

## **Gender Differences in Telecommuting and Implications for Inequality at Home and Work**

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## **Abstract.**

The global pandemic has led to an unprecedented shift to remote work that will likely persist to some degree into the future. Telecommuting's impact on flexibility and work family conflict is a critical question for researchers and policy-makers. Our study addresses this question with data collected before and during the COVID-19 crisis: the 2003-2018 American Time Use Survey (ATUS,  $N = 19,179$ ) and the April and May 2020 COVID Impact Survey ( $N = 784$ ). Comparing mothers and fathers who work exclusively at the workplace, exclusively from home, and part-day from home, we describe differences in time spent on housework, childcare, and leisure; the nature of time worked at home; and the subjective experiences of telecommuting. In addition to a broad descriptive portrait, we take advantage of a quasi-experimental design in the ATUS leave supplements to examine time working at home among those who report ever telecommuting, providing estimates of telecommuting's effect on other uses of time that better approximate causal relationships than prior studies. We find that gender gaps in housework are larger for telecommuters, and, among telecommuters, larger on telecommuting days. Conversely, telecommuting may shrink the gender gap in childcare, particularly among couples with two full time earners, although childcare more frequently impinges upon mothers' work time. Survey data collected following the March COVID19 stay-at-home orders show that telecommuting mothers more frequently report feelings of anxiety, loneliness and depression than telecommuting fathers. Early estimates of responses to the COVID19 pandemic offer insights into future implications of telecommuting for gender equality at work.

## **Introduction**

The global pandemic has led to an unprecedented shift to remote work. Prior to the COVID-19 crisis, 16% of workers reported working some time from home on an average day and a third of all workers reported the option to telecommute part of the day (S. S. Kim, Galinsky, & Pal, 2020; U.S. Bureau of Labor Statistics, 2019). The share telecommuting prior to COVID-19 represented only a fraction of all work that could be done at home (Noonan & Glass, 2012), as evidenced in part by the massive increase in response to temporary health concerns. Many employers have been reluctant to give up direct supervisory control, or argue that face time is a critical feature of the productive process (Allen, Golden, & Shockley, 2015; Miller & Rampell, 2013). COVID-19 has changed this in the short term—and will likely lead to long-run restructuring. Facebook, for example, announced that it would be moving to permanent remote work for half its employees following adjustments required by COVID-19 (Conger, 2020).

Telecommuting holds broad public appeal (Allen et al., 2015). U.S. workers want more control and flexibility over their schedules and value working from home over alternative work arrangements (Brenan, 2020; Mas & Pallais, 2017). Women with children in particular are willing to take wage penalties in exchange for more flexibility in hours (Mas & Pallais, 2017). This is in the context of a relatively punishing labor market in terms of hours and inflexibility, with little of the institutional support in place elsewhere to mitigate work family conflict (Blau & Kahn, 2013; Collins, 2019; J. Glass, Simon, & Andersson, 2016; Gornick & Meyers, 2003; Kalleberg, 2011; Pettit & Hook, 2009). The demands of time-intensive and inflexible workplaces are intensified by mothers' disproportionate share of the work at home (Blair-Loy, 2003; Hays, 1996; Jacobs & Gerson, 2016; Townsend, 2002), and increasing work hour flexibility has been identified as a key mechanism for reducing gender inequality in employment and earnings

(Goldin, 2014; Ishizuka & Musick, 2018). Given recent increases in telecommuting and the likelihood that it will be incorporated more fully into a post-COVID labor market, its potential to increase flexibility and ease work family conflict is a critical question for researchers and policy-makers.

Evidence on whether telecommuting will be an effective tool for addressing gender inequality is limited—and mixed. Telecommuting increases retention and job satisfaction (Allen et al., 2015; Belanger, Collins, & Cheney, 2001; J. L. Glass & Riley, 1998; Nilles, 1998; Rathbone, 1992; Tamrat & Smith, 2002). But it has also been linked to a general expansion of work hours and low wage returns to working at home beyond the standard work week (J. L. Glass & Noonan, 2016). Flexible work practices like telecommuting may have counterbalancing effects on domestic labor and the dynamics of how it's divided between spouses (Noonan, Estes, & Glass, 2007). To the extent that telecommuting interacts with entrenched gendered norms about who does what in the household, it may exacerbate gender inequality in housework and childcare, disproportionately increasing time on housework and childcare, as well as multitasking and work interruptions that reduce the quality of mother's work and increase their stress relative to fathers.

Our study examines telecommuting with data collected before and during the COVID-19 crisis, comparing mothers and fathers who work exclusively at the workplace, exclusively from home, and part-day from home. We examine gendered patterns of selection into telecommuting; telecommuters' time in housework, childcare, and leisure; and contextual features of work time, including work fragmentation and the copresence of children, and the subjective experiences of mothers' and fathers' work at home. Our analysis proceeds in two parts: First, we use nationally representative time diary data from the 2003-2018 American Time Use Survey (ATUS) to

develop a broad descriptive portrait of the demographic characteristics, time use patterns, and subjective wellbeing of mothers and fathers who worked either a full day or part-day from home on the diary day. For time use, we further draw on ATUS supplements in waves 2017 and 2018 and limit our sample to respondents who report ever working from home. Critically, this allows us to assess diary-day variation in work location among a sample of telecommuters, providing greater causal leverage on how telecommuting affects housework and childcare over the course of a day. Second, we use data from the COVID Impact Survey (CIS, <https://www.covid-impact.org>) collected by NORC at the University of Chicago in April and May 2020, after states implemented stay-at-home orders to limit COVID-19 transmission. We describe the prevalence of telecommuting among mothers and fathers, their characteristics, and their subjective wellbeing.

This work contributes to the literature on the effects of flexible work practices on work family conflict. It adds to what we know about telecommuting in four important ways. First, it relies on diary data to describe how mother' and fathers' telecommuting is associated with time use patterns over the course of a day. Time diaries provide more accurate data on time use than retrospective surveys, and allow us to examine multiple facets of time inequalities, including the domestic division of labor, leisure time, and momentary wellbeing. Second, it uses detailed data on the context of work activities to tap the quality of time, including information on disruptions to work spells and how respondents are feeling. Third, we use an innovative approach that helps to account for individual characteristics that may confound our understanding of how telecommuting differentially affects mothers' and fathers' time in housework and childcare. Finally, we take a brief look into how these dimensions are playing out in the current crisis.

Broadly, our work responds to calls for predicting and understanding the impact of COVID-19 on gender equality (Alon, Doepke, Olmstead-Rumsey, & Tertilt, 2020).

## **Background**

### ***Gender and telecommuting among parents***

Work-family conflict disparately impacts women with young children, as mothers do far more care work and housework than fathers (Bianchi, Sayer, Milkie, & Robinson, 2012; Sayer, Bianchi, & Robinson, 2004). Mothers with young children appear to highly value telecommuting and are more willing than childless women or men to accept lower wages in return for working from home (Mas & Pallais, 2017). Increased flexibility in work hours is associated with higher maternal employment, making it possible for some mothers to stay in jobs who would otherwise drop out (Goldin, 2014; Ishizuka & Musick, 2018). Like other policies and practices that address work family conflict, however, telecommuting may have different implications for women and men that ultimately exacerbate some dimensions of inequality (Gornick & Meyers, 2003; Pettit & Hook, 2009). In the case of telecommuting, these may include inequalities in housework and childcare, the quality of work time, and the overall well-being of mothers and fathers.

Flexible work practices like telecommuting have the potential to reinforce gendered social norms that underpin the domestic division of labor. Gendered norms continue to tie fatherhood primarily to full-time employment and motherhood to time-intensive, child-centered caregiving (Blair-Loy, 2003; Hays, 1996). Women's time use is more responsive to changes in the family such as caregiving needs and spouse work hours (Bianchi, 2000; Cha, 2010). In this context, telecommuting may disproportionately increase mothers' housework and childcare. Telecommuting removes the spatial distance between work and home provided by traditional workplaces, allowing more give in managing the competing demands of work and family.

Women may disproportionately translate time saved by working from home to housework and childcare (Noonan & Glass, 2012), whereas men may shift more of these gains to investments in work or leisure.

The greater responsiveness of women to family demands may result in a blurrier boundary between work and home among mothers who telecommute and have implications for the quality of work done at home. Mothers spend more time multitasking than fathers, and the additional hours are mainly on housework and childcare (Offer & Schneider, 2011). To the extent that mothers working from home are simultaneously on task to manage children or other household demands, it may exacerbate gender gaps in multitasking. Their telecommuting time may be more affected than fathers' by interruptions in work spells that divide their attention between work and family. We see evidence of this in other domains of time use, for example, mothers' leisure is more often spent in the presence of children and more often interrupted by housework and childcare (Bittman & Wajcman, 2000; Craig & Mullan, 2013; Mattingly & Bianchi, 2003). Their sleep, too, is more often disrupted by childcare demands than fathers' (Musick, Meier, & Flood, 2016). These findings suggest that telecommuting may more negatively affect the quality of mothers' relative to fathers' telecommuting time, with potential implications for career advancement and pay.

Differences in time use and the quality of work time may further play into differences in mothers' and fathers' affective orientation towards work and quality of life. Multitasking is associated with emotional strain (Mattingly & Sayer, 2006; Milkie, Raley, & Bianchi, 2009; Nomaguchi, 2009; Offer & Schneider, 2011). Multitasking and work interruptions may also exacerbate tension associated with role switching and role conflict (Greenhaus & Beutell, 1985; Hilbrecht, Shaw, Johnson, & Andrey, 2008). To the extent that multitasking and interruptions are

more commonly experienced by women working from home than men, telecommuting may be less effective at alleviating work family conflict among women, and mothers who telecommute may have lower overall life satisfaction and more negative feelings than their male counterparts. These differences are potentially exacerbated by the greater likelihood that women, who often dominate low-level clerk and service jobs, are more likely to work from home involuntarily compared to men (Nilles, 1998; Travis, 2003), lowering their perceptions of control and leading to negative emotions (Allen, Johnson, Kiburz, & Shockley, 2013).

### ***Evidence on telecommuting and work family conflict***

Prior research is limited on the implications of telecommuting for the complex interlocking facets of work and domestic gender inequality. Many studies have focused on women or men, without an explicit gender comparison. Prior work has shown that women who had access to flexible work, including telecommuting, were less likely to reduce their working hours after giving birth (Chung & Van der Horst, 2018) but experienced weaker wage growth (J. Glass, 2004). Telecommuting was also found to cut into women's leisure time (Hilbrecht et al., 2008; Noonan & Glass, 2012; Scott-Dixon, 2004). Work on fathers has shown, similarly, that access to flexible work per se does not reduce work-life conflict, particularly when there are gender-related cultural barriers (Allard, Haas, & Philip Hwang, 2007; Doucet & Merla, 2007).

Among the few studies that compared women and men, female telecommuters were generally found to be more affected by the blurring of boundaries between work and home. Although both male and female telecommuters expand their normal work hours, mothers are more likely to replace the time saved from commuting with childcare and household chores than fathers (Noonan & Glass, 2012). Using both cross-sectional and longitudinal samples of pregnant and postpartum women and their spouses from Midwest U.S., Noonan et al. (2007) found that telecommuting mothers spent more time in childcare than their non-telecommuting counterparts,

whereas there was no significant difference in childcare time among fathers by telecommuting status. Similar gendered patterns were found for housework (Silver, 1993). Among telecommuters, women and mothers with young children at home have higher perceived time pressure and decreased time use control (Thulin, Vilhelmson, & Johansson, 2019). Evidence from Sweden on the interaction between gender and the presence of children showed that gender differences in work-life balance among telecommuters were small in childless households, whereas in households with children, women found it harder than men to concentrate on one role (Hartig, Kylin, & Johansson, 2007). In the U.S. context, using longitudinal data on 227 couples, Hammer, Neal, Newsom, Brockwood, and Colton (2005) found that flexible work arrangements increased women's work-life conflict but no significant results were found for men.

Past work is limited in accounting for the selectivity of telecommuting, leaving uncertainty about whether telecommuting differentially affects work-life conflict for men and women, or whether gendered patterns are driven by individual differences between men and women who work at home versus the workplace. Women typically have stronger motivations to telecommute than men (Mokhtarian, Bagley, & Salomon, 1998; Mokhtarian, 1996). Among those who prefer to telecommute, women are more likely to prefer telecommuting for the sake of family responsibilities, stress reduction, and having more time for themselves, whereas men often prefer telecommuting to get more work done (Mokhtarian et al., 1998). Occupations further structure selection into remote work. For high-level professionals, which tend to be heavily male-dominated, telecommuting is often provided as an optional benefit intending to increase employees' flexibility and autonomy (Travis, 2003). By contrast, for low-level clerks and service workers, which tend to be female-dominated, telecommuting is often motivated by cost savings in real estate, rent, utilities, and overhead (Nilles, 1998; Travis, 2003). Accounting for individual

selection into telecommuting requires leverage on these individual and occupational confounders.

Past work is also limited in generalizability and accuracy and scope of measurement. Much of the existing research on telecommuting and work-life conflict draws on small samples or samples of subpopulations, and measurements typically rely on global recall, for example, of time in childcare or housework (e.g. Allard et al., 2007; Doucet & Merla, 2007; J. Glass, 2004; Hilbrecht et al., 2008; Scott-Dixon, 2004). Outcomes include earnings, work hours, performance, job satisfaction, leisure time, work-role stress, fatigue, and perceived work-life conflict (e.g., J. Kim, Henly, Golden, & Lambert, (2019); Noonan and Glass (2012), Shaw, Andrey, and Johnson (2003), Hammer et al. (2005), and Allen et al. (2015)). Questions about the nature of telecommuting time and broader dimensions of subjective well-being while working at home remain underexplored. Answering these questions requires detailed data on individuals' time use and subjective well-being in the context of a working day.

### ***Our Study***

Our study presents a multi-faceted analysis of gendered patterns in telecommuting in the U.S. It draws from nationally representative time diary data that provides more detail on the context of work and is less prone to error and bias than global recall (J. Robinson & Godbey, 2010; J. P. Robinson, 2002). Further, it takes advantage of a quasi-experimental design in the ATUS leave supplements to examine time working at home among those who report ever telecommuting, when their work location is arguably randomly assigned. Estimates from this analysis help us address concerns about selectivity into telecommuting and better approximate causal relationships than those from previous studies. Finally, we provide the first estimates of responses to the COVID19 pandemic and offer insights into future implications of telecommuting for gender equality at work.

Prior literature suggests that telecommuting may exacerbate gender inequalities between parents by increasing mothers' exposure to domestic demands and blurring the work-life boundary. Based on conceptual and empirical evidence, we expect telecommuting to increase mothers' housework and childcare and reduce their leisure relative to fathers'. We further expect more multitasking and interruptions to mothers' work at home relative to fathers', and in turn lower levels of subjective well-being. We examine these questions triangulating across data sources and samples and combining descriptive approaches with strategies designed to provide greater leverage on causal questions.

## **Data and Measures**

### *Data Sources*

We draw on data collected before and during the COVID-19 crisis. We use the 2003-2018 ATUS to develop a broad descriptive portrait of diary day telecommuting among mothers and fathers. We further draw on two subsets of these data: the Well-Being Module collected in 2010, 2012, and 2013 allows us to examine subjective well-being in daily activities; the 2017-2018 supplement provides information to identify a subsample of mothers and fathers who report ever working from home. Finally, data during the COVID-19 crisis come from the first two waves of the CIS collected by NORC from April 20 to May 10. These new data describe the characteristics and well-being of telecommuters in April and May of 2020, after states implemented stay-at-home orders to limit COVID-19 transmission.

*ATUS.* The ATUS is an excellent resource for studying telecommuting because it records in extraordinary detail the nature and context of daily activities for a very large representative sample of American workers (Hofferth, Flood, & Sobek, 2020). ATUS is a time diary: it prompts respondents to record their activities for 24 hours prior to 4AM on the day of the survey, which

survey researched code into highly detailed standardized activity categories. Crucially for our purposes, ATUS also records the location of activities and co-presence. The former allows us to differentiate telecommuting from working at the workplace, the latter allows us to identify when children are present during work or other activities.

Three other features of ATUS are important for our analyses. First, ATUS draws its respondents from the Current Population Survey (CPS), and so the survey also records demographic, household, and work characteristics. Second, for three years of the survey in 2010, 2012, and 2013, ATUS asked respondents to report their affect during three randomly chosen activities. We use these measures to examine gender differences in affect and wellbeing between telecommuters and workers in workplaces. Third, the ATUS collected supplements in waves 2017 and 2018 that asked respondents whether they ever worked from home. We use these data to examine variation in diary day telecommuting among mothers and fathers who ever telecommute, providing leverage on estimating causal effects of telecommuting, as well as a plausible way of identifying likely telecommuters in our sample.

*ATUS 2003-2018 sample.* Our main sample includes parents ages 21-60 with resident children <18, who reported on a weekday diary day, and who worked on that day (see details in Appendix Figure A1). We exclude self-employed respondents (12.5% of parents in the sample) because the relationship between work and time flexibility is likely very different for workers with and without bosses. Ages 21-60 represent prime working ages and exclude relatively few parents with resident children younger than 18. We exclude respondents who worked less than two hours (in all locations combined) on the diary day to capture days at work. We also drop weekend diaries, as expectations around work and opportunities for leisure and social activities differ significantly on the weekend. Finally, we drop respondents who exclusively report a work

location that is neither home nor the workplace (2% of the sample). Our final sample includes 19,179 respondents and 47,830 work activities.

*ATUS leave sample.* For a subset of analyses, we draw on waves 2017 and 2018 of the ATUS that include a supplement asking whether respondents ever telecommute. We apply the same sample limitations here as in our main sample (N = 19,179), but further restrict our analysis to respondents who report ever telecommuting and report going into a workplace at least once on a normal work week (18%, N = 343).

*ATUS well-being sample.* In 2010, 2012, and 2013 ATUS included questions about how respondents were feeling in three randomly selected activities during the diary day. The day reconstruction method based on momentary assessments of well-being provides reliable information on affective response grounded in the context of daily activities (Kahneman, Krueger, Schkade, Schwarz, & Stone, 2004; Stone, Mackie, Sciences, & Council, 2013). This sample is limited to the 1,837 work activities (including 191 telecommuting activities) that include measures of subjective wellbeing and 3,285 parents (including 722 telecommuting parents) who report affect across diary day.

*CIS Sample.* The COVID Impact Survey is a nationally representative survey collected by NORC in April and May 2020 to assess the health and economic impacts of the COVID-19 pandemic. We limit this sample to parents who were employed in March 2020, aged 25-55. This range differs from that of our ATUS samples because the survey records age as a series of categories.

## ***ATUS Measures***

### *Telecommuting*

At the activity-level, we define telecommuting on the basis of respondents working on their main job (activity code 050101) and reporting that their location was “home.” For respondent-level analyses, we divide respondents into those who exclusively worked from home on the diary day, respondents who exclusively worked from the workplace, and respondents who worked both from home and the workplace. We tested several other telecommuting taxonomies, including a binary telecommuting/workplace measure, and categorization based on duration of time telecommuting, and we found very similar results for each. We replicate our descriptive models using duration categories in Appendix Tables A9 – A15.

In our analysis of telecommuters from the ATUS leave supplement, we use the following question to identify mothers and fathers who ever telecommute in their current job: “Are there days when you work only at home?” We measure frequency of telecommuting with the question “How often do you work only at home?”

#### *Demographic characteristics*

We examine the socio-demographic profiles of men and women who telecommute, including work characteristics, demographics, and family composition. Our work measures are usual weekly work hours, whether a respondent works part time (less than 35 hours a week), weekly earnings, and broad occupation (professional, management, and other occupations). For demographics, we examine age, whether a respondent graduated from four year college, the age and number of the respondent’s children in the household, race (Black, Non-Black), ethnicity (Hispanic, non-Hispanic), whether a respondent is married/cohabiting, and if the spouse/partner is employed in full time work.

#### *Housework, childcare, and leisure*

We define *housework* broadly to include both core housework (cleaning, tidying, laundry, and textile repair) and ancillary housework activities, such as food preparation, household maintenance, and vehicle maintenance (activity codes 020100 to 020700). Prior research finds gender inequalities in both broadly and narrowly defined housework, but larger inequalities in the latter case (Bianchi et al., 2012), so our estimates are likely conservative. We use two measures relating to *childcare*. First, we create a measure of childcare that combines basic care activities of younger children (e.g., feeding, bathing) with activities relating to education (e.g., helping with a child’s homework or attending a PTA meeting) and health (e.g., sitting with a sick child) and associated travel of all minor children. Second, we construct a broader measure of all time spent with household children based on responses to the activity-level question “Who was with you?” We combine our narrower measure of childcare with housework to generate a summary measure of domestic work. *Leisure* includes socializing, leisure activities, such as watching TV, listening to music and doing hobbies, and attending and watching sports.

#### *Indicators of work context*

We construct two measures that indicate competing demands and divided attention: the fragmentation of work and the presence of children. *Fragmentation* is the number of separate work activities across diary day and captures the extent to which work is divided into separate spells. It is commonly used to measure activity quality in time use studies (Flood, Meier, & Musick, 2019). The *presence of children* while working is a summary of all minutes respondents’ children were present during work activities, based on the activity-level “who with” question. ATUS began recording copresence for work activities in 2010, so analyses of child presence are based on a 2011-2018 sample (N = 9,302).

#### *Subjective well-being*

We use measures from the ATUS well-being supplements to examine subjective well-being during work spells and over the course of the diary day. For each of three sampled activities, ATUS respondents were asked to rate their feelings across multiple indicators. We examine responses to the following: 1) How happy did you feel during this time? 2) How stressed did you feel during this time? 2) How tired did you feel during this time? Response options ranged from 0 (e.g., not at all happy) to 6 (e.g., very happy).

### ***CIS Measures***

Within the constraints of differences in data structure and measurement approach, we generate key measures from the CIS that are similar to those from the ATUS. *Telecommuting* is based on respondents' answering affirmatively that they have worked from home in response to COVID-19. We compare mothers and fathers who report working from home, working from the workplace, and being unemployed in April and May of 2020.

Global assessments of *subjective well-being* include depression, anxiety, hopelessness, and loneliness. These questions record the frequency with which respondents have experienced these states in the previous seven days. Because a majority of respondents experience them for less than one day, we make dichotomous versions of these variables which report whether a respondent experienced the emotion for one day or more in the prior week. We also take an average of four dichotomous measures to create an overall measure of negative affect experienced in the previous week.

Demographic characteristics are coded comparably to the ATUS and include weekly work hours, working part time, broad occupational categories, graduating from a four-year college, number of children in the household, race (Black, Non-Black), and ethnicity (Hispanic, Non-Hispanic). Age and age of youngest household child are recorded as a series of age

categories, and we recode these to the category midpoint for comparability to the ATUS. The CIS does not include information on weekly earnings or spousal employment.

### **Analytical Strategy**

Our analysis proceeds in the following steps: First, we describe the demographic characteristics of mothers and fathers in the ATUS who worked either a full day or part-day from home on the diary day. Second, we examine time use and work context for mothers and fathers across work locations, using both the full ATUS sample and a smaller group of telecommuters for whom work location on the diary day is arguably random. In assessing gender gaps, we include supplementary models of time use and gender gaps among couples. Third, we investigate gender differences in subjective wellbeing by telecommuting status during work and across diary day. Finally, we compare the CIS sample to data from the ATUS, and we provide descriptive statistics on the subjective well-being of telecommuters.

Across a series of figures, we present estimates of parents' time use - both overall and by mothers' work hours - and work contexts. We present both bivariate statistics and estimates adjusted for demographics, work characteristics, and diary day time use. The adjusted estimates are calculated using fully-interacted OLS models. For time use and work context, we present estimates from three models. Model 1 includes no controls, and so establishes a descriptive baseline. Model 2 includes controls that are plausibly exogenous to the gendered process of household bargaining. We include survey year, age and its quadratic, race, ethnicity, college education, and marital status. Model 3 adds family and work controls. These characteristics may explain work locational differences in time use gender gaps, but also may themselves be influenced by workers' and households' telecommuting decisions. In this model, we add controls

for the number and age of household children, spouse or partners' fulltime employment, detailed occupation, earnings, usual hours worked, and diary day hours worked.

Models estimated with the full sample account for the differences in characteristics of mothers and fathers by telecommuting status that we can observe in the ATUS. Results may be confounded by unobserved mechanisms that differentially select mothers and fathers into telecommuting and influence their time use, such as differential preferences for household labor or childcare. Because the full models control for diary day work hours, they may also underestimate the effects of telecommuting on time use and work contexts to the extent that workers reduce their formal work hours in response to increasing housework or care work. We therefore use telecommuting questions from the 2017 and 2018 ATUS leave supplements to gain better leverage on causal estimates for time use and work context. The leave supplement reports whether or not respondents ever telecommute for an entire day, and if so, how frequently they telecommute. This provides us with a sample of ever-telecommuters who vary in their diary day work location. We exclude parents who telecommute five days a week, as they could not plausibly be observed in the workplace. For ATUS respondents surveyed Monday to Friday, the day of the week on which the diary is administered is random. Whether or not we observe ever-telecommuters in the workplace or telecommuting depends on how frequently they telecommute, which we control for, but we assume that assignment into these categories is otherwise random. We find only spousal employment differences in these samples (T tests are reported in Appendix Table A17), and we include this as a control in our models. Due to smaller samples, we pool mothers and fathers and include gender interactions, and we do not estimate models of time use by gender and mothers' work hours.

In our third step of the analysis, we investigate gender differences in subjective wellbeing by telecommuting status during work and across diary day. For subjective wellbeing outcomes, we estimate simpler models because the sample size is much smaller. For these outcomes we include a bivariate Model 1, as above, and a second model that contains the same exogenous controls as for Model 2, above, along with a control for diary day work hours. These models are estimated at the activity level, with activities nested in respondents. We therefore cluster standard errors at the individual level.

In our final step, we compare the CIS sample to data from the ATUS, and we provide descriptive statistics on the subjective well-being of telecommuters compared to those in the workplace and the recently unemployed. COVID-19 has precipitated widespread job losses, which have been highest in female-dominated service-sector occupations (Alon et al., 2020). We include unemployed respondents as a category in our CIS comparisons because employed non-telecommuting respondents, particularly women, are a highly selective sample of workers.

## **Results**

### ***Gender and Telecommuting Prior to COVID***

#### *Work and Demographic Characteristics*

Table 1 reports the demographic characteristics, work characteristics, and time use patterns of mothers and fathers in our full ATUS sample by whether they worked exclusively in the workplace (“workplace”), part-day at home (“mixed”), or exclusively at home (“home”) on the diary day. Telecommuters working exclusively at home on the diary day are more likely to work part time. Whether working part-day or all day at home, telecommuters have higher socioeconomic status (SES) on average than those working exclusively in the workplace, as

indicated by higher earnings, higher shares in professional and management jobs, and higher education. Telecommuters also tend to be slightly older and Whiter, and are more likely to work longer hours, be married or cohabiting, and have a full-time working spouse or partner than non-telecommuters.

Gender patterns in demographic and work characteristics are broadly similar across telecommuting categories. Mothers report more part-time work, lower earnings, lower shares in management jobs, and are less likely to be married or cohabiting but more likely to have a full-time working spouse or partner in the household than fathers. Mothers also report comparable or higher shares in professional jobs than fathers. However, mothers report lower levels of college attainment than fathers among those exclusively working from home whereas it is the opposite for parents who work at least part time in the workplace. There are higher shares of black mothers than black fathers across telecommuting categories. Among Hispanics, there are higher shares of fathers working exclusively in the workplace and lower shares of them telecommuting than mothers. There seem to be few differences by gender or telecommuting in number of children or age of youngest child.

[Table 1 About Here]

### *Time Use Patterns*

As shown in Table 1, mothers report fewer work hours than fathers on diary days, across telecommuting statuses. For those who worked exclusively at home, mothers and fathers both work shorter days (399 and 477 minutes, respectively) than others, and the gender gap is larger than those for workers who work at least part time in the workplace. For mixed respondents, workdays are particularly long. Figure 1 plots work time by gender and telecommuting. Panel A presents average diary day work time by gender. Panel B plots estimates of the gender gap in

work time by work location. The unadjusted gender gap in work time is 77 minutes for telecommuters, 60 minutes for parents in the workplace, and 48 minutes for parents who split their time between both locations. Adjusting for exogenous characteristics does little to change these patterns, but include work and family controls (including typical weekly work hours) both substantially reduces the gender gap in work time, and erases differences by work location.

[Figure 1 About Here]

Panel C shows the timing of work across the diary day by gender and telecommuting. A posited benefit of telecommuting is that it allows workers to schedule their work around other commitments, but we see little evidence of this in Figure 1. Exclusive telecommuters overwhelmingly work during normal work hours, like workers in the workplace. It is true that workers who work both at home and in the workplace are far more likely than other groups to work from home early in the morning and in the evening, but the fact that their hours in the workplace are similar to those of workplace workers suggests that their hours working from home are in addition to rather than substituting for workplace hours. As shown in Table 1, mothers and fathers who split their time between work locations spend, on average, only 23% and 20% of their work time telecommuting, which further suggests that the workplace remains the primary work location for the majority of these workers.

As shown in Table 1, on diary days worked exclusively at home, mothers and fathers both do more housework (102 and 50 minutes, respectively), and the gender gap is larger than those for workers who work at least part time in the workplace. Both mothers and fathers do more childcare (109 and 80 minutes, respectively) and spend more time with children (292 and 217 minutes, respectively) when they telecommute. The gender gap in childcare is smaller but the gender gap in time with children is larger than those for workers who work at least part time

in the workplace. Both fathers and mothers exclusively telecommuting have more leisure time (183 and 147 minutes, respectively) than those who work at least part time in the workplace. The gender gap in leisure time is larger than those for workers who work at least part time in the workplace. Figure 2 Panel A shows average (unadjusted) time use for mothers and fathers.

[Figure 2 About Here]

Figure 2 Panel B plots the gender gap in each outcome across a series of nested models. The baseline gender gap in housework is 52 minutes for telecommuting parents, which is 17 minutes larger than the gender gap for parents in the workplace. With full controls, the difference declines to 9 minutes, but remains significant ( $p < 0.05$ ). For childcare, baseline estimates suggest there is no difference in the gender gap across work locations, but after adjusting for the full set of covariates we find that telecommuting is associated with a significant 15-minute shrinking of the gender gap. For time spent with children, baseline estimates show that the gender gap is larger by 27 minutes for telecommuters than workers in the workplace. This gap remains when adjusting for exogenous controls, but with full controls the gap shrinks to less than 5 minutes and loses significance. The gender gap in leisure time is larger for telecommuters than workers in the workplace. At baseline, the difference is 10.5 minutes and not significant to  $p < 0.05$ , but with controls the difference grows to 19.3 minutes and is statistically significant.

In supplementary models that assess potential differences across subgroups, we separately estimate models of time use by gender, work location and mothers' work hours for couples. We compare fathers' time use and gender gaps for couples in which the mother works full time (35+ hours per week) or part time. Only 2.8-6% of fathers work part time, as Table 1 shows, so we do not examine couples in which the father works part time. For these analyses, we only include married or cohabiting employed respondents in couples in which the father works

full time. All time use and work context models top code dependent variables at the 99<sup>th</sup> percentile to downweight influential outliers. Figure 3 plots the results, providing descriptive data on how partners' time use is interrelated among dual-earning couples. Estimates in Panel A suggest that telecommuting allows fathers to increase their time spent on childcare, relative to fathers in the workplace. Fathers in the workplace with a full-time partner spend an additional 12 minutes on childcare, compared to fathers with a partner who works part time. The equivalent difference for telecommuting fathers is 21 minutes. Fathers who work in the workplace do more housework when their partners work full time than when their partners work part time, but the same is not true for telecommuting fathers, whose time spent on housework does not differ by partners' work status. Fathers' leisure time does not discernably vary by partners' work hours.

[Figure 3 About Here]

Panel B plots the gender gap in time use by work locations and mothers' work arrangements. Regardless of whether the mother is working full- or part-time, gender gaps in housework are larger among telecommuters. The magnitudes are similar across mothers' work arrangements (26 and 21 minutes larger in gender gap when mothers work part time and full time, respectively). However, gender gaps in childcare are smaller among telecommuters when mom works full time. The overall gender gap in childcare is 20 minutes smaller among telecommuters than that among those in the workplace, whereas when mothers work part time, it is 7 minutes larger among telecommuters. Time with children and leisure gaps do not differ by telecommuting status, irrespective of mothers' work hours.

To summarize, telecommuting parents spend more time on household labor than their counterparts in the workplace, but the patterns are gendered. Telecommuting fathers do more childcare compared to their non-telecommuting counterparts, adjusting for demographic and

work characteristics, and this is particularly the case when their partners work full time. However, unlike telecommuting mothers, telecommuting fathers do little extra housework compared to their non-telecommuting counterparts, and gender gaps in housework are larger for telecommuters than for parents in the workplace, across all model specifications. Perhaps in consequence, gender gaps in leisure time are larger for most telecommuters, adjusting for demographic and work characteristics, although we do not see this in subgroup analysis. We did not find significant differences in gender gaps in time spent with children or formal work hours by telecommuting status.

### *Work Contexts*

Telecommuting radically alters the contexts in which parents work, which may in turn have gendered consequences. As shown in Table 1, the number of work spells and work time with child present are greater among parents who at least work part time at home than those who exclusively work in the workplace. In particular, children are present for, on average, 18 minutes of fathers' and 31 minutes of mothers' work time when exclusively working at home. Figure 4 Panel A plots adjusted means and predicted gender gaps in work fragmentation by telecommuting status. Telecommuting mothers and fathers experience more distinct work spells on the diary day compared to their counterparts working exclusively in the workplace, after adjusting for exogenous characteristics. However, there are no gender differences in the fragmentation of work across telecommuting categories after adjusting for diary day work hours and other controls.

[Figure 4 About Here]

Panel B presents the results for the presence of a child during work. Children are present during work far more often for telecommuters than those exclusively working in the workplace.

They are present for, on average, 18 minutes of fathers' and 31 minutes of mothers' work time when exclusively working at home, as shown in Table 1. Controlling for demographics, family and work characteristics, and diary day work hours, the gender gap in child presence during work time is 10 minutes for exclusive telecommuters, 5 minutes for "mixed" telecommuters, and indistinguishable from zero for parents in the workplace.

#### *Diary Day Time Use and Work Contexts Among Telecommuters*

Table 2 reports plausibly causal estimates for time spent on housework, childcare, time spent with children, leisure time, work time, and work time with children among ever-telecommuters. These models take advantage of a series of questions on telecommuting in the 2017-2018 leave supplements, along with the randomization of diary day, to compare gender gaps in time use among telecommuters observed working at home and in the workplace.

The increase in time spent on housework associated with working exclusively from home is 49 minutes larger for mothers than fathers. The increase in housework associated with working partially from home is 29 minutes larger for mothers than fathers. Both of these results are significant ( $p < 0.05$ ). However, compared to parents on days in the workplace, the gender gap in childcare declines by 47 minutes and the gender gap in time spent with children declines by 33 minutes for parents on days telecommuting, although neither difference is significant at the 5% level. The penalty in leisure time is larger for female telecommuters than male telecommuters, but the estimate is extremely imprecise. Work time falls by 12 minutes more for men than women when they exclusively work from home, but this difference is both small and very imprecise. In contrast, while fathers who split their time between the workplace and home on diary day work 61 minutes longer than fathers who work exclusively in the workplace, the work time of mothers who split their time does not differ from that of mothers in the workplace. The

increase in work time spent with children associated with telecommuting is 33 minutes more for mothers than fathers, and is significant at the 5% level.

The estimates from the telecommuters-only sample are generally in the same direction as those from our broader sample, but they are larger in magnitude. The full model from our broad sample, for example, estimates that the increase in the gender housework gap associated with exclusive telecommuting is 9 minutes, while in the telecommuter-only sample it is 48 minutes. The differences in magnitude between these estimates is largely the result of differences in the kinds of telecommuters in the two samples. The broad sample includes all telecommuters we observe working from home on diary day, but for our telecommuter-only sample, we only include respondents who have ever telecommuted for a full day. This is because ATUS only records frequency of telecommuting for these respondents, and telecommuting on diary day is only plausibly random after adjusting for how often parents telecommute. Appendix Table A18 replicates the models reported in Table 2 including all ever-telecommuters. These models produce estimates of gender gaps in time use substantially more similar to estimates from the main sample. Further investigations, discussed in the online appendix, rule out two further potential explanations: SES differences between the samples and the possibility that mothers and fathers differentially distribute their time use across days worked from home and in the workplace.

### *Subjective Wellbeing*

We examine subjective wellbeing both during work activities and across diary day, using the ATUS wellbeing modules from 2010, 2012 and 2013. Unadjusted wellbeing estimates by

gender and telecommuting are shown in Table 3. Because these analyses rely on a smaller sample than the main ATUS analyses, we divide parents only into telecommuters (exclusive or mixed) and non-telecommuters. In general, telecommuting parents are more stressed and tired, and less happy than non-telecommuters during work. However, it is not necessarily the case when it comes to diary day average affect.

[Table 3 About Here]

Figure 5 plots adjusted mean wellbeing by gender and work location, alongside predicted gender gaps in wellbeing. Due to sample size, we include identical controls to the exogenous models above, along with diary day work time. Neither men's nor women's wellbeing varies substantially by location during work activities. Across the diary day, fathers who telecommute are less tired than fathers in the workplace, but the same is not the case for mothers. Mothers are more tired and more stressed than fathers in the workplace, although locational differences in gender gaps in wellbeing are not statistically significant, either during work or across diary day. Thus, if telecommuting increases parents' flexibility in juggling work and family responsibilities, we find little evidence that this improves wellbeing.

[Figure 5 About Here]

### ***Gender and Telecommuting During COVID-19***

As shown in our analysis so far, before the COVID-19 crisis, gender gaps in some aspects, such as time spent on housework, are larger among telecommuters compared to non-telecommuters. But in other aspects, such as time spent on childcare, we find some evidence that gender gaps are smaller among telecommuters. No significant differences in gender gap are found in subjective wellbeing by work location. In response to COVID-19, 40% of parents who were employed in March 2020 were telecommuting in April and May, and this figure is 55% for

currently employed parents.<sup>1</sup> We use the information we have on telecommuting during COVID-19 to assess how the crisis is shaping gender inequality—and to shed some light on what we might expect for the future. We first examine the characteristics of COVID-19 telecommuters to telecommuters in the ATUS sample. Second, we examine subjective wellbeing gaps of mothers and fathers telecommuting in the current crisis.

Results comparing characteristics of telecommuters from the ATUS and the CIS samples are shown in Table 4. Telecommuting mothers in these two samples are similar on the characteristics most proximate for the domestic division of labor: hours worked, working part time, spousal status, and the age and number of children. They are also similar in terms of SES: the majority of both groups are college educated. Although the proportion of respondents in professional jobs is higher for the CIS sample, the proportions of respondents in high status (i.e. professional and management) jobs are very similar across samples. The largest differences between the samples are in racial composition, with telecommuters in the CIS sample far more racially and ethnically diverse than those in the ATUS sample.

[Table 4 About Here]

For fathers, there are greater differences between the samples. While similar in terms of educational attainments, the percentage of telecommuting men with professional or management jobs is higher in the ATUS sample. Telecommuting men in the ATUS also work longer hours and have fewer and older children than their CIS counterparts. As it is for women, the CIS sample is much more racially diverse. Few differences among telecommuting men are found in the proportion working part time and marital status in these two samples.

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<sup>1</sup> Figure calculated using COVID-Impact Sample described above.

We can gain further insight into the dynamics of gender inequalities during COVID-induced telecommuting by examining patterns of subjective wellbeing in the CIS sample, which we plot in Figure 6. It is striking to observe the very negative effects of unemployment on subjective wellbeing for both males and females. Over one third of unemployed workers experienced feeling hopeless in the week prior to interview for example, and both mothers and fathers experience the highest rates of all kinds of negative affect when unemployed. While men more frequently experience negative affect than women when unemployed, women more frequently experience negative affect while working, across work locations.

For all outcomes except hopelessness, significantly more telecommuting mothers than fathers report negative affect in the prior week. By contrast, for unemployed respondents and respondents in the workplace, gender differences are mostly not statistically distinguishable from zero. Estimated gender gaps are consistently larger among telecommuters than workers in the workplace, but differences by work location are not statistically significant at the 5% level. Thus, while locational differences in gender gaps in wellbeing are not significantly different from zero, among the 55% of employed parents who now telecommute, mothers report significantly lower wellbeing than fathers.

[Figure 6 About Here]

## **Conclusion**

Telecommuting could theoretically either reduce gender disparities by giving women greater control over their schedules and giving men more time to invest in housework and childcare, or increase gender disparities, by removing the barriers between work and competing time demands that unequally fall on women. In support of reducing gender disparities at home, we find that telecommuting increases time spent on childcare for both fathers and mothers versus

working in the workplace, and increases fathers' childcare time more. When mothers work full time, in particular, telecommuting fathers spend more time on childcare. However, in support of exacerbating gender disparities, we also find that telecommuting mothers do relatively more housework than telecommuting fathers and are more likely to be working with a child present than fathers, which may adversely affect mothers' productivity. The gender gaps in housework and work time with children are greater among telecommuters than workers in the workplace. These results hold after controlling for demographics, work hours, occupation, employment status, and SES, and in a sample of ever telecommuters for whom diary day telecommuting is close to random. During COVID, telecommuting mothers consistently reported more anxiety, loneliness, and depressed feelings than telecommuting fathers, although locational differences missed statistical significance in relatively small samples. Overall, we find that parents' response to telecommuting is gendered, in ways that both exacerbate and ameliorate existing gender inequalities in formal work and household labor.

Many parents find caring for their children meaningful, but the same is less often true for housework (Musick et al., 2016). Time spent doing housework could be spent on other activities, such as formal work or leisure, and considering the opportunity cost of housework is one way to quantify the consequences of the increased gender gap in housework associated with telecommuting. Using a simple regression of hours worked on housework to estimate these costs, it suggests that each additional hour of housework is associated with a reduction of 0.65 hours worked, and median hourly earnings for mothers who telecommute in our sample is \$24.03. Thus, for our ever-telecommuting mothers, the additional 49 minutes of housework mothers do while telecommuting, compared to fathers, is associated with \$12.68 in lost daily earnings. For mothers who telecommute one day a week, this translates to \$660 in annual lost earnings. For

mothers who telecommute four days a week, the equivalent figure is \$2638. Even with the more modest increase in the gender housework gap of 9 minutes we estimate with our full sample, the annual opportunity cost is still substantial. For mothers who telecommute one day a week, the annual opportunity cost is \$125 and for mothers telecommuting four days a week, the figure is \$500.<sup>2</sup> There are also likely productivity losses associated with working with a child present, but this is harder to quantify.

Our study has several limitations. First, while we examine gender differences in subjective wellbeing for telecommuting parents during COVID-19, data limitations prevent us from examining time use and work context for COVID-19 telecommuters. If parents telecommuting during COVID differ substantially from those telecommuting previously, time use patterns could differ. Second, because ATUS records one diary per household, we are not able to examine the dynamics of dual-telecommuting households, which COVID-19 has made relatively common. Third, our causal estimates are for a sample of regular telecommuters and so may not hold for occasional telecommuters, and rely on the assumption that observing telecommuting among telecommuters is randomized after adjusting for telecommuting frequency. We show that our samples of diary-day telecommuters and non-telecommuters for these analyses are extremely similar, which is consistent with randomization, but we can only establish similarity based on observed characteristics. Finally, our study provides only limited insight into *why* telecommuting leads to gender disparities in time use and wellbeing. Further

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<sup>2</sup> The equation for the daily opportunity cost is Gender gap x Reduced work hours associated with increased housework x Median earnings per minute. So, for the ever-telecommuting estimate:  $48.73 \times 0.65 \times (24.03/60)$ . Note that these figures are conservative compared to those produced by the standard technique used to calculate opportunity costs in economics (Chari, Engberg, Ray, & Mehrotra, 2015; Van den Berg et al., 2006), which assumes a counterfactual in which 100% of time spent doing an activity would be replaced by formal work.

work on household bargaining dynamics and work characteristics could illuminate these questions.

Despite these limitations, our results suggest that the unprecedented increase in telecommuting in response to COVID-19 has the potential to exacerbate gender inequalities in the formal labor market and the domestic division of labor, particularly when daycares, childcare facilities, and schools are facing extended closures, increasing the already heavy burden of the pandemic on households (Collins, Landivar, Ruppner, & Scarborough, 2020). In addition, the social distancing measures have a particularly substantial impact on sectors with disproportional female shares (Alon et al., 2020), and women have been more likely to lose their jobs than men during the COVID-19 crisis (Adams-Prassl, Boneva, Golin, & Rauh, 2020). For those who remain employed, we find suggestive evidence that mothers telecommuting during the COVID-19 crisis are more likely than fathers to report feeling anxious, lonely, or depressed. Recent polls during the pandemic confirm that women's subjective well-being may be more severely impacted than men's. A poll conducted by the Kaiser Family Foundation in March 2020 finds that Hispanics, women, and parents with children under 18 are the most likely groups to report that their life has been disrupted (Hamel et al., 2020). Another poll conducted by Morning Consult in April 2020 shows that 1) around 80% of mothers report spending more time home-schooling children than their spouses, 2) 67% of telecommuting women and 82% of mothers of children aged under 12 report being most responsible for housework, and 3) 64% of telecommuting women and 70% of mothers of children aged under 12 report being most responsible for childcare (Adams-Prassl et al., 2020; Carlson, Petts, & Pepin, 2020; Miller, 2020).

To mitigate potential gender inequality associated with working at home during the pandemic, policymakers and employers could consider increasing support for effective flexible working schedules, healthy work lifestyles, job security, and paid sick leaves for families with children, as do other rich countries outside the U.S. (Gornick & Meyers, 2003). The global pandemic and closing of childcare facilities and schools underscore the urgency of adequately compensating domestic workers, childcare providers, and educators and protecting their health and well-being. Over the long run, addressing workplace inflexibility is a critical task for reducing gender inequality in employment and earnings and supporting families.

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## Tables and Figures

## Tables

Table 1: Parents' Demographic Characteristics and Time Use Patterns, by Telecommuting on Diary Day  
(Means and Proportions, SDs in parentheses)

Characteristics	Workplace		Mixed		Home	
	Fathers	Mothers	Fathers	Mothers	Fathers	Mothers
<i>Work characteristics</i>						
Weekly work hours (mean)	45 (10)	38 (10)	48 (10)	42 (12)	48 (11)	38 (13)
Works part time (%)	3.61	21	2.78	17	6	29
Weekly earnings (\$)	1073 (691)	720 (529)	1592 (781)	1154 (726)	1739 (791)	1068 (786)
Professional (%)	22	34	44	59	45	45
Management jobs (%)	13	8	26	20	30	20
Other (%)	65	58	30	21	25	35
<i>Demographic characteristics</i>						
Age	39 (8)	38 (8)	41 (7)	40 (7)	42 (7)	40 (7)
College degree (%)	36	40	72	80	75	69
Number of children	2.06 (0.94)	1.93 (0.88)	2.06 (0.91)	1.86 (0.8)	1.98 (0.84)	1.96 (0.99)
Age of youngest child	7 (5)	8 (5)	7 (5)	8 (5)	8 (5)	7 (5)
Black (%)	9	15	7	8	4.1	7
Hispanic (%)	22	19	8	9	6	10
Married/cohabiting (%)	91	72	95	83	93	85
Spouse/partner works full time (%)	36	57	38	71	41	73
<i>Time use during diary day</i>						
Formal work (mins)	524 (121)	465 (111)	554 (130)	505 (144)	477 (163)	399 (174)
Formal+domestic work (mins)	606 (128)	606 (119)	645 (126)	659 (135)	598 (160)	606 (162)
Share of workday telecommuting (%)	0 (0)	0 (0)	20 (25)	23 (28)	100 (0)	100 (0)
Housework (mins)	41 (58)	76 (68)	40 (51)	74 (62)	50 (63)	102 (85)
Childcare (mins)	43 (65)	78 (82)	58 (67)	92 (82)	80 (91)	109 (102)
Time with children (mins)	144 (123)	193 (133)	154 (111)	208 (133)	217 (166)	292 (184)
Leisure (mins)	163 (106)	138 (100)	138 (94)	109 (86)	183 (116)	147 (108)
<i>Work contexts on diary day</i>						
Work spells	2.45 (1.03)	2.27 (0.99)	3.43 (1.11)	3.3 (1.05)	2.63 (1.2)	2.51 (1.27)
Work time child present (mins)	0.67 (10)	1.72 (19)	11 (33)	18 (43)	18 (50)	31 (63)
N =	8011	8084	1268	1028	362	426
Share in category (%)	42	42	7	5	1.89	2.22

Data source: American Time Use Survey 2003-2018 waves. Note: Sample is limited to 21-60 year old workers in employer jobs, working at least two hours on diary day, and surveyed Monday to Friday. All analyses are weighted.

Table 2: OLS Models of Parents' Time Use and Telecommuting on the Diary Day, among Parents who Ever Telecommute

	Housework	Childcare	Time w. child	Leisure	Work time	Work time w. child
Home and Workplace	-5.12 (9.06)	-2.27 (12.19)	37.50 (22.39)	-46.71 ** (15.70)	61.47 ** (20.63)	17.45 * (7.21)
Home only	-0.85 (13.34)	66.94 ** (17.95)	166.83 ** (32.98)	36.35 (23.13)	-65.66 * (30.39)	21.02 * (10.61)
Female	7.06 (8.41)	42.98 ** (11.31)	60.50 ** (20.78)	-29.45 * (14.57)	-3.88 (19.14)	-1.67 (6.69)
Female x Home and Workplace	29.01 * (13.65)	-0.14 (18.37)	5.84 (33.75)	43.39 (23.67)	-62.42 * (31.09)	15.62 (10.86)
Female x Home	48.73 * (19.97)	-46.60 (26.86)	-33.22 (49.36)	-12.03 (34.61)	11.77 (45.48)	32.92 * (15.88)
Spouse not working full time	-18.86 (11.46)	31.10 * (15.42)	85.80 ** (28.33)	0.76 (19.87)	3.27 (26.10)	4.41 (9.12)
Spouse works full time	-1.33 (10.35)	45.52 ** (13.92)	84.02 ** (25.58)	-13.98 (17.94)	-10.11 (23.57)	9.48 (8.23)
<i>Frequency telecommuting: (ref. = less than fortnightly)</i>						
Fortnightly	-6.51 (8.64)	-26.10 * (11.62)	2.71 (21.35)	11.50 (14.97)	34.25 (19.68)	13.75 * (6.87)
At least weekly	0.69 (9.90)	-12.99 (13.32)	29.25 (24.48)	-0.38 (17.16)	36.13 (22.55)	-1.19 (7.88)
1-2 days a week	7.69 (8.63)	-28.52 * (11.62)	-29.18 (21.34)	28.99 (14.97)	14.63 (19.66)	4.40 (6.87)
3-4 days a week	-8.86 (10.99)	-24.03 (14.78)	-14.80 (27.16)	5.37 (19.04)	33.10 (25.02)	-9.79 (8.74)
N	339	339	339	339	339	339
R2	0.12	0.15	0.17	0.08	0.08	0.13

\*\* = p.<0.01, \* = p.<0.05.

Table 3: Parents' Subjective Well-being in Work Activities and across Diary Day, by Telecommuting on Diary Day (Means and SDs)

	Workplace		Home	
	Fathers	Mothers	Fathers	Mothers
<b>In Work Affect</b>				
Stress	2.17 (1.77)	2.52 (1.87)	2.54 (1.63)	2.73 (1.79)
Happiness	3.88 (1.53)	4.11 (1.49)	3.52 (1.33)	3.75 (1.48)
Tiredness	2.33 (1.8)	2.64 (1.89)	2.27 (1.84)	2.94 (1.99)
<b>Diary Day Average Affect</b>				
Stress	1.59 (1.55)	1.86 (1.67)	1.8 (1.53)	1.84 (1.6)
Happiness	4.27 (1.36)	4.34 (1.31)	4.17 (1.31)	4.28 (1.37)
Tiredness	2.4 (1.62)	2.76 (1.74)	1.99 (1.48)	2.65 (1.73)
N (work activities):	884	761	115	76
N (across diary day):	2195	2160	370	352

Data source: American Time Use Survey Well-being Module 2010, 2012, and 2013 waves. Diary day averages are calculated for exclusive telecommuters and workers working exclusively in the workplace on diary day. Analyses are weighted

Table 4: Comparing Telecommuters During and Prior to COVID-19

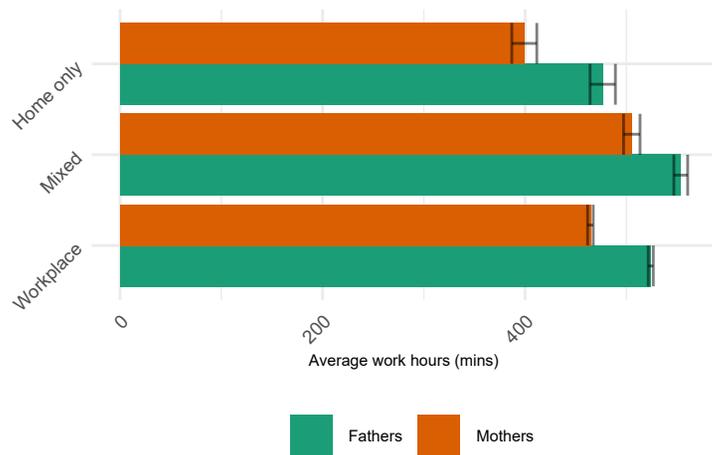
	Fathers		Mothers	
	CIS	ATUS	CIS	ATUS
Weekly work hours (mean)	42 (9)	47 (10)	36 (12)	38 (13)
Works part time (%)	0.05	0.06	0.28	0.28
Weekly earnings (\$)	–	1812 (763)	–	1079 (804)
Professional (%)	0.55	0.45	0.55	0.44
Management jobs (%)	0.14	0.32	0.1	0.23
Other (%)	0.31	0.24	0.35	0.34
Age	40 (7)	43 (6)	39 (7)	40 (7)
College degree (%)	0.76	0.77	0.61	0.68
Number of children	2.64 (1.78)	2 (0.85)	2.22 (1.46)	1.97 (0.99)
Age of youngest child	6 (4.49)	8 (5)	8 (4.18)	8 (4.98)
Black (%)	0.08	0.05	0.18	0.07
White (%)	0.55	0.8	0.59	0.73
Hispanic (%)	0.16	0.06	0.14	0.1
Married/cohabiting (%)	0.92	0.92	0.83	0.85
Spouse/partner works full time (%)	–	0.39	–	0.74
N =	177	315	197	363

Note: CIS (COVID Impact Survey) sample includes respondents who worked from home in the past week in the COVID Impact Study. Hours worked for these respondents indicate usual hours worked in March.

## Figures

# 1. Diary Day Work Time by Work Location and Temporality

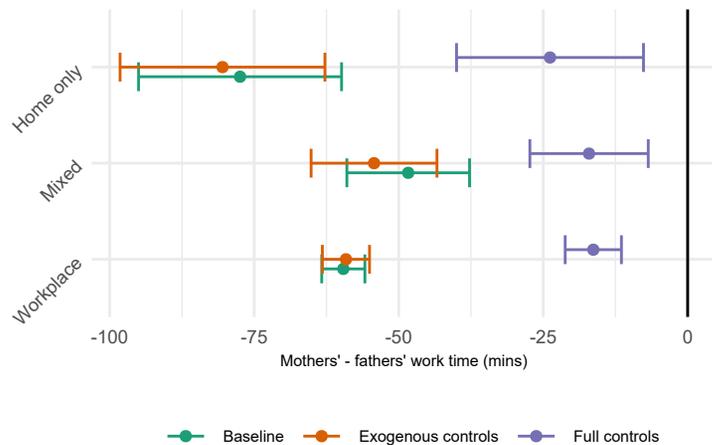
Panel A. Average Work Time



Panel C. The Timing of Work Hours

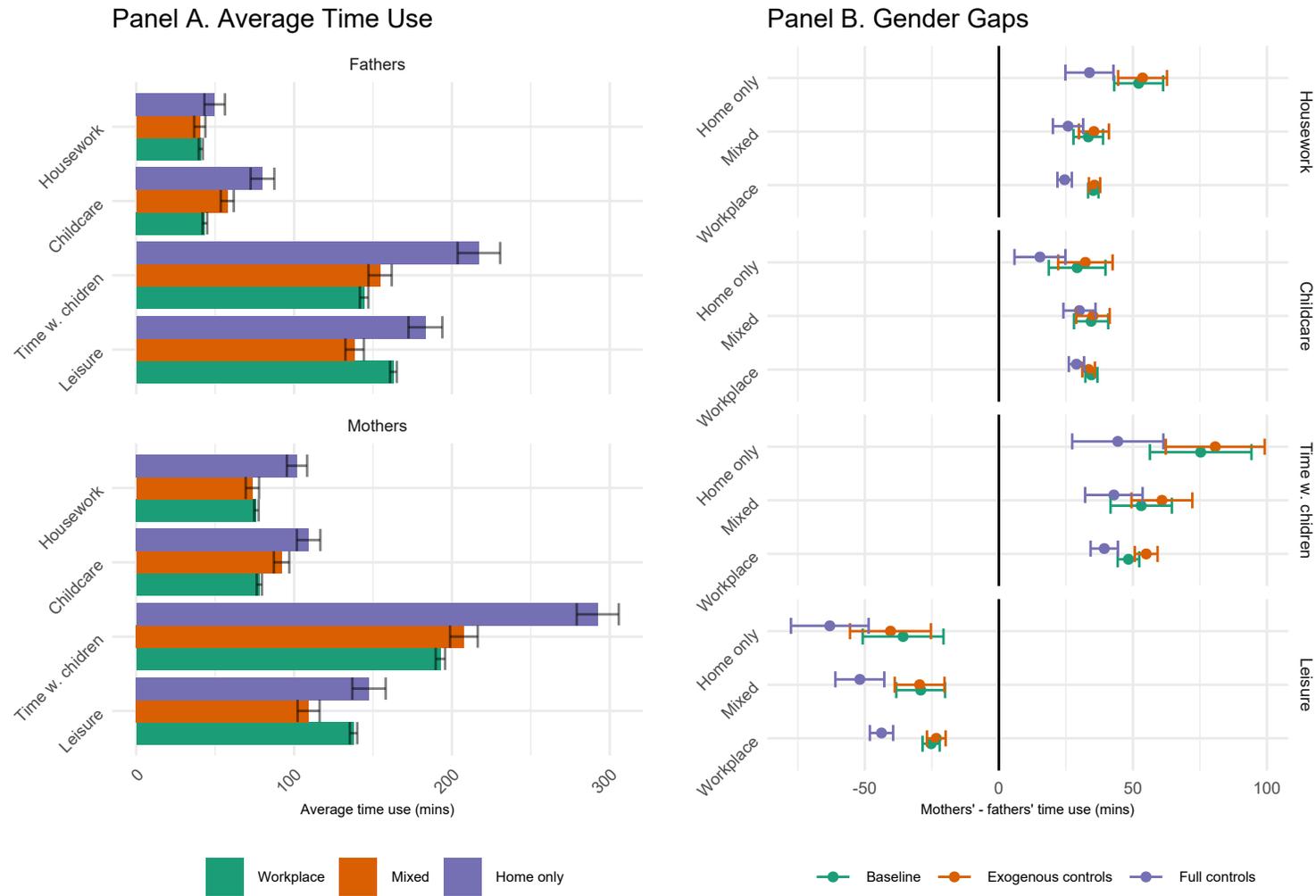


Panel B. Gender Gaps



Data: American Time Use Survey 2003-2018. Full models reported in Appendix Table A5.

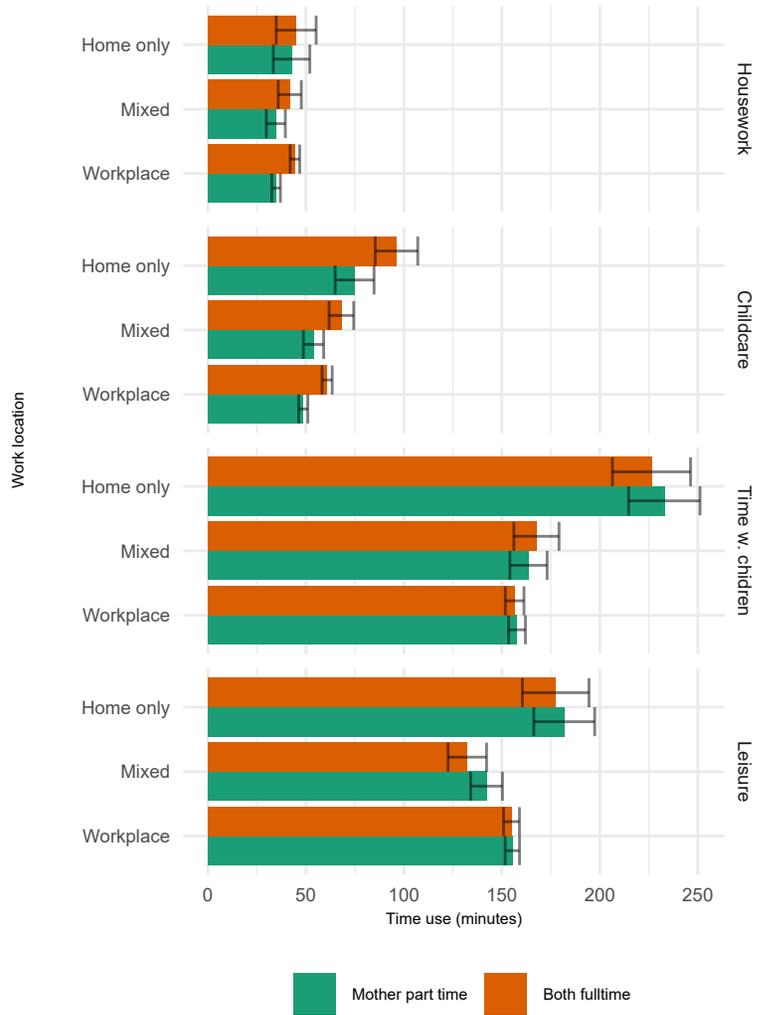
## 2. Time Use by Gender and Work Location



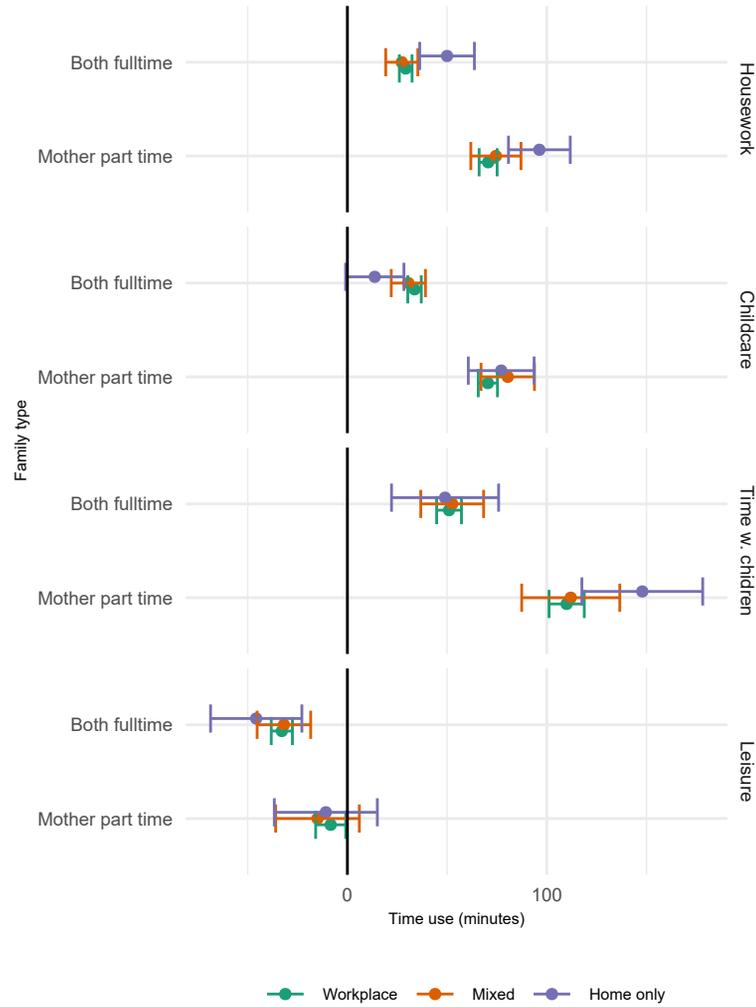
Data = American Time Use Survey 2003-2018. Average time use estimates are (unadjusted) descriptive means. All estimates are weighted. Appendix Tables A1 - A4 report full models.

### 3. Time Use by Work Location and Mothers' Work Hours

Panel A. Fathers' Time Use

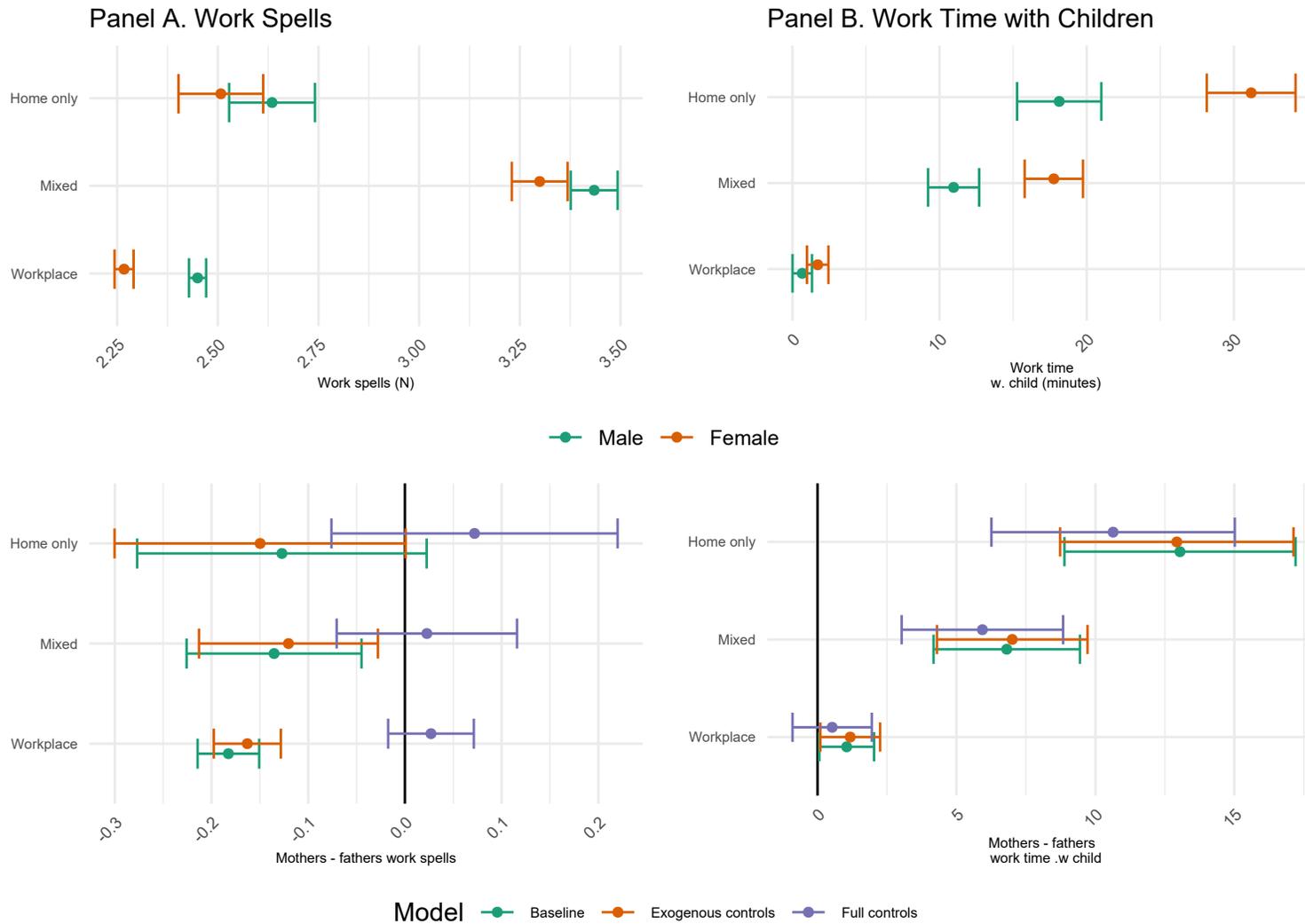


Panel B. Gender Gaps in Time Use



Data = American Time Use Survey 2003-2018. Estimates exclude respondents without a spouse or partner. Appendix Table A8 report full models.

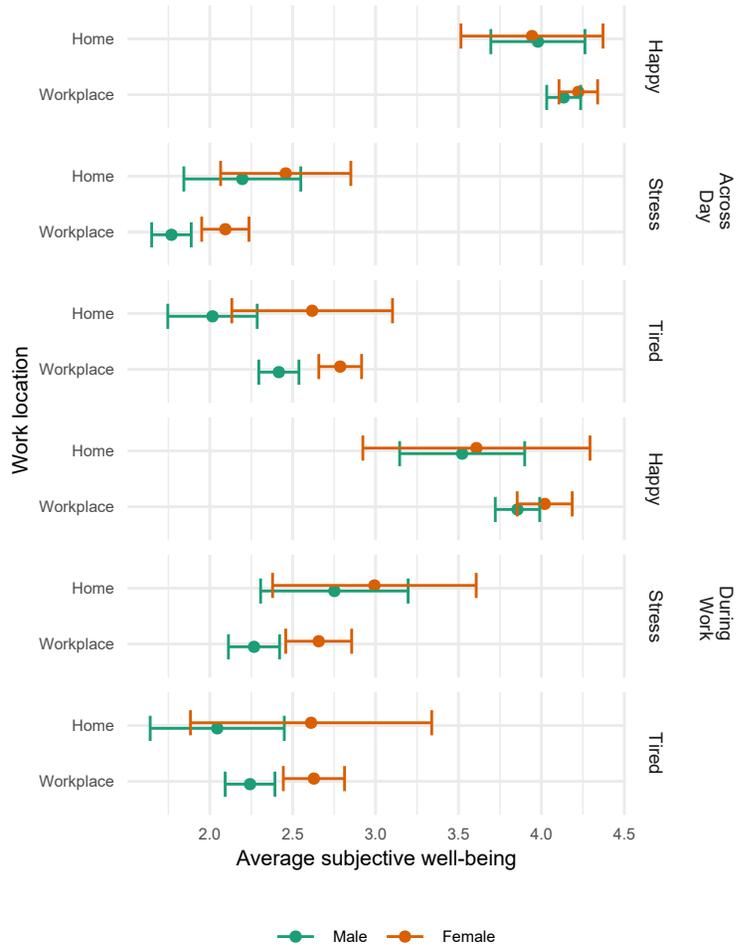
## 4. Work Context by Gender and Work Location



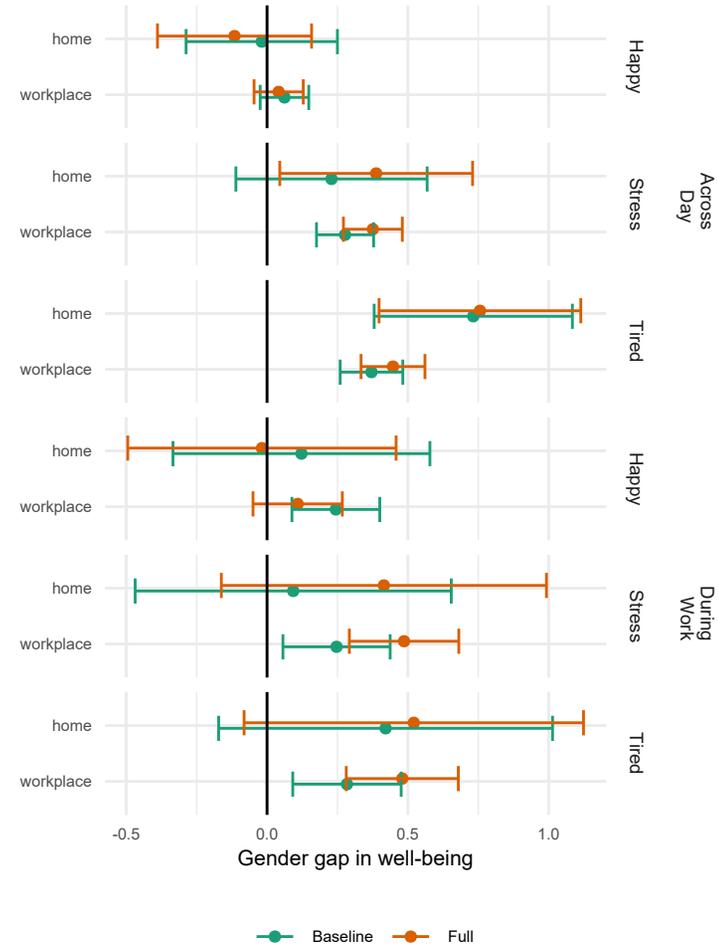
Data = American Time Use Survey 2003-2018. Average work context estimates are (unadjusted) descriptive means. Appendix Tables A6 - A7 report full models.

## 5. Subjective Well-being During Work and Across Day by Gender and Work Location

Panel A. Average Well-being



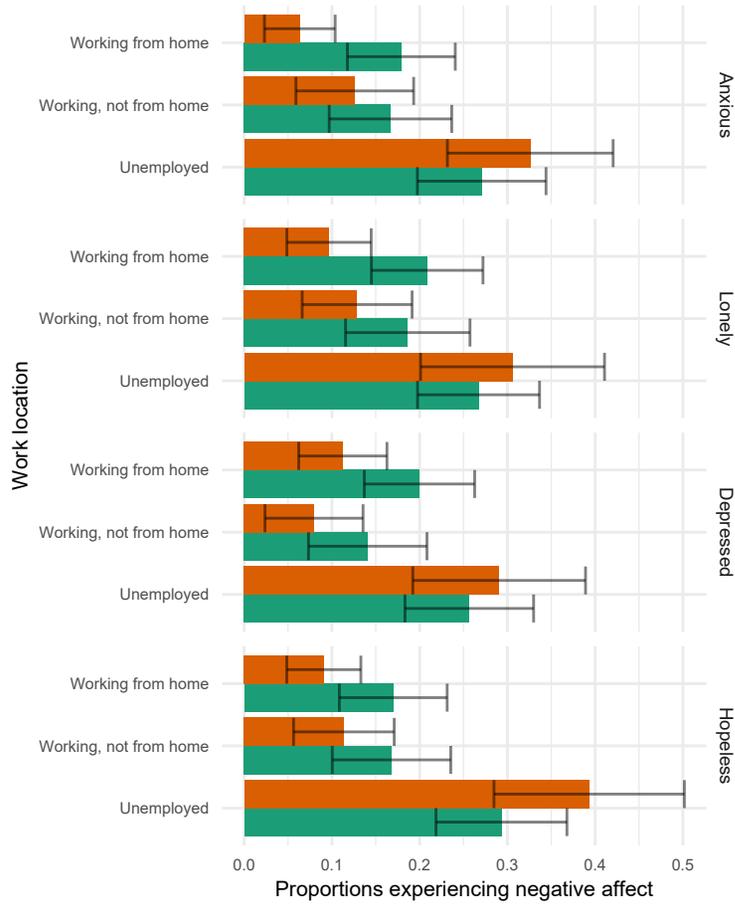
Panel B. Gender Gaps



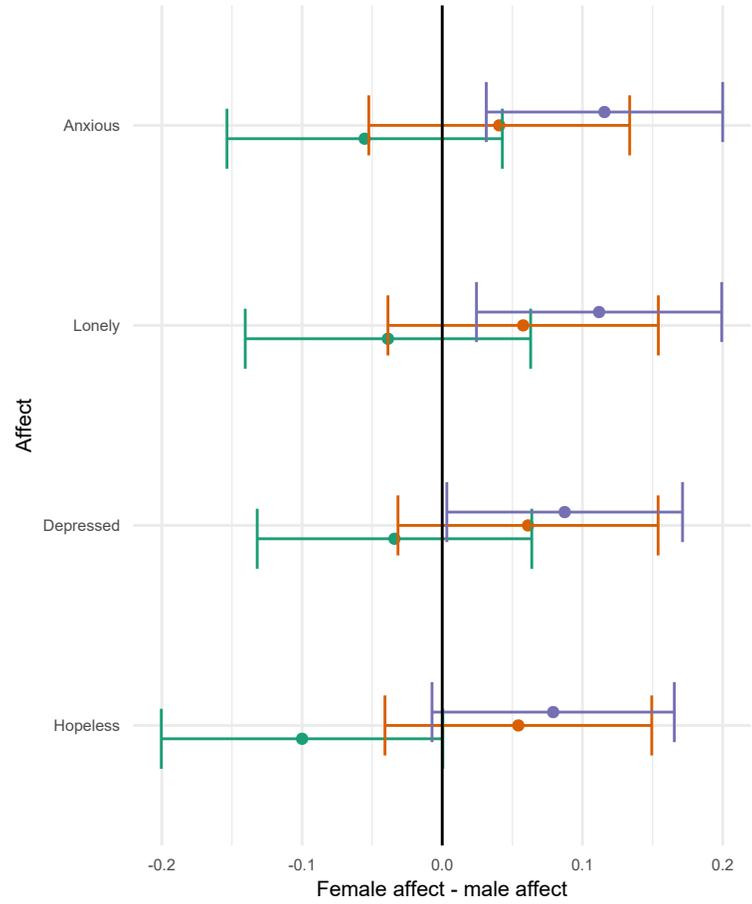
Data = American Time Use Survey Wellbeing Supplement 2010, 2012, 2013. Average subjective well-being estimates are (unadjusted) descriptive means. Appendix Tables A19 - A24 report full models.

## 6. Subjective Well-being During COVID-19 by Gender and Work Location

Panel A. Proportions Experiencing Affect



Panel B. Gender Gaps



Female Male

Unemployed Working, not from home Working from home

Data: COVID Impact Survey. Estimates are unadjusted weighted means.