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**Who is Doing the Chores and Childcare in Dual-earner Couples
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Abstract: In 2020–21, parents’ work-from-home days increased three-and-a-half-fold following the initial COVID-19 pandemic lockdowns compared to 2015–19. At the same time, many schools offered virtual classrooms and daycares closed, increasing the demand for household-provided childcare. Using time diaries from American Time Use Survey 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 respondent directly from their diary and predict the partner’s work-from-home status. Parents working from home alone spent more time on childcare compared to their counterparts working on-site, though only mothers worked fewer paid hours. When both parents worked from home compared to on-site, mothers and fathers maintained their paid hours and spent more time on childcare, though having a partner also working from home reduced child supervision time. On the average day, parents working from home did equally more household chores, regardless of their partner’s work-from-home status; however, on the average school day, only fathers working from home alone increased their household chores compared to their counterparts working on-site. We also find that mothers combined paid work and child supervision to a greater extent than did fathers.

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

JEL codes: D13, J22, J29

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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 May 2020 Current Population Survey (CPS), 35.4% of workers reported working at home at some point in the past month *because of* the pandemic (U.S. Bureau of Labor Statistics, 2020–2021). By January 2021, that percentage had fallen to 23.2% and continued to fall gradually after that.¹ And according to the American Time Use Survey (ATUS), 25.2% of all workdays with at least 4 hours of work were work-from-home (WFH) days from May 10, 2020 through December 2021, compared to only 7.4% of workdays 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; Bick et al., 2022; Erdsiek, 2021, 2022; Pabilonia & Vernon, 2021, 2022).³

This “natural” experiment in WFH due to the novel coronavirus provides an opportunity to re-examine the gendered effects of WFH on childcare and household production for a larger group of parents WFH than previously possible and to analyze the allocation of unpaid work

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% of workers were already home-based workers prior to the pandemic, according to the American Community Survey (U.S. Census Bureau, 2019). As the pandemic progressed into 2021, the CPS COVID question appeared to be capturing less work from home than other surveys, such as the Real-time Population Survey and Google COVID-19 Community Mobility Reports, likely because the survey question conditions work from home on the pandemic being the reason for WFH and many positions have been converted to permanent remote/hybrid positions (see Bick et al. 2022).

² Authors’ own calculations based on the ATUS (U.S. Bureau of Labor Statistics, 2022).

³ Dingel and Neiman (2020) and Dey et al. (2020) estimate that as many as 37–45% of jobs available just prior to the pandemic could feasibly have been done entirely remotely.

when both parents are WFH. However, 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 and practices also restricted many leisure activities, potentially influencing how families spent their time together.⁵

In this paper, we examine the weekday workday time allocation of mothers and fathers in dual-earner couples with children under age 13, using time diaries from the ATUS, and analyze gender differences in paid work, childcare, and household production during the COVID-19 pandemic by the couple's joint work-from-home status.⁶ We focus on parents of young children, because children under age 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 ATUS respondents directly from their workday diaries and thus determine if they worked exclusively from home on their diary days. Because the WFH statuses of their partners are not available in the survey, we predict their probability of WFH using our sample of respondents. With this approach, we can examine how

⁴ In the fall of the 2020–21 school year, 60 percent of students started in a virtual K–12 schooling environment, 22% in a hybrid schooling environment, and 18% attended in-person only (Burbio, 2021). More students attended in-person later in the fall, with 37% still only virtual as of November 2020. In February 2021, about 37% were still virtual, but schools gradually reopened after that.

⁵ Restrepo and Zeballos (2022) find that after the coronavirus outbreak in 2020, workers who primarily WFH spent less time socializing and communicating but more time relaxing and engaging in leisure compared to those primarily WFH prior to the pandemic.

⁶ Replication files are located at: <https://doi.org/10.5281/zenodo.6282646> (Pabilonia & Vernon 2022).

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.

During the pandemic, we find that a partner's work location arrangement matters for how one allocates their time when WFH. Among mothers and fathers in dual-earner couples, we find that, on average, their time spent on childcare on weekday workdays rose substantially, whereas their time on household chores remained unchanged. Using multivariate regression analysis, we find that on average when their partners worked away from home (WAFH), parents WFH spent 3.4–5.2 hours more on childcare and 0.5–0.8 hours more on chores compared to their counterparts WAFH, although only mothers worked fewer paid hours. On school days, fathers, but not mothers, WFH alone spent about 1.5 hours more on chores compared to their counterparts WAFH. When both parents WFH compared to both WAFH, mothers and fathers maintained their paid hours. They also both increased their childcare time. Compared to when WFH alone, mothers in dual-remotely-working couples spent up to 3.5 fewer hours and fathers up to 2 fewer hours supervising children, suggesting that having a partner also working from home eased their care burden. When WFH, parents spent more time with their children if they were at home rather than at school or daycare. When children of dual-remotely-working couples were at home during the workday, mothers increased their hours with their children and the percentage of their workday supervising children more than fathers did.

On average, mothers' total paid and unpaid workload was 0.7 hours greater when WFH relative to fathers WFH during the pandemic than before the pandemic. However, parents of both

genders WFH did equally more total work than parents WAFH, with no variation by the partner's work location.

2. Background

This paper fits into several literatures, including the literatures on gender and intra-household time allocation, remote work and intra-household time allocation, and 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 age 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 is the breadwinner, wives spend more time on home production. The time-use literature shows that there is also 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 caring for children, 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 policies, 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). They also may help mothers remain in the labor market, because they provide greater hours scheduling 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, spent more time on primary childcare on weekdays when WFH and on the average day if they were a remote worker, suggesting that increasing WFH days could close the gender care gap (Carlson et al., 2021; Lyttelton et al., 2021; Pabilonia & Vernon, 2022). However, mothers WFH spent about a half an hour more time working with a child in their presence than did fathers, suggesting that mothers may have been more likely to be WFH to help balance their work and family responsibilities (Pabilonia & Vernon, 2022). In addition, women increased their household production on WFH days, but not on the average day if they

are a teleworker, as they shifted 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. For example, during the U.S. lockdown, Dunatchik et al. (2021), using an online poll conducted by the *New York Times*, found that employed mothers' time on housework and childcare increased during the pandemic. They were more likely to be primarily responsible for these activities than were employed fathers, though their results based on qualitative responses also suggest more egalitarian increases for some activities among dual-remotely-working parents. And 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 WAFH after the coronavirus outbreak did more housework, and both men and women WAFH spent relatively less time on childcare and homeschooling. In a survey of Italian women who were working under restrictions due to the spread of COVID-19 in April and November of 2020, Del Boca et al. (2022) found that men spent more hours on domestic activities when WFH and fewer hours on these activities when their partners were WFH. However, women's domestic work hours did not depend on their partners' work location arrangements, and they still carried the burden of the household responsibilities when both partners were WFH. 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) and Amuedo-Dorantes et al. (2022) found that the labor supply of mothers of school-aged children was more affected by school closures in the spring of 2020 than was fathers' labor supply. 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' paid work hours. They found no differences in hours reductions by teleworkable job status for married women without children living in the household. Collins et al. (2020) found

that, on average, mothers decreased their work hours by 5%, 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 worked 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 WAFH, with no differences for fathers.⁷ Using only the 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. And Augustine and Prickett (2022), comparing 2019 and 2020 ATUS time diaries and looking at all parents of children under age 13 (employed and not employed), show that though the gender gap in parental time with children narrowed, mothers took on the additional educational and secondary childcare responsibilities created by the pandemic. Many of these activities they did while also working, presumably from home.

Except for the qualitative study by Dunatchik et al. (2021), none of the prior studies examined how the remote worker status of the other parent affects time allocation among U.S. dual-earner couples. In part, it is because we do not have data on the 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 here an innovative method to predict the WFH status of the other parent using the time diaries and compare differences in predicted hours by the couple's joint work location. We also examine how the presence of a child at home on WFH days influenced parental time allocation.

⁷ Using the 2010–2020 ATUS time diaries, Restrepo and Zeballos (2022) found that among dual-headed households, the gap in paid work hours between those WFH and WAFH decreased during the pandemic due to a large increase in working time among those WFH, but they did not examine gender differences in the gap.

We hypothesize that if mothers WFH while fathers WAFH, mothers will pick up more of the childcare and chores (and potentially work fewer paid hours), while if mothers' and fathers' work locations are reversed, then fathers will pick up more of the childcare and chores. If both WFH, mothers and fathers may share the increased burden more equally. Yet, children may seek the attention of their mothers, who have been their primary caregivers, more often than their fathers, making it an empirical question what will happen when both caregivers WFH. If children are at home on schooldays, this may 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.⁸ There is only one respondent per household and, 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 age 13 are under their care but not necessarily in the same room and the child is not the focus of the primary activity. 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

⁸ All ATUS interviews are conducted 2–5 months following the eighth and final CPS interview, although most are interviewed 3 months later.

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 (March 19, 2020 to May 10, 2020); thus, we use time diaries from May 10, 2020, after interviews resumed, through the end of 2021 for our pandemic period. To compare how time use by work location changed because of the pandemic, we compare time diaries from our pandemic period to time diaries collected from January 2015 to February 2020.

3.2 *Analysis Sample*

Our main analysis sample includes fathers and mothers who are members of a dual-earner man-woman couple living with own household children under age 13 in which each member of the couple was aged 21–65.⁹ We include married and cohabiting parents and control for cohabitation status in our multivariate analysis. Along with full-time workers, we include 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 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. Our sample includes 728 parents in the pandemic period (May 10, 2020 to December 2021) and 2,842 parents in the pre-pandemic period (January 2015 to February 2020). See Appendix Table A1 for details of the sample construction. Throughout the analysis, we use ATUS final weights that we reweighted to ensure equal-day-of-the-week representation

⁹ Own children in the ATUS include biological, adopted, and stepchildren.

by gender and year for our sample of parents in dual-earner couples. We also use replicate weights and compute empirically-derived standard errors, given the complex survey design.

In sensitivity analyses, we consider several subsamples of parents working on weekdays during the pandemic, including parents who were full-time wage and salary workers and whose partners were also full-time wage and salary workers and who thus have more similar hours and less control over their scheduled work hours ($N = 482$), those interviewed during the school year ($N = 490$), and those working from home so we can observe how time use differs when a child is also at home ($N = 280$). Finally, for comparison's sake, we examine members of dual-earner couples with no children under age 18 ($N = 1,854$ before COVID and 611 during COVID).

3.3 *Time Use Categories*

We examine daily hours differences for three major activities—paid work, childcare, and household production—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 main jobs only as few parents have second jobs). For childcare activities, we examine two different concepts of childcare: total childcare time, which comprises both primary and secondary childcare, and all time with children present in the same room during an activity when at home or accompanying the parent when away from home (we refer to the latter as “face time with children”). We also look at primary and secondary childcare separately. Primary childcare includes time spent on educational activities such as homework, but we do not examine educational time separately, as few reported this as a primary activity. It is likely that parents are supervising children's schooling time while doing another activity, and so this time will be included in secondary childcare and face time with children. We also consider time working while simultaneously caring for children (either in the same room or as a secondary activity).

Household production includes activities such as cooking, cleaning, shopping, etc. Finally, we examine total work (paid and unpaid), which is the sum of paid work, primary childcare, household production, and secondary childcare (excluding any time when the primary activity was paid work or household production).¹⁰

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 paid work activities from home, then we classify them as WFH, i.e., they did not commute to a workplace. Those classified as WAFH 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, but they did not exclusively work from home.

Because we do not know their partner's work location, we predict their partner's probability of WFH. Using all pandemic-era ATUS respondents who were members of dual-earner couples, we estimate probit models by gender where the outcome variable is an indicator for WFH on the diary day and controls include a quadratic in age, log hourly wage, and indicators for cohabitation status, marital status, an extra adult in the household (in addition to the spouse/cohabiter), lives with child aged 0–2, lives with child 3–5, lives with child age 6–12, lives with child age 13–17, 3+ own children in household, education (no high school degree, some college, bachelor's degree, advanced degree), paid hourly, part-time, partner part-time, self-employed, union member status, race/ethnicity (non-Hispanic black, Hispanic, non-Hispanic other race), living in a metropolitan area, 11 occupation groups, 14 industry groups, and months of the pandemic, and a continuous measure of how teleworkable the partner's occupation is, which we construct from the CPS COVID-19 supplement question that asks whether any work

¹⁰ See Appendix Table A2 for more details on the construction of these time-use categories.

was done at home *because of the pandemic* in the past 4 weeks.¹¹ Specifically, for the latter variable, we estimate the share of workers aged 21–65 who teleworked in the May 2020 through December 2021 CPS for each detailed occupation by year and Census region and assign that share to the partner by their detailed CPS occupation code (U.S. Bureau of Labor Statistics & U.S. Census Bureau, 2020–2021).¹² 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 teleworkable occupations (Dey et al., 2021). The correlation between our predicted probabilities and actual WFH for ATUS respondents is 0.55 for men and 0.60 for women. The partners’ predicted probabilities of WFH range from 0 to 1 (see Appendix Figure A1). Using these probabilities, 41% of fathers’ partners and 30% of mothers’ partners were classified as WFH, which is similar to the percentages working from home by gender for our ATUS respondents (Table 1). Among the ATUS parents WFH, 50% had partners with a WFH probability exceeding 50% and 25% had partners with a WFH probability exceeding 72%.

3.5 *Childcare Constraints*

To capture the effects of school and daycare closures or children who are home sick or under quarantine after COVID-19 exposures, we construct a child-at-home indicator variable. 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 5 minutes during the core work/school hours of 9 a.m. and 2 p.m. On weekday workdays during the pandemic when WFH, 54% of

¹¹ See Appendix Table A3 for marginal effects from the probit model.

¹² Note that only the employment status and usual hours of the partner is collected in the ATUS, so for the predictions, we are using the partner’s CPS responses on occupation, union status, etc. (collected 2–5 months prior to the ATUS).

fathers and 65% of mothers had at least one child at home during core hours, while pre-pandemic only 35% of fathers and 58% of mothers had a child at home during core hours (Table 1).

3.6 *Descriptive Statistics*

Table 1 presents summary statistics for our pre-pandemic and pandemic parent samples by gender. 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—parents earned higher wages, fathers were less likely to have a partner working part-time, fathers were more likely to have a child at home on WFH days, fathers were more likely to be working in a computer or math occupation and less likely to be working in a services occupation, mothers were more likely to have a graduate degree, mothers were more likely to be working in a management or administrative industry and in a business or finance occupation, and parents were more likely to be WFH and to live in the Northeast.

Figure 1 shows that the percentage of weekday workdays worked exclusively from home increased dramatically for mothers and fathers during the pandemic, with mothers having substantially higher telework take-up rates. Before the pandemic, only 7.5% of fathers' workdays and 13.1% of mothers' workdays were spent working from home. During the pandemic, 29.8% of fathers' workdays and 39.5% of mothers' workdays were worked from home—a three-and-a-half-fold increase in work at home for parents of young children.

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 during the pandemic—fathers spent 1.2 hours more on childcare while mothers spent 1.7 hours more on childcare (Figure 2 and Table 1). 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 0.5 hours, from 1.8 hours to 2.3 hours. Mothers and fathers also increased their total face time with children by about half an hour. Fathers worked 0.3 fewer paid hours during the pandemic, whereas mothers worked 0.3 hours more, so the gender gap in paid work hours fell from 1.5 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 0.8 hours prior to the pandemic and a gap of 0.6 hours during the pandemic). Overall, the gender gap in total hours of work (paid and unpaid) among dual-earner couples increased slightly, from 0.4 hours to 0.6 hours.

Looking at the unadjusted means for our major time-use categories by WFH status during the pandemic (Figure 3), we find no statistically significant difference in mothers' paid work hours while fathers WFH worked 0.9 fewer paid hours than those WAFH (8.8 vs. 7.9 hours). The largest differences in means by work location were in childcare time, especially for mothers. Mothers WAFH spent 5.5 hours caring for children while mothers WFH spent 9.5 hours.¹³ Fathers WAFH spent 3.8 hours caring for children while fathers WFH spent 6.9 hours. There were also sizeable differences in face time with children by work location. Mothers WAFH spent 4.2 hours with children while those WFH spent 6.0 hours. Fathers WAFH spent 3.0 hours with children while those WFH spent 4.5 hours. We find no statistically significant difference in mothers' hours spent on household production by work location. Fathers WFH, on the other hand, spent 0.5 hours more on household production than those WAFH, 1.3 hours vs. 0.8 hours.

¹³ Comparing childcare hours between 2020 and 2021 diaries, we find that in 2020, mothers WFH spent 10.6 hours caring for children while in 2021 they spent 9 hours, and the difference was statistically significant.

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 a slight increase during the pandemic in the percentage spending time with children around noon, when children are usually in school (Figure 4). However, we observe a decrease in the percentage spending time in the morning hours (around 8 a.m.) and afterschool (between 2 p.m. and 5 p.m.), which might reflect differences in the school location (virtual or in-person) or in the composition or preferences of fathers WFH. For example, prior to the pandemic, fathers WFH may have been responsible for dropping off and/or picking up their children at school. For mothers WFH, we see that they spent less time with children in the morning, at noon, and during afterschool hours during the pandemic, though mothers WFH spent more time with their children in the after-school hours than mothers WAFH in both periods (Figure 5). On the other hand, for mothers WAFH, a slightly larger percentage spent time with a child between 9 a.m. and 1 p.m., when children may have been in virtual schooling.

During the pandemic, mothers and fathers WFH spent 7% and 18% of their work hours with children in the same room respectively (Figure 6). Although prior to the pandemic fathers WFH spent about the same percentage of their workday with children, mothers WFH during the pandemic spent more of their workday with children present than in the pre-pandemic period (a 4-percentage-point difference). Parents spend even more time WFH with children in their care (secondary childcare). Because of the pandemic, mothers WFH increased the percentage of their workday doing secondary childcare from 39% to 52%. Fathers WFH spent 28% of their workday on secondary childcare before the pandemic and 31% of their workday on secondary childcare during the pandemic, but the difference was not statistically significant. In addition, both before and during the pandemic, mothers WFH had more work episodes than mothers WAFH

(2.7 episodes vs. 2.3 episodes during the pandemic and 3.0 episodes vs. 2.4 episodes in the pre-pandemic period) (Figure 7). On the other hand, fathers WFH experienced fewer interruptions in their work during the pandemic than prior to the pandemic (2.4 episodes vs. 2.9 episodes), 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. Thus, mothers potentially experienced more disruptions from their children while WFH during the pandemic than did fathers. We also see that mothers and fathers WAFH spent more of their workday with children under their care during the pandemic than in the pre-pandemic period, which likely results from their having worked more partial days from home (Figure 6).

Figure 8 shows that during the pandemic and looking only at parents WFH, there was a significant percentage of parents WFH 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 WFH. Mothers were also less likely to be working in the afternoon hours (3 p.m. to 6 p.m.) and slightly more likely to be working later in the evening (8 p.m. to 11 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.¹⁴ However, this bump up in work after dinner does not appear to be unique to the pandemic period. We find that prior to the pandemic, mothers WFH were more likely than mothers WAFH to work in the evenings, perhaps because their work computers were easily accessible (Figure 9). Looking at NLSY97 respondents in the spring of 2021, Aughinbaugh and Rothstein (2022) found that among those WFH, mothers were more likely to report that children's remote learning made it difficult to

¹⁴ McDermott and Hansen (2021) also found evidence that workers on GitHub reallocated their work hours outside traditional core business hours in the early stages of the pandemic, but more so men than women.

work or do other household tasks than were fathers (65% vs. 58%). 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).

Although ATUS respondents only report about one diary day, using a separate set of parents who were interviewed about weekend days, we investigate whether parents worked more on the average weekend day during the pandemic, potentially shifting their work from weekdays to weekend days as they struggled to care for their children and supervise their studies. Figure 10, however, suggests that mothers and fathers worked the same number of weekend hours in both periods.¹⁵ Thus, we conclude that some mothers and fathers may have shifted some of their hours to evenings, especially since more of them were working at home than ever before, but not to weekends, to balance their work and childcare responsibilities.

4. Econometric Models

As a baseline specification, for parents interviewed in 2015–21, we estimate the following linear model that allows time use to vary by gender, the respondent’s WFH status, and over time by ordinary least squares (OLS):¹⁶

$$Y_i = \gamma_0 + \gamma_1 Female_i + \gamma_2 WFH_i + \gamma_3 COVID_i + \gamma_4 WFH_i \times Female_i + \gamma_5 Female_i \times COVID_i + \gamma_6 WFH_i \times COVID_i + \gamma_7 WFH_i \times Female_i \times COVID_i + \gamma_8 X_i + v_i \quad (1)$$

¹⁵ We reach the same conclusion if we examine children aged 6–12 only.

¹⁶ Even though some parents do not participate in an activity on their random diary day (the majority do), we believe that most regularly participate in these broad activity categories; therefore, OLS generates unbiased estimates (Stewart, 2013). See the percentage of non-zero values for each activity in Table 2.

where Y_i is time spent on an activity measured in hours per weekday workday for individual i , $Female_i$ is an indicator variable for whether the individual is female, WFH_i is an indicator variable for whether the individual was working exclusively from home on their diary day, $COVID_i$ is an indicator variable equal to 1 if the diary day was between May 20, 2020 and December 2021 and 0 otherwise, X_i is a vector of control variables, and v_i is the error term. In all specifications, control variables include a quadratic in age, log hourly wage, and indicators for cohabitation status, an extra adult in the household (in addition to the spouse/cohabiter), age of youngest household child, 3+ own children in household, education (no high school degree, some college, bachelor's degree, advanced degree), paid hourly, part-time, partner part-time, self-employed, union member, race/ethnicity (non-Hispanic black, Hispanic, non-Hispanic other race), living in a metropolitan area, 11 occupation groups, 14 industry groups, and Census region, month, and year. γ_0 is a constant term. The coefficients γ_1 through γ_7 and the coefficient vector γ_8 are to be estimated. By including the interactions between $Female$, WFH_i , and $COVID_i$, this model allows us to test whether COVID has changed the WFH–WAFH gaps in paid work, chores, and childcare by parental gender.

Next, restricting to parents interviewed during the COVID-19 era only, we estimate linear models by OLS where we add interaction terms between $Female_i$, WFH_i , and $PARTNER_WFH_i$ to allow the gendered effects of WFH to vary by the couple's joint work location during the pandemic given the significant rise in WFH:

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

where Y_i , $Female_i$, and WFH_i are as defined above, $PARTNER_WFH_i$ is the predicted probability that the partner WFH, X_i is the vector of control variables described previously, except that we include indicators for pandemic month instead of year and month indicators to better correct for the timeline of the pandemic, and ε_i is the error term. 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 restrict the sample to WFH days during the COVID-19 era and estimate linear models by OLS as follows:

$$Y_i = \alpha_0 + \alpha_1 Female_i + \alpha_2 CHILDHOME_i + \alpha_3 PARTNER_WFH_i + \alpha_4 Female_i \times CHILDHOME_i + \alpha_5 Female_i \times PARTNER_WFH_i + \alpha_6 CHILDHOME_i \times PARTNER_WFH_i + \alpha_7 Female_i \times CHILDHOME_i \times PARTNER_WFH_i + \alpha_8 X_i + \eta_i \quad (3)$$

where $CHILDHOME_i$ is an indicator variable for whether a child was at home between 9 a.m. and 2 p.m. and the other variables are as defined above. 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. By including interactions between $Female_i$, $CHILDHOME_i$, and $PARTNER_WFH_i$, this model allows us to test whether time use varied on WFH days by whether a child was also at home by parental gender and whether having a partner at home reduced caregiving time as parents shared the additional childcare burden resulting from the pandemic.

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 discuss

differences in these predicted hours for members of dual-earner couples by WFH status, by couple's WFH status, and by child-at-home status. For our main results, coefficient estimates are also available in Appendix Tables A4 and A5.

When we control for the partner's WFH probability and its interaction with the respondent's WFH status, we calculate predictions setting $PARTNER_WFH_i$ equal to 0 to indicate a WAFH day and equal to 0.75 to indicate a WFH day. The latter WFH probability is roughly the 86th percentile of the distribution of the predicted WFH probabilities for dual-earner coupled parents (see Appendix Figure A1).¹⁷

5.1 *Baseline Results: Pre-pandemic vs. Pandemic WFH–WAFH Differences for Parents*

In Table 2, we show differences in time spent on weekday workdays in both the pre-pandemic and pandemic periods for parents by WFH status from equation 1, when we do not control for partner's WFH status. Thus, the differences show how fathers and mothers WFH spent their time compared to their counterparts WAFH on average, and we also test whether that difference changed over time and differed by gender. Prior to the pandemic, workers may have chosen to 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 also may 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

¹⁷ Choosing a value closer to 1 would increase the standard errors, given our small sample.

non-household childcare options diminish and choices for leisure activities reduced. They also may have been concerned about the health threat and thus chosen 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 (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 WFH vs. 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 Table 2 highlight the parental gender gaps in time spent on activities for those WAFH and then those WFH, while controlling for demographic and job characteristics. Regardless of WFH status, mothers worked 0.9–1 fewer hours per day than did fathers before the pandemic. During the pandemic, mothers WAFH worked 0.4 hour fewer for pay than fathers, while mothers and fathers WFH worked similar hours.

The next two rows of each panel show WFH–WAFH differences for fathers and then mothers, followed by a row showing whether these differences were larger for mothers than for fathers. Both before and during the pandemic, fathers WFH worked fewer paid hours than their WAFH counterparts (1.3 hours before and 0.7 hours during). Mothers WFH also worked fewer hours than mothers WAFH (1.4 hours before and 0.5 hours during). Thus, the work location differences in paid work diminished during the pandemic for both parents. We can also see this in the “COVID minus pre-COVID” panel, which presents the differences between the first set of gaps and the second set to show the net change during COVID. During COVID, mothers’ paid work time increased relative to fathers’, more so for parents WFH, and paid work hours became more similar for WFH and WAFH workers.

Before COVID, all mothers spent 1.1 hours more on total childcare than did fathers. During COVID, the gender gap grew for WFH parents to 2.4 hours as WFH mothers added an additional 1.3 hours of childcare. The extra 1.3 hours was a combination of additional supervision and interaction time.

In both periods, on average, WFH allowed all parents to spend more time with children: WFH fathers spent 0.4 hours more on primary childcare, almost 3 hours more on secondary childcare, and 1.5–1.9 hours longer with children in their presence compared to fathers WAFH. For mothers, the WFH–WAFH difference in total childcare increased from 3.4 hours to 4.5 hours during the pandemic, because of roughly equal increases in primary and secondary time. However, mothers’ WFH–WAFH difference in face time with children remained unchanged at slightly more than 2 hours. During COVID, the gender difference in the WFH–WAFH gap in face time with children is 0.7 hours and statistically significant, suggesting mothers WFH spent more time with children than did fathers WFH. On average, the shift to WFH during COVID was associated with 1.4 hours more childcare for mothers compared to fathers, and with an additional 1.1 hours of childcare compared to before COVID, including 0.5 hours more primary childcare. Thus, on average, WFH mothers bore the brunt of the increased demand for household-provided childcare.

Mothers spent more time on household production than fathers, regardless of their WFH status or the time period. Before the pandemic, mothers WFH spent 0.6 more hours on household production compared to mothers WAFH, but during the pandemic, this WFH–WAFH hours gap for mothers fell to 0.4, though the difference over time is not statistically significant. In both periods, fathers WFH spent more time on household chores relative to those WAFH (0.5–0.6

hours).¹⁸ The gender difference in the WFH–WAFH gaps in chores during COVID is not statistically significant.

Finally, mothers’ total work burden was similarly higher than fathers’ among those WAFH in both periods. Before the pandemic, mothers WAFH did 0.4 hours more total work per day than fathers, whereas mothers and fathers WFH spent the same time in total work. During COVID, the gender gap increased by 0.7 hours for mothers WFH relative to fathers WFH, suggesting less equal allocation of work. In both periods, fathers and mothers WFH did more total work than their counterparts WAFH (0.5–0.9 hours differences depending on the period and gender, with no statistically significant differences between groups).

5.2 *Results for Parents, Controlling for Partner’s WFH Status During the Pandemic*

In Table 3, we present differences in predicted hours spent on the activities of one parent during COVID by the couple’s joint WFH status from equation 2. In rows 1 and 2, we show the WFH–WAFH hours gap for fathers and then mothers when their partners WAFH. Row 3 shows the gender difference in these gaps. Rows 4 and 5 show differences in time allocation when both partners WFH vs. both partners WAFH. Row 6 shows how much larger the difference is for mothers than fathers. In rows 7–8, we show differences in predicted hours for the parent WFH when both partners WFH vs only father or mother WFH. Negative values in these rows indicate that having a partner also WFH eases the parent’s paid and unpaid work burden (or interferes with a paid workday). For a visual display of these WFH–WAFH differences, see Figure 11.

¹⁸ See Appendix Table A6 for estimated differences in several detailed household production categories. Pre-COVID, mothers WFH spent more time cooking, on housework, and shopping compared to those WAFH; during the pandemic, mothers WFH spent more time than those WAFH only on cooking. During both periods, fathers WFH spent more time on cooking and housework than fathers WAFH, with the WFH–WAFH gap in cooking being slightly larger in the pre-pandemic period.

Looking first at paid work, we find that mothers WFH alone spent 1.1 fewer hours working for pay than mothers WAFH. When both partners WFH, mothers WFH spent the same amount of time working for pay as mothers WAFH. This suggests that mothers were able to maintain their work hours during the pandemic if their partners were also WFH. In this specification that adjusts for month of the pandemic, we do not find that fathers' labor supply was affected by either their work location or their partner's work location, even though the results in Table 2 that included the pre-COVID era indicate that on average fathers WFH spent less time doing paid work than fathers WAFH.

When WFH alone, both fathers and mothers spent more time caring for their children compared to their counterparts WAFH (3.4 hours and 5.2 hours, respectively). Most of the additional care time was in secondary childcare (3.1 hours and 4.4 hours for fathers and mothers, respectively), but mothers also spent more time on primary childcare (0.8 hours). Parents WFH also had more face time with their children (1.4 hours and 2.5 hours for fathers and mothers, respectively). None of the gender differences in the WFH–WAFH gaps in childcare are statistically significant when parents WFH alone.

When both parents were WFH, fathers and mothers WFH spent 2.1 and 3.2 hours more, respectively, on childcare (primarily on secondary childcare), but the 1.1-hour gender difference is not statistically significant, suggesting that mothers and fathers more equally shared the increased childcare burden. Both parents also spent more time in the same room with their children (1.1 and 1.5 hours for fathers and mothers, respectively, again the difference is not statistically significant). Compared to those WFH alone, mothers in dual-WFH couples spent 2.0 fewer hours interacting with and supervising children, but the estimate is imprecise.¹⁹ Although

¹⁹ As a sensitivity analysis, we estimated equation 2 for a sample of parents with children under age 18, i.e., we added parents with only teenagers to the sample. Results are similar, but we find that mothers

many fathers may also have had some relief, judging by the large negative difference in the second to last row, we cannot reject the hypothesis that fathers WFH alone spent the same amount of time on childcare as those WFH with a partner WFH.

We find that parents WFH alone spent more time on household production. The WFH–WAFH gaps in household production are substantially lower when their partners also WFH, but the differences by partner’s status are imprecise. Finally, parents’ total work burden was 0.9 hours higher when WFH alone and about 0.5 hours higher for each in dual-WFH couples relative to when both WAFH, but the differences by partner’s WFH status are not statistically significant.

5.3 *Parents in Full-time Wage and Salary Dual-earner Couples*

Dual-earner couples who both maintained full-time paid work hours and worked for an employer during the pandemic faced even tighter constraints on their time and therefore may have specialized in various non-market activities to a larger extent. In Panel A of Table 4, we show that mothers WFH alone worked 1.5 fewer paid hours compared to mothers in WAFH couples (only a 0.4-hour-larger difference than we found in the full sample). We again find no difference in paid work hours for dual-WFH vs dual-WAFH parents.

When WFH, full-time working fathers and mothers spent more time caring for children relative to fathers and mothers WAFH, including those who WFH alone (4.5 and 6.6 hours, respectively) and those who WFH with their partners (2.3 hours and 3.1 hours). As in the main sample, additional childcare time was largely due to secondary childcare, but parents also spent 0.7–1.0 hours more on primary childcare when WFH. Results suggest that dual WFH eased parents’ care burden substantially compared to those WFH alone (by 3.5 hours for mothers and

spent statistically significantly less secondary time and face time with children when their partners were also WFH and fathers spent less time on household production when their partners were also WFH (Appendix Table A7).

2.2 hours for fathers), though only mothers' difference by partner's WFH status is statistically significant. The differences by partner's WFH status were entirely due to differences in secondary childcare. Compared to in the full sample, full-time employed fathers who WFH alone spent more face time with children compared to those in WAFH couples (2.5 hours more compared to 1.4 hours more). We cannot reject the hypothesis that those WFH with a partner spent an equivalently larger amount of time with children, though the WFH–WAFH differences are substantially smaller (1.1–1.4 hours).

In this subsample, the differences in household production and total work for one parent WFH are slightly smaller in magnitude than in the full-sample and not statistically significant, nor are the differences significant when WFH with a partner. However, we find that fathers WFH with a partner do less household production than fathers WFH alone, suggesting that having a partner also WFH eases fathers' chores burden. We do not find any statistically significant differences in the WFH–WAFH gap in total work by partner's WFH status.

Thus, we find evidence that partner's work location affects mothers' paid work and childcare time and fathers' household production time when they WFH. In addition, the results using both the full sample of dual-earner parents and the subsample of full-time wage and salary dual-earner parents suggest that the gender care gap increases when mothers WFH alone, but when only fathers WFH, the gender care gap decreases. When both WFH compared to mother WFH alone, results suggest that the gender care gap decreases.

5.4 School-year diaries

We also examine differences in predicted time spent on activities on school-year diary days, when parents were more likely to be differentially affected by school closures, given that mothers more often report that they are the primary caregivers (Dunatchik et al., 2021). In this

subsample, we cannot reject the hypothesis that mothers WFH alone worked similar hours to those WAFH. However, we find that when their partners WFH as well, mothers' WFH–WAFH difference in paid work was relatively larger than fathers' difference. In addition, mothers WFH with a partner worked 1.5 hours more than mothers WFH alone, which suggests that having a partner also WFH helped mothers maintain their work hours.

Although we find no evidence that parents' paid work fell on school days when WFH alone, fathers WFH alone spent 3.3 hours more on secondary childcare and 2.1 hours more with children (the latter difference is 0.6 hours greater compared to their counterparts WAFH when we include summer workdays). Mothers WFH alone spent more time on primary childcare (0.9 hours), secondary childcare (3.6 hours), and face time with children (2.0 hours). Compared to results for the full sample, mothers' WFH–WAFH gaps in secondary childcare and face time when WFH alone were smaller. When both WFH compared to both WAFH, mothers' WFH–WAFH gap in childcare was 3.0 hours while fathers' gap was 1.6 hours, but imprecise. We cannot reject the hypothesis that the gender difference in the WFH–WAFH gaps is zero. When both WFH compared to one parent WFH and as we found in the full sample, parents' total childcare burden was eased, with fathers' spending 2.1 fewer hours on childcare, primarily through a reduction in secondary childcare, and mothers' spending 1.5 fewer hours on childcare (as in the full sample, the estimates are imprecise). Compared to the full sample estimates, the WFH–WAFH gaps in face time when both parents WFH compared to one WFH are small and not statistically significant. When both parents WFH compared to one parent WFH, results again suggest that having a partner also WFH decreases the time one spends with children, although again the estimates are not precisely estimated.

Turning to household production, we find that fathers, but not mothers, WFH alone spent 1.5 hours more on chores than fathers WAFH, and the gender difference is statistically significant. It may be that mothers did not spend more time on household production because they were focused on supervising virtual schooling.²⁰ However, when both WFH, parents WFH spent similar amounts of time on household production as their WAFH counterparts, suggesting that fathers' chores burden was eased by having mothers also WFH, and the difference for fathers WFH by partner's WFH status is statistically significant. Finally, when fathers WFH alone their total work burden was 0.9 hours higher, as we saw in the full sample, but the estimate is not precisely estimated. We cannot reject the hypothesis that mothers WFH alone also had a higher work burden, nor can we reject the hypothesis that partner's WFH status does not matter for the total work burden.

5.5 *Childcare Constraints*

Many parents who worked from home did so with a child at home during the day, sometimes 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 those differences varied by their partner's WFH status. 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

²⁰ Del Boca et al. (2022) found that Italian mothers did more of the supervising of homeschooling than did fathers.

flextime policies during the pandemic.²¹ However, we also estimate a specification that looks at differences in the share of the parent's workday doing secondary childcare.

First, we compare time spent on activities by child-at-home status for those with partners WAFH (Table 5). Being the only parent WFH with a child at home meant spending more time on secondary childcare (7.1 hours and 6.0 hours for fathers and mothers, respectively) compared to being a parent WFH whose children were all at school during the day. It also meant spending more time with a child in the same room (2.3 hours and 3.3 hours for fathers and mothers, respectively). We find no statistically significant gender differences in the child-at-home gaps in childcare time. Having a child at home meant that a parent WFH spent substantially more time working while simultaneously caring for a child (a 70–78-percentage-point increase), and did not reduce their paid work hours. For parents WFH alone, we cannot reject the hypothesis that having a child at home has no impact on their time spent on primary childcare and household production. Mothers', but not fathers', total workload was greater when a child was at home while they were WFH alone.

Having the second parent WFH did not reduce parents' additional time on secondary childcare when a child was at home instead of in school. However, compared to when WFH alone, fathers spent less of their workday simultaneously caring for a child (28-percentage-points less). When both parents WFH, parents spent more time with children in the same room if their child was at home, but mothers increased their face time with children and the percentage of their workday on supervising children by more than did fathers, though the gender differences are imprecise (a 1.7 hours greater increase and a 17-percentage-points greater increase,

²¹ Using the ATUS time diaries, Stewart (2010) found that mothers of preschoolers working part-time tend to shift their work schedules to later in the day so they can maximize their time in enriching childcare activities at times most appropriate for child development.

respectively). Parents in dual-WFH couples did not spend more time in primary childcare nor did they reduce their paid work when a child was at home. However, fathers spent 0.5 hours more on household production when a child was at home, and we cannot reject the hypothesis that mothers did the same. Parents' total workload was 1.1–1.3 hours greater when both parents WFH and a child was at home rather than at school. The child-at-home gap in total work for fathers was 1.6 hours larger when their partners WFH than when they WFH alone.

5.6 *Members of Dual-Earner Couples Without Children Under Age 18*

For comparison's sake, we also estimated equations 1 and 2 using members of dual-earner couples without household or non-household children (Table 6). Before the pandemic, women WAFH worked 0.3 fewer hours than men WAFH, while the gender gap for those WFH was not statistically significant. During the pandemic, there were no gender differences in paid work time, regardless of work location, but we cannot reject the hypothesis that the gender difference for those WAFH was the same as before COVID. When WFH compared to WAFH, men and women worked 0.6–1 fewer hours, with no statistically significant differences between the two time periods. Compared to our findings for fathers and mothers (Table 2), the differences in paid work for childless men and women were smaller, except for the WFH–WAFH difference for childless women, which was about the same.

In both periods, childless women spent 0.4–0.5 more hours on household production than did childless men, regardless of work location, which is similar to the gender gap in chores that we found for fathers and mothers. Men and women WFH spent 0.4–0.8 hours more on household production than their counterparts WAFH, with no statistically significant differences over time or by gender. Compared to what we found for fathers and mothers, the WFH–WAFH differences

are slightly smaller before and slightly larger during COVID. We find no gender or WFH–WAFH differences in total work for childless men and women in dual-earner couples.

During the pandemic, in couples with one partner WFH, the partner WFH worked 1.3–1.5 fewer hours for pay. When both members of the couple WFH, neither men nor women worked less than their WAFH counterparts. We find that women in dual-WFH couples worked 1.6 hours longer per day than when they were the only ones WFH, which is 0.4 hours longer than we found for mothers. When WFH alone relative to both WAFH, men and women did 1.3–1.8 hours more household production, which is substantially larger than we found for parents. However, having a partner also WFH substantially reduced their household production time, with men spending 0.9 hours more on these activities and women spending 0.4 hours more (though the gender difference is imprecise). This latter finding provides some evidence that the gender gap in chores may be smaller in childless couples when they both WFH. Finally, we find no statistically significant differences in total work by partner’s WFH status.

Thus, we find that among childless coupled men and women, the partner’s WFH status matters for both paid work and household production. The partner WFH alone substituted away from paid work to household production. However, if they both WFH, men and women did not decrease their paid work and shared household responsibilities more equally.

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 WFH. Among dual-earner parents with children under age 13, we observe that 29.8% of fathers’ workdays and

39.5% of mothers' workdays were WFH from May 2020 to December 2021, a three-and-a-half-fold increase compared to the five years preceding the pandemic.

Using time diaries from the ATUS, we examined the gendered effects of the COVID-19 pandemic in the medium-run on time spent on paid work, chores, and caregiving by parents in dual-earner couples and investigated 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. Our analyses for the post-lockdown period suggest that mothers and fathers picked up equal amounts of the extra childcare burden when WFH and their partners WAFH. Thus, when fathers were WFH alone, and thus were more available to their children, the gender care gap decreased. When the couple was dual-remotely working relative to only one member WFH, mothers and fathers more equally shared the increase in childcare responsibilities brought about by the pandemic. On the average day, fathers and mothers WFH did equally more household chores, regardless of their partner's WFH status; however, on the average school day, fathers, but not mothers, WFH alone increased their household chores compared to their counterparts WAFH. When mothers and fathers WFH together, they maintained their paid work hours; however, when mothers WFH alone, they worked 1.1 fewer paid hours on the average day, but not on the average school day, which implies that the average day results may be driven by those without summer childcare. The mother–father difference in overall work (paid and unpaid) increased for those WFH during the pandemic. Those WFH also had more overall work than those WAFH, but there were no differences by the partner's WFH status.

When WFH, parents with children at home during the workday spent substantially more time on childcare than those without children at home, but most of the time was supervisory

childcare with much of it done while working, so their paid work hours did not change. When both were WFH, mothers whose children were at home during the workday increased their face time with their children by 1.7 hours more than did fathers. In addition, mothers increased their time working with children under their care by more than fathers (and were doing this more frequently than when WFH before the pandemic). Mothers WFH 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 work from home to a greater extent than they did before the pandemic. At the same time, an increase in the availability of remote jobs could increase mothers' labor force attachment, especially if they can find affordable childcare options.

We also find that even among dual-remotely-working couples, when children were at home, fathers WFH during the pandemic spent a lot more time with children and fathers WFH with a partner also at home spent more time on household production, which may lead to

fundamental changes in fathers' time allocation 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.

Finally, we also looked at differences in hours spent on household production by couple's joint WFH status for a sample of men and women in dual-earner couples without children. During the pandemic, when WFH alone relative to both WAFH, childless men and women WFH did substantially more household production compared to fathers and mothers, perhaps because they did not have childcare responsibilities as well. When both members of the couple WFH relative to both WAFH, the WFH–WAFH gap in household production was larger for men than women, suggesting that men and women in childless couples may have more equally shared household responsibilities.

This analysis is not without limitations. Some of our potentially important results are imprecise due to the small sample size. In addition, this is a cross-sectional analysis with a single 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, though we do not see an increase in work on weekend days in general. 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). In addition, many children were in virtual schooling. Thus, our results for parents may not be generalizable to WFH during “normal” times.

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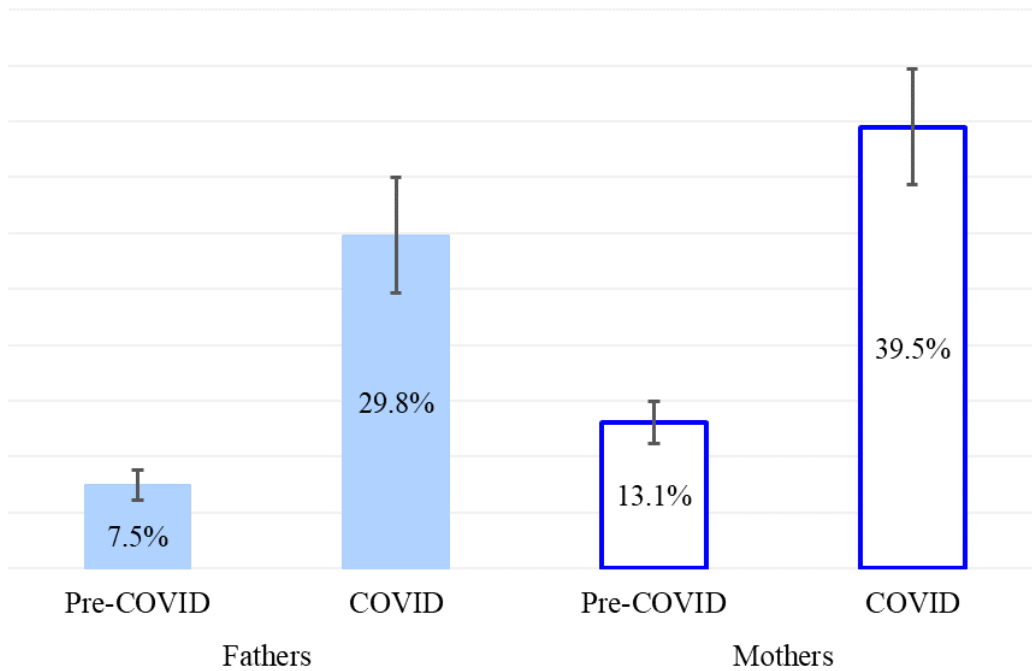
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Figure 1. Percentage of Weekday Workdays Worked Exclusively from Home by Parents Before and During the Pandemic



Note: The Pre-COVID period includes diaries between January 2015 and February 2020 while the COVID period include diaries between May 10, 2020 and December 2021. Sample is based on parents aged 21–65 in dual-earner couples with children under age 13. Workdays are days on which the respondent reports at least 1 hour of work. Sample sizes: fathers = 1447 and 391 and mothers = 1395 and 337 for the pre-COVID and COVID samples, respectively. Error bars represent 95% CIs.

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

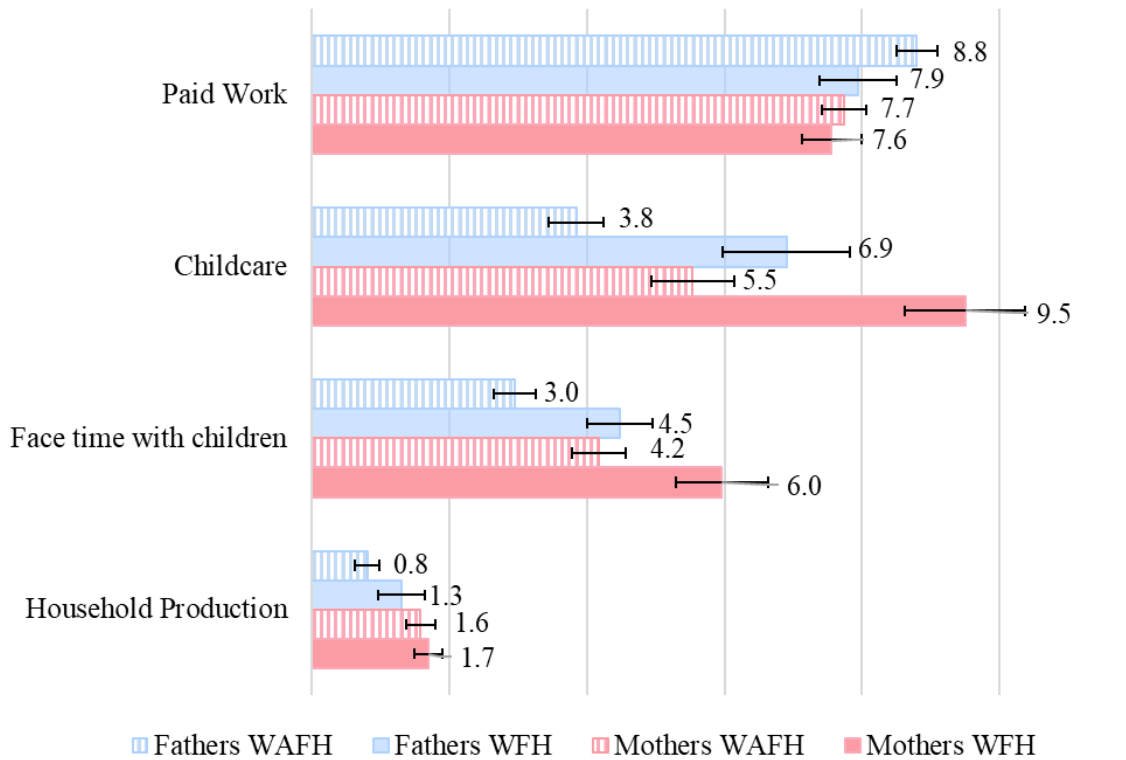
Figure 2. Average Hours per Weekday Workday, by Gender



Note: The Pre-COVID period includes diaries between January 2015 and February 2020 while the COVID period include diaries between May 10, 2020 and December 2021. Sample is based on parents aged 21–65 in dual-earner couples with children under age 13. Workdays are days on which the respondent reports at least 1 hour of work. Childcare includes both primary and secondary childcare. Sample sizes: fathers = 1447 and 391 and mothers = 1395 and 337 for the pre-COVID and COVID samples, respectively. Error bars represent 95% CIs.

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

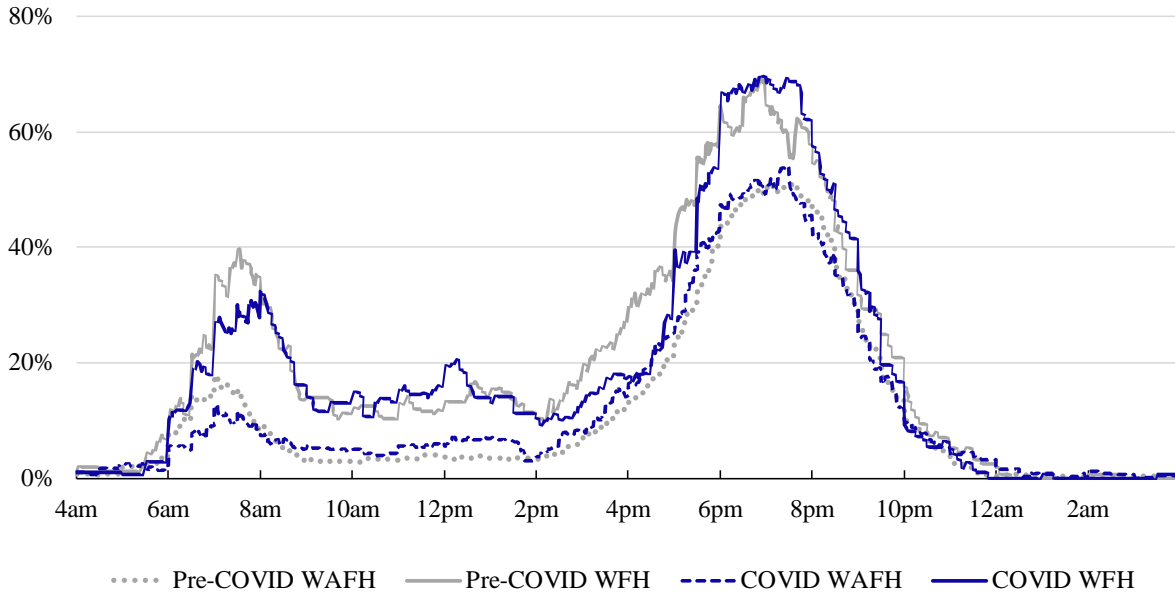
Figure 3. Average Hours per Weekday Workday during the Pandemic, by Gender and Work Location



Note: Sample is based on parents aged 21–65 in dual-earner couples with children under age 13 interviewed about days between May 10, 2020 and December 2021. Workdays are days on which the respondent reports at least 1 hour of work. WFH is defined as working exclusively from home on the diary day. WAFH is defined as working away from home at any point on the diary day. Childcare includes both primary and secondary childcare activities. Sample sizes: fathers = 259 and 132 and mothers = 189 and 148 for WAFH days and WFH days, respectively. Error bars represent 95% CIs.

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

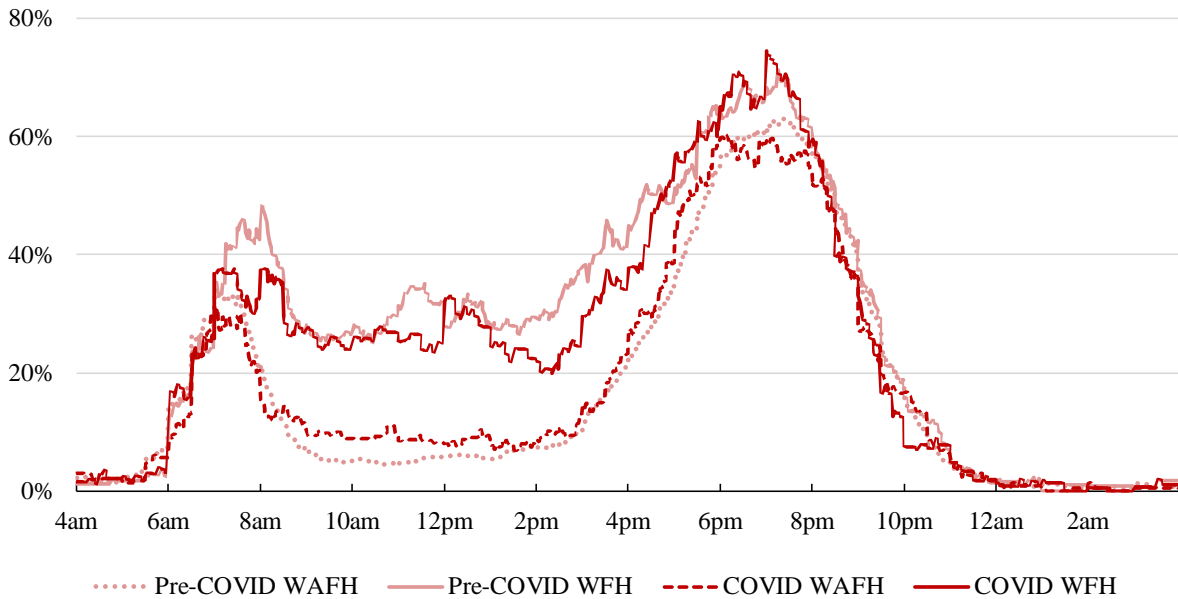
Figure 4. Percentage of Fathers Spending Time with Children on Weekday Workdays, by Time of Day and Work Location



Note: The Pre-COVID period includes diaries between January 2015 and February 2020 while the COVID period include diaries between May 10, 2020 and December 2021. Sample is based on mothers and fathers aged 21–65 in dual-earner couples with children under age 13. Workdays are days on which the respondent reports at least 1 hour of work. WFH is defined as working exclusively from home on the diary day. WAFH is defined as working away from home at any point on the diary day. 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: Pre-COVID WAFH = 1321, Pre-COVID WFH = 126, COVID WAFH = 259, COVID WFH = 132.

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

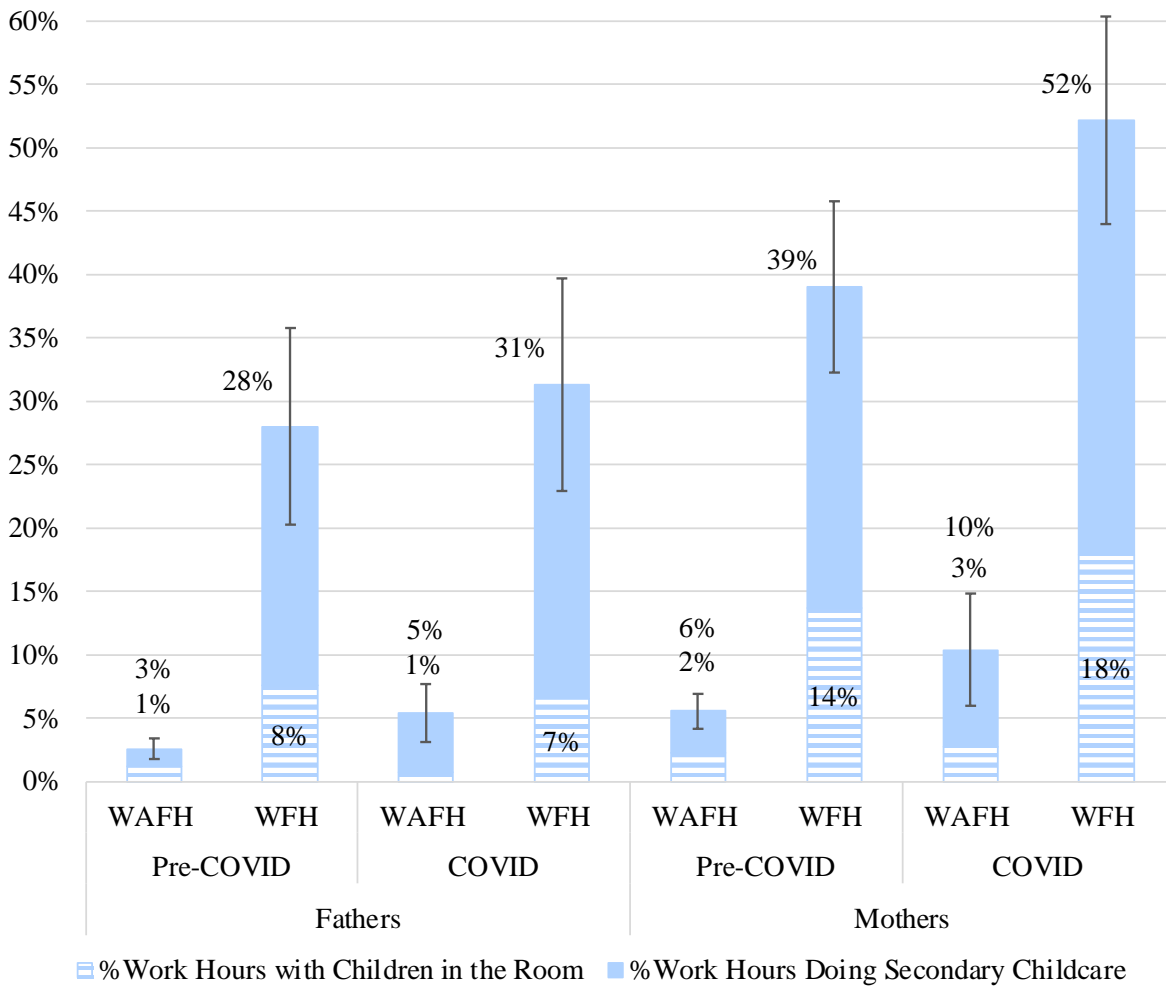
Figure 5. Percentage of Mothers Spending Time with Children on Weekday Workdays, by Time of Day and Work Location



Note: The Pre-COVID period includes diaries between January 2015 and February 2020 while the COVID period include diaries between May 10, 2020 and December 2021. Sample is based on mothers and fathers aged 21–65 in dual-earner couples with children under age 13. Workdays are days on which the respondent reports at least 1 hour of work. WFH is defined as working exclusively from home on the diary day. WAFH is defined as working away from home at any point on the diary day. 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: Pre-COVID WAFH = 1202, Pre-COVID WFH = 193, COVID WAFH = 189, COVID WFH = 148.

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

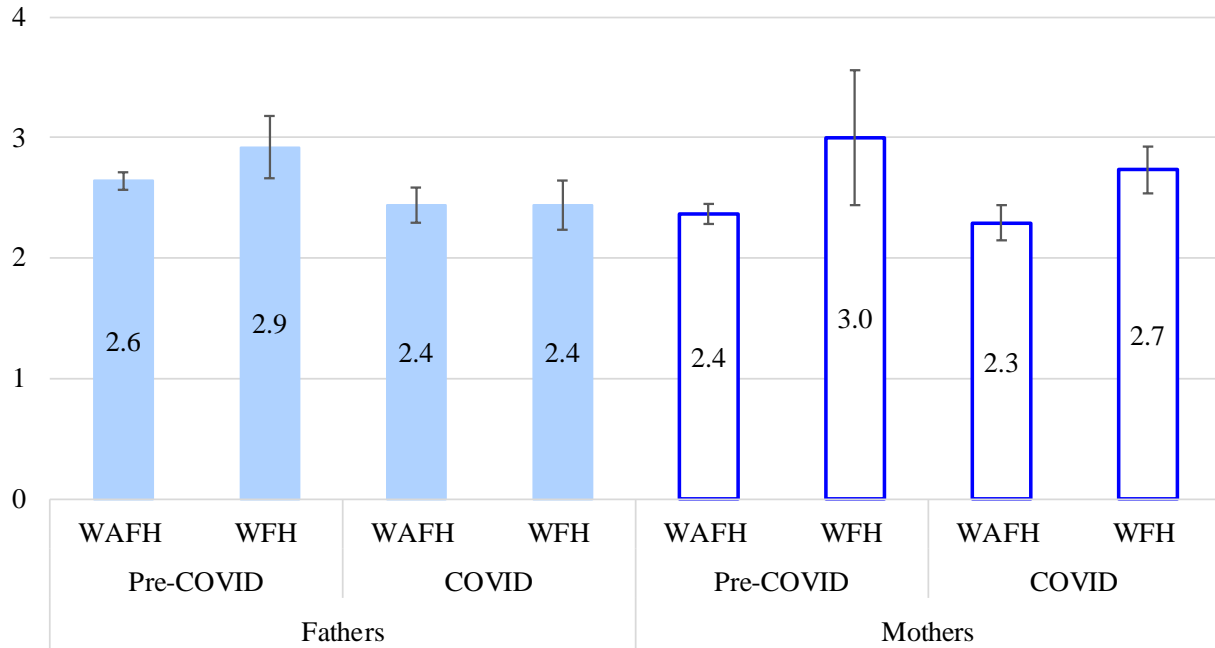
Figure 6. Percentage of Work Hours Simultaneously Caring for Children on Weekday Workdays



Note: The Pre-COVID period includes diaries between January 2015 and February 2020 while the COVID period include diaries between May 10, 2020 and December 2021. Sample is based on mothers and fathers aged 21–65 in dual-earner couples with children under age 13. Workdays are days on which the respondent reports at least 1 hour of work. WFH is defined as working exclusively from home on the diary day. WAFH is defined as working away from home at any point on the diary day. Secondary childcare can include time when children are under a parent’s supervision but in another room in the house or yard. Sample sizes: Pre-COVID WAFH = 1321, 1202; Pre-COVID WFH = 126, 193; COVID WAFH = 259, 189; COVID WFH = 132, 148 for fathers and mothers, respectively. Error bars represent 95% CIs.

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

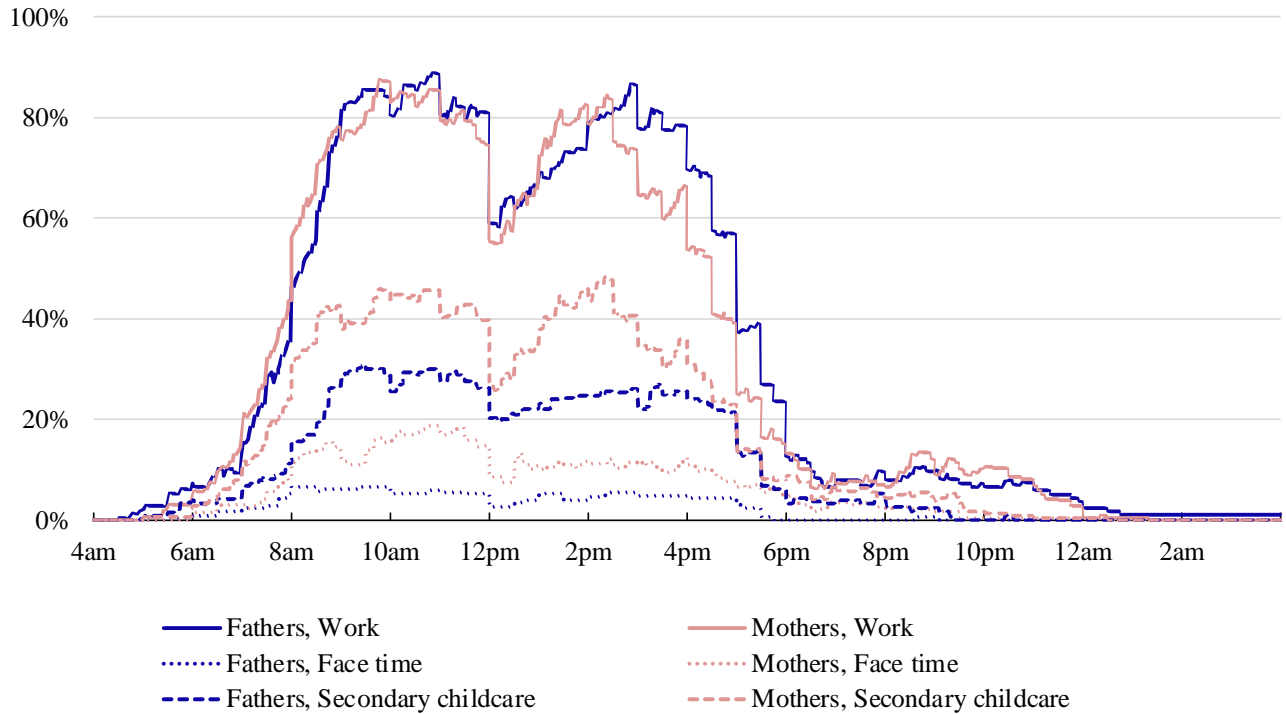
Figure 7. Number of Work Episodes on Weekday Workdays



Note: The Pre-COVID period includes diaries between January 2015 and February 2020 while the COVID period include diaries between May 10, 2020 and December 2021. Sample is based on mothers and fathers aged 21–65 in dual-earner couples with children under age 13. Workdays are days on which the respondent reports at least 1 hour of work. WFH is defined as working exclusively from home on the diary day. WAFH is defined as working away from home at any point on the diary day. Sample sizes: Pre-COVID WAFH = 1321, 1202; Pre-COVID WFH = 126, 193; COVID WAFH = 259, 189; COVID WFH = 132, 148 for fathers and mothers, respectively. Error bars represent 95% CIs.

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

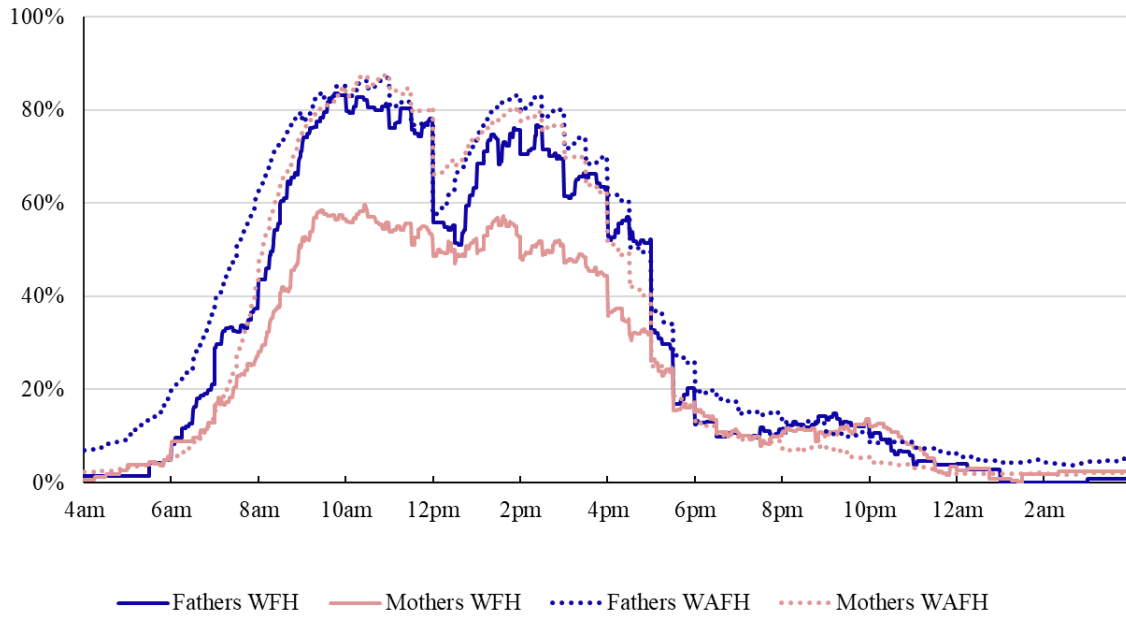
Figure 8. Percentage of Parents Working, Working with a Child Present, and Working while Supervising a Child on Weekday Workdays While Working from Home During COVID, by Time of Day and Gender



Note: Sample is based on parents aged 21–65 in dual-earner couples with children under age 13 interviewed about days between May 10, 2020 and December 2021. Workdays are days on which the respondent reports at least 1 hour of work. Face time is time with a child in the same room. Secondary childcare includes time with a child in the room or in another room in the home or yard. Sample sizes: fathers = 132 and mothers = 148.

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

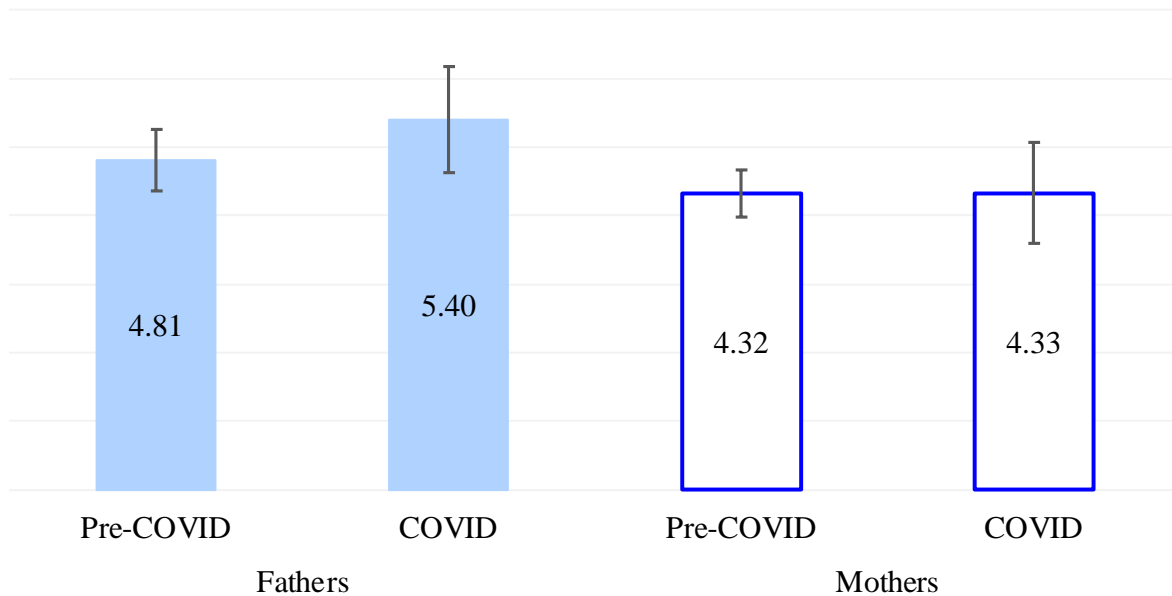
Figure 9. Percentage of Parents Working by Work Location in the Pre-COVID Era



Note: Sample is based on parents aged 21–65 in dual-earner couples with children under age 13 interviewed about days between January 2015 and February 2020. Workdays are days on which the respondent reports at least 1 hour of work. Face time is time with a child in the same room. Secondary childcare includes time with a child in the room or in another room in the home or yard. Sample sizes: Fathers WFH = 126; Mothers WFH = 193; Fathers WAFH = 1321; Mothers WAFH = 1202.

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

Figure 10. Average Hours Worked on Weekend Days for Parents in Dual-earner Couples

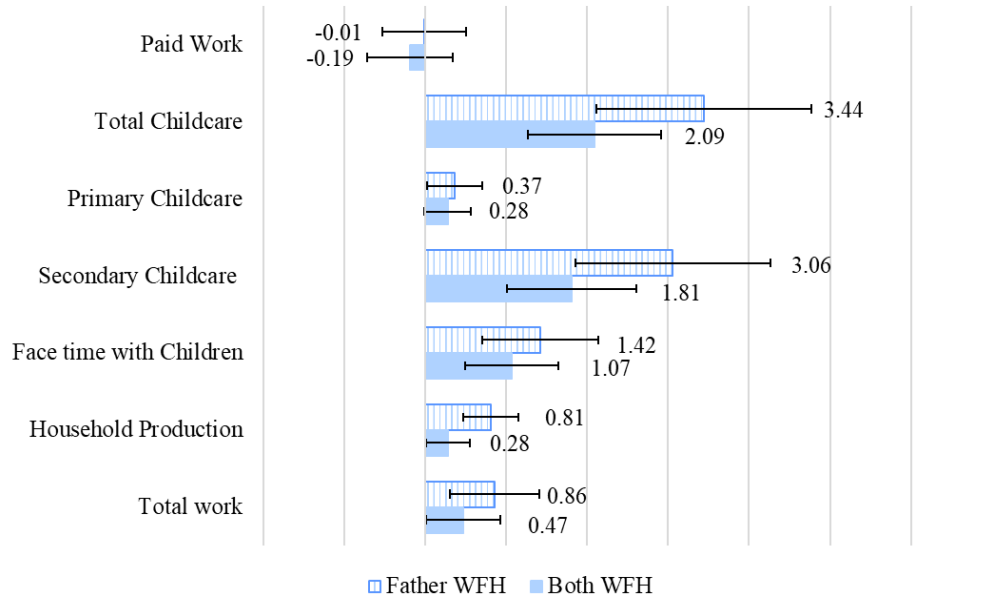


Note: The Pre-COVID period includes diaries between January 2015 and February 2020 while the COVID period include diaries between May 10, 2020 and December 2021. Sample is based on parents aged 21–65 in dual-earner couples with children under age 13. Estimates are for the average weekend day, including any amount of work as well as zeros. Sample sizes: fathers = 556 and 145 and mothers = 7507 and 116 for the Pre-COVID and COVID samples, respectively. Error bars represent 95% CIs. Hours differences are not statistically significant over time or by gender.

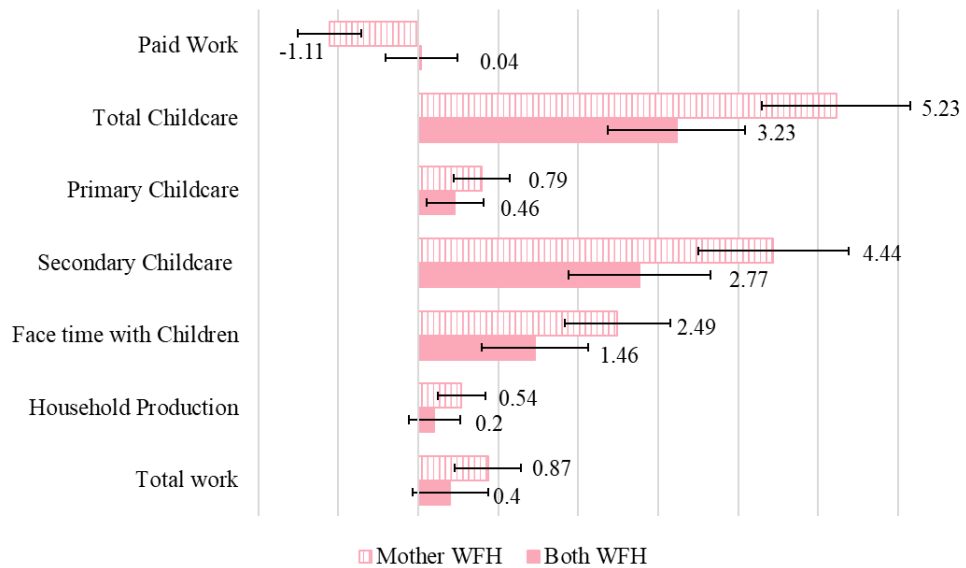
Source: Authors' calculations based on the American Time Use Survey

Figure 11. WFH–WAFH Hours Gaps During COVID-19 by Couple’s Joint Work Location

A. Fathers’ Time



B. Mothers’ Time



Note: N = 728. Bars represent WFH–WAFH differences from estimating Equation (2), while error bars represent 95% CIs. The COVID-19 sample includes diaries between May 10, 2020 and December 2021. WFH is defined as working from home at least 1 hour on the diary day for the respondent. Partner WFH is based on the predicted probability of working from home. Time-use predictions are based on setting partner WFH = 0.75 for WFH and = 0 for WAFH. *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

Variables	Fathers		Mothers	
	Pre-COVID	COVID	Pre-COVID	COVID
Time use outcomes				
Work and work-related activities	8.82 (1.32)	8.54* (1.25)	7.33 (1.29)	7.64 (1.17)
Childcare	3.59 (1.50)	4.78* (1.96)	5.42 (1.81)	7.12* (2.24)
Primary childcare	0.96 (0.59)	1.06 (0.68)	1.65 (0.81)	1.67 (0.85)
Secondary childcare	2.63 (1.39)	3.72* (1.89)	3.77 (1.62)	5.45* (2.16)
Face time with children	2.95 (1.22)	3.40* (1.27)	4.43 (1.56)	4.89* (1.61)
Household production	0.94 (0.61)	0.99 (0.66)	1.69 (0.79)	1.64 (0.69)
Total work (paid and unpaid)	13.00 (1.18)	13.29* (1.11)	13.41 (1.11)	13.89* (0.99)
WFH day: Share of work hours doing secondary childcare	0.28 (0.21)	0.32 (0.23)	0.39 (0.23)	0.52* (0.24)
Main Independent Variables				
Work from home day	0.08 (0.14)	0.30* (0.23)	0.13 (0.18)	0.39 (0.25)
Partner WFH (predicted probability)	–	0.41 (0.16)	–	0.30 (0.20)
WFH day: Child home 9 a.m.–2 p.m.	0.35	0.53*	0.58	0.66
Control variables				
Age	38.80 (4.01)	38.92 (3.67)	37.15 (3.50)	37.85 (3.35)
Wage	34.54 (11.94)	38.47* (11.49)	29.67 (11.56)	34.52* (12.34)
Paid hourly	0.40	0.41	0.43	0.38
Cohabiter	0.06	0.07	0.06	0.06
Part-time worker	0.05	0.05	0.23	0.20
Partner part-time worker	0.29	0.20*	0.08	0.07
Self-employed	0.11	0.09	0.09	0.08
Union member	0.11	0.09	0.10	0.10
No high school degree	0.06	0.03*	0.04	0.04
Some college	0.22	0.21	0.24	0.19*
College degree	0.28	0.31	0.31	0.30
Graduate degree	0.20	0.23	0.25	0.32*
Non-Hispanic black	0.09	0.15	0.09	0.07
Hispanic	0.15	0.11	0.16	0.19
Non-Hispanic other race	0.07	0.10	0.08	0.08
Age of the youngest household child	5.19 (2.00)	4.80 (1.88)	5.44 (2.06)	5.40 (1.92)
Parent of 3+ household children	0.22	0.22	0.23	0.22
Other household adult	0.13	0.15	0.14	0.12
Lives in metropolitan area	0.84	0.87	0.87	0.89
Number of observations	1,447	391	1,395	337

Note: Samples use weekday workday diaries with at least 1 hour of work. The Pre-COVID sample includes diaries between January 2015 and February 2020 while the COVID sample includes diaries between May 10, 2020 and December 2021. We also include month and year in our control variables. ATUS final weights reweighted separately for equal-day-of-the-week representation by gender for our sample. Standard deviations in parentheses are generated using ATUS replicate weights. * indicates differences are statistically significant between pre-COVID and COVID at the 5% level based on Wald tests. In **bold**: differences between mothers and fathers are statistically significant at the 5% level based on Wald 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)

Variables	Fathers		Mothers	
	Pre-COVID	COVID	Pre-COVID	COVID
Midwest Census region	0.25	0.24	0.25	0.24
Northeast Census region	0.17	0.22*	0.16	0.21*
West Census region	0.20	0.15	0.21	0.16
<i>Industries</i>				
Construction, mining, agriculture	0.14	0.12	0.02	0.02
Manufacturing	0.16	0.16	0.06	0.06
Wholesale & retail trade	0.11	0.12	0.07	0.06
Transportation & utilities	0.07	0.05	0.02	0.01
Information	0.03	0.03	0.02	0.01
FIRE, finance, insurance, real estate	0.07	0.08	0.10	0.12
Professional, scientific, and technical	0.10	0.11	0.10	0.10
Management, admin	0.04	0.03	0.03	0.06*
Education	0.07	0.08	0.19	0.17
Healthcare and social assistance	0.06	0.06	0.23	0.21
Arts, entertainment, recreation	0.02	0.02	0.02	0.03
Accommodation and food	0.04	0.02	0.05	0.03
Other services	0.03	0.04	0.05	0.07
Public administration	0.06	0.09	0.05	0.05
<i>Occupations</i>				
Managerial occupations	0.19	0.21	0.12	0.14
Business and finance	0.05	0.06	0.09	0.13*
Computer and math	0.06	0.13*	0.02	0.03
Architecture, engineering, sciences, legal	0.04	0.05	0.01	0.00*
Community and social services	0.03	0.04	0.03	0.04
Education and library	0.02	0.03	0.03	0.04
Arts, design, entertainment	0.04	0.03	0.15	0.13
Healthcare practitioner and support	0.02	0.02	0.03	0.03
Sales and services: food, protective, cleaning, personal	0.04	0.04*	0.13	0.13
Office and admin support	0.09	0.06	0.12	0.09
Production, transportation	0.09	0.07	0.07	0.07
Number of observations	1,447	391	1,395	337

Note: Samples use weekday workday diaries with at least 1 hour of work. The Pre-COVID sample includes diaries between January 2015 and February 2020 while the COVID sample includes diaries between May 10, 2020 and December 2021. We also include month and year in our control variables. ATUS final weights reweighted separately for equal-day-of-the-week representation by gender for our sample. Standard deviations in parentheses are generated using ATUS replicate weights. * indicates differences are statistically significant between pre-COVID and COVID at the 5% level based on Wald tests. In **bold**: differences between mothers and fathers are statistically significant at the 5% level based on Wald tests. *Source:* Authors' calculations based on the American Time Use Survey and Current Population Survey COVID-19 data

Table 2. Differences in Predicted Hours on Weekday Workdays for Mothers and Fathers in Dual-earner Couples with Children Under Age 13 Before and During the COVID-19 Pandemic by Work Location

	Paid Work	Total Childcare	Primary Childcare	Secondary Childcare	Face time with Children	Household Production	Total Work
Pre-COVID							
WAFH: Mothers – Fathers	-0.85***(0.14)	1.08***(0.16)	0.52***(0.06)	0.57***(0.14)	1.01***(0.14)	0.57***(0.06)	0.42***(0.11)
WFH: Mothers – Fathers	-1.01***(0.38)	1.14**(0.51)	0.23 (0.21)	0.90* (0.48)	1.17***(0.43)	0.64***(0.23)	0.00 (0.26)
Fathers: WFH – WAFH	-1.26***(0.28)	3.36***(0.45)	0.43***(0.17)	2.92***(0.42)	1.94***(0.34)	0.62***(0.18)	0.89***(0.21)
Mothers: WFH – WAFH	-1.42***(0.26)	3.41***(0.32)	0.15 (0.14)	3.26***(0.31)	2.10***(0.30)	0.69***(0.16)	0.47**(0.20)
Mothers – Fathers	-0.16 (0.39)	0.05 (0.54)	-0.29 (0.22)	0.34 (0.50)	0.16 (0.45)	0.07 (0.24)	-0.42 (0.29)
COVID							
WAFH: Mothers – Fathers	-0.40* (0.23)	1.07***(0.38)	0.33**(0.14)	0.75**(0.36)	0.81***(0.23)	0.54***(0.14)	0.50**(0.22)
WFH: Mothers – Fathers	-0.26 (0.34)	2.42***(0.64)	0.64***(0.22)	1.77***(0.63)	1.54***(0.38)	0.37**(0.18)	0.66**(0.26)
Fathers: WFH – WAFH	-0.65** (0.32)	3.11***(0.51)	0.34***(0.15)	2.77***(0.49)	1.44***(0.28)	0.53***(0.17)	0.70***(0.25)
Mothers: WFH – WAFH	-0.51** (0.25)	4.45***(0.51)	0.66***(0.21)	3.80***(0.51)	2.18***(0.37)	0.36**(0.15)	0.86***(0.22)
Mothers – Fathers	0.14 (0.41)	1.35* (0.72)	0.32 (0.26)	1.03 (0.69)	0.74* (0.43)	-0.17 (0.23)	0.16 (0.31)
COVID minus pre-COVID							
WAFH: Mothers – Fathers	0.45* (0.25)	-0.01 (0.38)	-0.19 (0.15)	0.18 (0.35)	-0.20 (0.24)	-0.04 (0.14)	0.08 (0.23)
WFH: Mothers – Fathers	0.75 (0.46)	1.28 (0.82)	0.41 (0.26)	0.87 (0.78)	0.38 (0.59)	-0.27 (0.29)	0.66*(0.36)
Fathers: WFH – WAFH	0.62 (0.39)	-0.25 (0.66)	-0.09 (0.23)	-0.15 (0.64)	-0.50 (0.44)	-0.09 (0.26)	-0.19 (0.31)
Mothers: WFH – WAFH	0.92**(0.38)	1.05* (0.61)	0.51**(0.23)	0.54 (0.58)	0.08 (0.48)	-0.33 (0.21)	0.39 (0.28)
Mothers – Fathers	0.30 (0.52)	1.30 (0.91)	0.60* (0.31)	0.69 (0.86)	0.58 (0.63)	-0.24 (0.32)	0.58 (0.40)
Percent non-zeros values							
Fathers	100%	91%	70%	85%	91%	78%	100%
Mothers	100%	98%	90%	94%	97%	93%	100%

Note: N=3,570. The Pre-COVID sample includes diaries between January 2015 and February 2020 while the COVID sample includes diaries between May 10, 2020 and December 2021. ATUS final weights reweighted separately for equal-day-of-the-week representation by gender for our sample. Standard errors are generated using ATUS replicate weights. Workdays are days on which the respondent reports at least 1 hour of work. WFH is defined as working exclusively from home on the diary day. WAFH is defined as working a way from home at any point on the diary day. Control variables include a quadratic in age, log hourly wage, and indicators for cohabitation status, extra adult in the household, age of youngest household child, 3+ household children, education (no high school degree, some college, bachelor’s degree, a dvanced degree), paid hourly, part-time, partner part-time, self-employed, union member, race/ethnicity (non-Hispanic black, Hispanic, non-Hispanic other race), living in a metropolitan area, 11 occupation groups, 14 industry groups, year, month, and Census region. Significance levels: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. For % of non-zero values: **Bold**=significant diff by gender at the 5% level. *Source:* Authors’ calculations based on the American Time Use Survey

Table 3. Differences in Predicted Hours on Weekday Workdays for Mothers and Fathers in Dual-earner Couples with Children Under Age 13 During the COVID-19 Pandemic by Couple’s Joint Work Location

	Paid Work	Total Childcare	Primary Childcare	Secondary Childcare	Face time with Children	Household Production	Total Work
One parent WFH							
Fathers	-0.01 (0.53)	3.44***(1.24)	0.37 (0.33)	3.06***(1.18)	1.42**(0.70)	0.81**(0.36)	0.86* (0.49)
Mothers	-1.11***(0.41)	5.23***(0.89)	0.79**(0.36)	4.44***(0.90)	2.49***(0.63)	0.54* (0.28)	0.87**(0.42)
Mothers – Fathers	-1.10* (0.63)	1.79 (1.44)	0.41 (0.50)	1.38 (1.35)	1.06 (0.96)	-0.27 (0.43)	0.01 (0.63)
Both parents							
Fathers	-0.19 (0.48)	2.09**(0.85)	0.28 (0.28)	1.81**(0.83)	1.07* (0.55)	0.28 (0.30)	0.47 (0.46)
Mothers	0.04 (0.50)	3.23***(1.01)	0.46 (0.40)	2.77***(1.01)	1.46** (0.74)	0.20 (0.36)	0.40 (0.49)
Mothers – Fathers	0.23 (0.58)	1.14 (0.99)	0.18 (0.37)	0.96 (1.01)	0.39 (0.73)	-0.09 (0.36)	-0.07 (0.51)
Both – One WFH							
Fathers	-0.19 (0.60)	-1.34 (1.28)	-0.09 (0.39)	-1.25 (1.21)	-0.35 (0.82)	-0.52 (0.36)	-0.39 (0.61)
Mothers	1.15**(0.54)	-1.99 (1.26)	-0.32 (0.45)	-1.67 (1.23)	-1.03 (0.92)	-0.34 (0.41)	-0.47 (0.52)

Note: N = 728. Differences for one parent WFH and both parents WFH are relative to both parents working away from home. The COVID-19 sample includes diaries between May 10, 2020 and December 2021. ATUS final weights are reweighted separately for equal-day-of-the-week representation by gender for our sample. Standard errors are generated using ATUS replicate weights. WFH is defined as working from home at least 1 hour on the diary day for the respondent. Partner WFH is based on the predicted probability of working from home. Time-use predictions are based on setting partner WFH = 0.75 for WFH and = 0 for WAFH. We include indicators for each month of the pandemic. See Table 2 for other 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 4. Differences in Predicted Hours on Weekday Workdays for Mothers and Fathers in Dual-earner Couples with Children Under Age 13 During the COVID-19 Pandemic by Couple’s Joint Work Location

	Paid Work	Total Childcare	Primary Childcare	Secondary Childcare	Face time with Children	Household Production	Total Work
<i>A. Full-time wage and salary workers</i>							
One parent WFH							
Fathers	-0.57 (0.68)	4.48*** (1.61)	0.81* (0.46)	3.67** (1.47)	2.48** (1.06)	0.48 (0.41)	0.76 (0.53)
Mothers	-1.54*** (0.51)	6.59*** (1.11)	0.97** (0.44)	5.61*** (1.11)	2.64*** (0.81)	0.47 (0.34)	0.62 (0.52)
Mothers – Fathers	-0.97 (0.81)	2.11 (1.80)	0.17 (0.65)	1.94 (1.68)	0.16 (1.16)	-0.01 (0.49)	-0.14 (0.68)
Both parents							
Fathers	-0.23 (0.45)	2.30** (1.16)	0.68** (0.34)	1.63 (1.16)	1.42** (0.69)	-0.33 (0.36)	0.31 (0.57)
Mothers	-0.14 (0.62)	3.11** (1.32)	0.95** (0.46)	2.16* (1.26)	1.29 (0.97)	0.07 (0.45)	0.63 (0.67)
Mothers – Fathers	0.09 (0.65)	0.81 (1.35)	0.27 (0.44)	0.54 (1.34)	-0.13 (0.93)	0.4 (0.44)	0.32 (0.67)
Both – One WFH							
Fathers	0.33 (0.70)	-2.17 (1.63)	-0.13 (0.50)	-2.04 (1.56)	-1.06 (1.11)	-0.81* (0.48)	-0.45 (0.56)
Mothers	1.40** (0.64)	-3.47** (1.61)	-0.02 (0.50)	-3.45** (1.59)	-1.35 (1.15)	-0.40 (0.51)	0.01 (0.68)
<i>B. School-year diaries</i>							
One parent WFH							
Fathers	-0.90 (0.77)	3.67** (1.51)	0.43 (0.42)	3.25** (1.41)	2.06** (0.94)	1.45*** (0.47)	0.86 (0.68)
Mothers	-0.62 (0.55)	4.50*** (1.02)	0.86* (0.49)	3.64*** (0.99)	1.95** (0.90)	0.32 (0.34)	0.55 (0.49)
Mothers – Fathers	0.27 (0.89)	0.83 (1.65)	0.43 (0.64)	0.39 (1.54)	-0.12 (1.25)	-1.13** (0.54)	-0.31 (0.75)
Both parents							
Fathers	-0.34 (0.70)	1.57 (1.05)	0.29 (0.38)	1.28 (1.01)	0.66 (0.75)	0.37 (0.36)	0.28 (0.65)
Mothers	0.92 (0.79)	3.00** (1.34)	0.32 (0.61)	2.67** (1.26)	-0.11 (1.03)	0.40 (0.48)	1.01 (0.73)
Mothers – Fathers	1.25* (0.67)	1.42 (1.20)	0.03 (0.54)	1.39 (1.23)	-0.77 (0.94)	0.02 (0.45)	0.72 (0.59)
Both – One WFH							
Fathers	0.56 (0.79)	-2.10 (1.57)	-0.14 (0.52)	-1.96 (1.44)	-1.41 (1.03)	-1.07** (0.46)	-0.57 (0.73)
Mothers	1.54** (0.75)	-1.50 (1.59)	-0.54 (0.67)	-0.97 (1.52)	-2.06 (1.28)	0.08 (0.51)	0.46 (0.69)

Note: Differences for one parent WFH and both parents WFH are relative to both parents working a way from home. N = 482 for full-time wage and salary workers (excludes self-employed and part-time workers for both respondent or partner). N = 490 for school year diaries (excludes June, July and August diaries). The COVID-19 sample includes diaries between May 10, 2020 and December 2021. ATUS final weights are reweighted separately for equal-day-of-the-week representation by gender for our sample. Standard errors are generated using ATUS replicate weights. WFH is defined as working from home at least 1 hour on the diary day for the respondent. Partner WFH is based on the predicted probability of working from home. Time-use predictions are based on setting partner WFH =0.75 for WFH and =0 for WAFH. We include indicators for each month of the pandemic. See Table 2 for other 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 on Weekday Work-from-home Days During the COVID-19 Pandemic by Child-at-home Status and Couple’s Joint Work Location

	Paid Work	All Time with Children	Primary Childcare	Secondary Childcare	Face Time with Children	Household Production	Total Work	Share of Work Doing Secondary Childcare
One parent WFH								
Fathers: Child home – Child not home	-0.65 (0.92)	7.76***(1.58)	0.65 (0.56)	7.11***(1.45)	2.25* (1.26)	-0.51 (0.64)	-0.32 (0.80)	0.78***(0.11)
Mothers: Child home – Child not home	-0.98 (0.95)	6.85***(1.37)	0.84 (0.59)	6.01***(1.38)	3.33***(1.11)	0.66 (0.60)	1.50**(0.75)	0.70***(0.12)
Mothers – Fathers	-0.33 (1.37)	-0.91 (2.26)	0.19 (0.82)	-1.10 (2.16)	1.08 (1.75)	1.16 (0.90)	1.82 (1.11)	-0.08 (0.16)
Both parents WFH								
Fathers: Child home – Child not home	-0.81 (0.51)	5.78***(0.73)	0.19 (0.45)	5.60***(0.81)	1.74***(0.61)	0.50* (0.28)	1.29***(0.45)	0.51***(0.07)
Mothers: Child home – Child not home	0.39 (0.85)	7.12***(0.91)	0.03 (0.49)	7.09***(0.94)	3.47***(0.94)	-0.12 (0.56)	1.11* (0.58)	0.67***(0.09)
Mothers – Fathers	1.20 (0.97)	1.34 (1.09)	-0.16 (0.62)	1.50 (1.19)	1.73 (1.10)	-0.62 (0.66)	-0.18 (0.72)	0.17 (0.11)
Both minus one WFH								
Fathers: Child home – Child not home	-0.16 (1.02)	-1.98 (1.72)	-0.47 (0.80)	-1.51 (1.73)	-0.51 (1.30)	1.01 (0.72)	1.60 (1.02)	-0.28**(0.13)
Mothers: Child home – Child not home	1.37 (1.53)	0.28 (1.79)	-0.81 (0.89)	1.09 (1.85)	0.14 (1.68)	-0.78 (0.96)	-0.39 (1.11)	-0.03 (0.16)

Note: N = 280. The COVID-19 sample includes diaries between May 10, 2020 and December 2021. ATUS final weights are reweighted separately for equal-day-of-the-week representation by gender for our sample. Standard errors are generated using ATUS replicate weights. WFH is defined as working from home at least 1 hour on the diary day for the respondent. Partner WFH is based on the predicted probability of working from home. Time-use predictions are based on setting partner WFH = 0.75 for WFH and = 0 for WAFH. Child-at-home status is defined as child was present in the room or they were doing secondary childcare for at least 5 minutes during the core work/school hours of 9 a.m. and 2 p.m. We include indicators for each month of the pandemic. See Table 2 for other 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 on Weekday Workdays for Men and Women in Dual-Earner Couples with No Children under Age 18 Before and During the COVID-19 Pandemic

	Paid Work	Household Production	Total Work
<i>A. Estimates from equation 1, N=2465</i>			
Pre-COVID			
WAFH: Women – Men	-0.29**(0.13)	0.39***(0.07)	0.08 (0.13)
WFH: Women – Men	-0.39 (0.50)	0.40 (0.26)	0.21 (0.46)
Men: WFH – WAFH	-0.95**(0.37)	0.41**(0.19)	-0.38 (0.30)
Women: WFH – WAFH	-0.95*** (0.32)	0.42**(0.19)	-0.25 (0.34)
Women – Men	0.00 (0.47)	0.01 (0.26)	0.12 (0.46)
COVID			
WAFH: Women – Men	-0.08 (0.21)	0.35*** (0.11)	0.25 (0.21)
WFH: Women – Men	-0.27 (0.45)	0.50**(0.25)	0.17 (0.44)
Men: WFH – WAFH	-0.64 (0.39)	0.69*** (0.17)	0.11 (0.37)
Women: WFH – WAFH	-0.82** (0.34)	0.84*** (0.21)	0.03 (0.33)
Women – Men	-0.18 (0.49)	0.15 (0.25)	-0.08 (0.50)
COVID minus pre-COVID			
WAFH: Women – Men	0.21 (0.24)	-0.04 (0.13)	0.16 (0.24)
WFH: Women – Men	0.02 (0.60)	0.10 (0.33)	-0.04 (0.61)
Men: WFH – WAFH	0.31 (0.44)	0.28 (0.23)	0.49 (0.42)
Women: WFH – WAFH	0.13 (0.46)	0.42 (0.27)	0.29 (0.46)
Women – Men	-0.18 (0.62)	0.14 (0.32)	-0.20 (0.64)
<i>B. Estimates from equation 2, N=611</i>			
One partner WFH			
Men	-1.30 (0.84)	1.82*** (0.36)	0.23 (0.80)
Women	-1.46** (0.64)	1.30*** (0.40)	-0.06 (0.55)
Women – Men	-0.16 (1.01)	-0.51 (0.50)	-0.29 (0.96)
Both partners WFH			
Men	-0.53 (0.46)	0.90*** (0.31)	0.52 (0.52)
Women	0.10 (0.62)	0.35 (0.34)	0.57 (0.65)
Women – Men	0.63 (0.65)	-0.55 (0.35)	0.04 (0.73)
Both – One WFH			
Men	0.77 (0.86)	-0.92** (0.38)	0.29 (0.82)
Women	1.56* (0.83)	-0.95** (0.49)	0.63 (0.79)
Percent non-zeros values			
Men	100%	77%	100%
Women	100%	92%	100%

Note: The Pre-COVID sample includes diaries between January 2015 and February 2020 while the COVID sample includes diaries between May 10, 2020 and December 2021. ATUS final weights are reweighted separately for equal-day-of-the-week representation by gender for our sample. Standard errors are generated using ATUS replicate weights. WFH is defined as working from home at least 1 hour on the diary day for the respondent. Partner WFH is based on the predicted probability of working from home. Time-use predictions are based on setting partner WFH =0.75 for WFH and =0 for WAFH. In the pandemic period, we include indicators for each month of the pandemic instead of year and month indicators. Differences for one partner and both partners WFH are relative to both partners working a way from home. See Table 2 for other control variables. Significance levels: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. For percent of non-zero values:

Bold=significant diff by gender at the 5% level. *Source:* Authors' calculations based on the American Time Use Survey and Current Population Survey COVID-19 data

APPENDIX

Table A1. Sample Construction

	Number of Observations
A. COVID Sample	
2020–2021 ATUS sample	17,878
– Diary days prior to May 10, 2020	15,753
– Not married/cohabiting or living with a same-sex partner	8,429
– Not employed	3,996
– Age <21 & >65	3,729
– Missing spouse’s occupation code (not employed in CPS)	3,601
– Weekend days	1,791
– Non-workday weekdays (hours of work <1)	1,507
– No children under the age of 18	892
– Living only with teens aged 13–17	728
Dual-earner couples with children under age 13 on weekday workdays	728
Dual-earner couples with no children under age 18 on weekday workdays	611
B. Pre-COVID Sample	
2015–2019, Jan–Feb 2020 ATUS sample	52,258
– Not married/cohabiting or living with a same-sex partner	26,815
– Not employed	13,784
– Age <21 & >65	12,825
– Weekend days	6,352
– Non-workday weekdays (hours of work <1)	5,331
– No children under the age of 18	3,477
– Living only with teens aged 13–17	2,842
Dual-earner couples with children under age 13 on weekday workdays	2,842
Dual-earner couples with no children under age 18 on weekday workdays	1,854

Table A2. Variables from the American Time Use Survey

Time-Use Category	ATUS Activity Tier Codes and Variables
Work and work-related activities	T1 = 5 & T2 ≠ 3 & T2 ≠ 4
Face time with children	All activities where TUWHO = 22 and 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
Shopping	T1 = 7, T1 = 8 & T2 ≠ 4, 5, 7, T1 = 9 & T2 ≠ 3, T1 = 10
Total Work	Paid work, primary childcare, household production, and secondary childcare (excluding any time when the primary activity was paid work or household production)

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 A3. Predicting Work-from-home Day (Probit marginal effects)

	Men	Women
CPS Share WFH in occupation	0.457*** (0.151)	0.677*** (0.186)
Log wage	0.085** (0.039)	0.186*** (0.046)
Part-time worker	0.103 (0.101)	0.012 (0.063)
Partner part-time	-0.075** (0.036)	-0.167*** (0.056)
Self-employed	0.011 (0.062)	0.298*** (0.090)
Paid hourly	-0.092** (0.042)	-0.038 (0.054)
Union member	0.061 (0.079)	-0.099 (0.067)
Age	0.013 (0.008)	-0.001 (0.005)
Age squared	-0.013 (0.009)	0.006 (0.006)
No high school degree	0.012 (0.130)	-0.215** (0.106)
Some college	0.111 (0.070)	0.112 (0.077)
College degree	0.128* (0.072)	0.211*** (0.076)
Graduate degree	0.171** (0.086)	0.228*** (0.087)
Cohabiter	0.015 (0.062)	0.203** (0.088)
Non-Hispanic black	-0.061 (0.060)	0.043 (0.085)
Hispanic	0.049 (0.065)	0.010 (0.067)
Non-Hispanic other race	-0.014 (0.052)	0.088 (0.084)
Parent of 3+ children	-0.070 (0.051)	-0.140** (0.064)
Lives with child aged 0 to 2	0.074 (0.061)	0.159** (0.080)
Lives with child aged 3 to 5	0.033 (0.061)	-0.117* (0.064)
Lives with child aged 6 to 12	-0.050 (0.046)	0.130** (0.064)
Lives with child aged 13 to 17	0.097 (0.069)	0.078 (0.080)
Other household adult	-0.060 (0.043)	-0.117** (0.052)
Metropolitan area	0.005 (0.055)	0.098* (0.058)
Business and finance occupations	0.149* (0.087)	0.158* (0.088)
Computer and math	0.243** (0.104)	0.063 (0.186)
Architecture, engineering, sciences, legal	0.108	-0.016

	(0.079)	(0.103)
Community and social services	0.479***	-0.048
	(0.156)	(0.104)
Education and library	0.105	-0.048
	(0.142)	(0.089)
Arts, design, entertainment	0.075	0.204
	(0.140)	(0.160)
Healthcare practitioners and support	0.287*	-0.128
	(0.155)	(0.087)
Sales and services: personal, protective, maintenance, accommodation, food	-0.009	-0.000
	(0.066)	(0.094)
Office and administrative support	0.131	0.086
	(0.105)	(0.089)
Production, transportation	-0.053	0.099
	(0.065)	(0.136)
Manufacturing	-0.060	-0.256***
	(0.069)	(0.061)
Wholesale & retail trade	0.125	-0.237***
	(0.102)	(0.075)
Transportation, utilities, warehousing	-0.067	-0.038
	(0.076)	(0.169)
Information	0.125	-0.196
	(0.148)	(0.129)
FIRE, finance, insurance, real estate	0.198*	-0.115
	(0.107)	(0.111)
Professional, scientific, and technical	0.092	-0.125
	(0.095)	(0.111)
Management, administrative services	-0.051	-0.170*
	(0.091)	(0.103)
Education	-0.013	-0.237**
	(0.102)	(0.093)
Healthcare and social assistance	-0.085	-0.312***
	(0.084)	(0.074)
Arts, entertainment, and recreation	-0.030	-0.204**
	(0.152)	(0.101)
Accommodation and food services	-0.094	-0.241***
	(0.095)	(0.075)
Other services	0.014	-0.124
	(0.102)	(0.117)
Public administration	-0.108*	-0.116
	(0.062)	(0.121)
N	814	741
Pseudo R ²	0.331	0.344
Correlation with WFH day for respondents (parents of kids<13)	0.553	0.595

Notes: The sample includes men and women in dual-earner couples observed on weekday workdays between May 10, 2020 and December 2021. Workdays are days on which the respondent reports at least 1 hour of work. WFH is defined as working exclusively from home on the diary day. Models also include pandemic month indicators. *Source:* Authors' calculations based on the American Time Use Survey and Current Population Survey COVID-19 data

Table A4. Coefficients and Standard Errors for Table 2

	Paid Work	Total Childcare	Primary Childcare	Secondary Childcare	Face time with Children	Household Production	Total work
Female	-0.851*** (0.139)	1.078*** (0.158)	0.516*** (0.062)	0.562*** (0.142)	1.002*** (0.142)	0.572*** (0.063)	0.413*** (0.111)
WFH	-1.277*** (0.278)	3.369*** (0.454)	0.433*** (0.163)	2.936*** (0.415)	1.954*** (0.348)	0.625*** (0.182)	0.899*** (0.210)
COVID	-0.260 (0.300)	0.330 (0.461)	-0.197 (0.201)	0.526 (0.419)	0.060 (0.415)	0.080 (0.182)	-0.008 (0.323)
Female x WFH	-0.156 (0.391)	0.060 (0.544)	-0.285 (0.211)	0.346 (0.502)	0.168 (0.450)	0.065 (0.236)	-0.419 (0.287)
COVID x Female	0.445* (0.242)	-0.030 (0.386)	-0.184 (0.147)	0.154 (0.353)	-0.207 (0.248)	-0.037 (0.145)	0.076 (0.225)
COVID x WFH	0.617 (0.385)	-0.262 (0.674)	-0.082 (0.233)	-0.180 (0.638)	-0.509 (0.453)	-0.089 (0.263)	-0.194 (0.314)
COVID x Female x WFH	0.283 (0.522)	1.329 (0.906)	0.599* (0.310)	0.730 (0.865)	0.594 (0.644)	-0.236 (0.320)	0.587 (0.400)
Part-time worker	-2.385*** (0.130)	1.395*** (0.198)	0.617*** (0.095)	0.778*** (0.185)	1.200*** (0.165)	0.674*** (0.081)	-0.473*** (0.126)
Partner part-time worker	-0.140 (0.121)	-0.186 (0.141)	-0.090 (0.058)	-0.096 (0.129)	-0.031 (0.116)	-0.116** (0.058)	-0.262** (0.126)
Log wage	0.049 (0.103)	-0.222** (0.113)	-0.015 (0.055)	-0.207* (0.110)	-0.172 (0.107)	-0.014 (0.058)	-0.140 (0.097)
Self-employed	-0.218 (0.195)	0.492** (0.228)	0.092 (0.095)	0.400* (0.217)	0.539*** (0.206)	0.229** (0.108)	0.165 (0.177)
Paid hourly	-0.114 (0.111)	0.205 (0.158)	0.039 (0.063)	0.166 (0.155)	0.142 (0.120)	0.069 (0.059)	0.025 (0.115)
Union member	-0.109 (0.166)	0.113 (0.213)	0.057 (0.085)	0.057 (0.204)	0.162 (0.157)	0.031 (0.083)	0.044 (0.178)
Cohabiter	-0.074 (0.172)	-0.156 (0.266)	0.080 (0.107)	-0.236 (0.250)	-0.136 (0.206)	-0.161 (0.113)	-0.037 (0.169)
Age	0.027 (0.017)	-0.020 (0.026)	-0.020 (0.017)	-0.000 (0.018)	0.000 (0.023)	0.000 (0.010)	0.027** (0.014)
Age squared	-0.028* (0.017)	0.024 (0.026)	0.027 (0.020)	-0.003 (0.017)	-0.005 (0.025)	0.014 (0.011)	-0.006 (0.013)
No high school degree	-0.033 (0.249)	0.370 (0.345)	0.070 (0.146)	0.300 (0.345)	0.405 (0.287)	-0.173 (0.160)	0.154 (0.250)
Some college	0.022 (0.144)	0.185 (0.190)	0.126 (0.077)	0.058 (0.178)	0.043 (0.153)	-0.212*** (0.079)	0.207 (0.154)

College degree	-0.219 (0.158)	0.124 (0.204)	0.125* (0.075)	-0.001 (0.190)	0.071 (0.176)	-0.220*** (0.081)	-0.038 (0.165)
Graduate degree	-0.139 (0.165)	-0.111 (0.227)	0.217** (0.093)	-0.329 (0.214)	0.030 (0.194)	-0.347*** (0.096)	-0.116 (0.185)
Non-Hispanic black	0.094 (0.189)	-0.258 (0.220)	-0.152* (0.087)	-0.107 (0.211)	-0.210 (0.202)	-0.111 (0.101)	-0.045 (0.181)
Hispanic	-0.270 (0.197)	-0.222 (0.170)	-0.113 (0.092)	-0.110 (0.156)	-0.080 (0.168)	0.152* (0.087)	-0.081 (0.154)
Non-Hispanic other race	-0.086 (0.143)	-0.151 (0.198)	-0.037 (0.080)	-0.114 (0.200)	-0.209 (0.145)	0.026 (0.080)	-0.132 (0.148)
Age of youngest child	0.023* (0.014)	-0.068*** (0.021)	-0.123*** (0.008)	0.056*** (0.019)	-0.124*** (0.017)	0.004 (0.007)	-0.047*** (0.014)
3+ household children	-0.020 (0.098)	0.267* (0.149)	0.077 (0.051)	0.190 (0.148)	0.413*** (0.107)	0.233*** (0.070)	0.468*** (0.103)
Other household adult	0.215 (0.172)	-0.186 (0.219)	-0.079 (0.079)	-0.107 (0.193)	-0.069 (0.198)	0.039 (0.094)	0.123 (0.158)
Lives in metropolitan area	-0.268** (0.133)	-0.145 (0.185)	0.092 (0.070)	-0.237 (0.166)	-0.222 (0.166)	-0.022 (0.077)	-0.314** (0.131)
R^2	0.24	0.28	0.22	0.22	0.22	0.17	0.07
Joint hypothesis tests							
$\gamma_2 + \gamma_6$	-0.66** (0.32)	3.11*** (0.52)	0.35** (0.15)	2.76*** (0.5)	1.44*** (0.28)	0.54*** (0.18)	0.70*** (0.25)
$\gamma_2 + \gamma_4$	-1.43*** (0.26)	3.43*** (0.32)	0.15 (0.14)	3.28*** (0.31)	2.12*** (0.03)	0.69*** (0.16)	0.48** (0.20)
$\gamma_2 + \gamma_4 + \gamma_6 + \gamma_7$	-0.53** (0.25)	4.50*** (0.51)	0.66*** (0.21)	3.83*** (0.51)	2.21*** (0.38)	0.36** (0.16)	0.87*** (0.22)
$\gamma_6 + \gamma_7$	0.90** (0.37)	1.07* (0.62)	0.52** (0.24)	0.55 (0.59)	0.09 (0.49)	-0.33 (0.21)	0.39 (0.28)
$\gamma_3 + \gamma_5$	0.19 (0.31)	0.30 (0.56)	-0.38* (0.21)	0.68 (0.50)	-0.15 (0.45)	0.04 (0.19)	0.07 (0.34)

Note: N=3570. The Pre-COVID sample includes diaries between January 2015 and February 2020 while the COVID sample includes diaries between May 10, 2020 and December 2021. ATUS final weights reweighted separately for equal-day-of-the-week representation by gender for our sample. Standard errors are generated using ATUS replicate weights. WFH is defined as working from home at least 1 hour on the diary day for the respondent. Models also include indicators for month, year, industry, occupation, and Census region. Significance levels: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. *Source:* Authors' calculations based on the American Time Use Survey

Table A5. Coefficients and Standard Errors for Table 3

	Paid Work	Total Childcare	Primary Childcare	Secondary Childcare	Face time with Children	Household Production	Total work
Female	0.179 (0.349)	0.481 (0.670)	0.249 (0.215)	0.232 (0.671)	0.644 (0.415)	0.351 (0.267)	0.497 (0.370)
WFH	-0.007 (0.527)	3.436*** (1.236)	0.373 (0.329)	3.063*** (1.178)	1.424** (0.696)	0.809** (0.364)	0.857* (0.486)
Partner WFH	0.857 (0.647)	-1.007 (1.016)	-0.099 (0.321)	-0.909 (1.020)	-0.315 (0.618)	-0.212 (0.391)	-0.226 (0.707)
WFH x Female	-1.103* (0.630)	1.790 (1.443)	0.413 (0.499)	1.378 (1.352)	1.064 (0.962)	-0.271 (0.433)	0.011 (0.627)
Partner WFH x Female	-0.681 (0.897)	1.360 (1.709)	-0.052 (0.571)	1.413 (1.570)	0.016 (1.071)	0.522 (0.577)	-0.224 (1.053)
WFH x Partner WFH	-1.105 (0.882)	-0.785 (1.833)	-0.023 (0.573)	-0.762 (1.816)	-0.156 (1.094)	-0.487 (0.539)	-0.292 (0.825)
WFH x Female x Partner	2.462** (1.210)	-2.226 (2.515)	-0.258 (0.891)	-1.968 (2.415)	-0.914 (1.701)	-0.277 (0.794)	0.114 (1.279)
Part-time worker	-2.738*** (0.300)	1.913*** (0.483)	0.890*** (0.221)	1.024** (0.458)	2.130*** (0.355)	0.774*** (0.224)	0.018 (0.256)
Partner part-time worker	-0.213 (0.296)	0.028 (0.454)	0.018 (0.145)	0.010 (0.449)	-0.057 (0.280)	-0.220 (0.148)	-0.185 (0.262)
Log wage	0.293 (0.226)	-0.619* (0.331)	-0.065 (0.143)	-0.555 (0.345)	-0.577** (0.266)	0.107 (0.138)	-0.172 (0.177)
Self-employed	0.001 (0.390)	-0.428 (0.530)	0.373 (0.268)	-0.802 (0.494)	0.512 (0.470)	0.298 (0.231)	0.214 (0.338)
Paid hourly	0.050 (0.230)	-0.219 (0.358)	0.088 (0.160)	-0.307 (0.372)	-0.061 (0.280)	0.063 (0.137)	-0.104 (0.215)
Union member	-0.474 (0.349)	-0.228 (0.469)	-0.067 (0.171)	-0.161 (0.499)	0.037 (0.363)	0.045 (0.198)	-0.379 (0.288)
Cohabiter	-0.559 (0.405)	-0.335 (0.651)	0.014 (0.245)	-0.348 (0.691)	-0.668 (0.409)	0.020 (0.251)	-0.453 (0.414)
Age	0.019 (0.025)	0.017 (0.042)	0.011 (0.014)	0.006 (0.042)	0.004 (0.027)	-0.002 (0.021)	0.039* (0.021)
Age-squared	-0.017 (0.021)	-0.016 (0.037)	-0.010 (0.011)	-0.007 (0.035)	0.003 (0.027)	0.018 (0.024)	0.003 (0.018)
No high school degree	-0.313 (0.531)	-0.453 (0.946)	-0.003 (0.452)	-0.450 (0.917)	-0.173 (0.667)	-0.374 (0.374)	-0.548 (0.523)
Some college	-0.059	0.789	0.078	0.711	0.345	-0.378*	0.388

	(0.295)	(0.500)	(0.184)	(0.478)	(0.330)	(0.196)	(0.261)
College degree	-0.306	0.816	0.518**	0.299	0.747*	-0.448**	0.390
	(0.297)	(0.591)	(0.246)	(0.537)	(0.387)	(0.191)	(0.315)
Graduate degree	-0.311	0.659	0.433*	0.225	0.672	-0.511**	0.365
	(0.308)	(0.591)	(0.241)	(0.561)	(0.456)	(0.227)	(0.358)
Non-Hispanic black	0.341	-0.062	-0.093	0.032	0.233	-0.257	-0.031
	(0.460)	(0.549)	(0.253)	(0.541)	(0.449)	(0.208)	(0.366)
Hispanic	-0.537*	0.683	-0.125	0.808*	0.783**	0.374*	0.438*
	(0.307)	(0.536)	(0.227)	(0.488)	(0.331)	(0.198)	(0.266)
Non-Hispanic other race	-0.363	0.673	0.332	0.342	0.490	-0.259	0.207
	(0.311)	(0.622)	(0.205)	(0.633)	(0.351)	(0.163)	(0.311)
Age of youngest child	0.056*	-0.000	-0.145***	0.144***	-0.147***	0.015	-0.010
	(0.030)	(0.044)	(0.021)	(0.043)	(0.028)	(0.018)	(0.025)
3+ household children	-0.090	0.009	0.117	-0.108	-0.066	0.398***	0.309
	(0.244)	(0.372)	(0.144)	(0.377)	(0.234)	(0.150)	(0.207)
Other household adult	0.236	-0.477	0.039	-0.515	-0.711**	-0.342**	0.029
	(0.293)	(0.540)	(0.172)	(0.503)	(0.317)	(0.169)	(0.220)
Metropolitan area	-0.064	-0.225	0.189	-0.414	-0.455	-0.094	0.082
	(0.188)	(0.515)	(0.153)	(0.503)	(0.432)	(0.185)	(0.265)
R ²	0.31	0.33	0.32	0.28	0.30	0.25	0.18
Joint hypothesis tests							
$\beta_2 + \beta_6$	-1.11 (0.57)	2.65***(0.92)	0.35 (0.35)	2.30**(0.93)	1.27**(0.55)	0.32 (0.29)	0.57 (0.49)
$\beta_2 + \beta_4$	-1.11* (0.41)	5.23*** (0.89)	0.79** (0.36)	4.44*** (0.90)	2.49*** (0.63)	0.54* (0.28)	0.87** (0.42)
$\beta_2 + \beta_4 + \beta_6 + \beta_7$	0.25*** (0.73)	2.22 (1.38)	0.5 (0.49)	1.71 (1.31)	1.42* (0.86)	-0.23 (0.44)	0.69 (0.75)
$\beta_6 + \beta_7$	1.36 (0.97)	-3.01 (1.87)	-0.28 (0.7)	-2.73 (1.82)	-1.07 (1.24)	-0.76 (0.64)	-0.18 (1.03)
$\beta_3 + \beta_5$	0.18 (0.81)	0.35 (1.58)	-0.15 (0.56)	0.5 (1.46)	-0.3 (0.96)	0.31 (0.49)	-0.45 (0.97)

Note: N = 728. The COVID sample includes diaries between May 10, 2020 and December 2021. ATUS final weights reweighted separately for equal-day-of-the-week representation by gender for our sample. Standard errors are generated using ATUS replicate weights. WFH is defined as working from home at least 1 hour on the diary day for the respondent. Partner WFH is based on the predicted probability of working from home. Time-use predictions are based on setting partner WFH = 0.75 for WFH and = 0 for WAFH. Models also include indicators for pandemic month, industry, occupation, and Census region. 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 A6. Differences in Predicted Hours of Cooking, Housework, and Shopping on Weekday Workdays Before and During the COVID-19 Pandemic by Work Location (Parents of Children Under Age 13 in Dual-earner Couples)

	Cooking		Housework		Shopping	
	OLS	Tobit	OLS	Tobit	OLS	Tobit
Pre-COVID						
WAFH: Mothers – Fathers	0.36***(0.04)	0.37***(0.04)	0.12***(0.04)	0.18***(0.04)	0.06**(0.02)	0.06***(0.02)
WFH: Mothers – Fathers	0.35***(0.10)	0.36***(0.10)	0.05 (0.17)	0.14 (0.14)	0.15***(0.06)	0.11**(0.06)
Fathers: WFH – WAFH	0.30***(0.07)	0.30***(0.07)	0.29* (0.16)	0.21* (0.12)	0.03 (0.04)	0.04 (0.04)
Mothers: WFH – WAFH	0.29***(0.09)	0.29***(0.08)	0.21**(0.08)	0.17**(0.08)	0.12***(0.05)	0.09**(0.04)
Mothers – Fathers	-0.01 (0.10)	-0.01 (0.10)	-0.07 (0.17)	-0.04 (0.14)	0.09 (0.06)	0.05 (0.06)
COVID						
WAFH: Mothers – Fathers	0.37***(0.08)	0.36***(0.08)	0.15 (0.10)	0.25**(0.10)	0.03 (0.03)	0.04 (0.03)
WFH: Mothers – Fathers	0.44***(0.10)	0.47***(0.09)	-0.11 (0.12)	0.02 (0.12)	0.06 (0.05)	0.01 (0.03)
Fathers: WFH – WAFH	0.15**(0.08)	0.13* (0.07)	0.26* (0.13)	0.21* (0.12)	-0.01 (0.03)	0.00 (0.02)
Mothers: WFH – WAFH	0.22**(0.09)	0.24***(0.08)	-0.01 (0.10)	-0.02 (0.10)	0.02 (0.05)	-0.03 (0.03)
Mothers – Fathers	0.07 (0.12)	0.11 (0.11)	-0.27 (0.17)	-0.24 (0.16)	0.03 (0.06)	-0.03 (0.04)
COVID minus Pre-COVID						
WAFH: Mothers – Fathers	0.02 (0.07)	-0.01 (0.08)	0.03 (0.11)	0.07 (0.10)	-0.03 (0.04)	-0.03 (0.03)
WFH: Mothers – Fathers	0.10 (0.14)	0.11 (0.14)	-0.16 (0.20)	-0.12 (0.18)	-0.09 (0.07)	-0.11* (0.06)
Fathers: WFH – WAFH	-0.15 (0.11)	-0.17* (0.10)	-0.03 (0.20)	0.00 (0.16)	-0.04 (0.04)	-0.05 (0.04)
Mothers: WFH – WAFH	-0.07 (0.12)	-0.05 (0.11)	-0.22* (0.13)	-0.18 (0.13)	-0.10*(0.06)	-0.13* (0.05)
Mothers – Fathers	0.08 (0.15)	0.12 (0.15)	-0.19 (0.24)	-0.19 (0.21)	-0.06 (0.08)	-0.08 (0.06)
Percent non-zeros values						
Fathers	53%		25%		31%	
Mothers	81%		43%		40%	

Note: N=3,570. The Pre-COVID sample includes diaries between January 2015 and February 2020 while the COVID sample includes diaries between May 10, 2020 and December 2021. ATUS final weights reweighted separately for equal-day-of-the-week representation by gender for our sample. Standard errors are generated using ATUS replicate weights. Because there may be true non-participation in these categories, we include differences in predictions from Tobit models estimated by maximum likelihood alongside those from linear models estimated by OLS. Workdays are days on which the respondent reports at least 1 hour of work. WFH is defined as working exclusively from home on the diary day. WAFH includes defined as working away from home at any point on the diary day. See Table 2 for control variables. Significance levels: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. *Source:* Authors' calculations based on the American Time Use Survey

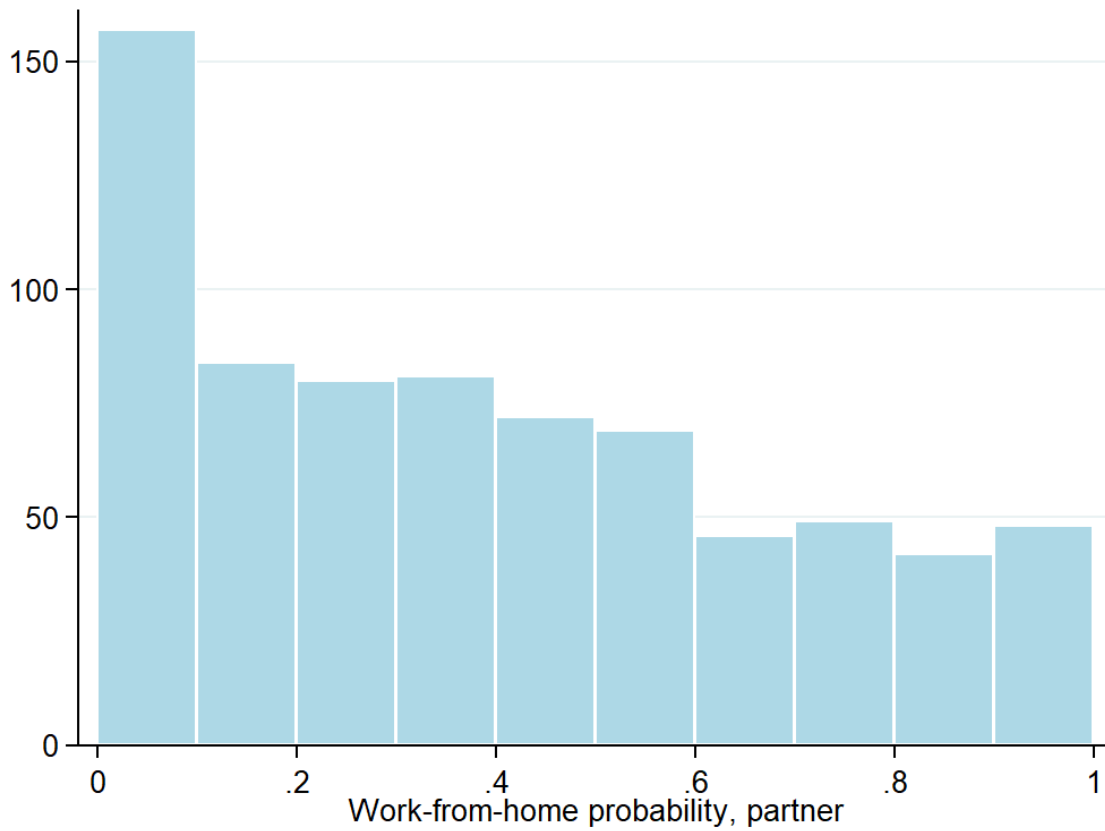
Table A7. Differences in Predicted Hours on Weekday Workdays for Mothers and Fathers in Dual-earner Couples with Children Under Age 18 (COVID)

	Paid Work	Total Childcare	Primary Childcare	Secondary Childcare	Face time with Children	Household Production	Total work
One parent WFH							
Fathers	-0.33 (0.5)	2.53***(0.95)	0.25 (0.24)	2.28**(0.91)	1.85**(0.85)	1.09***(0.37)	0.64 (0.51)
Mothers	-1.13***(0.43)	4.24***(0.87)	0.69**(0.30)	3.55***(0.86)	3.01***(0.73)	0.63**(0.26)	0.88**(0.42)
Mothers – Fathers	-0.80 (0.66)	1.71 (1.21)	0.44 (0.40)	1.27 (1.16)	1.16 (1.03)	-0.46 (0.44)	0.25 (0.66)
Both parents WFH							
Fathers	-0.37 (0.46)	0.91 (0.75)	0.20 (0.23)	0.70 (0.74)	1.13**(0.50)	0.42 (0.28)	0.22 (0.43)
Mothers	0.12 (0.52)	0.74 (0.79)	0.28 (0.31)	0.46 (0.77)	1.11* (0.62)	0.29 (0.34)	-0.10 (0.45)
Mothers – Fathers	0.49 (0.50)	-0.17 (0.82)	0.07 (0.28)	-0.25 (0.83)	-0.02 (0.58)	-0.13 (0.33)	-0.32 (0.49)
Both – One WFH							
Fathers	-0.04 (0.55)	-1.62 (1.05)	-0.04 (0.29)	-1.58 (1.02)	-0.72 (0.83)	-0.67* (0.36)	-0.41 (0.55)
Mothers	1.25**(0.55)	-3.50***(1.11)	-0.41 (0.35)	-3.09***(1.09)	-1.90**(0.86)	-0.33 (0.36)	-0.98* (0.53)

Note: N = 892. Differences for one parent WFH and both parents WFH are relative to both parents working away from home. The sample includes diaries between May 10, 2020 and December 2021. ATUS final weights are reweighted separately for equal-day-of-the-week representation by gender for our sample. Standard errors are generated using ATUS replicate weights. WFH is defined as working from home at least 1 hour on the diary day for the respondent. Partner WFH is based on the predicted probability of working from home. Time-use predictions are based on setting partner WFH = 0.75 for WFH and = 0 for WAFH. We include indicators for each month of the pandemic. See Table 2 for other 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

Figure A1. Distribution of Predicted Partner's Work-from-Home Probability

(Frequency)



Note: N = 728. Sample includes mothers and fathers with children under age 13 who are members of dual-earner couples.

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