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DISCUSSION PAPER SERIES

IZA DP No. 15118

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Sabrina Wulff Pabilonia
U.S. Bureau of Labor Statistics and IZA

Victoria Vernon
SUNY Empire State College

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IZA – Institute of Labor Economics

Schaumburg-Lippe-Straße 5–9
53113 Bonn, Germany

Phone: +49-228-3894-0
Email: publications@iza.org

www.iza.org

ABSTRACT

Who Is Doing the Chores and Childcare in Dual-Earner Couples during the COVID-19 Era of Working from Home?*

In 2020, parents' work-from-home days increased fourfold following the initial COVID-19 pandemic lockdown period compared to 2015–2019. At the same time, many daycares closed, and the majority of public schools offered virtual or hybrid classrooms, increasing the demand for household-provided childcare. Using time diaries from American Time Use Survey (ATUS) and looking at parents in dual-earner couples, we examine parents' weekday workday time allocated to paid work, chores, and childcare in the COVID-19 era by the couple's joint work location arrangements. We determine the work location of the ATUS respondent directly from their diary and proxy the partner's work-from-home status using the share of workers reporting work from home in their occupation. When their partners worked on-site, mothers and fathers working from home spent more time on childcare, especially mothers, compared to those on-site; fathers spent more time on household chores. However, only mothers' total unpaid and paid work burden was higher. In the fall, fathers working from home worked substantially fewer paid hours and spent even more time on household production. When both parents worked from home compared to both worked on-site, mothers and fathers working from home worked roughly equally fewer paid hours and did more secondary childcare, though fathers did more household production, suggesting they shared the increased work burden resulting from the pandemic more equally. However, in the fall, only mothers did more childcare when both worked from home. We also find that mothers spread their work throughout the day when working from home.

JEL Classification: D13, J22, J29

Keywords: COVID-19, household production, childcare, telework, remote work, working from home, gender care gap, gender inequality, pandemic parenting

Corresponding author:
Sabrina Wulff Pabilonia
U.S. Bureau of Labor Statistics
2 Massachusetts Ave. NE
Rm. 2180
Washington, D.C. 20212
USA

E-mail: Pabilonia.Sabrina@bls.gov

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1. Introduction

In 2020, social distancing measures to reduce the health threat posed by the COVID-19 pandemic outbreak pushed many workers out of their traditional workplaces into home offices to work remotely for much of the year. According to the June 2020 Current Population Survey (CPS), 31.3 percent of workers reported working at home at some point in the past month because of the pandemic (U.S. Bureau of Labor Statistics, 2020a).[1] By January 2021, that percentage had fallen to 23.2 percent. Between August 19 and December 21, 2020, over one third of households in the Census Household Pulse Survey had at least one member who worked from home more frequently because of the pandemic (Marshall et al., 2021). And from May 10 through December 31, 2020, 28.5 percent of all workdays with at least four hours of work were work-from-home (WFH) days, compared to only 8.4 percent of workdays over the same May–December period in 2019.[2] WFH, either fully remotely or on a hybrid basis, will probably continue at much higher rates around the world, because many firms report having experienced positive results from this massive WFH experiment, and workers save about 75 minutes each day by eliminating their commutes and reducing their time spent on grooming activities (Barrero et al., 2021; Erdsiek, 2021, 2022; Pabilonia & Vernon, 2021, 2022).[3]

This "natural" experiment in WFH provides an opportunity to re-examine the gendered effects of WFH on household production and childcare during the 2020 pandemic year for a larger group of parents WFH than previously possible and to look at the allocation of unpaid

[1] The CPS asks, "At any time in the LAST 4 WEEKS, did you telework or work at home for pay BECAUSE OF THE CORONAVIRUS PANDEMIC?" They may have worked from home for reasons other than the pandemic, and about 4.3 percent of workers were already home-based workers prior to the pandemic according to the American Community Survey (U.S. Census Bureau, 2019).
[2] Authors' own calculations based on the American Time Use Survey.
[3] Dingel and Neiman (2020) and Dey et al. (2020) estimate that as many as 37–45 percent of jobs available just prior to the pandemic could feasibly have been done entirely remotely.

work when both parents are WFH. During the pandemic, children were also more likely to be present in the home during core business hours, because many schools were hybrid or virtual, many children were out-of-school in quarantine, and many daycares and summer camps were closed (Russell & Sun, 2020; Burbio, 2021; Lee & Parolin, 2021).[4] This placed new demands on parents' time, and WFH may have eased this additional care burden, especially for mothers, allowing them to work longer and simultaneously supervise their children. However, these were anything but normal times, as social distancing policies also restricted many leisure activities during the year, potentially influencing how families spent their time together.

In this paper, we examine the weekday workday time allocation of mothers and fathers in dual-earner couples with children under the age of 13, using time diaries from the American Time Use Survey (ATUS), and analyze gender differences in paid work, household production, and childcare during the COVID-19 pandemic by the couple's joint work-from-home status.[5] We focus on parents of young children, because children under the age of 13 generally need more supervision, and some state laws require parents to ensure that their young children are being supervised during the day (World Population Review, 2022), while options for non-household-provided care during the pandemic were severely limited. We can identify the location of work for household respondents directly from their workday diaries and thus determine if they worked exclusively from home on their diary days. Because the WFH status of their partners is not available in the survey, we proxy for it using the share of workers in the partner's occupation who had worked at home in the last four weeks in 2020 because of the pandemic, as reported in

[4] In the fall of the 2020–2021 school year, 60 percent of students started in a virtual K–12 schooling environment, 22 percent in a hybrid schooling environment, and 18% attended in-person only (Burbio, 2021). More students attended in-person later in the fall, with 37 percent still only virtual as of November 2020.

[5] Replication files are located at: https://doi.org/10.5281/zenodo.6282646.

the CPS. With this approach, we can examine how mothers and fathers allocated their time by the couple's joint work location status. Because the survey contains information on who was present during each activity, we can also identify parents who do not appear to be using outside care options for their children during the core working hours of 9 a.m. to 2 p.m. on WFH days and examine whether having a child at home has differential gendered impacts on parents' time use.

We find that a partner's work location arrangement matters for how one allocates their time. Among mothers and fathers in dual-earner couples, we find that, on average, their time spent on childcare on weekday workdays rose substantially during the pandemic. However, we also observe that, on average, fathers' work hours per weekday workday were slightly lower when WFH. Using multivariate regression analysis, we find that when their partners worked on-site, mothers and fathers WFH spent more time on childcare, especially mothers, compared to their counterparts working on-site, and fathers spent more time on household chores. However, only mothers' total paid and unpaid work burden on weekday workdays was substantially higher when WFH. In the fall of 2020, fathers WFH spent substantially more time on household production and less time on paid work.

When both parents worked from home compared to both worked on-site, mothers and fathers WFH spent roughly equally less time working for pay and more time on secondary childcare, though fathers spent more time on chores, suggesting that they shared the increased work burden resulting from the pandemic more equally. However, in the fall of 2020, there was a shift in responsibilities, as only mothers WFH spent more time on childcare when both parents worked from home, and there were no other differences in time allocation.

On weekday workdays when they worked from home but their partners did not, mothers and fathers with a child at home spent 7.6 hours and 4.5 hours more, respectively, on primary and secondary childcare than those without a child at home. When their partners were also at home, they spent equally more time on childcare when a child was at home.

2. Background

This paper fits into several literatures, including the literatures on gender and intra-household time allocation, teleworking and intra-household time allocation, and the emerging literature on the gendered division of household labor during the pandemic. In households with married or cohabiting couples, members of the couple jointly determine how much time to spend on paid and unpaid work. Theories on the economics of the household predict that their time spent on these activities will depend on relative income, productivity differences, labor market constraints on hours, social norms, and bargaining power (Becker, 1965, 1973, 1974; Lundberg & Pollak, 1994; Manser & Brown, 1980; McElroy & Horney, 1981; Schoonbroodt, 2018).

Even though men have increased their time in household production and childcare over the last few decades as women's labor force participation grew, there were still large gender gaps in unpaid work among employed parents prior to the pandemic. Using the 2014–2019 ATUS, Bauer et al. (2021) found that, on average, employed mothers with children under the age of 13 spent over 2 hours more per day on unpaid work than did employed fathers. Alon et al. (2020) find that even among full-time dual-earner couples, mothers do most of the childcare. Bertrand et al. (2015) find that even when the wife earns more than her husband, wives spend more time on home production. The time-use literature also shows that there is gender segregation within the broader household production and childcare activities (Bianchi et al., 2006; Craig, 2006). For

example, mothers do more cleaning and laundry while fathers do more lawn care and home maintenance (Hook, 2010). When spending time with children in direct childcare, fathers do more of the playing and sporting activities while mothers do more of the routine care activities. And these gender divisions in housework are apparent even in the teenage years, with girls doing more of the tasks that mothers do and boys doing more of the tasks that fathers do (Lundberg et al., 2017; Schulz, 2021).

Reducing the chores and care gaps may help mothers to participate to a greater extent in the labor market (Samtleben & Müller, 2021). Flexible workplace polices, such as telework, may help families close these gaps by allowing fathers to increase their time on these activities, although they may also allow mothers to take on extra unpaid work (Pabilonia & Vernon, 2022). In addition, they may help mothers remain in the labor market as they provide greater hours flexibility (Goldin, 2014).

Because of the pandemic-related school and daycare closures, the demand for household-provided childcare increased dramatically. Members of the couple could share this increased responsibility, but the proportional increase may also depend on whether the mother and/or father could work from home and how flexible their employer was with scheduling hours worked. For a detailed review of the empirical literature on the relationship between telework and time allocation in the pre-pandemic period, see Pabilonia and Vernon (2021). Overall, during the pre-pandemic period when remote work was relatively uncommon, the literature suggests that fathers, but not mothers, spend more time on primary childcare on weekdays when they work from home and on the average day if they are a home-based worker, suggesting that increasing telework could close the gender care gap (Carlson et al., 2021; Lyttelton et al., 2021; Pabilonia & Vernon, 2022). However, mothers who work from home spend about a half an hour

more time working with a child in their presence than do fathers, suggesting that mothers may have been more likely to be working from home to help balance their work and family responsibilities (Pabilonia &Vernon, 2022). In addition, women increase their household production on weekdays when they work at home, but not on the average day if they are a teleworker as they shift their time across days of the week (Giménez-Nadal et al., 2019; Carlson et al., 2021; Pabilonia & Vernon, 2022).

Previous research on the effects of the COVID-19 pandemic on time spent on paid work, childcare, and chores suggests that mothers, for the most part, carried the heavier load. However, during the initial lockdown in the U.K., Sevilla and Smith (2020) found a drop in the gender care gap, with fathers on furlough picking up some of the increased demand for household-provided childcare. This is consistent with earlier time-use research by Aguiar et al. (2013) and Bauer and Sonchak (2017), who found that during the Great Recession, U.S. men had relative increases in daily childcare hours. Studying the initial lockdown period in Spain, Farré et al. (2021) found that the gender gap in total hours of paid and unpaid work increased, although men slightly increased their participation in home production activities. Using qualitative responses from the Understanding Coronavirus in America Tracking Survey, Zamarro and Prados (2021) found that in the initial months following the outbreak, mothers in two-parent households were especially hard hit compared to fathers, reducing their hours worked and increasing their time caring for young children when schools closed. Using real-time surveys conducted in March and April 2020 in the U.S., the U.K., and Germany, Adams-Prassl et al. (2020) found that when restricting their sample to those who were WFH, mothers did more of the childcare than fathers. However, in the U.S. and the U.K., mothers and fathers both spent about two hours per workday helping with homeschooling, while German mothers spent more time homeschooling their children

compared to German fathers. Del Boca et al. (2020) show that among dual-earner couples in Italy prior to the pandemic, women spent more time on housework, while childcare was more evenly shared. In addition, they found that men whose partners continued to work on-site after the coronavirus outbreak did more housework, and both men and women who worked on-site spent relatively less time on childcare and homeschooling. During the pandemic, Mexican men increased their time on household chores, but not time caring for children (Hoehn-Velasco et al., 2022). Studying the effects of initial school closures on parents' work arrangements in Japan, Yamamura and Tsustsui (2021) found that full-time employed mothers of primary school-aged children were more likely to work from home than fathers.

Using the CPS, Heggeness (2020) found that mothers of school-aged children were more likely to be absent from work as schools closed in March 2020. Kalenkoski and Pabilonia (2022) found that among married self-employed workers, mothers fared worse than fathers in terms of early employment and hours losses in April and May 2020, presumably because they increased their time on childcare; but having a teleworkable job mitigated some of the negative effects on mothers' hours. They found no differences in hours reductions by remote job status for married women without children. Collins et al. (2020) found that, on average, mothers decreased their work hours by 5 percent, but among couples who were potentially dual-remotely working, mothers of children aged 1 to 5 had a 4.5 times larger reduction in hours than fathers, suggesting that mothers bore the burden of the initial daycare closures. Lyttelton et al. (2021) found that mothers in teleworkable jobs maintained their work hours to a greater extent than those working on-site, with no differences for fathers. Using the May through December 2020 ATUS, Bauer et al. (2021) document that employed mothers of children under age 13 spent 2.8 hours more per weekday providing childcare than employed fathers of children under age 13.

None of the prior studies examined how the remote worker status of the other parent affects the allocation of time to paid and unpaid work among dual-earner couples in the U.S. In part, it is because we do not have data on time use and work location of both mothers and fathers in the same household. The best available time-use data, the ATUS, provides information about only one parent's day and work location. We offer an innovative method to predict the remote status of the other parent and compare differences in predicted hours by the couple's joint work location during the pandemic, and how the presence of a child at home during the day influenced parental time allocation on WFH days.

We hypothesize that if mothers work from home while fathers work on-site, mothers will pick up more of the childcare and chores (and potentially work fewer hours), while if mothers' and fathers' work locations are reversed, then fathers will pick up more of the childcare and chores. If both work from home, mothers and fathers may share the increased burden more equally. However, we expect to see differences in the type of chores parents do along traditional gendered social norms. In addition, children may seek the attention of their mothers, who have been their primary caregivers, more than their fathers, making it an empirical question what will happen when both caregivers are working at home. If children are at home during their schooldays, we expect that this will have a larger effect on mothers' time allocation.

3. Data and Descriptive Statistics

3.1 *American Time Use Survey*

The ATUS is a nationally representative sample of individuals in households who have recently completed their final CPS interview.[6] There is only one respondent per household and,

[6] All ATUS interviews are conducted 2–5 months following the eighth and final CPS interview, although most are interviewed 3 months later.

besides updating some demographic and labor market information for the household members, the respondent completes a single day diary, sequentially reporting their primary activities from 4 a.m. on the day prior to the interview to 4 a.m. on the day of the interview. The only secondary activity reported on an ongoing basis is secondary childcare, which captures time when children under the age of 13 are under their care but not necessarily in the same room. For most activities, the respondent also reports where the activity took place and who was in the room with them if at home or who accompanied them if away from home (except for time sleeping, grooming, on personal activities, and when the respondent did not remember the activity or refused to answer). Estimates of time spent on activities from the ATUS are preferable to estimates from surveys asking respondents about usual time spent or time spent over the last week, as they suffer less from recall bias, aggregation bias, and social desirability bias (Juster, 1985; Robinson, 2002).

During the initial COVID-19 shutdown, ATUS interviewers did not conduct interviews; thus, we use time diaries from May 10, after interviews resumed, through the end of 2020 for our pandemic period analyses. To compare how time use changed because of the pandemic, we compare with time spent in the same May 10–December 31 period in 2015–2019.

3.2 *Analysis Sample*

Our main analysis sample includes fathers and mothers who are members of a dual-earner different-sex couple living with own household children under the age of 13 in which each member of the couple was aged 22–60.[7] We include married and cohabiting parents and control for cohabitation status in our multivariate analysis. We also include both those working full-time and part-time and the self-employed, who generally have greater flexibility in scheduling the location and timing of their work hours. Our analyses focus on those interviewed

[7] Own children in the ATUS include biological, adopted, and stepchildren.

on weekday workdays who worked for at least one hour. We restrict to workdays with at least one hour of work to compare regular workdays with more normal working hours rather than days when people work for relatively brief spells of time to take an occasional phone call or answer an email as they stay in touch with the office or their clients. Our sample include 277 parents in 2020 and 1,642 parents in 2015–2019. See Appendix Table A1 for details of the sample construction.

In sensitivity analyses, we consider several subsamples of parents working on weekdays in 2020, including parents who are working full-time and whose partners are also working full-time and who thus have more similar hours (N = 189), those working from home so we can observe how time changes when a child is also at home (N = 126), and those interviewed in the fall when we also control for the likelihood of their children being in virtual or hybrid schooling (N = 131).

3.3 *Time Use Categories*

We examine differences in three major activities—paid work, childcare, and household production—as well as subcategories of interest by the couple's work location status. We report estimates for work and work-related activities on all jobs, excluding commuting time (estimates are similar when looking at work on the main job only). We also look at time spent working while also caring for children (either in the same room or as a secondary activity). For childcare activities, we consider all time when children are under their care, which comprises both primary and secondary childcare, and all time with children present (we refer to the latter as "face time" with children). Primary childcare includes time on educational activities such as homework, but we do not look at this activity separately, as few reported this as a primary activity. It is likely that parents are supervising children's homework and schooling time while doing another

activity, and so this time will be included in secondary childcare and face time with children. We include time with all household children and own non-household children on the household roster who are under the age of 18. We examine separately time spent on the following household production subcategories: cooking, housework, home and vehicle maintenance, and shopping. See Appendix Table A2 for more details on the construction of these time-use categories.

3.4 *Working-from-home (WFH) Status*

For respondents, we determine their work location directly from their time diaries. If the respondent did all their work activities from home, then we classify them as a WFH worker. Those classified as working on-site also may have done some work from home on their diary day, after working in the office, or worked in other locations, such as in a coffee shop.

We proxy for their partner's WFH status with a continuous measure of how teleworkable the partner's job is, which we construct from the CPS COVID-19 supplement question that asks whether any work was done at home *because of the pandemic* in the past 4 weeks. Specifically, we estimate the shares of men and women aged 22–60 who teleworked in the May through December 2020 CPS for each detailed occupation (U.S. Bureau of Labor Statistics & U.S. Census Bureau, 2020–2021). While some workers were already regularly working from home pre-pandemic, the take-up rate by occupation because of the pandemic corresponded strongly with the pre-pandemic take-up in telework-feasible occupations (Dey et al., 2021). We assign these shares by gender of the partner to the partner's WFH variable using the same detailed occupation code for the partner's main job from their final CPS interview.[8] This variable ranges

[8] Note that the ATUS updates the respondent's employment status and usual hours between their final CPS and ATUS interviews and their occupation if their employment status or their job changed between interviews or was missing or imputed in the CPS; however, only the employment status and usual hours of the spouse/partner is collected in the ATUS.

from 0 to 0.82 (see Appendix Figure A.1).[9] Using this measure, 37 percent of fathers' partners and 32 percent of mothers' partners were classified as WFH (Table 1).

3.5 *Childcare Constraints*

To capture the effects of school and daycare closures or children who are home under quarantine after COVID-19 exposures at school or who are sick themselves, we construct a child-at-home indicator variable (*CHILDHOME*). Specifically, we identify whether the respondent either reported that a child was present in the room or they were doing secondary childcare for at least five minutes during the core work/school hours of 9 a.m. and 2 p.m. On weekday workdays in 2020 when WFH, 53 percent of fathers and 75 percent of mothers had at least one child of any age home during those core hours (Table 1). Also using data from Burbio (2021), we create a virtual schooling indicator variable equal to one if 60 percent of students in the state had virtual or hybrid schooling in September 2020 and zero otherwise, which we include as a control when examining differences in time use by the couple's WFH status in the fall of 2020. This variable measures parents' and schools' intentions for the 2020 fall semester.

3.6 *Descriptive Statistics*

Table 1 presents summary statistics for our pre-pandemic and pandemic parent samples by gender. Throughout the analysis, we use ATUS final weights that we reweighted to ensure equal-day-of-the-week representation by gender and year. We also use reweighted replicate weights and compute empirically-derived standard errors, given the complex survey design. We see that the composition of the dual-earner parent sample during the pandemic differed from the composition of the pre-pandemic sample along a few dimensions—mothers earned higher wages,

[9] As a sensitivity analysis, we also estimated a specification using a binary variable for the partner's WFH status based on whether their occupation could plausibly be done entirely remotely (Dingel & Neiman, 2020).

fathers were more likely to be black, fathers were more likely to be working in a professional and technical occupation, mothers were less likely to be working in public administration, and parents were more likely to be WFH and to have a child at home on WFH days.

Figure 1 shows that the percentage of weekday workdays worked exclusively from home increased dramatically for mothers and fathers between 2015–2019 and 2020, with mothers having substantially higher telework take-up rates. Before the pandemic, only 8 percent of fathers' workdays and 12 percent of mothers' workdays were spent working exclusively from home. However, during the summer and fall of 2020, 35 percent of fathers' workdays and 47 percent of mothers' workdays were worked exclusively from home—a fourfold increase in work at home.

Comparing unadjusted means for our major time-use categories across time and gender, we find that, on average, mothers and fathers in dual-earner couples spent substantially more time caring for their children on weekday workdays because of the pandemic—fathers spent 1.2 hours more on childcare and mothers spent 2.5 hours more on childcare (Figure 2). Almost all this additional time was in secondary childcare while doing other activities (see Table 1). As a result, the gender care gap increased by 1.3 hours, from 1.8 hours to 3.1 hours. Mothers and fathers also increased their total face time with children by about half an hour. Fathers worked slightly fewer paid hours during the pandemic, and the gender gap in paid work hours fell from 1.7 hours before the pandemic to 0.9 hour during the pandemic. Time spent on household production did not change, on average, although there was a statistically significant gender chores gap in both periods (a gap of 0.9 hours prior to the pandemic and a gap of 0.6 hours during the pandemic). We see, however, that fathers increased their time on home maintenance activities, an activity that women spend relatively little time doing, from 0.2 hours to 0.4 hours.

Overall, the gender gap in total hours of work (paid and unpaid) among dual-earner couples increased by 0.5 hours, from 0.3 hours to 0.8 hours.[10]

Looking at the unadjusted means for our major time-use categories by WFH status during the pandemic (Figure 3), we find that mothers WFH worked slightly fewer paid hours than mothers working on-site, 7.4 hours vs. 7.8 hours. For fathers, the difference was more substantial. Fathers WFH worked 1.1 fewer paid hours than those working on-site, 9 hours vs. 7.9 hours. This contrasts with Barrero et al. (2020), who find that workers reallocated their commute time to working longer hours, but it is consistent with the pre-pandemic findings in Pabilonia and Vernon (2022). The largest differences in means by work location were in childcare time, especially for mothers. Mothers working on-site spent 5.5 hours caring for children while mothers WFH spent 10.6 hours caring for children. Fathers working on-site spent 3.7 hours caring for children while fathers WFH spent 7 hours caring for children. There were also sizeable differences in face time with children by work location. Mothers working on-site spent 4.1 hours with children while those WFH spent 6 hours with children. Fathers working on-site spent 2.9 hours with children while those WFH spent 4.5 hours with children. We see little difference in mothers' hours spent on household production by work location (1.6 hours on on-site days and 1.7 hours on WFH days). Fathers WFH, on the other hand, spent 0.3 hours more on household production than those working on-site, 1.2 hours vs. 0.9 hours.

Figures 4 and 5 show the percentage of fathers and mothers spending time with their children by the time of day and location of their work before and during the pandemic. For fathers WFH, we see an increase during the pandemic in the percentage spending time with children between 8 a.m. and 1 p.m., when children are usually in school (Figure 4). For mothers

[10] Total hours of work = paid work + primary childcare + household production + secondary childcare (excluding time when the primary activity is paid work or household production).

WFH, the increase during the pandemic in the percentage spending time with children was only in the morning hours, 8 a.m. to 11 a.m. (Figure 5). It is possible that prior to the pandemic, more mothers were working part-time in the morning from home while their children were in daycare or in-person school. In the after-school hours between 2 p.m. and 5 p.m., fewer mothers were spending time with children on WFH days during the pandemic, though mothers WFH spent more time with their children in the after-school hours than mothers working on-site, both before and during the pandemic.

During the pandemic, mothers and fathers WFH spent on average 1.6 hours and 0.8 hours per day working with children in their presence respectively (Table 2), which exceeds pre-pandemic averages by 0.8 hours and 0.2 hours respectively. Parents spent even more time WFH with children in their care (secondary childcare). During the pandemic, mothers spent 4.9 hours working with children in their care while fathers spent 2.6 hours working with children in their care. Both before and during the pandemic, mothers WFH had more work episodes than mothers working on-site (2.9 episodes vs. 2.3 episodes during the pandemic and 3.3 episodes vs. 2.4 episodes in the pre-pandemic period). Fathers WFH experienced fewer interruptions in their work during the pandemic than prior to the pandemic, which would be consistent with fathers positively selecting into WFH to attend to family matters in the pre-pandemic period or fathers working fewer hours during the pandemic (see Table 1). Thus, mothers potentially experienced more disruptions from their children while WFH than did fathers.

Figure 6 shows that during the pandemic, there was a significant percentage of parents working at home with children present or under their care between 8 a.m. and 12 p.m., when children are normally in school. This was especially true for mothers. Many were likely supervising their children's online studies while working. Mothers were also less likely to be

working in the afternoon hours (2 p.m. to 4 p.m.) and more likely to be working later in the evening (7 p.m. to 10 p.m.) than fathers. Thus, some mothers were likely shifting the timing of their work to after their children had gone to sleep for the night. McDermott and Hansen (2021) also found evidence that workers on GitHub reallocated their work hours outside the traditional core business hours of 9 a.m. to 6 p.m. in the early stages of the pandemic, but more so men than women. Looking at NLSY97 respondents in the spring of 2021, Aughinbaugh and Rothstein (2022) find that among those working exclusively at home, mothers were more likely to report that children's remote learning made it difficult to work or do other household tasks than were fathers (65 percent vs. 58 percent). Overall, we find that many parents, especially mothers, who were WFH were doing so with children in their presence or in the home and under their supervision during the pandemic, which could have negatively affected their productivity while working (Adams-Prassl, 2021).

4. Econometric Models

As a baseline specification, for parents on weekday workdays in the pre-pandemic period (2015–2019) as well as during the pandemic (2020), we begin by estimating the following linear model by ordinary least squares (OLS) that allows time use to vary by work location and gender:[11]

$$Y_i = \gamma_0 + \gamma_1 Female_i + \gamma_2 WFH_i + \gamma_3 WFH_i \times Female_i + \gamma_4 X_i + \nu_i \quad (1)$$

where Y_i is time spent on an activity measured in hours per day for individual i, $Female_i$

[11] Even though some parents do not participate in an activity on their random diary day, we believe that most regularly participate in the activities that we examine; therefore, OLS generates unbiased estimates (Stewart, 2013). An exception may be time spent on home maintenance and shopping.

is an indicator for whether the individual is female, WFH_i is an indicator for whether the individual was working exclusively from home on their diary day, X_i is a vector of control variables, and ν_i is the error term. In all specifications, control variables include a quadratic in age, log hourly wages, and indicators for cohabitation status, an extra adult in the household (in addition to the spouse/cohabiter), lives with child aged 0 to 5, education (some college, bachelor's degree, advanced degree), paid hourly, part-time, partner part-time, self-employed, race/ethnicity (non-Hispanic black, Hispanic, non-Hispanic other race), living in a metropolitan area, 4 major occupation groups, 9 major industry groups, month in survey, and Census region. In the pre-pandemic analysis, we also control for year. γ_0 is a constant term. The coefficients γ_1 through γ_3 and the coefficient vector γ_4 are to be estimated.

For our preferred specification, for parents on weekday workdays in 2020, we estimate several linear models by OLS as follows:

$$Y_i = \beta_0 + \beta_1 Female_i + \beta_2 WFH_i + \beta_3 PARTNER\_WFH_i + \beta_4 WFH_i \times Female_i + \beta_5 PARTNER\_WFH_i \times Female_i + \beta_6 WFH_i \times PARTNER\_WFH_i + \beta_7 WFH_i \times PARTNER\_WFH_i \times Female_i + \beta_8 X_i + \varepsilon_i \quad (2)$$

where Y_i, $Female_i$, and WFH_i are as defined above, $PARTNER\_WFH_i$ is the share of workers who worked from home in the partner's occupation, X_i is the vector of control variables described previously (when examining fall diaries only, we also include an indicator for whether they live in a state where most public-school students started the school year in virtual or hybrid schooling), and ε_i is the error term. The model includes interaction terms between $Female_i$, WFH_i, and $PARTNER\_WFH_i$ to capture gendered effects when both partners work from home. β_0 is a constant term. The coefficients β_1 through β_7 and the vector of coefficients β_8 are to be estimated.

In a third model, we examine only parents WFH and allow for time use to vary by gender, whether a child is at home, and whether their partner has a WFH job. Specifically, we estimate linear models using OLS as follows:

$$Y_i = \alpha_0 + \alpha_1 Female_i + \alpha_2 CHILDHOME_i + \alpha_3 PARTNER\_WFH_i + \alpha_4 Female_i \text{ x } CHILDHOME_i + \alpha_5 Female_i \text{ x } PARTNER\_WFH_i + \alpha_6 CHILDHOME_i \text{ x } PARTNER\_WFH_i + \alpha_7 Female_i \text{ x } CHILDHOME_i \text{ x } PARTNER\_WFH_i + \alpha_8 X_i + \eta_i \quad (3)$$

where the variables are as defined previously. α_0 is a constant term. The coefficients α_1 through α_7 and the coefficient vector α_8 are to be estimated. η_i is the error term.

5. Results

For ease of interpretation, given the numerous interaction terms in the econometric models, we predict average daily hours for activities on weekday workdays and report differences in these predicted hours for working parents in dual-earner couples by WFH status. When we control for the partner's WFH status, we calculate predictions setting $PARTNER\_WFH_i$ first to 0 (fully on-site job) and then to 0.7 (WFH job). We choose 0.7 to predict hours for those in WFH jobs, because few of our observations have a value exceeding 0.7 for this WFH index (see Appendix Figure A.1). In the tables, we refer to the respondent and partner as WFH or not WFH.

5.1 Baseline Results: Pre-pandemic vs. Pandemic WFH Differences

In Tables 3 and 4, we show differences in time spent on weekday workdays by WFH status from equation 1, when we do not control for partner's WFH status, for both the pre-pandemic and pandemic periods. Thus, the differences show how fathers and mothers WFH spent their time compared to those working on-site on average. Prior to the pandemic, workers

may have selected into telework based on unobserved preferences for spending time with children and working, or because they had extenuating circumstances such as caring for a child with a disability. They may also have chosen a job allowing more flexible hours, allowing them to optimize their time with their children. Likewise, employers may have been selective in whom they allowed to work from home, perhaps choosing their most trustworthy or productive workers. The pandemic is a unique setting to study the impact of telework, because many of these selection issues are minimized. Yet, the pandemic created other issues: workers saw their non-household childcare options diminish and choices for leisure activities reduced. They also may have been concerned about the health threat and thus chose to keep their children home and to reduce their leisure activities. Those who could work from home were also more likely to be in full-time good-paying jobs, and many were WFH who had never done so before, because their workplaces were closed or unavailable to them (Bonacini et al., 2021; Parker et al., 2020; Marshall et al., 2021). They were also more likely to have a partner working remotely alongside them. Thus, we expect to see differences in how workers spent their time when they worked from home versus a traditional workplace in these two periods, as the composition of the groups of workers has changed by work location.

The first two rows of each panel of Tables 3 and 4 highlight the overall gender gaps in time use for those working on-site and then those WFH when we control for demographic and job characteristics. We observe substantial gender gaps in unpaid and paid work activities. Regardless of WFH status, mothers work fewer paid hours, although the gender gap was much smaller and not statistically significant among those WFH during the pandemic (Table 3).[12] Mothers also spend more time on primary and secondary childcare and have more face time with

[12] We present hours differences for all work and work-related activities here. Results for paid work for the main job only are similar, as few parents have second jobs.

their children. The gap in secondary childcare was especially large during the pandemic and especially among those WFH, suggesting that mothers bore the brunt of the increased demand for household-provided childcare.

Mothers also spend more time on household production; there are some gender gap differences in the household production subcategories that are consistent with traditional gender patterns in within-household specialization (Table 4). Mothers spend more time cooking than do fathers. Fathers, on the other hand, spend more time on home maintenance. Prior to the pandemic, mothers also spent more time on housework and shopping activities than did fathers. During the pandemic, mothers and fathers spent equal time on housework and shopping activities.

The next three rows of each panel show hours differences for fathers and mothers between those WFH and those working on-site, and whether there was a gender difference in these differences. Both before and during the pandemic, fathers WFH worked fewer paid hours and spent more time on childcare and with their children, on average, relative to those working on-site (Table 3). However, during the pandemic, the gap in both secondary childcare time and face time with children by WFH status increased by 0.3–0.4 hours on average for fathers. During the pandemic, the gap in time spent on secondary childcare by WFH status expanded substantially for mothers from 3.1 hours to 4.4 hours, while the gap in face time with children fell from 2.5 hours to 1.8 hours. Before the pandemic, mothers WFH worked fewer paid hours compared to mothers working on-site, but in 2020 there was no difference. The gender difference in the gap in time spent working by WFH status was larger for mothers in the pre-pandemic period. During the pandemic, the gender difference in the gap was smaller and not statistically significant. Before the pandemic, the gender difference in the gap in face time by WFH status

was larger for mothers by 1.2 hours. During the pandemic, we find that the gender difference in the gap in total childcare (primarily through secondary childcare) by WFH status was larger for mothers by 1.7 hours, while the gender difference in the gap in face time by WFH status was small and not statistically significant.

Before, but not during, the pandemic, mothers and fathers WFH did more overall household production relative to those working on-site: fathers spent more time on cooking, housework, and home maintenance activities (although only the difference in time spent cooking was statistically significant at conventional levels) and mothers spent more time on cooking, housework, and shopping (Table 4). Only the gender difference in the time spent shopping by WFH status was statistically significant. During the pandemic, fathers WFH spent more time cooking than fathers working on-site. Otherwise, we find no statistically significant gender differences in the ways men and women responded to the WFH shift in terms of chores.

5.2 Preferred Results: Controlling for Partner's WFH Status During the Pandemic

In Table 5, we show differences in predicted hours spent on work, childcare, and chores of one partner by the couple's joint WFH status during the pandemic period from equation 2, our preferred specification.[13] (Predicted hours for mothers and fathers by the couple's joint work location are in Appendix Table A.5.) In rows 1 and 2 of each panel of Table 5, we show differences by the respondent's own WFH status when the partner does not work from home. Row 3 is the gender gap in the differences. Then we show differences by the partner's WFH status, first when the respondent does not work from home (rows 4 and 5) and then when the

[13] If we instead control for partner's remote job status based on Dingel and Neiman (2020), estimates are similar, with only a few differences in the differences in face time with children by the couple's WFH status (see Appendix Table A.3). As a sensitivity analysis, we estimated equation 2 for a sample of all parents with children under the age of 18, i.e., we added families with only teenagers to the sample. Our results are similar on household production. However, we find no differences looking at primary childcare time, and our differences by WFH status for face time change a bit (Appendix Table A.4).

respondent works from home (rows 6 and 7). In rows 8 and 9, we show the differences when both partners work from home versus both work on-site. In row 10, we show the gender gap in those differences.

During the pandemic, we find no statistically significant difference in hours of paid work by work location for either fathers or mothers whose partners worked on-site. Both fathers and mothers spent more time caring for their children when WFH compared to their on-site counterparts if their partners worked on-site (4.1 hours and 7 hours, respectively), but the sizeable difference by gender is not statistically significant, which is likely due to the relatively small sample size and large standard errors. Most of the additional care time was in secondary childcare (3.3 hours and 5.9 hours for fathers and mothers, respectively), but they also spent more time on primary childcare (0.8 and 1.2 hours, respectively). In addition, they had more face time with their children (2.2 hours and 3.4 hours, respectively). Thus, much of the additional care time appears to have been indirect care, done while doing other activities, especially for mothers. However, fathers who worked from home rather than on-site and whose partners worked on-site spent 1.1 hours more on household production, increasing time on cooking, housework, and home maintenance.

We then look at differences in time allocation between those with partners WFH and those with partners working on-site. For fathers and mothers who worked on-site, we find no differences in their time spent on work and childcare, but fathers did more household production (especially more housework and home maintenance) and mothers spent more time shopping when their partners worked from home. Mothers WFH spent 3.3 hours less time interacting with and supervising children when their partners worked from home rather than on-site.

Comparing parents' time allocation when both members of the couple were WFH to those in which both members were working on-site, we find that mothers and fathers worked about 1.3 hours less, spent 3.7 hours more time in childcare, and spent 0.5–0.7 hours more on household production when both were WFH, with equally comparable gaps in time for mothers and fathers.

Although not the focus of our study, we also examined how sleep time during the pandemic differed by the couple's WFH status. Interestingly, when mothers worked on-site, fathers WFH slept 1.1 hours longer than those working on-site (Appendix Table A.6). This was primarily due to their waking later in the morning (Appendix Figure A.2). Thus, fathers in these households likely reallocated much of the reduction in their commutes and work time to sleeping longer. Mothers, on the other hand, all likely had to rise at the same time to handle the increase in their total work burden as a result of the pandemic. These results overall suggest that a partner's work location arrangement matters for how one allocates their time.

5.3 Parents in Full-time Dual-earner Couples

Dual-earner couples who both maintained full-time paid work hours during the pandemic faced even tighter constraints on their time and therefore may have specialized in various non-market activities to a larger extent. Compared to when both members of the couple worked on-site, mothers in full-time dual-working-from-home couples worked 1.9 hours less on weekday workdays. When their partners did not WFH, full-time working fathers and mothers spent more time caring for children when WFH relative to fathers and mothers working on-site (4.6 and 8.2 hours more, respectively). Fathers spent almost all this difference in childcare as a secondary activity (4.3 hours) while mothers spent 1.7 hours more on primary childcare and 6.6 hours more on secondary childcare. Fathers WFH also spent 1.3 hours more on household production

compared to those working on-site when their partners did not WFH. Overall, the differences in time use are slightly larger when we exclude part-time workers from the sample.

We again ask how parents' time allocation varies by their partners' WFH status. For fathers not WFH, we find that they spent more time on secondary childcare and household production if their partners were WFH rather than on-site. A plausible explanation is that their children were in virtual schooling, which their female partners managed during the day, and they picked up additional supervisory care activities in their off hours so that their partners could work into the evening, i.e., tag-team parenting (see Figure 6). Fathers and mothers also spent more time on secondary childcare when they both worked from home compared to when they both worked on-site, and the estimated difference is similar by gender.

Thus, one partner's work location affects the other partner's time spent in childcare. The results using the full sample of dual-earner parents and the subsample of full-time dual-earner parents both suggest that the gender care gap increased when mothers worked from home and their partners did not, but when only fathers worked from home, the gender care gap decreased. When both worked from home, the gender care gap did not change.

5.4 Childcare Constraints

Many parents who worked from home did so with a child at home during the day, potentially in the same room. To examine the impact of these additional childcare constraints, we restrict the sample to parents WFH and examine how their time differed by whether a child was also at home and whether their partner's WFH status mattered. In this analysis, the parent did not have to be working at the same time as caring for their child. They may have cared for their child during the child's school day, or when their preschool-aged child was more alert in the morning,

and done their paid work later in the day as employers expanded their work flextime policies during the pandemic.[14]

First, we compare time by child-at-home status for those with partners working on-site. Fathers with children at home spent more time on secondary childcare (6.2 hours more) but less time on primary childcare (1.7 hours less) than fathers whose children were at school during the day (Table 7). Fathers may have been substituting the kind of care they provided, possibly because it takes time to get a child ready for school, or there may have been differences in the age composition of the household children that we are not fully capturing in our model.[15] They also spent 1.9 hours less on household production, perhaps as they focused on balancing the work and childcare responsibilities that fell on their shoulders, or they may have shifted their chores to weekend days. Mothers spent 7.6 hours more on all childcare on WFH days when a child was at home, which was almost equally split between primary and secondary childcare. They also had 5.1 hours more face time with their children, which suggests that fathers did more supervisory type care while mothers did more of the interactive care. Indeed, there are statistically significant differences in how mothers and fathers responded to having a child at home, with mothers spending relatively more time on primary childcare (5.2 hours more), face time with children (5.5 hours more), and household production (2.6 hours more) when children were at home than in care or at school.

Turning to parents whose partners were also WFH, we find that fathers with a child at home worked 2 hours less than those without a child at home. They reallocated this decrease in

[14] Using the ATUS time diaries, Stewart (2010) found that mothers of preschoolers working part-time tended to shift their work schedules to later in the day so they could maximize their time in enriching child-care activities at times most appropriate for child development.
[15] We tried one specification including an additional control for children aged 0–2. Our conclusions are similar.

work time to primary and secondary childcare and household production. In contrast, mothers decreased their primary childcare time and increased their secondary childcare time compared to when their child was at school. Thus, it appears that fathers WFH picked up some of the increased demand for household-provided primary childcare and home production.

5.5 *Fall 2020*

We also examined differences in predicted time spent on activities on fall diary days (September– December of 2020), when parents were more likely to be differentially affected by the fall 2020 school closures, and we can include a proxy for those closures.[16] In the fall, fathers WFH without a partner WFH worked 4.1 hours less than fathers working on-site (Table 8). This is a substantial difference from the larger-diary sample, suggesting that there was a shift in either who was WFH or the responsibilities within the household as the pandemic progressed. Fathers reallocated the decrease in work time to childcare and household production, spending about 0.9 hours more on primary childcare and 2.4 hours more on household production. In addition, their secondary childcare time increased by 4.2 hours and they spent 5.4 hours more in the presence of their children. Thus, when a partner could not work from home, being able to work from home did not mitigate the negative effects of the pandemic on fathers' work time when they were faced with the challenge of balancing work and childcare responsibilities in the fall. Mothers WFH without a partner WFH spent more time on secondary childcare time only compared to mothers working on-site, suggesting that they did more multitasking.

Fathers working on-site did more household production when their partners were WFH compared to when their partners were also working on-site, but there was no change in their childcare time. It is possible that their partners were home caring for children and their own work

[16] Results are very similar when we exclude this control variable.

activities during the day and thus unable to manage the daily chores as well. Thus, the couple may have met the increased demand for household-provided childcare and chores by specializing more in within-household tasks. Conversely, fathers WFH spent less time on household production and had less face time with their children when their partners were also WFH than when their partners were working on-site, suggesting that their partners were managing domestic matters.

Comparing time in couples where both worked at home to both worked on-site, we find no differences in fathers' time allocation. Mothers, however, spent 3.9 hours more on childcare while maintaining their hours when WFH, again pointing to mothers increasing their time multitasking. Thus, when both parents worked at home in the fall, mothers were the designated primary caregiver, i.e., we find a continuation of traditional gender roles in the household. These results suggest that childcare responsibilities may interact with paid work from home in different ways for mothers and fathers, which could have differential effects on their productivity at work.

5.6 *Total Unpaid and Paid Work on Weekday Workdays*

In a final comparison, we examine differences in the total work burden on weekday workdays by the couple's WFH status (Table 9). We find that mothers WFH spent 1.4 hours longer on paid and unpaid work combined than mothers working on-site when their partners worked on-site, which is slightly more than they saved on commuting time (Pabilonia & Vernon, 2022). These results also hold true for mothers when we examine those in dual-earner couples where both members of the couple were working full-time. However, these differences were concentrated in the earlier days of the pandemic, as we find no difference when looking only at the fall diaries.

6. Conclusion and Discussion

The COVID-19 pandemic has resulted in extraordinary demands on employed parents to increase household-provided childcare, while trying to maintain their paid work hours. Some could do so because there was simultaneously a massive social experiment in working remotely. Among dual-earner parents with children under age 13, we observe that 35 percent of fathers' workdays and 47 percent of mothers' workdays were worked from home between May 10 and December 31, 2020, a fourfold increase compared to the four years preceding the pandemic.

Using time diaries from ATUS, which provide more accurate estimates of time use than those from global recall questions, we examine the gendered effects of the COVID-19 pandemic in the medium-run on time spent on paid work, chores, and caregiving by mothers and fathers in dual-earner couples and investigate how their weekday workday time allocation differed by the work location arrangements of the couple and by whether their child was at home during the workday. Mothers were primary caregivers prior to the pandemic. Confirming findings based on the initial Great Lockdown period, our analyses for the 2020 post-lockdown period show that although both genders picked up some of the extra childcare burden when they worked from home but their partners did not, mothers increased their time on childcare relatively more. When the couple was dual-remotely working relative to both working on-site, mothers and fathers spent equally more time on childcare. It is only when mothers are likely to be working on-site and fathers are WFH, and thus are more available to their children, that we see the gender care gap decrease. However, only fathers spent more of their time on household production activities when WFH. In the fall of 2020, mothers, but not fathers, in dual-remotely-working couples spent more time caring for children relative to those in couples where both members worked on-site. This could have been because children view mothers as their primary caregivers and thus

demanded their attention, or because mothers and fathers fell back into traditional gender roles regarding household specialization in caregiving, especially with regard to online schooling.

When they worked from home, parents whose children were at home, but whose partners were not, spent significantly more time on childcare than those whose children were not at home. For fathers, most of that time was supervisory childcare, while for mothers, the time was evenly split between primary and secondary childcare time. In addition, mothers were more likely to be working with children in the same room than were fathers (and both were doing this more than when WFH before the pandemic). Mothers were also more likely to spread their working hours throughout the day, with breaks in between work episodes, and to be working in the evening, when their children may have been sleeping. These potential disruptions in mothers' working time could have negatively affected their productivity in paid work (Adams-Prassl, 2021) and thus contributed to some of the continued exit of mothers from the labor force in 2021 (Heggeness & Suri, 2021), as multitasking and work interruptions have negative implications for mothers' well-being (Offer & Schneider, 2011).

These findings suggest that a significant expansion of telework policies may not help to close the gender care gap even while some fathers will increase their time with children, which may have positive benefits for children and families (Fiorini & Keane, 2014; Hsin & Felfe, 2014; Caetano et al., 2019). Given that women have expressed more interest in continuing to work entirely remotely post-pandemic than have men (Parker et al., 2020), these results suggest that the gender care gap could, instead, rise, though their children will be back in school. However, the gender chores gap may fall if fathers continue to work from home to a greater extent than they did prior to the pandemic. At the same time, an increase in the availability of remote jobs

may allow mothers to maintain greater labor force attachment, especially if they can find outside care options.

We also find that parents WFH during the pandemic worked fewer hours than those working on-site, especially fathers working during the fall months. This experienced decrease in time working and increase in time with children because of the pandemic may lead to fundamental changes in how fathers spend their time in the post-pandemic period. Recent work by Stevenson (2021) suggests that fathers' attitudes about desired work hours and care time may be changing as a result.

This analysis is not without limitations. This is a cross-sectional analysis with a simple time diary collected for only one member of the couple, so we cannot measure the gender gaps in care and chores within households by the couple's joint WFH status directly but must instead rely on our predictions regarding the partner's work location and differences in averages. We also do not know the remote worker status of those who were interviewed about non-workdays, and thus we cannot determine how the total workload may have changed across the week by WFH status. In addition, we examine dual-earner couples with children during the COVID-19 pandemic, but many mothers left the labor force to care for their children (Albanesi & Kim, 2021; Bauer et al., 2021; Heggeness et al., 2021; Heggeness & Suri, 2021). Thus, these results may not be generalizable to working from home during "normal" times. Finally, the sample is relatively small, and we may learn more about parenting in the pandemic era when the 2021 ATUS is released.

References

Adams-Prassl, A. (2021). The gender wage gap in an online labour market: The cost of interruptions. University of Oxford Department of Economics Discussion Paper Series No. 944.

Adams-Prassl, A., Boneva, T., Golin, M., & Rauh, C. (2020). Inequality in the impact of the coronavirus shock: Evidence from real time surveys. *Journal of Public Economics*, 189. https://doi.org/10.1016/j.jpubeco.2020.104245.

Aguiar, M., Hurst, E., & Karabarbounis, L. (2013). Time use during the great recession. *American Economic Review*, 103(5), 1664–1696. https://doi.org/10.1257/aer.103.5.1664.

Albanesi, S., & Kim, J. (2021). Effects of the COVID-19 recession on the U.S. labor market: Occupation, family, and gender. *Journal of Economic Perspectives*, 35(3), 3–24. https://doi.org/10.1257/jep.35.3.3.

Alon, T. M., Doepke, M., Olmstead-Rumsey, J., & Tertilt, M. (2020a). The impact of COVID-19 on gender equality. *Covid Economics: Vetted and Real-Time Papers*, 4, 62–85. https://cepr.org/sites/default/fles/news/CovidEconomics4.pdf.

Aughinbaugh, A. & Rothstein, D. R. (2022). How did employment change during the COVID-19 pandemic? Evidence from a new BLS survey supplement. *Beyond the Numbers: Employment and Unemployment*, 11(1), U.S. Bureau of Labor Statistics. https://www.bls.gov/opub/btn/volume-11/how-did-employment-change-during-the-covid-19-pandemic.htm.

Barrero, J. M., Bloom, N., & Davis, S. J. (2020). 60 million fewer commuting hours per day: How Americans use time saved by working from home. BFI Working Paper No. 2020-132. https://bfi.uchicago.edu/wp-content/uploads/2020/09/BFI_WP_2020132.pdf.

Barrero, J. M., Bloom, N. & Davis, S. J. (2021). Why working from home will stick. NBER Working Paper No. 28731. https://www.nber.org/papers/w28731.

Bauer, L., Buckner, E., Estep, S., Moss, E., & Welch, M. (2021). Ten economic facts on how mothers spend their time. Technical report, Brookings Institute. https://www.hamiltonproject.org/assets/files/Maternal_Time_Use_Facts_final.pdf.

Bauer, L., Estep, S., & Yee, W. (2021). Time waited for no mom in 2020. Washington D.C.: Brookings Institute (July 22, 2021). https://www.brookings.edu/blog/up-front/2021/07/22/time-waited-for-no-mom-in-2020/.

Bauer, P., & Sonchak, L. (2017). The effect of macroeconomic conditions on parental time with children: Evidence from the American time use survey. *Review of Economics of the Household*, 15, 905–924. https://doi.org/10.1007/ s11150-017-9368-y.

Becker, G. S. (1965). A theory of the allocation of time. *The Economic Journal*, 75(299), 493–517. https://doi.org/10.2307/2228949.

Becker, G. S. (1973). A theory of marriage: Part I. *Journal of Political Economy*, 81(4), 813–846. https://doi.org/10.1086/260084.

Becker, G. S. (1974). A theory of social interactions. *Journal of Political Economy*, 82(6), 1063–1093. https://doi.org/10.1086/260265.

Bertrand, M., Kamenica, E., & Pan, J. (2015). Gender identity and relative income within households. *The Quarterly Journal of Economics*, 130(2), 571–614. https://doi.org/10.1093/qje/qjv001.

Bianchi, S. M., Robinson, J. P., & Milkie, M. A. (2006). *The changing rhythms of American family life*. Russell Sage Foundation.

Bonacini, L., Gallo, G., & Scicchitano, S. (2021). Working from home and income inequality: Risks of a 'new normal' with COVID-19. *Journal of Population Economics*, 34, 303–360. doi:10.1007/s00148-020-00800-7.

Burbio. 2021. K-12 School Opening Tracker. Retrieved November 3, 2021, from https://cai.burbio.com/school-opening-tracker/.

Caetano, G., Kinsler, J., & Teng, H. (2019). Towards causal estimates of children's time allocation on skill development. *Journal of Applied Econometrics*, 34(4), 588–605. https://doi.org/10.1002/jae.2700.

Carlson, D., Petts, R., & Pepin, J. (2021). Flexplace work and partnered fathers' time in housework and childcare. *Men and Masculinities*. https://doi.org/10.1177/1097184X211014929.

Collins, C., Landivar, L. C., Ruppanner, L. & Scarborough, W. J. (2021). COVID-19 and the gender gap in work hours. *Gender, Work & Organization*, 28, 101–112. https://doi.org/10.1111/gwao.12506.

Craig, L. 2006. Does father care mean fathers share?: A comparison of how mothers and fathers in intact families spend time with children. *Gender & Society*, 20(2), 259–81. https://doi.org/10.1177/0891243205285212.

Del Boca, D., Oggero, N., Profeta, P., & Rossi, M. (2020). Women's and men's work, housework and childcare, before and during COVID-19. *Review of Economics of the Household*. https://doi.org/10.1007/s11150-020-09502-1.

Dingel, J., & Neiman, B. (2020). How many jobs can be done at home? *Journal of Public Economics*, 189. https://doi.org/10.1016/j.jpubeco.2020.104235.

Dey, M., Frazis, H., Loewenstein, M. A., & Sun, H. (2020). Ability to work from home: Evidence from two surveys and implications for the labor market in the COVID-19 pandemic. *Monthly Labor Review*. June. https://www.bls.gov/opub/mlr/2020/article/ability-to-work-from-home.htm.

Dey, M., Frazis, H., Piccone, David S., & Loewenstein, M. A. (2021). Teleworking and lost work during the pandemic: New evidence from the CPS. *Monthly Labor Review.* July. https://www.bls.gov/opub/mlr/2021/article/teleworking-and-lost-work-during-the-pandemic-new-evidence-from-the-cps.htm.

Erdsiek, D. (2021). Working from home during COVID-19 and beyond: Survey evidence from employers. ZEW Discussion Paper No. 21-051.

Erdsiek, D. (2022). Firms plan to maintain hybrid working models after the pandemic. ZEW Press Release, February 7, 2022, Mannheim.

Farré, L., Fawaz, Y., González, L, & Graves, J. (2021). Gender inequality in paid and unpaid work during COVID-19 times. *Review of Income and Wealth*. https://doi.org/10.1111/roiw.12563.

Fiorini, M., & Keane, M. P. (2014). How the allocation of children's time affects cognitive and noncognitive development. *Journal of Labor Economics,* 32(4), 787–836. https://doi.org/10.1086/677232.

Giménez-Nadal, J. I., Molina, J. A., & Velilla, J. (2019). Work time and well-being for workers at home: Evidence from the American time use survey. *International Journal of Manpower*, 41(2),184–206. https://doi.org/10.1108/IJM-04-2018-0134.

Goldin, C. (2014). A grand gender convergence: Its last chapter. *American Economic Review*, 104, 1091–1119. https://doi.org/10.1257/aer.104.4.1091.

Heggeness, M. L. (2020). Estimating the immediate impact of the COVID-19 shock on parental attachment to the labor market and the double bind of mothers. *Review of Economics of the Household*, 18, 1053–1078. https://doi.org/10.1007/s11150-020-09514-x.

Heggeness, M. L., Fields, J., Trejo, Y. A. G, & Schulzetenberg, A. (2021). Tracking job losses for mothers of school-age children during a health crisis. *America Counts: Stories Behind the Numbers.* https://www.census.gov/library/stories/2021/03/moms-work-and-the-pandemic.html.

Heggeness, M. L., & Suri, P. (2021). Telework, childcare, and mothers' labor supply. Federal Reserve Bank of Minneapolis Institute Working Paper No. 52. https://doi.org/10.21034/iwp.52.

Hoehn-Velasco, L., Silverio-Murillo, A., Balmori de la Miyar, J. R., & Penglase, J. (2022). The impact of the COVID-19 recession on Mexican households: Evidence from employed and time use for me, women, and children. *Review of Economics of the Household*. https://doi.org/10.1007/s11150-022-09600-2.

Hook, J. L. (2010). Gender inequality in the welfare state: Sex segregation in housework, 1965–2003. *American Journal of Sociology*, 115(5), 1480–1523. https://doi.org/10.1086/651384.

Hsin, A., & Felfe, C. (2014). When does time matter? Maternal employment, children's time with parents, and child development. *Demography*, 51(5), 1867–1894. https://doi.org/10.1007/s13524-014-0334-5.

Juster, F. T. (1985). The validity and quality of time use estimates obtained from recall diaries. In: Thomas Juster, F., Stafford, Frank P. (Eds.), Time, Goods, and Well-Being. Survey Research Center, Institute for Social Research, University of Michigan, Ann Arbor, Michigan, 63–91.

Kalenkoski, C. M. & Pabilonia, S. W. (2022). Impacts of COVID-19 on the self-employed. *Small Business Economics*, 58, 741–768. https://doi.org/10.1007/s11187-021-00522-4.

Lee, E. K., & Parolin, Z. (2021). The care burden during COVID-19: A national database of child care closures in the United States. *Socius* 7. https://doi.org/10.1177/23780231211032028.

Lundberg, S., & Pollak, R. (1994). Noncooperative bargaining models of marriage. *American Economic Review*, 84, 132–137.

Lundberg, S., Pabilonia, S. W., & Ward-Batts, J. (2017). Time allocation of parents and investments in sons and daughters. Conference Paper, Panel Study of Income Dynamics Annual User Conference 2017.

Lyttelton, T., Zang, E., & Musick, K. (2021). Telecommuting and gender inequalities in parents' paid and unpaid work before and during the COVID-19 pandemic. *Journal of Marriage and Family*. https://doi.org/10.1111/jomf.12810.

Manser, M., & Brown, M. (1980). Marriage and household decision-making: A bargaining analysis. *International Economic Review*, 21(1), 31–44. https://doi.org/10.2307/2526238.

Marshall, J., Burd, C., & Burrows, M. (2021). Those who switched to telework have higher income, education and better health. *America Counts: Stories Behind the Numbers*. https://www.census.gov/library/stories/2021/03/working-from-home-during-the-pandemic.html.

McDermott, G. R., & Hansen, B. (2021). Labor reallocation and remote work during COVID-19: Real-time evidence from GitHub. NBER Working Paper No. 29598.

McElroy, M., & Horney, M. J. (1981). Nash-bargained household decisions: Toward a generalization of the theory of demand. *International Economic Review*, 22, 333–349. https://doi.org/10.2307/2526280.

Offer, S., & Schneider, B. (2011). Revisiting the gender gap in time-use patterns: Multitasking and well-being among mothers and fathers in dual-earner families. *American Sociological Review*, 76, 809–833. https://doi.org/10.1177/0003122411425170.

Pabilonia, S. W. & Vernon, V. (2021). Telework and time use. *Handbook of Labor, Human Resources and Population Economics*. Ed. Klaus F. Zimmerman. Springer Nature. *Forthcoming*.

Pabilonia, S. W. & Vernon, V. (2022). Telework, wages, and time use in the United States. *Review of Economics of the Household*. https://doi.org/10.1007/s11150-022-09601-1.

Parker, K., Horowitz, J. M. & Minkin, R. (2020). How the coronavirus outbreak has—and hasn't—changed the way Americans work. New York, NY: Pew Research Center. https://www.pewresearch.org/social-trends/2020/12/09/how-the-coronavirus-outbreak-has-and-hasnt-changed-the-way-americans-work/.

Robinson, J. P. (2002). The time-diary method. In Pentland W. E., Harvey A. S., Lawton M. P., McColl M. A., Eds. *Time Use Research in the Social Sciences*. Springer, Boston, MA. https://doi.org/10.1007/0-306-47155-8_3.

Russell, L., & Sun, C. (2020). The effect of mandatory child care center closures on women's labor market outcomes during the COVID-19 pandemic. *Covid Economics, Vetted and Real-Time Papers*, 62(18), 124–54.

Samtleben, C., & Müller, K. (2021). Care and careers: Gender (in)equality in unpaid care, housework and employment. *Research in Social Stratification and Mobility*. https://doi.org/10.1016/j.rssm.2021.100659.

Schoonbroodt, A. (2018). Parental child care during and outside of typical work hours. *Review of Economics of the Household*, 16, 453–476. https://doi.org/10.1007/ s11150-016-9336-y.

Schulz, F. (2021). Housework time within family households: Mothers', fathers', and siblings' contributions. *Journal of Marriage and Family*, 83(3), 803–819. https://doi.org/10.31219/osf.io/4exzs.

Sevilla, A., & Smith, S. (2020). Baby steps: The gender division of childcare during the COVID-19 pandemic. *Oxford Review of Economic Policy*, 36, S169–S186.

Stevenson, B. (2021). Women, work, and families: Recovering from the pandemic-induced recession. Washington D.C.: Brookings Institute. https://www.hamiltonproject.org/papers/women_work_and_families_recovering_from_the_pandemic_induced_recession.

Stewart, J. (2010). The timing of maternal work and time with children. *ILR Review*, 64(1), 181–200. https://doi.org/10.1177/001979391006400109.

Stewart, J. (2013). Tobit or not tobit? *Journal of Economic and Social Measurement*, 3, 263–290.

U.S. Bureau of Labor Statistics. (2021a). Supplemental data measuring the effects of the coronavirus (COVID-19) pandemic on the labor market. Retrieved October 27, 2021, from https://www.bls.gov/cps/effects-of-the-coronavirus-covid-19-pandemic.htm.

U.S. Bureau of Labor Statistics. (2021b). American time use survey microdata files. Retrieved July 30, 2021, from https://www.bls.gov/tus/data.htm.

U.S. Bureau of Labor Statistics and U.S. Census Bureau. (2020–2021). Current population survey COVID-19 data. Retrieved October 20, 2021, from https://www.census.gov/data/datasets/time-series/demo/cps/cps-supp_cps-repwgt/cps-covid.html.

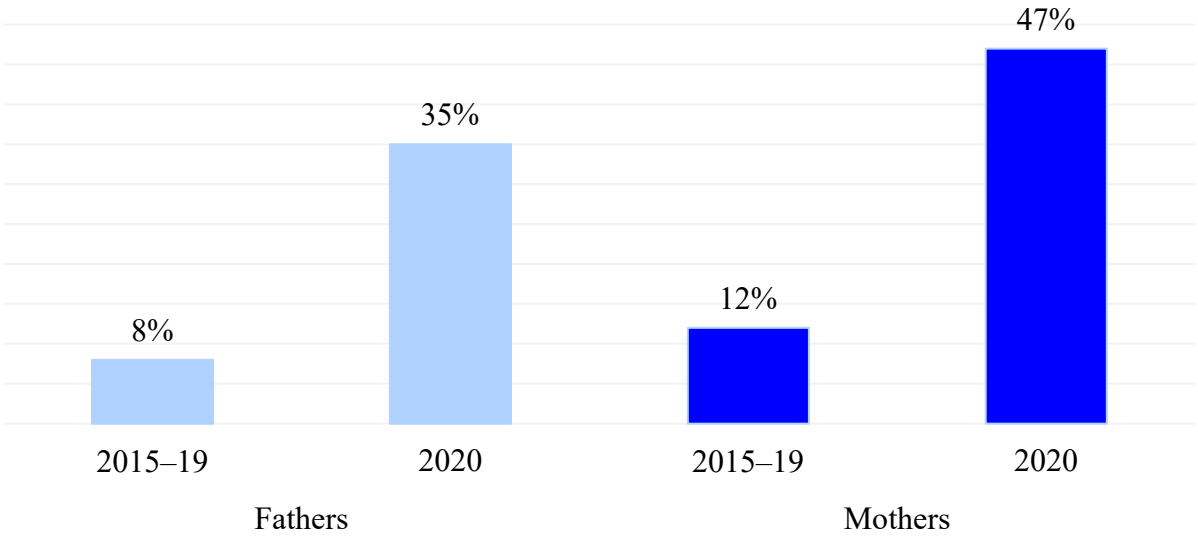
U.S. Census Bureau. (2019). 2010–2019 American Community Survey 1-year Estimates Detailed Tables. Retrieved September 28, 2021, from https://data.census.gov/cedsci/table?q=&t=Class%20of%20Worker%3ACommuting&tid=ACSDT1Y2010.B08128.

World Population Review. (2022). Age a child can be left home alone by state 2022. Retrieved February 4, 2022, from https://worldpopulationreview.com/state-rankings/age-a-child-can-be-left-home-alone-by-state.

Yamamura, E., & Tsustsui, Y. (2021). The impact of closing schools on working from home during the COVID-19 pandemic: Evidence using panel data from Japan. *Review of Economics of the Household*, 19, 41–60. https://doi.org/10.1007/s11150-020-09536-5.

Zamarro, G., & Prados, M. J. (2021). Gender differences in couples' division of childcare, work and mental health during COVID-19. *Review of Economics of the Household*, 19, 11–40. https://doi.org/10.1007/s11150-020-09534-7.

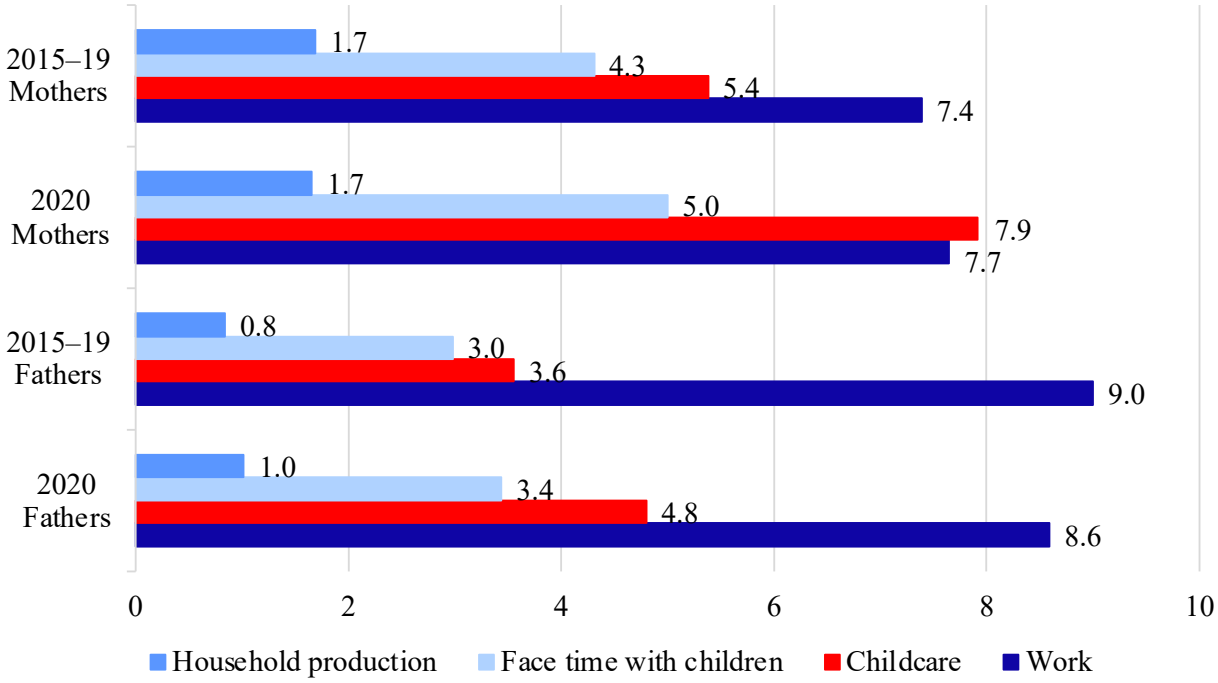
Figure 1. Percentage of Weekday Workdays Worked Exclusively from Home before and during the Pandemic, by Gender (May 10 through December 31, 2015–2020)



Note: Sample is based on mothers and fathers aged 22–60 in dual-earner couples with children under age 13. Workdays are days on which the respondent reports at least one hour of work. Sample sizes: fathers = 865 and 150 and mothers = 777 and 127 for the 2015–19 and 2020 samples, respectively.

Source: Authors' calculations based on the American Time Use Survey

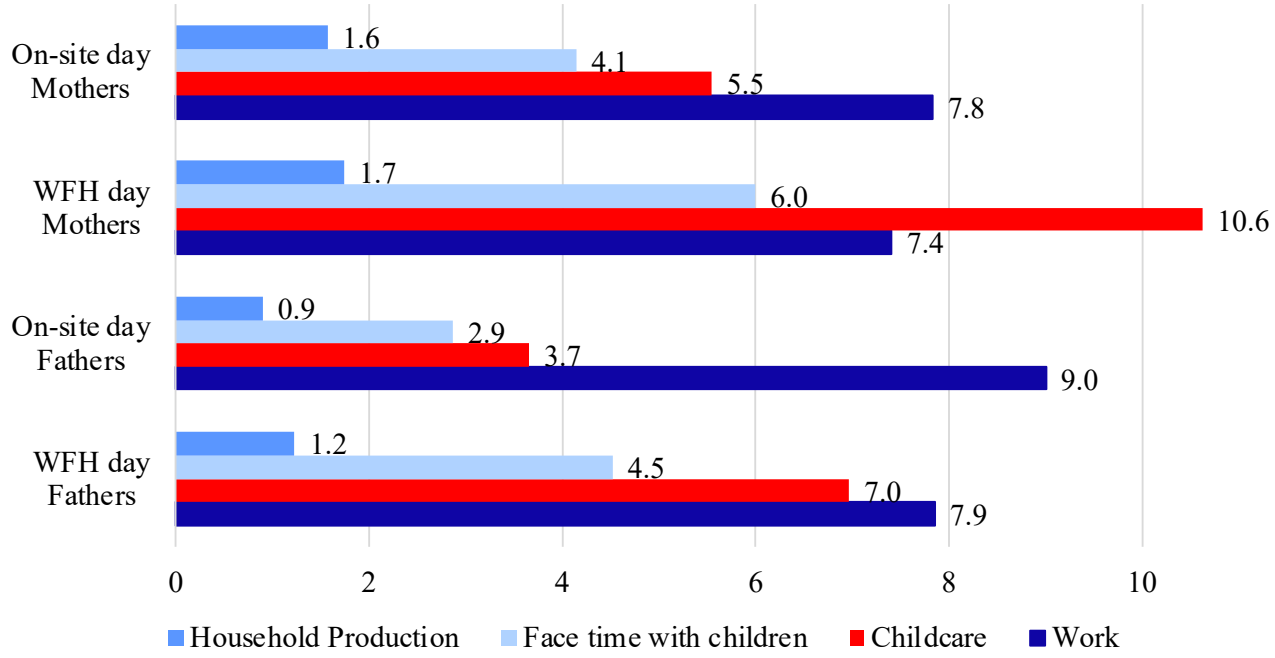
Figure 2. Average Hours per Weekday Workday Spent on Work, Childcare, and Household Production before and during the Pandemic, by Gender (May 10 through December 31, 2015–2020)



Note: Sample is based on mothers and fathers aged 22–60 in dual-earner couples with children under age 13. Workdays are days on which the respondent reports at least one hour of work. Childcare includes both primary and secondary childcare activities. Sample sizes: fathers = 865 and 150 and mothers = 777 and 127 for the 2015–19 and 2020 samples, respectively.

Source: Authors' calculations based on the American Time Use Survey

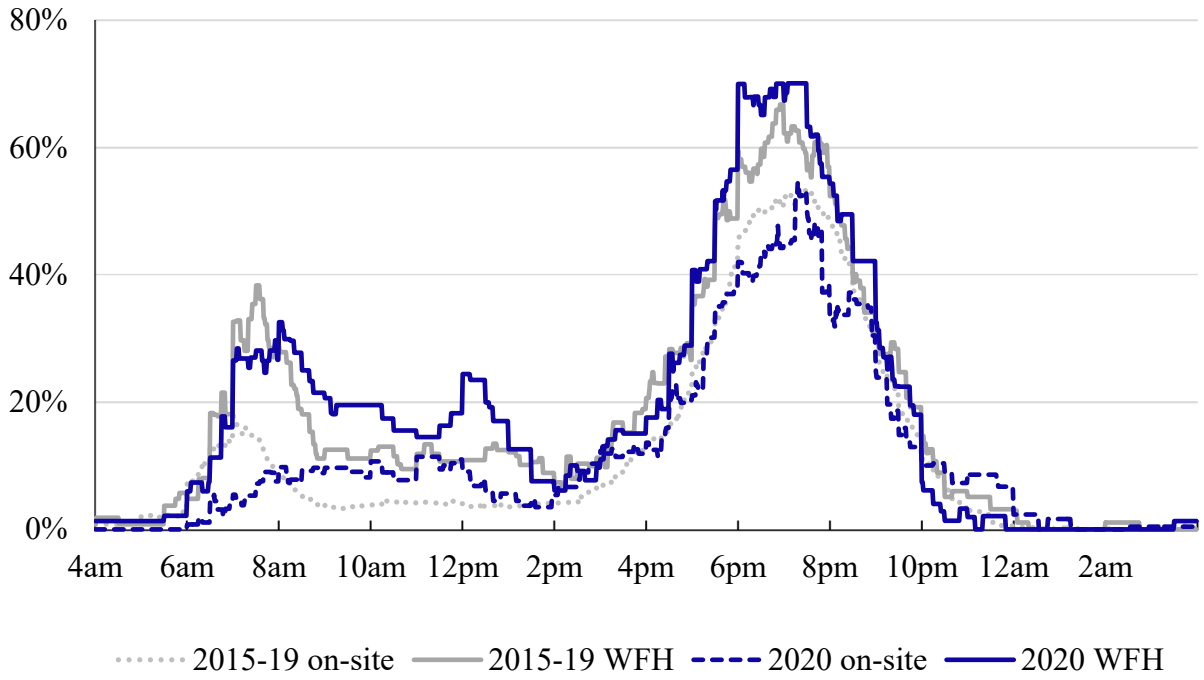
Figure 3. Average Hours per Weekday Workday Spent on Work, Childcare, and Household Production during the Pandemic, by Gender and Work Location (May 10 through December 31, 2020)



Note: Sample is based on mothers and fathers aged 22–60 in dual-earner couples with children under age 13. Workdays are days on which the respondent reports at least one hour of work. Childcare includes both primary and secondary childcare activities. Sample sizes: fathers = 87 and 63 and mothers = 64 and 63 for on-site days and WFH days, respectively.

Source: Authors' calculations based on the American Time Use Survey

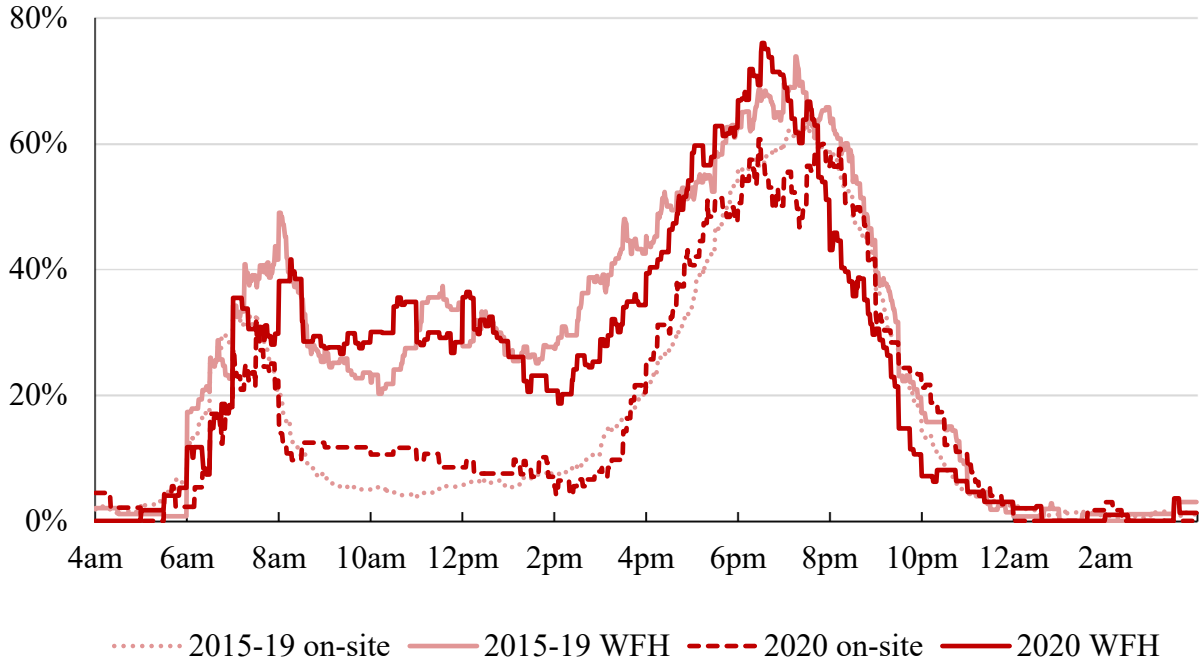
Figure 4. Percentage of Fathers Spending Time with Children on Weekday Workdays, by Time of Day and Work Location (May 10 through December 31, 2015–2020)



Note: Sample is based on mothers and fathers aged 22–60 in dual-earner couples with children under age 13. Workdays are days on which the respondent reports at least one hour of work. Time with children is time spent doing activities when children are in the same room while at home or when accompanied by children when away from home. Sample sizes are 789 on-site days and 76 WFH days in 2015–19 and 90 on-site days and 63 WFH days in 2020.

Source: Authors' calculations based on the American Time Use Survey

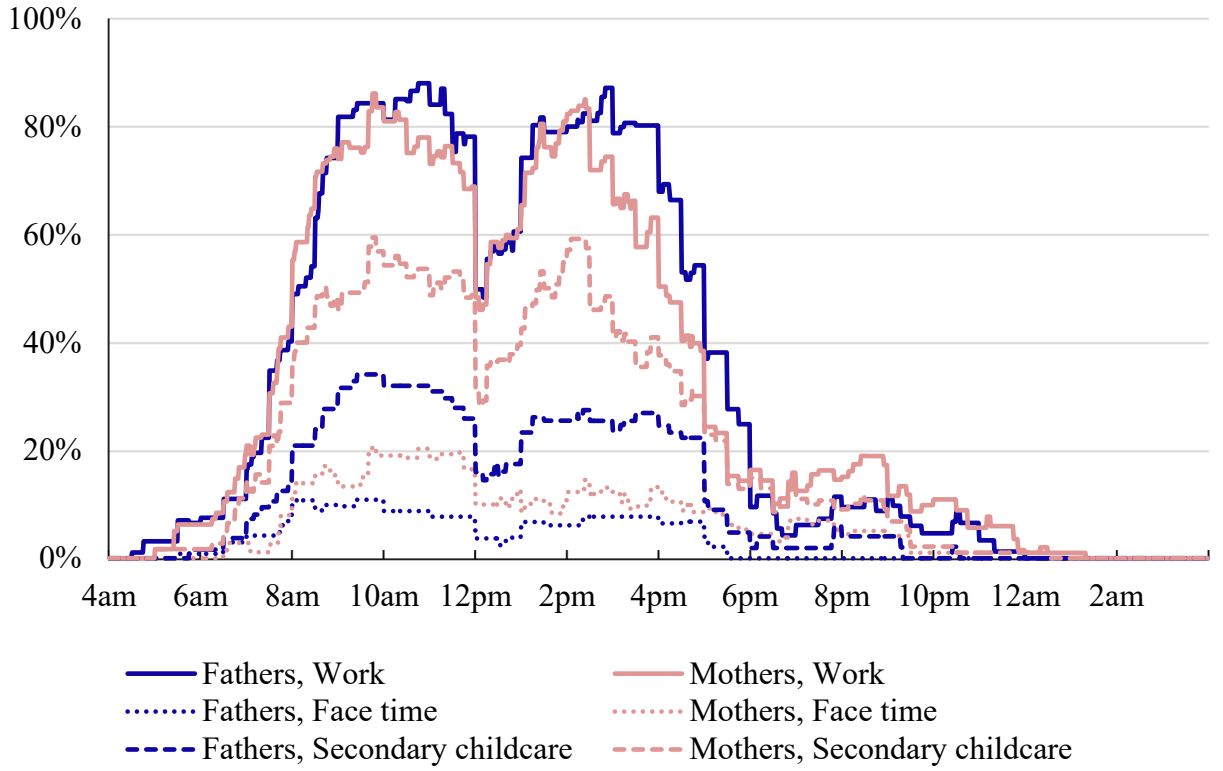
Figure 5. Percentage of Mothers Spending Time with Children on Weekday Workdays, by Time of Day and Work Location (May 10 through December 31, 2015–2020)



Note: Sample is based on mothers and fathers aged 22–60 in dual-earner couples with children under age 13. Workdays are days on which the respondent reports at least one hour of work. Time with children is time spent doing activities when children are in the same room while at home or when accompanied by children when away from home. Sample sizes are 671 on-site days and 106 WFH days in 2015–19 and 67 on-site days and 67 WFH days in 2020.

Source: Authors' calculations based on the American Time Use Survey

Figure 6. Percentage of Parents at Work and at Work with a Child Present or in the Home on Weekday Workdays When They were Working from Home, by Time of Day and Gender (May 10 through December 31, 2020)



Note: Sample is based on mothers and fathers aged 22–60 in dual-earner couples with children under age 13 who were working from home on their weekday workday diary. Workdays are days on which the respondent reports at least one hour of work. Sample sizes: Fathers = 63 and Mothers = 67.

Source: Authors' calculations based on the American Time Use Survey

Table 1. Summary Statistics for Fathers and Mothers in Dual-earner Couples

	Fathers		Mothers	
Variables	2015–2019	2020	2015–2019	2020
Time Use Outcomes				
Work and work-related activities	9.05 (0.81)	8.59* (0.92)	**7.39 (0.79)**	**7.65 (1.06)**
Childcare	3.56 (0.92)	4.80* (1.41)	**5.38 (1.11)**	**7.91* (1.82)**
Primary childcare	0.92 (0.37)	0.93 (0.49)	**1.52 (0.46)**	**1.64 (0.72)**
Secondary childcare	2.64 (0.87)	3.87* (1.38)	**3.86 (1.02)**	**6.26* (1.73)**
Face time with children	2.98 (0.82)	3.44* (0.95)	**4.31 (0.89)**	**5.00* (1.26)**
Household production	0.84 (0.33)	1.02 (0.49)	**1.69 (0.49)**	**1.66 (0.57)**
Cooking	0.33 (0.16)	0.35 (0.18)	**0.80 (0.25)**	**0.86 (0.31)**
Housework	0.27 (0.25)	0.47 (0.42)	**0.48 (0.32)**	0.47 (0.3)
Home maintenance	0.17 (0.22)	0.40* (0.41)	**0.06 (0.01)**	**0.07 (0.12)**
Shopping	0.13 (0.02)	0.08 (0.09)	**0.24 (0.16)**	**0.17 (0.18)**
Total paid and unpaid work	13.09 (0.74)	13.20 (0.76)	**13.38 (0.66)**	**13.95* (0.76)**
Main independent variables				
Work from home day	0.08	0.35*	**0.12**	0.47*
Partner work from home (proxy)	–	0.37	–	0.32
Child at home (9 a.m.– 2 p.m.) on WFH days	0.32	0.53*	**0.60**	**0.75***
Control variables				
Age	38.73 (2.50)	39.13 (2.65)	**37.09 (2.29)**	37.64 (2.51)
Wage	33.10 (7.59)	35.77 (7.43)	**26.94 (6.34)**	34.88* (10.55)
Paid hourly	0.42	0.43	**0.46**	0.38
Cohabiter	0.07	0.04	0.07	0.06
Part-time worker	0.03	0.05	**0.25**	**0.23**
Partner part-time worker	0.25	0.24	**0.08**	**0.07**
Self-employed	0.08	0.10	0.09	0.11
Some college	0.21	0.23	0.25	0.23
College degree	0.31	0.27	0.31	0.29
Graduate degree	0.19	0.23	**0.23**	0.30
Non-Hispanic black	0.06	0.19*	0.11	0.05
Hispanic	0.15	0.09	0.14	**0.21**
Non-Hispanic other race	0.07	0.10	0.08	0.04
Lives with child aged 0 to 5	0.54	0.56	0.50	0.52
Lives with child aged 6 to 12	0.46	0.44	0.50	0.48
Other household adult	0.12	0.15	0.15	0.08
Observations	865	150	777	127

Note: Samples use May 10 through December 31st weekday workday diaries. We also include month in our control variables. ATUS final weights reweighted separately for equal-day-of-the-week representation for our male and female samples are used. Standard deviations in parentheses are generated using ATUS replicate weights. * indicates differences are statistically significant between 2015–2019 and 2020 at the 5% level. In **bold**: differences between mothers and fathers are statistically significant at the 5% level based on two-tailed t-tests.

Source: Authors' calculations based on the American Time Use Survey and Current Population Survey COVID-19 data

Table 1. Summary Statistics for Fathers and Mothers in Dual-earner Couples (Continued)

	Fathers		Mothers	
Variables	2015–2019	2020	2015–2019	2020
Lives in metropolitan area	0.85	0.88	0.85	0.92
Midwest Census region	0.28	0.27	0.25	0.26
Northeast Census region	0.16	0.15	0.15	0.17
West Census region	0.21	0.17	0.21	0.17
Industry group				
Construction, natural resources & mining	0.15	0.11	**0.02**	**0.01**
Manufacturing	0.16	0.17	**0.05**	**0.07**
Wholesale and retail trade	0.12	0.11	**0.08**	0.04
Transportation and utilities	0.06	0.06	**0.02**	0.02
Information	0.03	0.04	0.02	0.04
Financial activities	0.08	0.06	0.10	0.09
Professional and business services	0.16	0.17	0.13	0.20
Educational and health services	0.13	0.14	**0.40**	**0.41**
Leisure, hospitality, and other services	0.06	0.06	**0.13**	0.13
Public administration	0.05	0.08	0.05	**0.00***
Occupation group				
Management, business, and financial	0.25	0.23	**0.20**	0.24
Professional and technical	0.22	0.33*	**0.38**	0.37
Service	0.08	0.07	**0.15**	0.13
Sales, office, and administrative support	0.17	0.13	**0.24**	0.20
Production, construction, transportation	0.29	0.24	**0.03**	**0.05**
Virtual school (fall diaries only)	–	0.53	–	0.55
Observations	865	150	777	127

Note: Samples use May 10 through December 31st weekday workday diaries. We also include month in our control variables. ATUS final weights reweighted separately for equal-day-of-the-week representation for our male and female samples are used. Standard deviations in parentheses are generated using ATUS replicate weights. * indicates differences are statistically significant between 2015–2019 and 2020 at the 5% level. In **bold**: differences between mothers and fathers are statistically significant at the 5% level based on two-tailed t-tests.

Source: Authors' calculations based on the American Time Use Survey and Current Population Survey COVID-19 data

Table 2. Potential Work Disruptions from Children (May 10 through December 31, 2015–2020)

Work location	N	Average Work Episodes	Average Hours of Work with Children Present	Average Hours of Work with Children in Care
Panel A. Pre-pandemic 2015–19				
Fathers, on-site	789	2.67 (0.50)	0.13 (0.32)	0.23 (0.43)
Fathers, WFH	76	2.92 (0.43)	0.55 (0.80)	1.73* (1.05)
Mothers, on-site	671	2.39 (0.56)	0.16 (0.28)	0.36 (0.50)
Mothers, WFH	106	3.33* (1.11)	0.78* (0.60)	1.88* (0.92)
Panel B. Pandemic 2020				
Fathers, on-site	90	2.44 (0.44)	0.11 (0.22)	0.33 (0.42)
Fathers, WFH	63	**2.43** (0.43)	0.77* (0.92)	**2.56* (1.45)**
Mothers, on-site	67	2.30 (0.38)	0.28 (0.42)	**0.79 (0.71)**
Mothers, WFH	67	2.87* (0.51)	**1.59* (1.13)**	**4.92* (1.43)**

Note: Samples use May 10 through December 31st diaries. ATUS final weights reweighted separately for equal-day-of-the-week representation for our male and female samples are used. Standard deviations in parentheses are generated using ATUS replicate weights. * indicates that the WFH mean is significantly different from the on-site mean for the year-gender group at the 5% level based on two-tailed t-tests. In **bold**: the 2020 mean is significantly different from the 2015–2019 mean at the 5% level based on two-tailed t-tests.

Source: Authors' calculations based on the American Time Use Survey

Table 3. Differences in Predicted Hours of Work and Childcare on Weekday Workdays for Mothers and Fathers in Dual-earner Couples with Children Under Age 13 before and during the Pandemic (May 10–December 2015–2019, 2020)

	Work	Total Childcare	Primary Childcare	Secondary Childcare	Face time with Children
Panel A. Pre-pandemic 2015–2019					
Differences by Gender					
Not WFH: Mothers – Fathers	-1.38***(0.15)	1.57***(0.18)	0.65***(0.08)	0.93***(0.15)	1.19***(0.17)
WFH: Mothers – Fathers	-2.42***(0.54)	2.29***(0.65)	0.69***(0.24)	1.61***(0.62)	2.36***(0.56)
Difference by WFH Status					
Fathers: WFH – Not WFH	-0.99**(0.40)	2.83***(0.52)	0.42**(0.16)	2.41***(0.51)	1.35***(0.39)
Mothers: WFH – Not WFH	-2.04***(0.36)	3.55***(0.42)	0.47***(0.17)	3.08***(0.39)	2.51***(0.43)
Mothers – Fathers (difference)	-1.04**(0.53)	0.72 (0.65)	0.04 (0.23)	0.68 (0.60)	1.16**(0.58)
Panel B. Pandemic 2020					
Differences by Gender					
Not WFH: Mothers – Fathers	-1.16**(0.48)	1.91***(0.58)	0.59**(0.24)	1.31** (0.52)	1.29***(0.39)
WFH: Mothers – Fathers	-0.41 (0.50)	3.64***(0.83)	0.72* (0.41)	2.92***(0.92)	1.44**(0.62)
Difference by WFH Status					
Fathers: WFH – Not WFH	-1.12***(0.40)	3.33***(0.66)	0.54**(0.25)	2.78***(0.73)	1.66***(0.45)
Mothers: WFH – Not WFH	-0.37 (0.54)	5.06***(0.78)	0.67* (0.41)	4.39***(0.73)	1.81***(0.63)
Mothers – Fathers (difference)	0.74 (0.71)	1.73* (1.00)	0.13 (0.48)	1.60 (0.99)	0.15 (0.72)

Note: N = 1,642 in 2015–2019 and 277 in 2020. ATUS final weights reweighted separately for equal-day-of-the-week representation for our male and female samples are used. Standard errors are generated using ATUS replicate weights. WFH is defined as working from home at least one hour on the diary day for the respondent. Control variables include a quadratic in age, log hourly wage, and indicators for cohabitation status, an extra adult in the household, lives with child aged 0 to 5, education (some college, bachelor's degree, advanced degree), paid hourly, part-time, partner part-time, self-employed, race/ethnicity (non-Hispanic black, Hispanic, non-Hispanic other race), living in a metropolitan area, 4 major occupation groups, 9 major industry groups, month in survey, and Census region. In the pre-pandemic period, we also include year effects. Significance levels: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Source: Authors' calculations based on the American Time Use Survey and Current Population Survey COVID-19 data

Table 4. Differences in Predicted Hours of Household Production on Weekday Workdays for Mothers and Fathers in Dual-earner Couples with Children Under Age 13 before and during the Pandemic (May 10–December 2015–2019, 2020)

	All	Cooking	Housework	Home Maintenance	Shopping
Panel A. Pre-pandemic 2015–2019					
Differences by Gender					
Not WFH: Mothers – Fathers	0.75***(0.07)	0.45***(0.04)	0.15***(0.05)	-0.11***(0.03)	0.09***(0.02)
WFH: Mothers – Fathers	0.91***(0.31)	0.40***(0.12)	0.08 (0.26)	-0.44* (0.22)	0.23***(0.07)
Difference by WFH Status					
Fathers: WFH – Not WFH	0.57**(0.26)	0.26**(0.10)	0.36 (0.24)	0.32 (0.25)	0.02 (0.04)
Mothers: WFH – Not WFH	0.72***(0.19)	0.20**(0.10)	0.29***(0.10)	-0.01 (0.03)	0.16***(0.06)
Mothers – Fathers (difference)	0.15 (0.32)	-0.06 (0.13)	-0.07 (0.26)	-0.33 (0.25)	0.14**(0.07)
Panel B. Pandemic 2020					
Differences by Gender					
Not WFH: Mothers – Fathers	0.68**(0.26)	0.52***(0.13)	-0.01 (0.17)	-0.37**(0.16)	0.06 (0.04)
WFH: Mothers – Fathers	0.52**(0.25)	0.44***(0.12)	0.01 (0.17)	-0.25* (0.13)	0.10 (0.09)
Difference by WFH Status					
Fathers: WFH – Not WFH	0.32 (0.24)	0.16* (0.09)	-0.01 (0.19)	-0.12 (0.19)	0.07 (0.05)
Mothers: WFH – Not WFH	0.17 (0.28)	0.08 (0.16)	-0.02 (0.17)	0.01 (0.05)	0.11(0.09)
Mothers – Fathers (difference)	-0.16 (0.37)	-0.08 (0.19)	0.01 (0.20)	0.12 (0.20)	0.04 (0.10)

Note: N = 1,642 in 2015–2019 and 277 in 2020. ATUS final weights reweighted separately for equal-day-of-the-week representation for our male and female samples are used. Standard errors are generated using ATUS replicate weights. WFH is defined as working from home at least one hour on the diary day for the respondent. See Table 3 for control variables. Significance levels: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Source: Authors' calculations based on the American Time Use Survey and Current Population Survey COVID-19 data

Table 5. Differences in Predicted Hours of Work, Household Production, and Childcare Activities on Weekday Workdays for Mothers and Fathers in Dual-earner Couples with Children Under Age 13 (May 10–December 31, 2020)

Panel A. Work and Childcare	Work	Total Childcare	Primary Childcare	Secondary Childcare	Face time with Children
Differences by WFH Status (Partner Not WFH)					
Fathers: WFH – Not WFH	-1.20 (0.99)	4.13***(1.53)	0.81* (0.48)	3.31* (1.69)	2.20* (1.21)
Mothers: WFH – Not WFH	-0.07 (0.79)	7.02***(1.28)	1.15**(0.58)	5.86***(1.23)	3.42***(1.05)
Mothers – Fathers (difference)	1.13 (1.38)	2.89 (2.10)	0.34 (0.83)	2.55 (2.20)	1.22 (1.62)
Differences by Partner's WFH Status					
Fathers Not WFH: WFH – Not WFH	-0.31 (0.71)	1.10 (0.94)	-0.28 (0.40)	1.38 (0.96)	-0.93 (0.73)
Mothers Not WFH: WFH – Not WFH	-1.04 (0.75)	0.39 (1.55)	-0.20 (0.44)	0.58 (1.39)	0.94 (0.86)
Fathers WFH: WFH – Not WFH	-0.11 (1.31)	-0.45 (2.11)	-0.64 (0.66)	0.19 (2.31)	-1.55 (1.62)
Mothers WFH: WFH – Not WFH	-1.27 (0.85)	-3.30**(1.56)	-1.02* (0.62)	-2.29 (1.66)	-2.30* (1.40)
Differences Both WFH – Both Not WFH					
Fathers: Both WFH – Both Not WFH	-1.31** (0.65)	3.68***(1.10)	0.18 (0.43)	3.50***(1.19)	0.65 (0.83)
Mothers: Both WFH – Both Not WFH	-1.34* (0.78)	3.71***(1.16)	0.14 (0.53)	3.58***(1.15)	1.13 (0.94)
Mothers – Fathers (difference)	-0.03 (1.12)	0.03 (1.51)	-0.04 (0.67)	0.07 (1.63)	0.48 (1.21)
Panel B. Household Production	All	Cooking	Housework	Maintenance	Shopping
Differences by WFH Status (Partner Not WFH)					
Fathers: WFH – Not WFH	1.06**(0.43)	0.46**(0.19)	0.38 (0.37)	0.44 (0.34)	0.16 (0.13)
Mothers: WFH – Not WFH	0.11 (0.42)	0.13 (0.25)	-0.13 (0.25)	-0.03 (0.14)	0.12 (0.13)
Mothers – Fathers (difference)	-0.95 (0.61)	-0.33 (0.34)	-0.51 (0.46)	-0.47 (0.37)	-0.04 (0.20)
Differences by Partner's WFH Status					
Fathers Not WFH: WFH – Not WFH	1.03***(0.37)	0.27** (0.13)	0.66* (0.38)	0.79**(0.34)	0.02 (0.10)
Mothers Not WFH: WFH – Not WFH	0.48 (0.55)	-0.05 (0.28)	0.12 (0.31)	0.13 (0.22)	0.25** (0.11)
Fathers WFH: WFH – Not WFH	-0.40 (0.60)	-0.26 (0.27)	-0.15 (0.47)	-0.31 (0.41)	-0.12 (0.17)
Mothers WFH: WFH – Not WFH	0.43 (0.62)	-0.13 (0.32)	0.23 (0.31)	0.12 (0.22)	0.15 (0.23)
Differences Both WFH – Both Not WFH					
Fathers: Both WFH – Both Not WFH	0.66* (0.38)	0.19 (0.15)	0.23 (0.27)	0.13 (0.21)	0.04 (0.09)
Mothers: Both WFH – Both Not WFH	0.54 (0.55)	0.01 (0.27)	0.10 (0.30)	0.10 (0.15)	0.27 (0.17)
Mothers – Fathers (difference)	-0.12 (0.68)	-0.19 (0.33)	-0.13 (0.40)	-0.03 (0.25)	0.23 (0.19)

Note: N = 277. ATUS final weights reweighted separately for equal-day-of-the-week representation for our male and female samples are used. Standard errors are generated using ATUS replicate weights. WFH is defined as working from home at least one hour on the diary day for the respondent. Partner WFH is based on the share working from home in their occupation (WFH = 0.7 and Not WFH = 0). See Table 3 for control variables. Significance levels: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. *Source*: Authors' calculations based on the American Time Use Survey and Current Population Survey COVID-19 data

Table 6. Differences in Predicted Hours of Work, Household Production, and Childcare Activities on Weekday Workdays for Mothers and Fathers in Full-time Dual-earner Couples with Children Under Age 13 (May 10–December 31, 2020)

	Work	Total Childcare	Primary Childcare	Secondary Childcare	Face time with Children	Household Production
Differences by WFH Status (Partner Not WFH)						
Fathers: WFH – Not WFH	-1.89 (1.53)	4.61**(2.36)	0.35 (0.71)	4.26* (2.54)	2.68* (1.62)	1.31**(0.60)
Mothers: WFH – Not WFH	-0.91 (1.05)	8.21***(1.45)	1.66***(0.65)	6.55***(1.46)	3.43***(1.15)	0.39 (0.50)
Mothers – Fathers (difference)	0.98 (2.06)	3.60 (2.95)	1.31 (1.07)	2.29 (3.06)	0.75 (1.91)	-0.92 (0.84)
Differences by Partner's WFH Status						
Fathers Not WFH: WFH – Not WFH	-0.21 (0.85)	1.69 (1.17)	-0.44 (0.48)	2.13* (1.22)	-1.05 (0.90)	1.24***(0.44)
Mothers Not WFH: WFH – Not WFH	-1.19 (1.05)	0.54 (1.90)	0.17 (0.52)	0.37 (1.78)	0.92 (1.04)	0.89 (0.71)
Fathers WFH: WFH – Not WFH	0.96 (1.88)	0.14 (3.10)	-0.19 (0.87)	0.33 (3.36)	-2.21 (2.26)	-0.89 (0.76)
Mothers WFH: WFH – Not WFH	-0.98 (1.08)	-3.25 (1.99)	-1.07 (0.83)	-2.18 (2.14)	-1.77 (1.56)	0.35 (0.71)
Differences by Couple Work Location						
Fathers: Both WFH – Both Not WFH	-0.93 (0.81)	4.72***(1.40)	0.14 (0.55)	4.57***(1.47)	0.46 (1.15)	0.41 (0.42)
Mothers: Both WFH – Both Not WFH	-1.88**(0.94)	4.97***(1.39)	0.59 (0.68)	4.39***(1.43)	1.66 (1.12)	0.74 (0.59)
Mothers – Fathers (difference)	-0.95 (1.35)	0.21 (1.89)	0.44 (0.86)	-0.17 (1.98)	1.19 (1.56)	0.33 (0.78)

Note: N = 189. ATUS final weights reweighted separately for equal-day-of-the-week representation for our male and female samples are used. Standard errors are generated using ATUS replicate weights. WFH is defined as working from home at least one hour on the diary day for the respondent. Partner WFH is based on the share working from home in their occupation (WFH = 0.7 and Not WFH = 0). See Table 3 for control variables. Significance levels: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Source: Authors' calculations based on the American Time Use Survey and Current Population Survey COVID-19 data

Table 7. Differences in Predicted Hours of Work, Household Production, and Childcare Activities on Weekday Workdays When Working from Home for Mothers and Fathers in Dual-earner Couples with Children Under Age 13 by Child-at-Home Status (May 10–December 31, 2020)

	Work	Total Childcare	Primary Childcare	Secondary Childcare	Face time with Children	Household Production
Differences by Child-at-Home Status (Partner Not WFH)						
Fathers: Child home – Child not home	1.01 (1.67)	4.49**(1.80)	-1.69* (0.97)	6.18***(2.00)	-0.46 (1.67)	-1.87** (0.86)
Mothers: Child home – Child not home	-1.54 (1.86)	7.57***(1.58)	3.51** (1.66)	4.06**(2.07)	5.06**(1.98)	0.68 (0.79)
Mothers – Fathers (difference)	-2.55 (2.52)	3.08 (2.55)	5.20** (2.05)	-2.12 (3.33)	5.52**(2.65)	2.55** (1.24)
Differences by Child-at-Home Status (Partner WFH)						
Fathers: Child home – Child not home	-2.04**(0.92)	7.94***(1.35)	1.40* (0.77)	6.54***(1.58)	4.35***(1.27)	1.18** (0.59)
Mothers: Child home – Child not home	1.54 (1.63)	8.32***(1.27)	-1.82* (1.10)	10.14***(1.41)	1.01 (1.42)	-0.31 (1.01)
Mothers – Fathers (difference)	3.58* (2.00)	0.38 (2.01)	-3.22** (1.37)	3.60* (2.39)	-3.34* (2.03)	-1.49 (1.23)

Note: N = 126. ATUS final weights reweighted separately for equal-day-of-the-week representation for our male and female samples are used. Standard errors are generated using ATUS replicate weights. WFH is defined as working from home at least one hour on the diary day for the respondent. Partner WFH is based on the share working from home in their occupation (WFH = 0.7 and Not WFH = 0). See Table 3 for control variables. Significance levels: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Source: Authors' calculations based on the American Time Use Survey and Current Population Survey COVID-19 data

Table 8. Differences in Predicted Hours of Work, Household Production, and Childcare Activities on Weekday Workdays for Mothers and Fathers in Dual-earner Couples with Children Under Age 13 (September 1–December 31, 2020)

	Work	Total Childcare	Primary Childcare	Secondary Childcare	Face time with Children	Household Production
Differences by WFH Status (Partner Not WFH)						
Fathers: WFH – Not WFH	-4.09**(1.60)	5.11**(2.13)	0.93 (0.87)	4.18* (2.30)	5.38***(1.55)	2.42***(0.68)
Mothers: WFH – Not WFH	-0.19 (1.32)	5.73**(2.30)	0.97 (1.17)	4.75**(2.43)	1.02 (1.69)	-0.51 (0.51)
Mothers – Fathers (difference)	3.90* (2.35)	0.61 (3.40)	0.04 (1.69)	0.57 (3.62)	-4.37* (2.49)	-2.94***(0.99)
Differences by Partner's WFH Status						
Fathers Not WFH: WFH – Not WFH	-1.70 (1.20)	1.18 (1.87)	-0.25 (0.81)	1.43 (1.87)	-0.65 (1.20)	1.34**(0.56)
Mothers Not WFH: WFH – Not WFH	-0.37 (1.21)	-1.16 (2.60)	0.13 (0.97)	-1.28 (2.17)	0.14 (1.21)	-0.06 (0.60)
Fathers WFH: WFH – Not WFH	3.35 (2.05)	-3.26 (2.95)	-0.73 (1.13)	-2.53 (3.03)	-6.82***(1.76)	-2.06***(0.76)
Mothers WFH: WFH – Not WFH	-1.06 (1.83)	-1.81 (1.56)	-0.11 (1.33)	-1.70 (3.50)	-0.80 (2.11)	1.20 (0.83)
Differences by Couple Work Location						
Fathers: Both WFH – Both Not WFH	-0.74 (1.20)	1.85 (1.88)	0.20 (0.70)	1.68 (1.74)	-1.44 (1.18)	0.37 (0.44)
Mothers: Both WFH – Both Not WFH	-1.25 (1.23)	3.92**(1.78)	0.86 (0.93)	3.06* (1.81)	0.23 (1.05)	0.59 (0.72)
Mothers – Fathers (difference)	-0.50 (1.73)	2.06 (2.42)	0.66 (1.22)	1.40 (2.55)	1.66 (1.56)	0.22 (0.88)

Note: N = 131. ATUS final weights reweighted separately for equal-day-of-the-week representation for our male and female samples are used. Standard errors are generated using ATUS replicate weights. WFH is defined as working from home at least one hour on the diary day for the respondent. Partner WFH is based on the share working from home in their occupation (WFH = 0.7 and Not WFH = 0). See Table 3 for control variables. We also include an indicator for whether more than 60% of students in the state were in virtual or hybrid schooling in September 2020 based on Burbio (2021). Significance levels: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Source: Authors' calculations based on the Burbio K-12 School Opening Tracker, the American Time Use Survey, and Current Population Survey COVID-19 data

Table 9. Differences in Predicted Hours of Total Paid and Unpaid Work on Weekday Workdays for Mothers and Fathers in Dual-earner Couples with Children Under Age 13 (May 10–December 31, 2020)

	All parents	Full-time parents	Fall diaries
Differences by WFH Status (Partner Not WFH)			
Fathers: WFH – Not WFH	0.11 (0.68)	-0.47 (0.99)	0.26 (1.03)
Mothers: WFH – Not WFH	1.35**(0.61)	1.37*(0.79)	0.61 (0.62)
Mothers – Fathers (difference)	1.24 (0.92)	1.84 (1.37)	0.35 (1.46)
Differences by Partner's WFH Status			
Fathers Not WFH: WFH – Not WFH	0.02 (0.68)	0.30 (0.81)	0.21 (0.88)
Mothers Not WFH: WFH – Not WFH	0.07 (0.65)	0.77 (0.71)	-0.14 (0.96)
Fathers WFH: WFH – Not WFH	-0.15 (0.95)	1.04 (1.33)	-0.23 (1.32)
Mothers WFH: WFH – Not WFH	-1.91 (0.88)	-1.52 (1.01)	-0.75 (1.38)
Differences Both WFH – Both Not WFH			
Fathers: Both WFH – Both Not WFH	-0.04 (0.63)	0.57 (0.75)	0.03 (0.92)
Mothers: Both WFH – Both Not WFH	-0.55 (0.66)	-0.15 (0.71)	-0.14 (0.98)
Mothers – Fathers (difference)	-0.52 (0.97)	-0.72 (1.12)	-0.16 (1.29)
Number of Observations	277	189	131

Note: Total hours of work = paid work + primary childcare + household production + secondary childcare (excluding time when the primary activity is paid work or household production).
ATUS final weights reweighted separately for equal-day-of-the-week representation for our male and female samples are used. Standard errors are generated using ATUS replicate weights. WFH is defined as working from home at least one hour on the diary day for the respondent. Partner WFH is based on the share working from home in their occupation (WFH = 0.7 and Not WFH = 0). See Table 3 for control variables. We also include an indicator for whether more than 60% of students in the state were in virtual or hybrid schooling in September 2020 based on Burbio (2021) when using the fall diaries only.
Significance levels: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Source: Authors' calculations based on the Burbio K-12 School Opening Tracker, the American Time Use Survey, and Current Population Survey COVID-19 data

APPENDIX

Table A.1. Sample Construction

	Number of Observations
2020 ATUS sample	8,782
-Those interviewed prior to May 10, 2020	6,666
-Those not married or living with a same-sex partner	3,580
-Those not employed	1,676
-Those age<22 & >60	1,409
-Missing spouse's occupation code (not employed in CPS)	1,368
-Those with children aged 13–17	711
-Weekend and non-workdays	277
Dual-earner couples with children under age 13 on weekday workdays	277

Table A.2. Variables from the American Time Use Survey

Time-Use Category	ATUS Activity Tier Codes and Variables
Work and work-related activities	T1 = 5
Childcare for household and own non-household children	
Face time with children	All activities where TUWHO = 22 or TUWHO = 40
Primary childcare	T1 = 3 & T2<=3, T1 = 4 & T2<=3
Secondary childcare	All time in care not captured by primary childcare
Total childcare	Primary childcare + Secondary childcare
Household production	T1 = 2, T1 = 7, T1 = 8 (T2 ≠ 4, 5, 7), T1 = 9 & T2 ≠ 3, T1 = 10
Cooking	T1 = 2 & T2 = 2
Housework (cleaning, laundry)	T1 = 2 & T2 = 1
Maintenance (home and vehicle)	T1 = 2 & (T2>2 & T2<=99 & T2 ≠ 6, 9)
Shopping	T1 = 7, T1 = 8 & T2 ≠ 4, 5, 7, T1 = 9 & T2 ≠ 3, T1 = 10
Sleep including naps	T1 = 1 & T2 = 1

Note: T1 refers to the first-tier activity code. T2 refers to the second-tier activity code. T3 refers to the third-tier activity code. TUWHO refers to who was in the room or who accompanied you on an activity.

Table A.3. Differences in Predicted Hours of Work, Household Production, and Childcare Activities on Weekday Workdays for Mothers and Fathers in Dual-earner Couples with Children Under Age 13 (May 10–December 31, 2020)

Panel A. Work and Childcare	Work	Total Childcare	Primary Childcare	Secondary Childcare	Face time with Children	Household Production
Differences by WFH Status (Partner Not WFH)						
Fathers: WFH – Not WFH	-1.80** (0.79)	4.14***(1.28)	0.67 (0.40)	3.48***(1.30)	1.89**(0.87)	0.97***(0.38)
Mothers: WFH – Not WFH	-0.13 (0.69)	6.50***(1.05)	0.80* (0.49)	5.69***(1.03)	2.36**(0.93)	-0.13 (0.41)
Mothers – Fathers (difference)	1.67 (1.05)	2.35 (1.62)	0.14 (0.62)	2.21 (1.67)	0.48 (1.24)	-1.10* (0.57)
Differences by Partner's WFH Status						
Fathers Not WFH: WFH – Not WFH	-0.91* (0.52)	0.24 (0.62)	-0.16 (0.27)	0.40 (0.57)	-0.25 (0.49)	0.57* (0.29)
Mothers Not WFH: WFH – Not WFH	-0.17 (0.65)	1.32 (1.04)	0.09 (0.36)	1.23 (0.96)	0.84 (0.59)	-0.23 (0.41)
Fathers WFH: WFH – Not WFH	-0.25 (0.84)	-0.94 (1.44)	-0.29 (0.51)	-0.65 (1.51)	-0.50 (0.94)	-0.46 (0.44)
Mothers WFH: WFH – Not WFH	-0.47 (0.70)	-1.45 (1.08)	-0.15 (0.63)	-1.30 (1.16)	-0.37 (1.10)	0.32 (0.37)
Differences by Couple Work Location						
Fathers: Both WFH – Both Not WFH	-1.55***(0.55)	3.20***(0.86)	0.37 (0.35)	2.83***(0.93)	1.39**(0.61)	0.52**(0.24)
Mothers: Both WFH – Both Not WFH	-0.60 (0.74)	5.04***(0.99)	0.65 (0.54)	4.39***(0.94)	2.00**(0.83)	0.19 (0.44)
Mothers – Fathers (difference)	0.95 (0.99)	1.84 (1.23)	0.28 (0.64)	1.56 (1.27)	0.61 (0.99)	-0.32 (0.52)

Note: N = 277. WFH is defined as working from home at least one hour on the diary day for the respondent. Partner's WFH status is based on the partner working in an occupation that can feasibly be done entirely remotely per Dingel and Neiman (2020). ATUS final weights reweighted separately for equal-day-of-the-week representation for our male and female samples are used. Standard errors are generated using ATUS replicate weights. See Table 3 for control variables. Significance levels: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Source: Authors' calculations based on the American Time Use Survey and Dingel and Neiman (2020).

Table A.4. Differences in Predicted Hours of Work, Household Production, and Childcare Activities on Weekday Workdays for Mothers and Fathers in Dual-earner Couples with Children Under Age 18 (May 10–December 31, 2020)

Panel A. Work and Childcare	Work	Total Childcare	Primary Childcare	Secondary Childcare	Face time with Children
Differences by WFH Status (Partner Not WFH)					
Fathers: WFH – Not WFH	-0.75 (0.86)	2.40* (1.26)	0.23 (0.46)	2.17* (1.30)	2.88*(1.57)
Mothers: WFH – Not WFH	-0.27 (0.70)	3.80*** (1.21)	0.44 (0.43)	3.36***(1.03)	1.48*(0.79)
Mothers – Fathers (difference)	0.47 (1.23)	1.40 (1.78)	0.21 (0.66)	1.19 (1.72)	-1.40 (1.75)
Differences by Partner's WFH Status					
Fathers Not WFH: WFH – Not WFH	-0.53 (0.68)	1.29 (0.92)	-0.05 (0.43)	1.34 (0.89)	-0.47 (0.75)
Mothers Not WFH: WFH – Not WFH	-1.31* (0.68)	0.50 (1.34)	0.06 (0.40)	0.44 (1.219)	0.86 (0.78)
Fathers WFH: WFH – Not WFH	-0.92 (1.16)	0.24 (1.54)	0.06 (0.54)	0.18 (1.70)	-2.29 (1.71)
Mothers WFH: WFH – Not WFH	-1.05 (0.74)	-1.35 (1.23)	-0.06 (0.49)	-1.29 (1.16)	-0.30 (1.06)
Differences by Couple Work Location					
Fathers: Both WFH – Both Not WFH	-1.67***(0.65)	2.64***(0.99)	0.30 (0.35)	2.35**(1.03)	0.59 (0.67)
Mothers: Both WFH – Both Not WFH	-1.32** (0.66)	2.46**(1.00)	0.38 (0.47)	2.07**(0.92)	1.18 (0.83)
Mothers – Fathers (difference)	0.34 (0.99)	-0.19 (1.32)	0.09 (0.54)	-0.28 (1.31)	0.59 (0.99)
Panel B. Household Production	All	Cooking	Housework	Maintenance	Shopping
Differences by WFH Status (Partner Not WFH)					
Fathers: WFH – Not WFH	1.07***(0.39)	0.36* (0.19)	0.08 (0.34)	0.20 (0.31)	0.10 (0.14)
Mothers: WFH – Not WFH	0.05 (0.41)	0.06 (0.23)	0.11 (0.26)	0.16 (0.15)	0.01 (0.10)
Mothers – Fathers (difference)	-1.02 (0.63)	-0.29 (0.22)	0.02 (0.46)	-0.04 (0.35)	-0.09 (0.18)
Differences by Partner's WFH Status					
Fathers Not WFH: WFH – Not WFH	0.86**(0.38)	0.24* (0.15)	0.58* (0.34)	0.71**(0.34)	-0.03 (0.09)
Mothers Not WFH: WFH – Not WFH	0.56 (0.52)	0.08 (0.26)	0.05 (0.25)	-0.05 (0.17)	0.17 (0.11)
Fathers WFH: WFH – Not WFH	-0.09 (0.61)	-0.12 (0.22)	0.46 (0.50)	0.26 (0.45)	-0.01 (0.17)
Mothers WFH: WFH – Not WFH	0.62 (0.49)	0.05 (0.25)	-0.07 (0.32)	-0.28 (0.24)	0.35* (0.21)
Differences by Couple Work Location					
Fathers: Both WFH – Both Not WFH	0.99** (0.40)	0.23* (0.12)	0.54* (0.28)	0.46* (0.25)	0.09 (0.09)
Mothers: Both WFH – Both Not WFH	0.67 (0.53)	0.11 (0.24)	0.04 (0.26)	-0.12 (0.15)	0.36**(0.18)
Mothers – Fathers (difference)	-0.31 (0.67)	-0.12 (0.27)	-0.50 (0.39)	-0.58* (0.30)	0.27 (0.20)

Note: N = 338. ATUS final weights reweighted separately for equal-day-of-the-week representation for our male and female samples are used. Standard errors are generated using ATUS replicate weights. WFH is defined as working from home at least one hour on the diary day for the respondent. Partner WFH is based on the share working from home in their occupation (WFH = 0.7 and Not WFH = 0). See Table 3 for control variables. Additional control: presence of a child aged 6–12. Significance levels: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. *Source*: Authors' calculations based on the American Time Use Survey and Current Population Survey COVID-19 data

Table A.5. Predicted Mean Hours per Weekday Workday by Fathers and Mothers

Panel A. Work and Childcare	Work	Total Childcare	Primary Childcare	Secondary Childcare	Face time with Children
Fathers					
Father not WFH, Mother not WFH	9.13	3.13	0.87	2.26	3.30
Father WFH, Mother not WFH	7.93	7.25	1.69	5.57	5.50
Father not WFH, Mother WFH	8.81	4.22	0.59	3.63	2.37
Father WFH, Mother WFH	7.82	6.81	1.05	5.76	3.95
Mothers					
Mother not WFH, Father not WFH	8.22	5.41	1.41	4.00	3.80
Mothers WFH, Father not WFH	8.15	12.42	2.56	9.86	7.22
Mother not WFH, Father WFH	7.17	5.79	1.21	4.58	4.74
Mothers WFH, Father WFH	6.88	9.12	1.54	7.57	4.93
Panel B. Household Production	All	Cooking	Housework	Maintenance	Shopping
Fathers					
Father not WFH, Mother not WFH	0.42	0.17	0.17	0.07	0.05
Father WFH, Mother not WFH	1.48	0.63	0.56	0.51	0.21
Father not WFH, Mother WFH	1.45	0.44	0.83	0.86	0.07
Father WFH, Mother WFH	1.09	0.36	0.40	0.20	0.09
Mothers					
Mother not WFH, Father not WFH	1.40	0.85	0.45	0.02	0.03
Mothers WFH, Father not WFH	1.51	0.98	0.32	0.00	0.15
Mother not WFH, Father WFH	1.88	0.80	0.56	0.15	0.28
Mothers WFH, Father WFH	1.94	0.85	0.55	0.12	0.30

Note: N = 277. WFH is defined as working from home at least one hour on the diary day for the respondent. Partner WFH is based on the share working from home in their occupation (WFH = 0.7 and Not WFH = 0).

Source: Authors' calculations based on the American Time Use Survey and Current Population Survey COVID-19 data

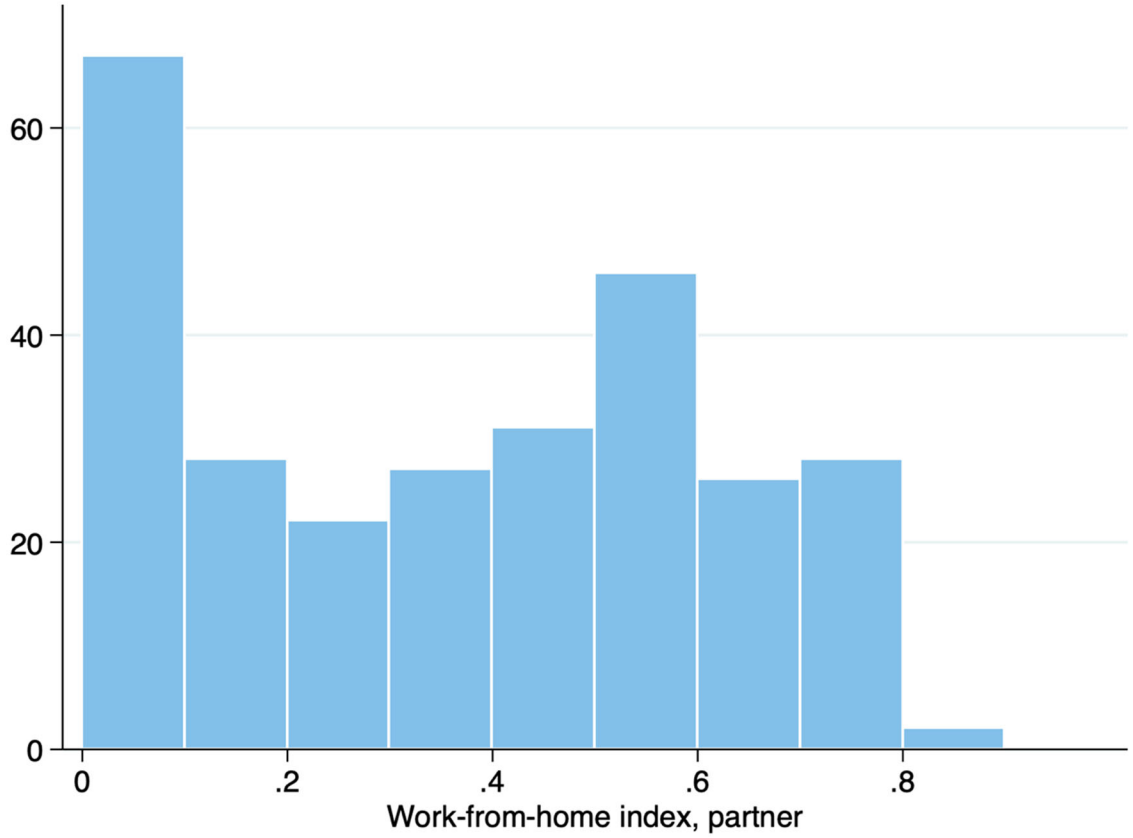
Table A.6. Differences in Predicted Hours of Sleep on Weekday Workdays for Mothers and Fathers in Dual-earner Couples with Children Under Age 13 (May 10–December 31, 2020)

	All parents	Full-time parents	Fall diaries
Differences by WFH Status (Partner Not WFH)			
Fathers: WFH – Not WFH	1.10**(0.47)	1.13**(0.55)	1.17**(0.68)
Mothers: WFH – Not WFH	0.08 (0.56)	0.05 (0.79)	1.36 (0.97)
Mothers – Fathers (difference)	-1.03 (0.76)	-1.07 (0.98)	0.16 (1.26)
Differences by Partner's WFH Status			
Fathers Not WFH: WFH – Not WFH	0.44 (0.50)	0.49 (0.61)	1.21* (0.62)
Mothers Not WFH: WFH – Not WFH	-0.50 (0.47)	-1.06 (0.65)	-0.32 (0.58)
Fathers WFH: WFH – Not WFH	-0.67 (0.58)	-0.83 (0.67)	-0.44 (0.84)
Mothers WFH: WFH – Not WFH	0.28 (0.72)	0.08 (0.92)	-1.20 (1.18)
Differences Both WFH – Both Not WFH			
Fathers: Both WFH – Both Not WFH	0.43 (0.42)	0.30 (0.47)	0.74 (0.58)
Mothers: Both WFH – Both Not WFH	0.36 (0.48)	0.13 (0.57)	0.14 (0.58)
Mothers – Fathers (difference)	-0.07 (0.66)	-0.16 (0.76)	-0.60 (0.74)
Number of Observations	277	189	131

Note: ATUS final weights reweighted separately for equal-day-of-the-week representation for our male and female samples are used. Standard errors are generated using ATUS replicate weights. WFH is defined as working from home at least one hour on the diary day for the respondent. Partner WFH is based on the share working from home in their occupation (WFH = 0.7 and Not WFH = 0). See Table 3 for control variables. We also include an indicator for whether more than 60% of students in the state were in virtual or hybrid schooling in September 2020 based on Burbio (2021) when using the fall diaries only. Significance levels: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Source: Authors' calculations based on the Burbio K-12 School Opening Tracker, American Time Use Survey, and Current Population Survey COVID-19 data

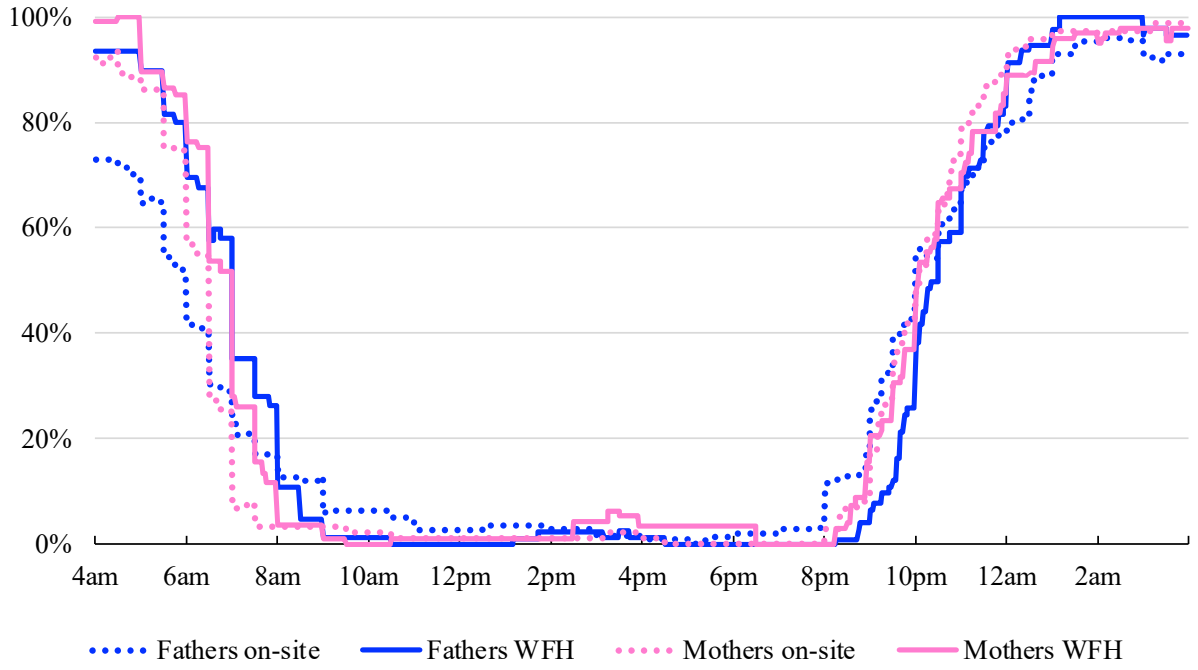
Figure A1. Distribution of Partner's Work-from-Home Index
(Frequency)



Note: N = 277. Partner WFH is based on the share working from home in their occupation.

Source: Authors' calculations based on the American Time Use Survey and Current Population Survey COVID-19 data

Figure A.2. Percentage of Fathers Sleeping on Weekday Workdays, by Time of Day (May 10 through December 31, 2020)



Note: N = 87 on-site and 63 WFH days for fathers and 60 on-site and 67 WFH days for mothers. Sample is based on fathers and mothers aged 22–60 in dual-earner couples with children under age 13. Workdays are days on which the respondent reports at least one hour of work.

Source: Authors' calculations using the American Time Use Survey