

DISCUSSION PAPER SERIES

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ISSN: 2365-9793

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ABSTRACT

The Gendered Division of Paid and Domestic Work under Lockdown¹

COVID-19 has uprooted many aspects of parents' daily routines, from their jobs to their childcare arrangements. In this paper, we provide a novel description of how parents in England living in two-parent opposite-gender families are spending their time under lockdown. We find that mothers' paid work has taken a larger hit than that of fathers', on both the extensive and intensive margins. We find that mothers are spending substantially longer in childcare and housework than their partners and that they are spending a larger fraction of their paid work hours having to juggle work and childcare. Gender differences in the allocation of domestic work cannot be straightforwardly explained by gender differences in employment rates or earnings. Very large gender asymmetries emerge when one partner has stopped working for pay during the crisis: mothers who have stopped working for pay do far more domestic work than fathers in the equivalent situation do.

JEL Classification: J21, J22, J24, J33, J63

Keywords: COVID-19, gender, childcare, Coronavirus

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¹ The authors are grateful to the Nuffield Foundation for funding this work (grant EDO/FR- 000022584). The Nuffield Foundation is an independent charitable trust with a mission to advance educational opportunity and social well-being. It funds research that informs social policy, primarily in Education, Welfare and Justice. It also provides opportunities for young people to develop skills and confidence in science and research. The Foundation is the founder and co-funder of the Nuffield Council on Bioethics, the Nuffield Family Justice Observatory and the Ada Lovelace Institute. Almudena Sevilla thanks the European Research Council for funding her time through the PARENTHOME project. Co-funding from the ESRC-funded Centre for the Microeconomic Analysis of Public Policy (ES/M010147/1) is gratefully acknowledged by IFS researchers. The authors are grateful for extremely useful comments from Paul Johnson and Carl Emmerson, and for meticulous copy-editing by Judith Payne. The analysis in this paper was previously published as an IFS briefing note: <https://www.ifs.org.uk/publications/14860>.

1. Introduction

The COVID-19 crisis has caused drastic changes to the work and domestic lives of many families around the world. In England, millions of adults have lost work either temporarily or permanently, and many more are predicted to follow. Others are newly working from home, while key workers are experiencing increased demand for work outside the home that carries high health risks. Parents are facing especially challenging circumstances as schools and childcare facilities closed down and they were left with the full responsibility of caring for and educating their children from home.

In the early days of the crisis many hypothesised that COVID-19's effects on work, both paid and domestic, may differ starkly by gender in ways that earlier economic downturns did not (Alon et al. 2020, Hupkau and Petrongolo 2020). However, the direction of these effects is still ambiguous. For instance, back in February the locked-down sectors of the economy disproportionately employed women, putting their jobs at particularly high risk (Joyce and Xu 2020). On the other hand, women were also more likely than men to be key workers or to work in occupations that can be done from home, two traits that contribute to keeping their jobs safe (Blundell et al. 2020). Among parents, mothers are traditionally the main providers of childcare and accumulate a disproportionate amount of housework (Gimenez-Nadal and Sevilla, 2012). It seems natural to assume that they will shoulder most of the additional domestic responsibilities created by the pandemic crisis. But if fathers do take on some of the additional domestic responsibilities, even if not to the same extent as mothers, it may help accelerate changes in norms and attitudes towards more balanced gender roles.

This paper is one of the first to shed light on these effects. We use newly collected data to describe, during the initial stages of COVID-19, how the crisis is affecting mothers and fathers in two-parent opposite-gender families. We describe how the labour market outcomes of mothers and fathers are responding to the crisis as well as how parents are dividing their time between childcare, housework and paid work during the lockdown. Where possible, we use the 2014/15 UK Time Use Survey to provide comparable pre-crisis estimates. We go on to examine gender asymmetries in responses to the crisis, using the shock to examine whether gender gaps in the allocation of domestic and paid work responsibilities can be explained by comparative advantage in the labour market. To investigate this hypothesis we study heterogeneity in the division of household responsibilities by both partners' labour-market circumstances, both in terms of the relative earnings of partners prior to the crisis and in terms of shocks related to COVID-19.²

We find that hours of paid work have fallen dramatically during the lockdown period for both mothers and fathers. The average parent in our sample (including those not working for pay) is now working for pay during just three hours a day; in 2014/15 the comparable figure was 6 ½ hours. However, mothers' paid work has shrunk proportionally more than fathers', both in terms of working status and hours of work among those actively in work. In 2014/15, mothers were in paid work at 80% of the rate of fathers; the comparable figure has now dropped to 70%. Mothers in paid work used to work an average of 73% of the hours that fathers worked; this has fallen to 68%. Moreover, the quality of time at work matters for productivity and learning, which in turn may impact future earnings and career progression. Multi-tasking and interruptions are key deterrents of productivity during time at work. Indeed recent evidence suggests that task juggling can result in losses of productivity and earnings (Adams-Prassl 2020; Coviello et al. 2014). To gain insight into how the crisis is affecting the productivity of parents at work, we measure how much uninterrupted paid work they do. We find that mothers and fathers doing paid work used to be interrupted during the same proportion of their work hours before the crisis; now mothers are interrupted over 50% more often.

² Single parents face different challenges around how to meet, often on their own, the increased childcare and housework responsibilities the crisis has created. Studying single parents raises specific issues that we do not address in this report.

This adds up to a particularly bleak picture of how mothers' work has held up. Overall, in 2014/15, the average mother (including those who did not work for pay) was doing nearly 60% of the number of uninterrupted work hours that the average father did; now she is doing only 35%. Past research shows that the time women take off when having a child, and the reduction in hours once they return to work, have long-term effects, reducing their future hourly wages (Blundell et al. 2016). There is a risk, therefore, that the differences we find in how the work hours of fathers and mothers are being affected by this crisis will contribute to accentuating gender gaps in career progression and earnings.

The gender differences in paid work during this crisis are counterbalanced by unequal gender responses in domestic responsibilities to the large shock to childcare provision due to school and childcare closures. Mothers are doing a greater share of housework and childcare than fathers are, coming to around 2 hours more per day of each.³ However, these gaps between mothers and fathers time-use are not straightforwardly explained by mothers' lower employment rates or lower earnings. Indeed, gender gaps in time use remain even when comparing mothers and fathers currently working for pay, or mothers and fathers not currently in paid work.

We exploit the variation across couples in terms of asymmetric labour market shocks to check whether the division of domestic work are driven by relative opportunity costs of partners as economic household models would predict (Chiappori 1988; Chiappori 1992; Becker 1965). If specialization in the family is a response to the economic incentives that couples face, then we would expect that fathers assume the primary role at home in couples where the mother is the main earner or where only her job remains active.

We examine whether this is the case in two ways. First, by comparing the division of domestic and paid work in families where either the mother or the father are the primary earners prior to the crisis and both remain in work during lockdown; and second, by looking at the allocation of domestic work between partners when one partner stopped working, depending on the gender of that partner. We find that mothers still do more childcare and the same amount of housework as their partner even when they were the primary earner in the family prior to the crisis. Moreover, mothers who have stopped working for pay during lockdown while their partner continues to work do twice as much childcare and housework as their partner. But in families where the father has stopped working, the parents share childcare and housework equally, while the mother also does an average of 5 hours of paid work a day. We conclude that evidence from this shock does not support the hypothesis that comparative advantage in the labour market explains why mothers do so much more domestic chores than fathers.

While the average gender-disparity in domestic work remains large, we find that fathers' participation in childcare has seen a huge proportional increase from its pre-crisis levels. Whereas, on an average school day in 2014/15, the average father in two-parent opposite-gender households did some childcare during 4 hours of the day, this has doubled under lockdown to 8 hours. To what extent this increase persists as lockdown comes to an end is perhaps the biggest unknown in what the long-run effects of COVID-19 on gender equality in the labour market will be.

Our paper contributes to the recent literature using real-time data to document that women do more childcare and housework than men during the COVID19 pandemic. Adams-Prassl et al. (2020a) asked men and women to report hours spent looking after children and home-schooling during lockdown in the UK. They find that women do approximately an hour and a half more childcare per workday than men, but there is no analysis of the relationship with employment. Sevilla and Smith (forthcoming) directly compare the allocation of childcare within the same household before and after lockdown, and show that women who do a greater share of home childcare pre-COVID-19 are more likely not to be working during COVID-19. Farre and Gonzalez (2020) use a self-selected sample of Spanish households to show that there has been a shift to a more equal distribution of housework (driven mainly by men taking

³ Our results are consistent with what Adams-Prassl et al. 2020a and Sevilla and Smith (2020) found for the UK, and with similar estimates for Spain by Farre and Gonzalez (2020) and for Italy by Del Boca et al. (2020).

responsibility for shopping) and childcare. **Daniela Del Boca, Noemi Oggero, Paola Profeta, Mariacristina Rossi** (2020) use data on a representative sample of 800 Italian working women collected before and during the emergency to compare the number of hours spent at work, on housework and childcare before the emergency (April and July 2019) to the hours spent during the first three months of the emergency (April 2020). They find that most of the additional responsibilities have fallen to women, though childcare activities are shared more equally than housework. Compared to previous studies, we analyse time-use data for each hour slot in the day and find that women are doing childcare during more hours of the day than men (during ten of the hour-long slots compared to eight). We also look at how childcare relates to employment and find that men's childcare is more sensitive to their employment.

The paper proceeds as follows. In the next section, we discuss our survey, sample and methods of analysis. In section 3 we provide descriptives of parents' paid work before moving onto descriptives of timeuse in section 4. In section 5, we examine the extent to which the patterns we find can be straightforwardly explained by gender differences in employment rates and pre-crisis earnings. Section 6 concludes.

2. Sample, Survey and Analysis

Sample

We surveyed 4,915 parents in England who lived with their children between 29 April and 15 May 2020. In particular, to be eligible for inclusion, parents had to be living with (at least one) child in one of eight different school years.⁴ These school years corresponded (roughly) to having a child aged between 4 and 15.

Our sample is limited to opposite-gender two-parent households, of which we have 3,591 in the data. While this group include the majority of parents, this work is not necessarily representative of how parents as a whole are experiencing lockdown. The analysis does not include single parents, who make up 14.8% of families in England.⁵ Single parents are likely to face particular challenges due to even more-exacerbated time pressures (Cattan et al. 2020). Since most single-parent households are headed by women, this is particularly important for how the crisis will affect mothers and fathers differently. Likewise, the analysis does not include households with two parents of the same gender, who typically divide up responsibilities differently from opposite-gender parents (Andresen and Nix 2019). Both groups merit specific and careful analysis.⁶

Survey

Participants were recruited through a well-reputed online survey company and received a small payment in compensation for their time. We ensured that respondents were diverse in terms of their gender, education, region, marital status, work status and the job they did.

The main aim of our survey was to collect detailed information on how families and children spend their time on a term-time weekday. We asked the surveyed parent and their partner to fill in an online time-use diary, telling us what activities they did during each hour of the day. We also asked the surveyed parent to fill in a similar diary about their child's time use (selecting one child at random in multi-child families), and asked who the child was with during each time slot. Finally, we collected information about the types of home learning activities children are doing, what resources have been provided by the school and what resources are available at home for learning.

In order to keep the survey a manageable length for families, we asked about time use in one-hour slots. Since these are wider than the 10-minute intervals used in the most detailed time-use surveys, such as the 2015 UK Time Use Survey, we cannot say precisely how long respondents spent on a particular activity; respondents could report multiple activities during the hour, so the apparent number of hours might overstate how long the respondent spent on the activities in that category. Instead, we comment on the number of one-hour slots during which doing at least some of a particular activity is reported.

⁴ We interviewed parents with children entering Reception next year and those with children in school in Reception and in Years 1, 4, 5, 8, 9 and 10.

⁵ <https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/families/bulletins/familiesandhouseholds/2019>.

⁶ While the size of this data set is sufficient to carry out a detailed analysis of how opposite-gender two-parent households (the majority group) are experiencing the crisis, the size limits our ability to conduct specific analysis of these two important groups that addresses the particular challenges each may be facing. As larger data sets collected during the crisis are released (for example, the Understanding Society panel), more analysis of these groups will be possible.

Analysis

While we comment at points on the ways in which our data appear consistent, or inconsistent, with theoretical ideas and past empirical evidence on household organisation, all analysis we present in this paper is descriptive. We present average time use across mothers and fathers and, at various points, also split by other dimensions of heterogeneity (for example, past relative earnings or which partner experienced job loss during the crisis).

Table 1 presents basic descriptives of the prior economic situation of the families in our sample. To examine the representativeness of our sample across these characteristics, we constructed a sample of respondents from the nationally representative 2019 Labour Force Survey (LFS) who were roughly equivalent to our population of interest: parents with at least one child between the ages of 2 and 15.⁷ Columns 1 and 2 of Table 1 show means for this nationally representative sample and for our sample. We see that our sample systematically contains larger proportions of higher earners and more-educated individuals than does the LFS. Importantly, we also see that our unweighted sample contains a higher proportion of individuals who work in industries that have been locked down during the crisis.

Therefore, so that our analysis is representative of the situation in England as a whole, we reweight our sample by key characteristics to ensure that it better matches the distribution of characteristics observed in the LFS. In particular, we reweight on: family structure, women's education, men's education, prior (pre-pandemic) employment, women's 2019 pre-tax earnings, men's 2019 pre-tax earnings, women's industry (particularly whether they work in an industry where more than 50% of jobs have been locked down), men's industry (ditto), women's occupation (particularly whether working from home is possible), men's occupation (ditto), and geographic region.⁸ To do this, we pool our data with the LFS sample and use regression analysis to calculate appropriate weights. We truncate our weights at the 10th and 90th percentiles to prevent our analysis being overly sensitive to a few observations.

Column 3 of the table shows means for the reweighted sample. We see that the average characteristics of this reweighted sample are now very similar to the nationally representative LFS sample. Reassuringly, the reweighted sample also matches various moments well that we didn't directly reweight on.

Table 1. Means for our survey sample (weighted and unweighted) compared with nationally representative LFS sample

	(1) Comparable LFS sample	(2) Our sample, unweighted	(3) Our sample, reweighted
Characteristics reweighted on			
Women's education			
GCSEs or less	0.367	0.256	0.336
A levels	0.249	0.276	0.256
University degree	0.384	0.469	0.408
Men's education			
GCSEs or less	0.416	0.299	0.377
A levels	0.229	0.238	0.237
University degree	0.354	0.463	0.386

⁷ The LFS only has information on children's ages in groups, meaning that we were not able to select households with children of the exact ages that would make them eligible for our survey.

⁸ The share of jobs in an industry subject to the lockdown and the share of jobs in each occupation that can be done from home are calculated using the methods set out in Costa-Dias et al. (2020)

	(1) Comparable LFS sample	(2) Our sample, unweighted	(3) Our sample, reweighted
Prior employment			
Women's pre-crisis employment	0.745	0.732	0.753
Men's pre-crisis employment	0.935	0.879	0.917
Women's pre-crisis earnings			
£0–£9,999	0.476	0.303	0.448
£10,000–£24,999	0.285	0.422	0.300
£25,000–£39,999	0.151	0.131	0.149
£40,000+	0.089	0.144	0.103
Men's pre-crisis earnings			
£0–£9,999	0.131	0.090	0.142
£10,000–£24,999	0.206	0.330	0.214
£25,000–£39,999	0.301	0.255	0.303
£40,000–£59,999	0.188	0.166	0.186
£60,000+	0.174	0.159	0.154
Pre-crisis industry			
<i>Proportion working in industry where 50%+ of jobs have been locked down</i>			
Women	0.231	0.322	0.260
Men	0.264	0.325	0.286
Pre-crisis occupation			
<i>Proportion working in occupation where home working is possible in 0–15% of jobs</i>			
Women	0.327	0.313	0.322
Men	0.362	0.346	0.355
<i>Proportion working in occupation where home working is possible in 15.1–75% of jobs</i>			
Women	0.237	0.210	0.213
Men	0.192	0.270	0.209
<i>Proportion working in occupation where home working is possible in 75.1–100% of jobs</i>			
Women	0.436	0.477	0.465
Men	0.445	0.385	0.436
Region			
Greater London	0.118	0.174	0.120
South East	0.235	0.152	0.214
South West	0.097	0.103	0.103
West Midlands	0.107	0.112	0.108
North West	0.136	0.143	0.142

	(1) Comparable LFS sample	(2) Our sample, unweighted	(3) Our sample, reweighted
North East	0.061	0.071	0.065
Yorkshire and the Humber	0.113	0.096	0.103
East Midlands	0.092	0.077	0.094
East of England	0.041	0.073	0.049
<i>Characteristics not reweighted on</i>			
Education			
Neither partner university	0.470	0.394	0.467
One partner university	0.265	0.255	0.247
Both partners university	0.265	0.350	0.286
Employment			
Neither partner employed	0.028	0.060	0.039
One partner employed	0.235	0.270	0.259
Both partners employed	0.737	0.670	0.702

3. Parents' paid work under lockdown

We begin by examining some basic descriptives of parents' paid work by gender during the lockdown. COVID-19 has brought an unprecedented disruption to working patterns, changing who is in paid work and where, when and how they are working. Of the parents in our (reweighted) sample who were doing some paid work during February 2020, only 54% were still engaging in paid work at the time of the survey. 13% were no longer working for pay due to having lost their job permanently (through being laid off, being fired or quitting), while another 32% of parents were no longer working for pay due to having been furloughed through the UK government's Coronavirus Job Retention Scheme.

So far, there are no conclusive statistics on the rate of furloughing or of job loss and the statistics that do exist vary widely. Official estimates for the UK suggest that 23% of those who were working for pay (employed or self-employed) before the crisis had been furloughed by mid May.⁹ However, a recent online survey of the labour market suggested a much higher figure of 43%.^b In all, the proportion of parents in opposite-gender partnerships who were previously working that we estimate to have stopped working due to having been furloughed (32%) lies between official figures and those from recent labour market surveys.

Official information about how many people have lost their job is more scarce.¹⁰ Data scarcity, differences in reference periods and the fact that we look at all those who have stopped working for pay (due to being laid off, being fired or having quit) whereas the government figures that are available so far only relate to those claiming benefits due to unemployment (a narrower group) make it difficult to make comparisons with official figures at this stage. Our estimate of the proportion of parents no longer working for pay (13% of those who were previously working) is similar to, but slightly lower than, in a recent labour market survey which estimated a figure of 15% (Adams-Prassl et al. 2020).

Importantly, our estimates of the prevalence of both furlough and stopping work for other reasons are not directly comparable to either official statistics or recent labour market surveys: we focus on opposite-gender, dual-parent households with dependent children in England, rather than all workers in the UK. This could be particularly important since parents are able to ask to be furloughed because of pandemic-related caring responsibilities, including childcare while schools are closed. Since our figures apply only to parents with dependent children, they are less useful as indicators of the health (or lack thereof) of the UK labour market as a whole.

⁹ 1 Official estimates report that 7.5 million (employee) jobs had been furloughed by 12 May (<https://www.gov.uk/government/news/chancellor-extends-furlough-scheme-until-october>). This compares with Office for National Statistics (ONS) estimates, based on the Labour Force Survey, that there were 33.1 million in paid work in the UK between December 2019 and February 2020 (ONS Dataset EMP01 SA, release date 19 May 2020).

¹⁰ A huge increase in the volume of claims made for benefits related to unemployment and financial hardship indicate the unprecedented scale of the financial challenges facing households. During the first eight weeks after social distancing was announced (on 16 March), there were 2.6 million individual 'declarations' from people applying for universal credit benefits.^c Not all these claims will, however, relate to new job loss. The government estimates that as of 9 April, three weeks into social distancing, 856,000 more people than one month earlier were claiming benefits principally for the reason of unemployment;^d these numbers are likely to increase substantially as they are updated to cover a greater period of the lockdown. They are also likely to underestimate the true extent of job losses as not all job losses will have resulted in new benefit claims: some newly unemployed workers will already have been claiming universal credit so will not have needed to make a new claim, others will not have met the eligibility criteria, while still more will have been entitled to claim but will not have actually done so. The difference in reference period (our data capture those who have stopped working for pay up until mid May, a month later than the official estimates of new benefit claims for the principal reason of unemployment) makes it difficult to compare our estimates with these official statistics.

^c Department for Work and Pensions, 'Universal Credit declarations (claims) and advances: management information', released 19 May 2020, <https://www.gov.uk/government/publications/universal-credit-declarations-claims-and-advances-management-information#history>.

^d Office for National Statistics, 'Employment in the UK: May 2020', released 19 May 2020, <https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/bulletins/employmentintheuk/may2020>.

However, they do clearly indicate that parents with dependent children have seen enormous disruption to their working patterns.

While it is early to say whether our figures on job loss and furlough among parents are precise estimates of what is happening in the wider economy, in this report we focus on the *differences* in employment and time use between fathers and mothers and across families, which are likely to be less sensitive to potential sampling bias.

Differences by parents' gender

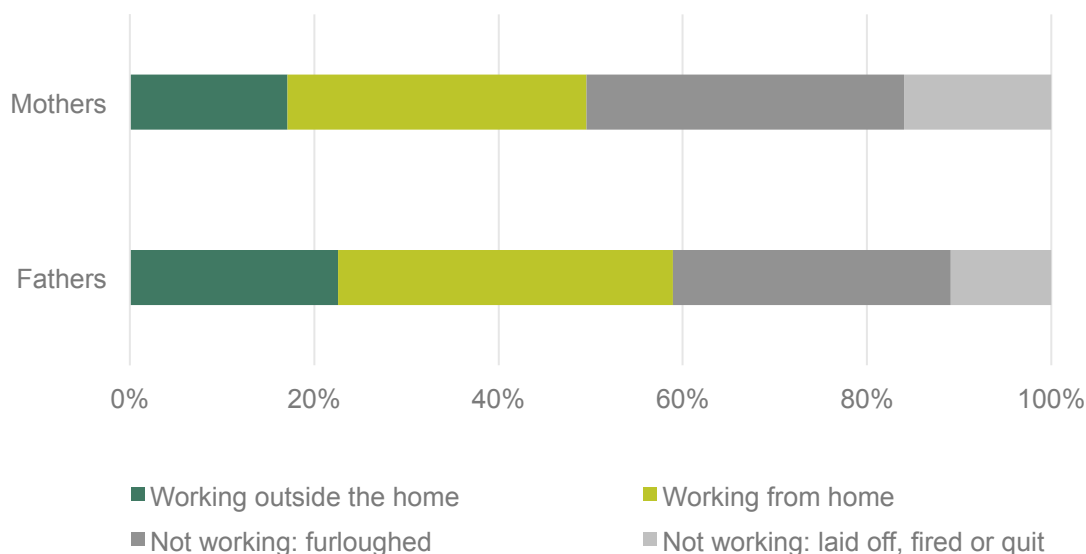
We find important differences in the rates of job loss and of furloughing between mothers and fathers. We see in Figure 1 that, among parents who were working in February 2020, mothers are indeed 9 percentage points more likely to have stopped working for pay than fathers. 16% of mothers are no longer doing paid work due to having lost their work permanently (whether they were laid off, were fired or quit), compared with 11% of fathers. Mothers are also somewhat more likely to not be doing paid work due to having been furloughed through the Coronavirus Job Retention Scheme (34%, compared with 30% of fathers). These effects compound the already unequal employment rates of mothers and fathers, which in our data were respectively 75% and 92% in February 2020 (very close to the 75% and 93% in nationally representative data for April to June 2019).¹¹ So, while prior to the crisis mothers were in paid work at 80% of the rate that fathers were, now they are in paid work at only 70% of the rate.

These differences may arise through one of two channels, or a combination of the two. First, mothers are more likely than fathers to work in the sectors that are taking the biggest hit from the lockdown (Alon et al. 2020; Joyce and Xu 2020). This aspect is different from in previous recessions, in which male-dominated sectors suffered the most (Doepke and Tertilt 2016).

Second, the COVID-19 crisis has been distinguished by the sudden, near-total loss of access to schools and childcare, leaving parents with enormous additional responsibilities for childcare and education. Since mothers already spent more time on childcare and other unpaid work (Cattan et al. 2020), and since in many couples the woman is the lower earner, it is possible that these additional responsibilities are being disproportionately shouldered by mothers.

¹¹ See ONS, 'Families and the labour market, UK: 2019', <https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/articles/familiesandthelabourmarketengland/2019>. These employment rates are also consistent with findings from other surveys recently collected for the UK (e.g. (Adams-Prassl et al. 2020; Sevilla and Smith 2020))

Figure 1. Current engagement in paid work by gender for parents who were in paid work in February 2020



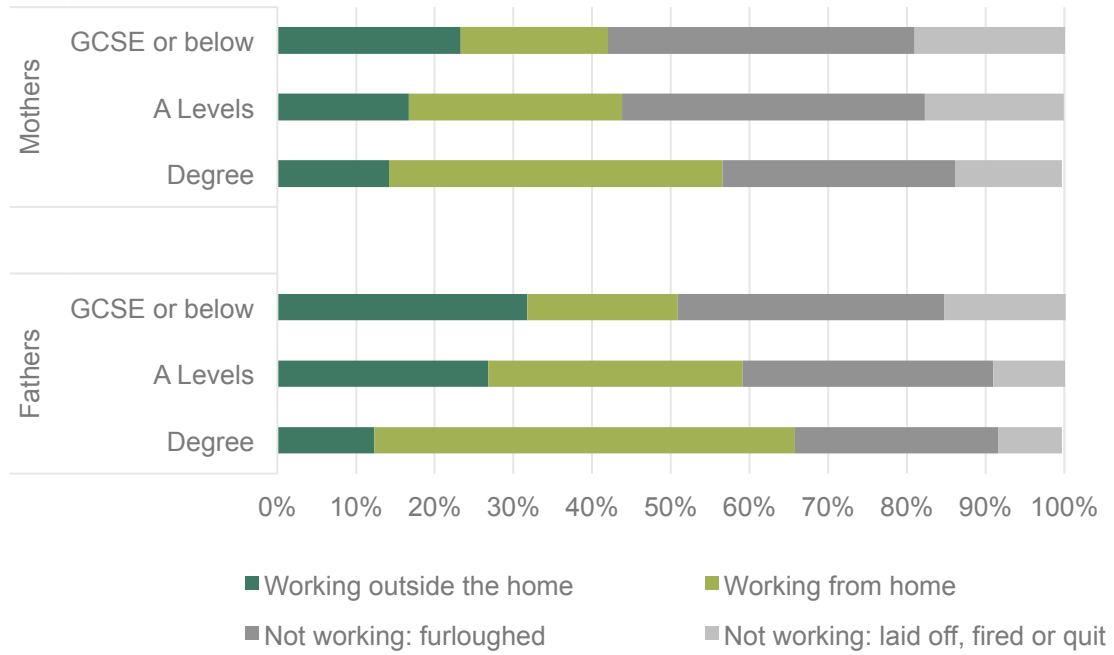
If those who have stopped paid work during the crisis find it difficult to return in the short term, either because low labour demand coupled with high overall levels of unemployment makes it hard to find a job or because their other commitments remain incompatible with paid work, these initial inequalities could persist beyond this crisis through the loss of skills and labour market attachment leading to long-term increases in gender inequalities.

Differences by parents' education qualifications

The lockdown has also opened up inequalities between education groups, as Figure 2 highlights. Amongst both mothers and fathers, individuals with fewer qualifications are more likely to have stopped paid work since the start of the crisis. As has been discussed elsewhere (Costa-Dias et al. 2020), this may well be because more-skilled jobs can be done from home more easily. For example, over three-quarters of university-educated parents in our data who are currently working are working from home, compared with well under half of those with GCSE qualifications or below.

The gender inequalities in who has stopped working are clear within all three education groups: mothers are always more likely to have stopped working than fathers, independent of their qualifications. Strikingly, the gender gap is similar at the top and the bottom of the distribution of education: among degree-educated parents, mothers are 9.2 percentage points more likely to have stopped work, while the gap is 8.8 percentage points among those educated to GCSE level or below. The gap for the group with A-level qualifications is around two-thirds as big again.

Figure 2. Current work status by gender and education for parents who were in paid work in February 2020



4. Time Use under Lockdown

Changes in employment patterns are not the only way in which the lockdown is impacting how families spend their time; most children now rely on their parents as their sole childcare and chief education providers. In this section, we document how mothers and fathers are spending their time during lockdown and who is shouldering these additional responsibilities.

In our survey, we asked the main respondent what activities they, their partner and one of their children were doing during each hour of the previous weekday (the survey was paused over weekends and Bank Holidays). The respondent could include more than one activity in each hour slot. For parents, the activities we asked about were paid work, housework, leisure, exercise, personal care, 'active' childcare (such as playing with a child or doing educational activities), 'passive' childcare (keeping an eye on a child), caring for others (not children) and sleep.¹² In this analysis, we combine active and passive childcare into one childcare category, we combine 'exercise' and 'leisure' to create one exercise category and we drop 'caring for others' due to the rarity with which this activity was selected. For children, in addition to age-appropriate activities, we asked who was supervising them during each hour and we use this information to cross-check the hours in which parents were doing passive childcare. This leaves us with six different categories of activities during waking hours. In this section, we describe how, on average, all mothers and fathers (regardless of whether they worked prior to the crisis and whether they are working now) have been spending their time.

How are mothers and fathers spending their weekdays?

For each hour of the day, Figure 3 shows the share of mothers and fathers taking part in each of these six categories of activity. In some cases, Figure 3 shows few differences between men and women: their sleeping patterns, time spent on personal care and leisure time look nearly identical.

But there are stark differences in time spent on paid work, housework and childcare. At all points in the day, more men than women are doing paid work. For example, while around a fifth of mothers report doing paid work between noon and 1pm, nearly two-fifths of fathers say they are working then. The reverse is true for housework, with more women doing housework during every hour of the day. In childcare too, the gender difference is striking, particularly during core working hours; at noon, for example, around 70% of mothers were doing childcare compared with 50% of fathers.

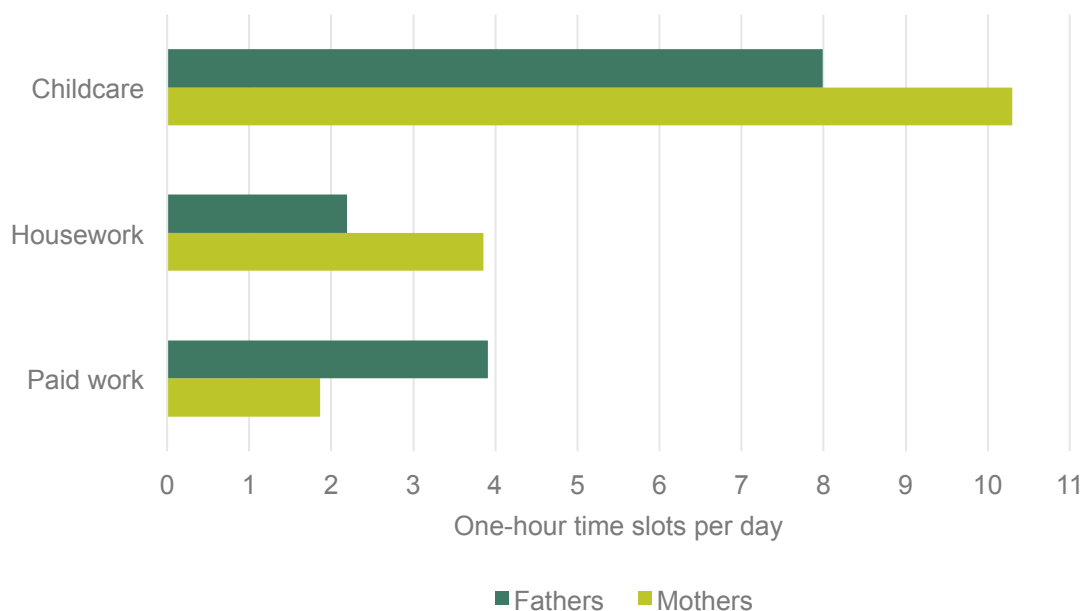
These differences mean that mothers report spending at least some of their time on housework and childcare in more hour-long slots during the day than their partners do. Figure 4 summarises these findings, showing the total number of one-hour slots in which mothers and fathers report doing childcare, housework and paid work.

¹² In addition to respondents' reports of passive childcare done by them and their partner, we also include hours in which the respondent reported through the child time-use diary that they or their partner was supervising their child.

Figure 3. Mothers' and fathers' time use over the course of the day



Figure 4. Total one-hour time slots reported by mothers and fathers



Averaging across those currently doing paid work and those who are not, Figure 4 shows that, on average, fathers report doing some paid work in four one-hour slots, two more than the average for mothers. On the other hand, fathers report doing housework in just over two time slots, compared with nearly four for mothers. There is a similar story for childcare, where mothers report doing childcare in over ten one-hour slots and fathers do so in eight. Of course, one reason for these gender differences is that – as Section 2 shows – men are more likely to

remain in paid work during the crisis and, indeed, are more likely to have been working for pay, particularly in full-time work, prior to the crisis. We return to this in further detail below.

Gender differences in childcare

The differences in time spent on childcare, shown in Figure 4, are stark: on average, mothers are engaged in some childcare – whether active or passive – in over 25% more hour-long slots than fathers. But even for fathers, childcare is the activity that is most frequently reported during waking hours (see Figure 3).¹³ This means that parents, especially mothers, are doing some childcare throughout the great majority of their day.

To put these patterns into context, we now look at how these figures compare with the amount of childcare that parents were doing prior to the crisis, using data from the UK Time Use Survey (UKTUS), a nationally representative time-use survey carried out in 2014/15.¹⁴

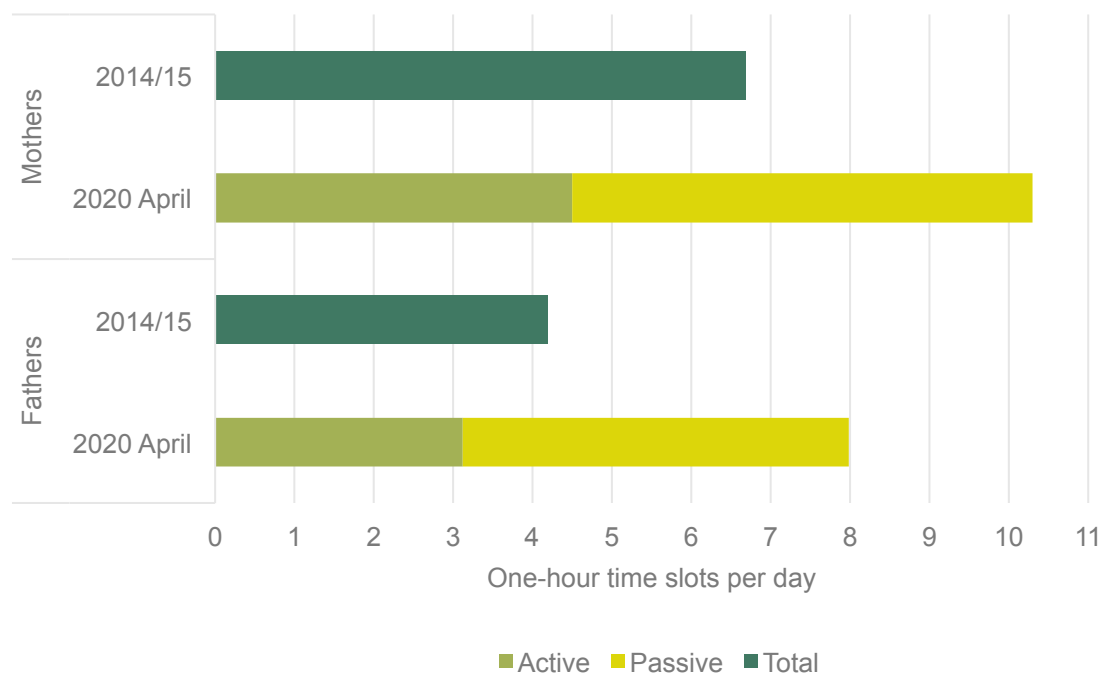
Figure 5 shows that, on an average school day in 2014/15, fathers were engaged in childcare during 4.2 one-hour slots and mothers during 6.7 slots; the 8.0 and 10.3 one-hour slots in which, on average, fathers and mothers report doing childcare over the last few weeks are thus very substantial increases. The increase is particularly large for fathers, who have nearly doubled the number of slots in which they engage in childcare. Such a sudden and significant change may have longer-run effects on how parents share childcare going forward, even after lockdown, and on how employers view male employees' childcare responsibilities.

Of course, not all childcare requires the same level of effort from the parent; it could be much easier to combine cooking with keeping an eye on a child while they watch TV than it is to combine writing work reports with playing Lego. Figure 5 therefore also breaks our measure of childcare into 'active' and 'passive' care. It shows that more than half (56% for mothers and 61% for fathers) of the time spent looking after children is taken up with 'passive childcare' – keeping an eye on the children or watching TV together, for example – rather than 'active childcare', such as doing schoolwork or playing together.

¹³ This is consistent with other recent surveys which also find large differences in the time spent on childcare by mothers and fathers during the current crisis (e.g. Adams-Prassl et al. 2020; Sevilla and Smith 2020)

¹⁴ We run this analysis on a subsample of households with children of similar ages to those in our survey (focusing on children from age 8, when child time-use diaries are first available, to age 15). We also recode data from the UKTUS to make them as comparable as possible to ours by recoding the survey's 10-minute intervals into hour-long intervals and recoding whether the respondent did any childcare during that hour. Our measure of doing childcare in the UKTUS is based on cross-checking the reports of when children say they were with parents against their parents' diaries.

Figure 5. Active versus passive childcare and comparison with pre-lockdown time use



Note: 2014/15 figures use the UK Time Use Survey. This data set contains activity information down to 10-minute slots of the day. We create a data set from this that indicates whether a parent did any childcare within a given hour, to best mimic the methodology in our survey.

Quantity versus quality of work time

The amount of paid work that parents can do depends not just on how long they spend working, but also on how productive they are during that time. Indeed, previous research has shown that the total amount of working time and the total amount of focused, uninterrupted working time are both important determinants of workers’ productivity and learning (Blundell et al. 2016; Coviello et al. 2015; Coviello et al. 2014; Adams-Prassl 2020).

However, for parents working from home, working time – and especially focused working time – can be hard to come by. Parents, who are now largely responsible for both childcare and education around the clock, are contending with more demands from their families on their time. And childcare, particularly for younger children, is often not an activity that can be rigorously scheduled in focused blocks of time.

In this section, we explore what the lockdown has meant for parents’ working patterns. Since we asked respondents to list *all* of the activities they did in each one-hour slot, our data give us a clear picture of the extent to which parents’ hours of paid work are being shared with – or interrupted by – other responsibilities. To understand how this crisis is changing the quantity of working time, we compare current figures with what similar parents used to do before the lockdown using the UK Time Use Survey.

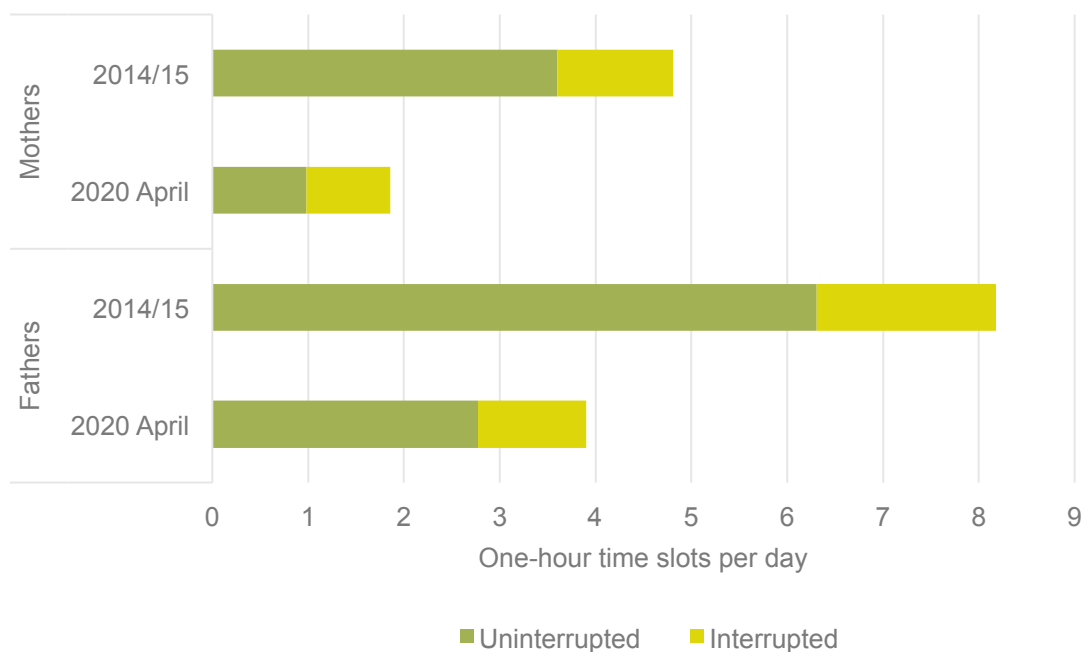
Figure 6 illustrates how much working patterns have changed for fathers and mothers. The top panel shows the average number of hour-long slots dedicated to paid work before and during the crisis, for all mothers and all fathers taken together. Overall, we find that fathers are doing paid work in fewer than half the number of hours that average fathers used to work before the crisis. For mothers, the drop is even more staggering; they are currently working in less than two-fifths of the number of hours that similar mothers reported prior to the lockdown. In all, while

in 2014/15 mothers who were doing paid work were working 73% of the number of hours of fathers in paid work, now mothers are working only 68% of fathers' hours.

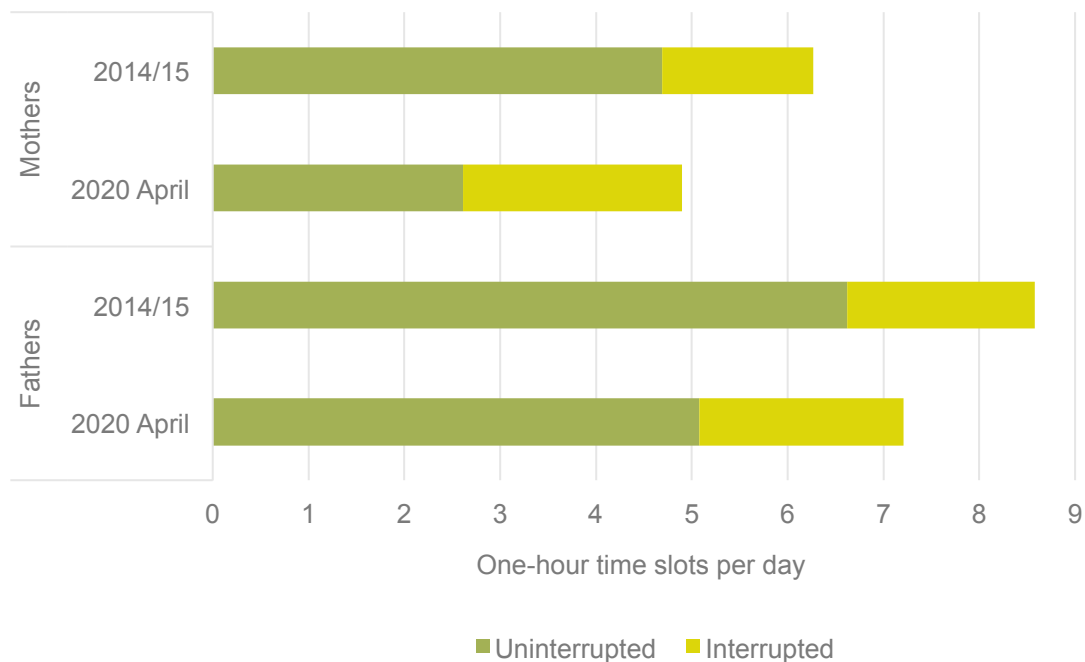
Of course, these figures are partly driven by the large changes in employment status that we reported in Section 2. Panel B in Figure 6 shows how working hours among the subgroup of parents who are working for pay during the lockdown period compared with pre-lockdown figures for working parents. It shows that substantial gender differences persist: while the working hours of fathers dropped by about 16%, those of mothers dropped by 22%.

Figure 6. Working hours before and during the lockdown

Panel A. Average working hours: all parents



Panel B. Average working hours: working parents



Note: 2014/15 figures use the UK Time Use Survey. This data set contains data down to 10-minute slots of the day. We create a data set from this that indicates whether a parent did any paid work within a given hour, to best mimic the methodology in our survey.

Figure 6 also shows the amount of parents' paid work hours that are multitasking (or are interrupted), defined as doing at least one work and one non-work activity during the hour-long slot. We see that, before the crisis, parents typically did non-work activities during a quarter of the hours in which they were also doing paid work. Such hours most typically occurred at the start and end of their workdays, as they transitioned to and from work.¹⁵ We see that now, overall, parents who are currently working for pay (Figure 6B) have a higher number of interrupted hours, both in absolute terms and as a fraction of their total work hours. The nature of the interruptions is also different; during the lockdown, in roughly 90% of interrupted work hours the parent is also doing childcare alongside his or her paid work. Working time before the crisis was mostly spent in the workplace, where interruptions are likely to be less frequent and less disturbing for the workflow. The increase in interruptions is therefore unsurprising given many parents' transition to doing their job from home with children out of school. The reduction in the proportion of hours that parents work uninterrupted implies that the drop in the *amount* of work that parents are able to do may be even more pronounced than suggested by the drop in working hours. Our data confirm that indeed multitasking is less frequent among those parents working outside the home, in which case it happens in 18% of work hours, compared with 49% for those working from home.

Moreover, the extent of multitasking during work time is more prevalent among women than men. While 70% of fathers' work hours are spent exclusively doing work, this is the case for only 53% of mothers' work hours.¹⁶ In other words, mothers are being interrupted during 57% more of their paid work hours than fathers. This was not the case before the crisis: then, mothers and fathers were interrupted during the same proportion of their work hours. Combined with the gaps in hours spent doing paid work, this amounts to the average father who is currently working for pay having nearly twice as many uninterrupted work hours as the average mother who is currently working for pay (5.1 hours versus 2.6 hours). This is a bigger gap in uninterrupted hours than we saw before the crisis (6.6 hours for fathers versus 4.7 hours for mothers). Combined too with the fact that mothers are more likely to have stopped working for pay since the lockdown and that they were already less likely to be doing so before the crisis, mothers overall (including those not working for pay at all) are working just over a third of the number of uninterrupted hours that fathers are.

Taken together, we find that not only are mothers less likely to work during the lockdown, but also, even if they are working, they spend fewer hours on paid work and the time they do spend working is likely to be less productive than fathers' work time because of interruptions. Lower productivity during the time mothers spend on paid work – and being paid – could itself impact their career prospects, making them seem less committed to their jobs or less able to cope with their workloads than their male colleagues.

¹⁵ Commuting to and from paid work is included in our definition of hours spent doing some paid work.

¹⁶ These findings are unlikely to be driven by differences in reporting behaviour between men and women (e.g. women being more likely to tick multiple boxes). Our analysis includes both the main respondent's and his/her partner's time use. Since our main respondents are a mix of men and women, we have some mothers responding about fathers and some fathers responding about mothers. We did not find systematic differences in gender gaps for reported time use by gender of the main respondent.

5. What drives differences in how mothers and fathers spend their time?

So far, we have seen that mothers and fathers are spending their time very differently in the lockdown. While men have significantly increased the time they spend on childcare, it is still mothers who are taking on the bulk of childcare and housework responsibilities, often at the same time as they complete other tasks. By contrast, fathers are doing much more paid work than mothers during the lockdown. These results suggest that the adults in two-parent families are continuing – or intensifying – the specialisation they had already developed before the pandemic, with one partner focusing more on paid work while the other takes more responsibility for unpaid work at home.

Notably, this specialisation has been incentivised by policy during the pandemic: the Coronavirus Job Retention Scheme means that couples where one parent stops doing paid work entirely and is furloughed, while the other continues to work their regular hours, are financially much better off than those where both partners reduce their working hours to accommodate their new domestic responsibilities. But noting that there are incentives in favour of specialisation within couples does not answer why, on average, specialisation during the lockdown seems to split along gender lines, with mothers spending more time on domestic responsibilities while fathers do more paid work. There could be a number of reasons for this gendered division of labour, including:

- **Employment rates:** As we have shown, fathers are more likely to be in paid employment than mothers. This was already true before the crisis – 75% of mothers were working between April and June 2019, compared with 93% of fathers¹⁷ – but the differences are now even more pronounced.
- **Hourly earnings:** On average, fathers earn more than mothers; before the crisis, mothers whose first child was 5 years old earned more than 15% less per hour than fathers with a first child the same age, and the gender wage gap continued to grow as the child got older (Costa Dias et al. 2018). This means that an extra hour that a father spends doing paid work is, on average, more financially valuable for the household.
- **Productivity in domestic work:** Similarly, if women are more capable or productive at housework or childcare – for example, because they did more of it before the crisis and so are more experienced – the household might benefit more from an extra hour of a mother's domestic work than it would from a father's.
- **Preferences:** The way in which partners share responsibility for childcare and housework could also be influenced by partners' preferences, habits or beliefs about who 'should' take responsibility for these activities.

These are, of course, not the only reasons that could affect how mothers and fathers choose to divide their tasks; other influences, such as different accommodations from employers, could also play a role. Disentangling all of the different factors at play, and the extent to which each could influence how couples divide their responsibilities, is a complicated question and outside the scope of this paper. But in this section, we explore what our descriptives can suggest about the extent to which some of these causes appear to be at play in driving the gendered division of labour during lockdown.

¹⁷ ONS, 'Families and the labour market, UK: 2019', <https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/articles/familiesandthelabourmarketengland/2019> (accessed 21 May 2020).

Are gender gaps explained by mothers being less likely to be employed?

Even prior to the current crisis, mothers were less likely to be in paid work than fathers. On top of that, in this report we document that the lockdown has caused mothers to stop working for pay at higher rates than fathers. For efficiency and financial reasons, a spouse who is not working for pay may accumulate most of the domestic responsibilities within the family. Therefore, one explanation for the gender gaps we see in childcare and housework is simply that mothers are more likely to be not currently doing paid work.

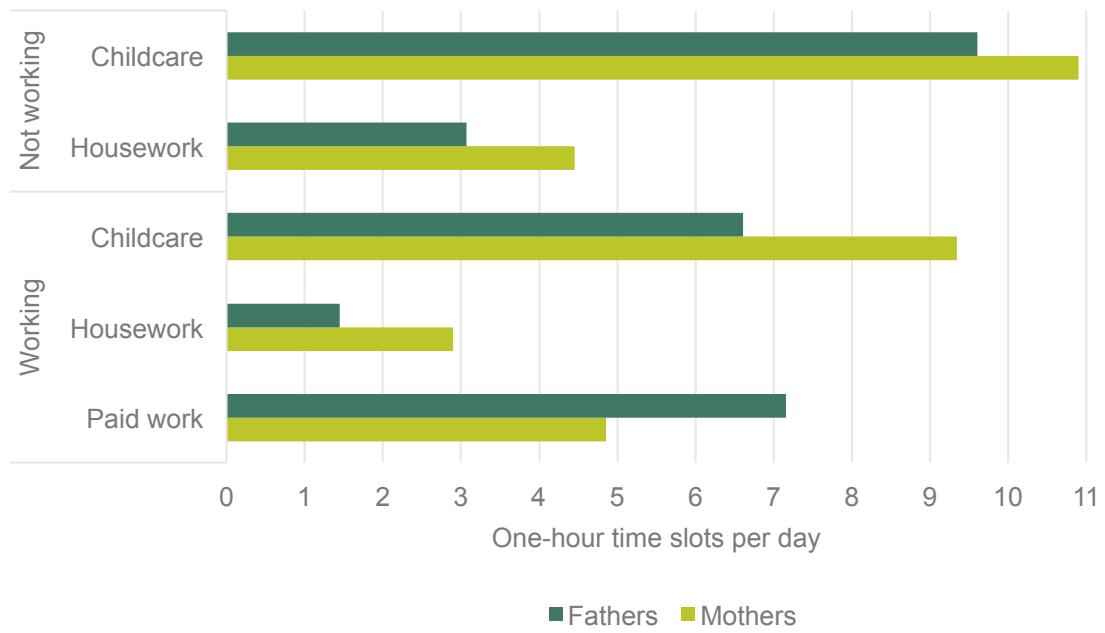
If this explanation were sufficient to explain the gender gaps we see, we would expect that mothers who are currently not doing paid work spend their time in the same ways as fathers who are not doing paid work. Panel A of Figure 7 shows that this is not the case. It graphs the number of one-hour slots in which parents report doing paid work, housework, and childcare (of any type), splitting between those who are currently working for pay and those – including furloughed employees – who are not. Panel B compares those who report they are working from home and those who report working outside of the home.

In Figure 7A, we see large gender gaps even between mothers who are working for pay and fathers who are working for pay, and between mothers who are not currently working for pay and fathers who are not currently working for pay. Mothers spend more time than fathers on housework and childcare, regardless of working status. This tells us that the overall gender differences we observe in time spent on domestic activities are not entirely driven by fewer mothers currently doing paid work. Indeed, mothers who are working for pay spend roughly the same amount of time on these activities as do fathers who are not working for pay.

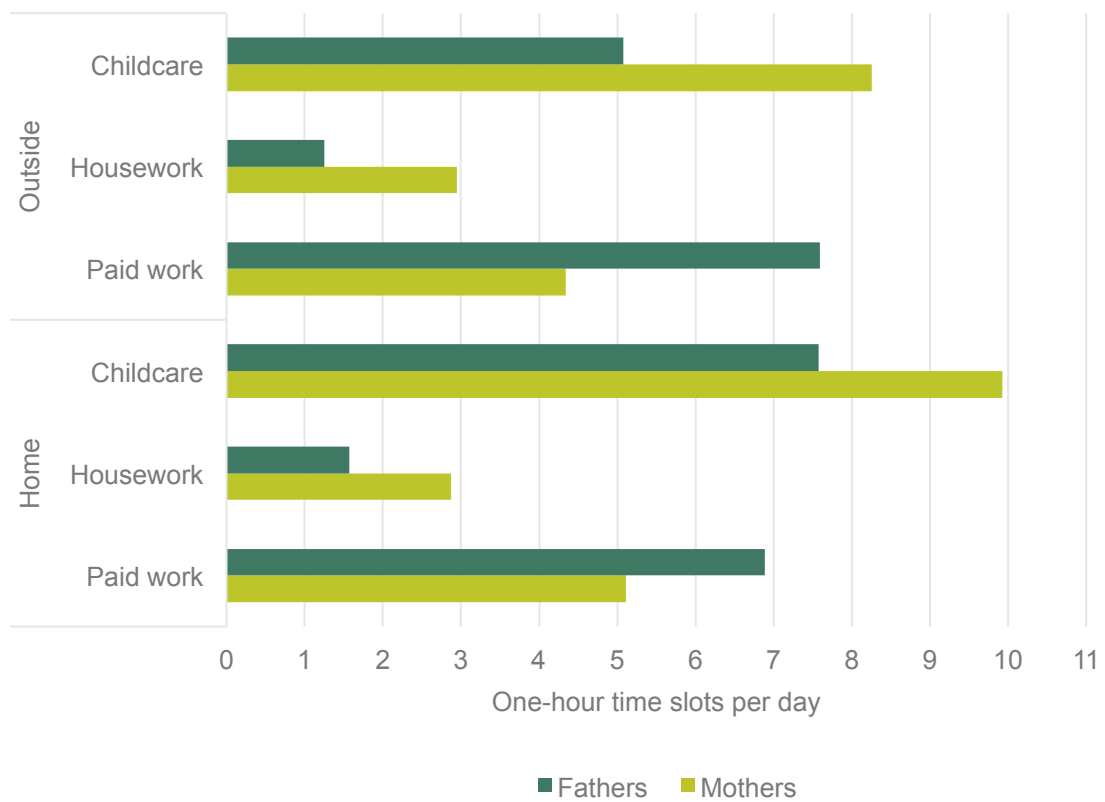
Fathers' time use is particularly sensitive to whether or not they are in paid work: fathers who are not working for pay report spending more than twice as many time slots on housework as those who are, and three more one-hour time slots on childcare. Interestingly, the amount of time that mothers spend on childcare is far less responsive to whether or not they work for pay. Indeed, mothers who are not working for pay do childcare in only one-and-a-half more one-hour time slots than those who are. Altogether this means that mothers who are working for pay have an especially heavy load. While they do 2.3 fewer one-hour time slots in paid work than working fathers, they more than compensate for the difference by putting in an additional 2.7 one-hour time slots of childcare and 1.5 one-hour time slots of housework compared with fathers in paid work.

Figure 7. Time use by current work status

Panel A. By working status



Panel B. Among those working, by whether works at home or outside the home



The large differences in time use we see between working mothers and fathers could be driven by the type of paid work different genders are doing, which may or may not be compatible with more time for domestic responsibilities. In particular, work outside the home is better insulated from domestic responsibilities during working hours and, after factoring in commuting time, it may also leave fewer hours available for these activities.¹⁸ To shed some light on the extent to which gender differences in domestic responsibilities among working parents can be explained by the nature of their jobs, we split time use by whether working parents work from home or outside of the home. Although both mothers and fathers do more childcare if they are working from home, Figure 7B shows that there are gender gaps both between mothers and fathers who work from home (with mothers doing childcare during 2.4 more hours than men) and between parents working outside the home (where the gap is even larger, at 3.2 one-hour slots).

Are gender gaps explained by mothers having lower earnings?

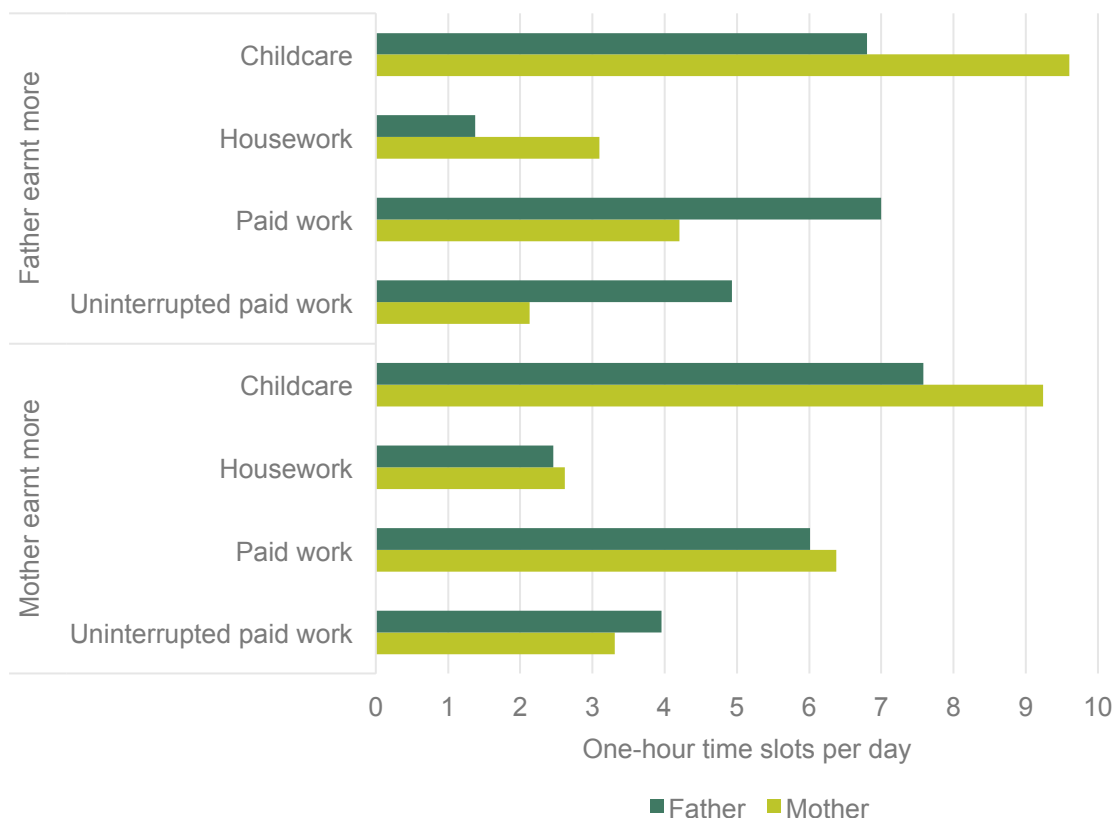
Before the pandemic, mothers earned less per hour on average than fathers. There is evidence that they were more willing to sacrifice higher earnings in favour of, for example, more flexible working or a shorter commute (Joyce and Norris Keiller 2018; Mas and Pallais 2017). This means that, in strict economic terms, families on average benefit financially more from an extra hour of paid work done by a man, even if it means his partner has to reduce her paid working hours to pick up more of the responsibilities at home. We look now at whether the lower average earnings of mothers relative to fathers can explain the overall gender gaps we see.

If this were the main explanation for the overall gender gaps, we would expect to see that parents behave *symmetrically*. That is to say, we would expect that couples usually prioritise the (paid) work of the higher-earning parent, regardless of whether that parent is the mother or the father. This would imply that, on average, higher-earning partners do the same amount of childcare, housework and paid work whether they are male or female, and lower-earning fathers do the same amount as lower-earning mothers.

Again, this is not what we find. Figure 8 shows how partners who are both currently in paid work are organising their time depending on who earned more before the crisis. It shows clearly that couples where the father earned more do not organise their time in the opposite way to which couples where the mother earned more do. Indeed, it shows that regardless of who was the higher earner in the couple, the father always does more uninterrupted work (2.8 hours if he earned more and 0.6 hours if the mother earned more). Likewise, even when the mother earned more than her partner, she does 1.6 more hours of childcare and about the same amount of housework.

¹⁸ Commuting to and from paid work is included in our definition of hours spent doing some paid work.

Figure 8. Time use by pre-crisis relative earnings



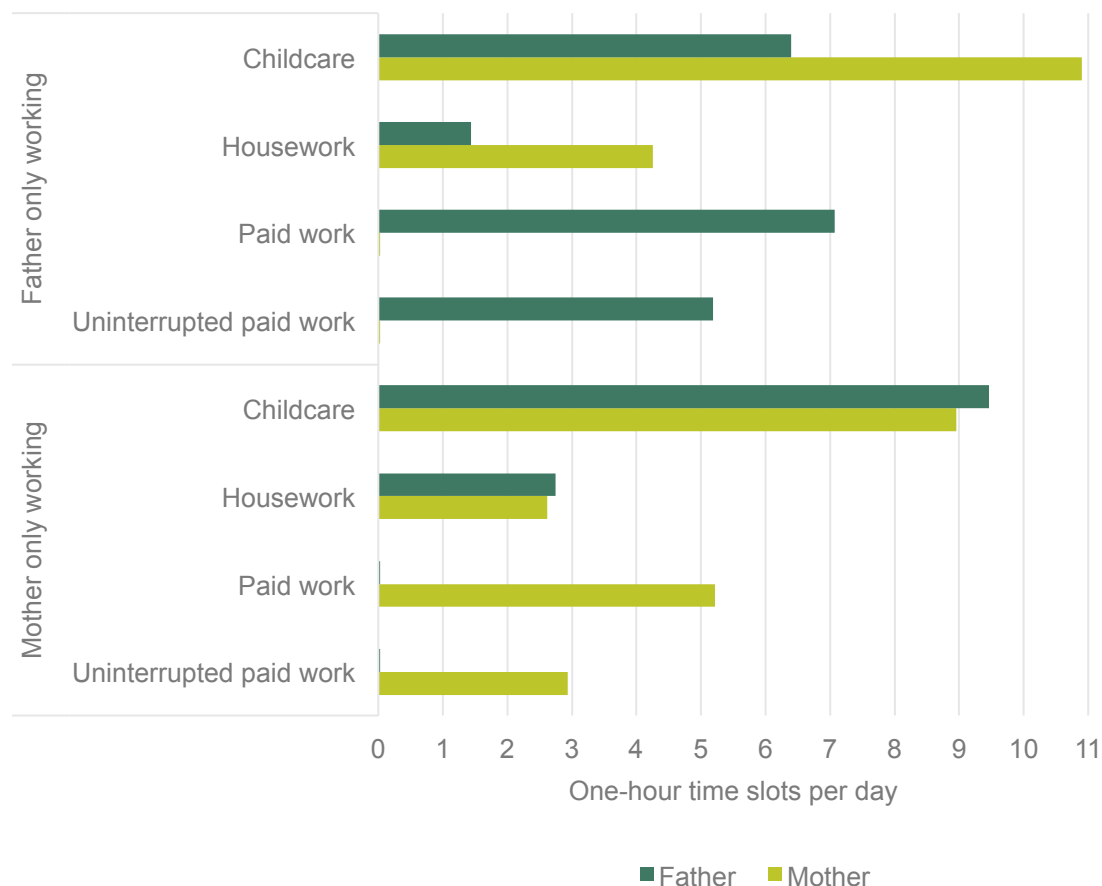
Note: Earnings are 2019 pre-tax earnings for both partners. Sample includes only couples where both are currently working.

Do gender gaps remain when we remove paid work from the picture?

The evidence above suggests that neither employment rates nor relative earnings can fully explain the differences in how mothers and fathers are spending their time in lockdown. This suggests that other considerations drive how parents share responsibilities. One possible factor is parents' preferences, habits or beliefs about the best way to allocate responsibilities for paid and unpaid work. The dramatic changes in parents' work arrangements during the crisis provide a particularly interesting way of examining whether this is the case.

We take families where both partners were in paid work before the crisis and look at what happens when mothers stop working and when fathers stop working. Comparing what happens when the father versus the mother stops work allows us to see whether there are factors other than economic incentives at play in how parents divide up responsibilities. If the drivers of the division of responsibilities were purely economic, we would expect parents to behave *symmetrically* when either partner stops working: that when the mother stops working but the father continues, the mother does most of the domestic work and leaves her partner to focus on paid work, and vice versa.

Figure 9. Time use by who is still working for couples who were both in paid work in February



But, in practice, we find that the division of responsibilities depending on which parent has stopped paid work looks very *asymmetric*. Figure 9 shows the total number of one-hour slots in which mothers and fathers do childcare, housework, paid work and uninterrupted paid work for families in which either the mother or the father has stopped working for pay since the lockdown.¹⁹ Mothers who stop working take on domestic responsibilities for almost twice as many hours as their partners (over 4 additional one-hour slots of childcare and nearly 3 additional slots of housework). In these families, fathers do paid work for an average of 7 one-hour slots during the day, with most of this time being uninterrupted work time.

But we see quite a different picture in families where fathers stop working. In these families, mothers and fathers divide domestic responsibilities (for both childcare and housework) roughly equally, *despite* the fact that the mother is also working during an average of 5.2 one-hour slots. The result is that mothers who continue to work for pay do so while also taking on half the domestic responsibilities.

Despite the especially heavy load of mothers who are the only parent working for pay, fathers in these families do take as large a share of domestic responsibilities as their partners, spending 9.5 hour-long slots on childcare and 2.7 on housework. Previous research has shown that men who take on more domestic responsibilities temporarily – for example, doing more of the childcare when offered a more generous paternity leave – often, but not always (Ekberg et al.

¹⁹ To reduce differences between families where only the father or only the mother works, we restrict the analysis to families where both parents were working in February. This reduces confounding effects from families where spouses were already specialising in home or paid work prior to the lockdown, and which may well be less affected by the crisis if the job of the working partner remains active.

2013), continue to contribute more to childcare responsibilities going forward (Tamm 2019; Farré and González 2019). This suggests that the temporary changes that the pandemic and the lockdown have forced on families could have longer-lasting impacts on how partners see their roles in the family and organise their work and childcare going forward.

6. Conclusion

The COVID-19 pandemic is disrupting parents' working lives across the board. Many parents have lost their jobs, temporarily or permanently; most are having to contend with vastly increased responsibilities for education and childcare, as well as housework. At the same time, parents who are still working are more often than not doing it from home, meaning that family and work responsibilities are now co-existing to a much greater extent than before in the same place and at the same time.

These changes could have substantial effects on gender differences in how couples approach paid work and family responsibilities. It is well known that, prior to the pandemic, women were less likely than men to be in paid work; even among workers in similar roles, there is evidence of a persistent gender gap in hourly wages, with women being paid less, particularly after workers become parents. On the flip side, women shouldered a greater share of the responsibility for housework and for childcare.

The COVID-19 pandemic affects these inequalities in several ways. We find that – unlike in previous recessions – mothers are more likely than fathers to lose their job (temporarily or permanently) during the crisis. Among those who are still working for pay, mothers spend less time on paid work throughout the day, and more of that working time is split between paid work and other activities, principally childcare. We find that the relative differences between mothers' and fathers' work patterns have increased since 2014/15 in all three dimensions: being in paid work at all, the hours spent on paid work, and the likelihood of being interrupted during work hours.

While mothers are still disproportionately responsible for the – much increased – time spent on childcare and housework, there is some evidence that fathers are also dedicating significant amounts of their time to family responsibilities. This is particularly true for couples where the father has lost his job while the mother has kept hers; in these families, fathers are now shouldering slightly more than half of the burden of childcare and housework.

However, absent the extreme shock of one parent losing his or her job, there is much less evidence that the gender gaps that we document are driven solely by families' focusing on immediate financial considerations. We find significant gender gaps even between fathers and mothers who are not currently working and, within a couple, the division of labour during the crisis looks strikingly similar whether a mother earned more or less than her partner before the pandemic. While such patterns in the way parents share responsibilities may have predated the crisis, the vast size of the labour market shocks that many have faced and the increased need for parents to provide childcare may exacerbate the effects that unequal sharing have on mothers' careers.

This research raises at least two crucial questions. First, what will be the impact of the crisis on women's experience of the labour market? Will women whose careers have taken a hit during the crisis – whether because of childcare responsibilities or simply because they work in a more exposed sector – be able to recover from this in the medium term? Will the effects of the crisis halt or even partly reverse the progress that has been made in closing the gender wage gap?

The second question is how experiences during the crisis will reshape the attitudes that mothers, fathers and employers hold towards the division of labour. Recent evidence from paternity leave policies aimed at increasing fathers' childcare time is mixed. Farré and González (2019), Patnaik (2019), and Tamm (2019) all show that paternity leave leads a persistent increase in fathers' involvement in childcare in the case of Spain, Canada, and Germany respectively. However, Ekberg et al. (2013) do not find an effect of "daddy months" in Sweden in father's likelihood to take medical leave to care for children. The lockdown as a result of COVID-19 is an even bigger shock to family dynamics than paternity leave reforms. If this shock has reshaped attitudes towards gender and work, and if these changed attitudes in turn prompt

lasting change in families and workplaces, that could be one silver lining to what has so far been a very dark cloud.

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