montana
	Nebraska
	Nevada
	New Hampshire
	New Jersey
	New Mexico
	New York
	North Carolina
	North Dakota
	Oklahoma
	South Carolina
	Tennessee
	Texas
	Vermont
	Wyoming

TABLE 10 —ROBUSTNESS CHECK IMPACT ON NOT WORKING CONDITIONAL ON HAVING A JOB FOR A SUBSET OF THE SAMPLE

	(1)	(2)	(3)	(4)	(5)
2020	1.4182***	1.6643***	1.6589***	2.0584***	1.6189***
	(0.1273)	(0.1938)	(0.1646)	(0.4984)	(0.2320)
Early*2020	1.3306**	1.017	1.031	1.3409	1.4034
	(0.1871)	(0.1843)	(0.1652)	(0.5564)	(0.3450)
2020*Female			0.8407		
			(0.1172)		
Early*2020*Female			1.3085		
			(0.2914)		
Controls	Yes	Yes	Yes	Yes	Yes
Observations	8,429	6,473	14,902	2,100	4,993
Number of individuals	2,142	1,600	3,742	617	1287

Notes: Model (1) includes all women with children under age 18. Model (2) is all men with children under age 18. Model (3) uses female as an interaction term to compare mothers and fathers of all children under age 18. Model (4) includes women age 18 to 24 with no own school age children in the household (but can have children under age 5). Model (5) is women age 55 to 64 with no own school age children in the household. Controls include month, at least one other working age adult in the household, education level, and industry. All models include individual-level fixed effects and bootstrapped standard errors.

Source: Author calculations using IPUMS-CPS, University of Minnesota, ipums.org.

*** Significant at the 1 percent level.

** Significant at the 5 percent level.

* Significant at the 10 percent level.

TABLE 11—ROBUSTNESS CHECK: IMPACT ON HOURS WORKED CONDITIONAL ON HAVING A JOB FOR A SUBSET OF THE SAMPLE

	(1)	(2)	(3)
2020	0.9710	0.9868***	0.9776**
	(0.0181)	(0.0050)	(0.0090)
Early*2020	1.0286	1.0025	1.0055
	(0.0307)	(0.0082)	(0.0148)
Controls	Yes	Yes	Yes
Observations	3,333	40,020	13,371
Number of individuals	1,132	12,117	4,226

Notes: Model (1) includes mothers with school age children and a spouse who was not working. Model (2) is mothers with school age children and a spouse who was working. Model (3) includes mothers with school age children and no spouse. Controls include month, at least one other working age adult in the household, education level, and industry. All models include individual-level fixed effects and robust standard errors.

Source: Author calculations using IPUMS-CPS, University of Minnesota, ipums.org.

*** Significant at the 1 percent level.

** Significant at the 5 percent level.

* Significant at the 10 percent level.