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Gender Gaps in Time Use: Pan-European Evidence from School Closures during the COVID-19 Pandemic

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Abstract: We study the impact of school closures during the COVID-19 pandemic on individual-level time use. We use panel data from 27 EU countries beyond the initial lockdown period and isolate the impact of school closures by comparing parents and non-parents. We find no evidence of a gendered impact of school closures. Women and men reduced the time spent on paid work and increased the amount of time spent on household chores and leisure in approximately equal amounts. These findings do not align with the common concern that school closures widened gender gaps in paid or unpaid work.

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I INTRODUCTION

The COVID-19 pandemic reignited public discourse about gender roles in work and family life, particularly in light of the lockdowns and school closures that reshaped daily routines. The widespread shift to remote work, combined with the closure of schools and daycare centres, led to caregiving challenges for many families (Jack and Oster, 2023). Evidence suggests that women were particularly affected, as they are more likely to work in jobs that cannot be performed from home and have taken on the primary caregiver role during the pandemic (Hupkau and Petrongolo, 2020). This situation has resulted in the use of the term she-cession, describing the disproportionate economic impact of the pandemic on women with children (Alon *et al*., 2022; Goldin, 2021). The impact of the pandemic on women's labour force participation has been widely discussed in the media and policy debates, resulting in claims that the pandemic reversed the decades-long progress towards greater gender equality (Topping, 2020).

During the pandemic, several countries implemented policies to support family needs, such as enhanced work flexibility and additional care and parental leaves (Cook *et al*., 2021). While remote work practices were implemented to increase social distancing, they also allowed many workers to combine paid and unpaid work responsibilities at home, while also leading to juggles between tasks, and multitasking. In a continuation of well-established gender inequalities in paid and unpaid work, OECD (2021) data show that women typically spent two more hours per day on unpaid domestic tasks compared to men.

Research by Calò *et al*. (2021) highlights a strong negative correlation between maternal employment rates before the pandemic and the duration of school closures. In countries with lower maternal employment rates, policymakers may have been more inclined to close schools because of the perceived lower cost of school closures for families. However, this approach may have reinforced the decline in maternal employment, leading to long-term negative effects on gender equality (Profeta, 2021). Therefore, examining the time allocation of mothers and fathers in countries with diverse gender norms is crucial to understanding how policies affect gender equality.

In this paper, we investigate how school closures during the COVID-19 pandemic affected time use between men and women. We seek to answer two research questions. First, how did school closures during the pandemic affect the distribution of paid and unpaid work between men and women? Second, how did gender gaps in time allocation towards paid work, household production, leisure and other activities vary across countries with varying gender norms?

Our analysis is guided by theoretical insights from economic models of household behaviour (e.g. Becker, 1965) and the gendered division of labour (Hochschild, 1989; Bianchi *et al*., 2000) as well as the literature on the interplay between cultural norms, institutional arrangements, and economic structures in

shaping gender disparities in caregiving during crises (Budig and England, 2001; Gornick and Meyers, 2009). Moreover, the analysis builds on empirical literature from the early phase of the pandemic, which we summarise below. Based on existing literature, we hypothesise that women experienced a disproportionate increase in unpaid work, such as childcare and household chores, during periods of school closures compared to men. Conversely, we expect that men exhibited a greater propensity to increase paid work hours during school closures. As a result, we hypothesise a widening gender gap in paid employment.

A growing literature has exploited the disruptive nature of the COVID-19 pandemic to study the impact of lockdowns and other non-pharmaceutical interventions (NPIs) on households. NPIs include a wide range of both top-down (i.e. governmental) measures such as lockdowns and school closures, and bottom-up (i.e. self-initiated) measures aimed at interrupting infection chains by altering key aspects of human behaviour (Perra, 2021). Analyses of data gathered during the early stage of the pandemic find strong differential labour market effects of NPIs, whereby women's labour market outcomes were more adversely affected than those of men (e.g. Heggeness, 2020; Collins *et al*., 2021; Amuedo-Dorantes *et al*., 2023; Hanzl and Rehm, 2023). Similar results have been found for the distribution of household chores: women were found to bear a heavier burden of the increased demand for household production in terms of childcare and housework (e.g. Adams-Prassl *et al*., 2020; Albanesi and Kim, 2021; Oreffice and Quintana-Domeque, 2021; Zamarro and Prados, 2021; Farré *et al*., 2022; Andrew *et al*., 2022; Augustine and Prickett, 2022). Whereas some of these studies document rather drastic widening of gender gaps in the early stages of the pandemic, the evidence from work spanning the entire pandemic is less clear-cut. Studies that analyse data from later stages of the pandemic find a greater involvement of fathers in childcare and housework and, in general, a more egalitarian division of paid and unpaid work between men and women (Biroli *et al*., 2021; Mangiavacchi *et al*., 2021; Jessen *et al*., 2022; Boll *et al*., 2023). The magnitude of the effects differs across countries. In some countries, NPIs led to substantial shifts in the distribution of housework, childcare and paid work between men and women, whereas in other countries these effects are absent or less pronounced. Previous research has shown that gender norms are an important explanation for why the gendered time-use responses to school closures may have been more pronounced in some countries than in others (Albanesi and Kim, 2021; Boring and Moroni, 2023). In addition, the analysis by Sevilla and Smith (2020) suggests that in households with non-working fathers, the pandemic instigated a more equal division of unpaid work between the genders.

In this paper, we provide new evidence about the impact of NPIs on gender gaps in paid and unpaid work during the COVID-19 pandemic. Our data span nearly two years and cover all 27 EU Member States. We concentrate on the effect of school closures, an important yet controversial policy measure aimed at curtailing

the spread of the virus, on the time allocation of men and women. Our main data source is the *Living, Working, and COVID-19* (LWC) online survey, conducted by Eurofound. This survey offers several advantages over those used in most studies in the aforementioned literature. The survey rounds analysed in this paper were carried out between March 2020 and May 2022, a considerably longer period compared to surveys in many other studies, which were fielded only at the start of the pandemic in the spring of 2020. Moreover, the range of countries covered allows us to analyse heterogeneous effects across countries with different social norms. The survey comprises questions on time use in paid work, housework, unpaid caregiving, leisure, education, and training. A further advantage of the LWC data is its panel component: a subset of the respondents were surveyed in up to four rounds. This feature allows us to circumvent an important empirical problem, namely that the composition of respondents may have changed between the survey waves, for example, because parents had little time to answer surveys while balancing paid work, childcare and housework during the acute phase of the pandemic. We match these data with daily information on the implementation of school closures in various countries from the European Centre for Disease Control (ECDC).

Our analysis documents several interesting descriptive statistics about time use during the pandemic. Overall in the analysis sample, women spent on average 4.5 hours per week less on paid work and 6-7 hours more on unpaid childcare and housework than men. The evidence also shows that during periods of school closures, people spent less time on paid work and more time on household chores and leisure in comparison with times when schools were open. These changes were considerably more pronounced among parents than among non-parents. However, the change in time use was similar between men and women overall.

In our main analysis, we estimate the effect of school closures on time use using regression analysis. This approach allows us to condition on observable characteristics such as age and education, and country fixed effects, facilitating a comparison of respondents with similar characteristics residing in the same country. We also exploit the panel structure, comparing the same respondents during times when schools were closed vs. open.

Unlike studies from the first phase of the pandemic, we do not find a statistically significant effect of school closures on the allocation of paid and unpaid work between men and women. Our results suggest that men increased the share of time spent on paid work by around 4 percentage points. No other effects – be it on household chores, leisure and other activities, for all respondents, or when men and women or parents and non-parents are considered separately – are statistically or economically significant.

We further test whether the effects differ between countries with higher vs. lower gender equality. We measure gender equality through a country's average gender wage gap. The analysis reveals some interesting differences between

European countries that may partly explain why we find no average effect. In countries with lower gender equality, women reduced the share of time spent on paid work considerably and increased the share of time spent on household chores. In countries with higher gender equality, the effects are smaller and go in the opposite direction. In countries with higher gender equality, men with children responded to school closures with an increase in the time spent on household chores, whereas those without children decreased the time spent on chores. Men without children, in contrast, spent considerably more time on paid work. In countries with lower gender equality, we see little difference in the reaction to school closures between men with and without children when it comes to paid work or chores.

On balance, although we find evidence that school closures affected the allocation of paid and unpaid work in some cases, our results are less clear-cut than those from studies during the early phase of the pandemic. On aggregate, we do not find systematic support for the hypothesis that school closures widened existing gender gaps in paid and unpaid work. In addition, the heterogeneity analysis suggests that the gendered effects of school closures can be nuanced and depend on the gender norms that prevail in a country.

In general, public health measures have wider implications that differ by gender and other dimensions – for example on income and employment, access to services, and risk of violence – that need to be balanced with the implementation of accompanying social measures (WHO, 2021). Policy lessons from preceding pandemics as well as the COVID-19 pandemic highlight that women and men differ in terms of the pandemic's direct health impact, the impact of the public health measures, and the impact of wider crisis responses (Muller *et al*., 2020). While the NPIs implemented during the pandemic were instrumental in curtailing the spread of the virus, they also had profound impacts on the daily lives of people. In particular, the closures of schools and childcare facilities meant that parents needed to find ways to combine additional time spent looking after and educating their children with other aspects of their lives, including paid work, (non-parental) caregiving, household work, and leisure.

As this research indicates, the shock of the pandemic situation, leading to many activities being confined to homes, likely blurred the boundaries between the realms of paid work, care provision, household chores, and leisure activities. This may be one reason why we do not find a strong and significant effect of school closures on time use: for many people, it may have been difficult – especially during such an exceptional situation – to classify whether an hour spent at home should be counted as childcare, paid work, housework, or leisure.

The heterogeneity analysis shows that, in countries with low gender equality, school closures increased unpaid work for women, suggesting that social norms are important in the design of policies such as NPIs. These findings highlight the importance of gender mainstreaming, which can help minimise the effect of such policies in widening gender inequalities. In addition, this approach can help

counteract any negative impacts via gender-responsive policies in the areas of social protection, labour market, and unpaid care (UN Women, 2022).

Beyond emergency-related policies, the findings also provide useful insights when considering the gendered implications of remote work practices in general. Remote work has the potential to facilitate flexibility in employment overall, enhancing opportunities for women's labour market participation. However, the potential negative implications of remote work – if implemented without appropriate support measures – include the exacerbation of gender division in unpaid work, as well as lower productivity, overwork and stress (UN Women, 2022). Investing in policies that promote gender equality, by providing accessible caregiving supports that enhance women's labour force participation for example, can yield multiple economic benefits. Profeta (2020) argues that such policies are essential for gender equality and a sustainable and fair society.

The remainder of the paper is structured as follows. In Section II, we provide information on the institutional background of school closures during the pandemic and discuss potential mechanisms through which they affect parental time use. In Section III, we present the main dataset and provide descriptive statistics. In Section IV, we present descriptive evidence about time use during periods when schools were open vs. closed, and perform a regression analysis based on panel data. Section V concludes.

II BACKGROUND AND MECHANISMS

2.1 Background: School Closures during the COVID-19 Pandemic

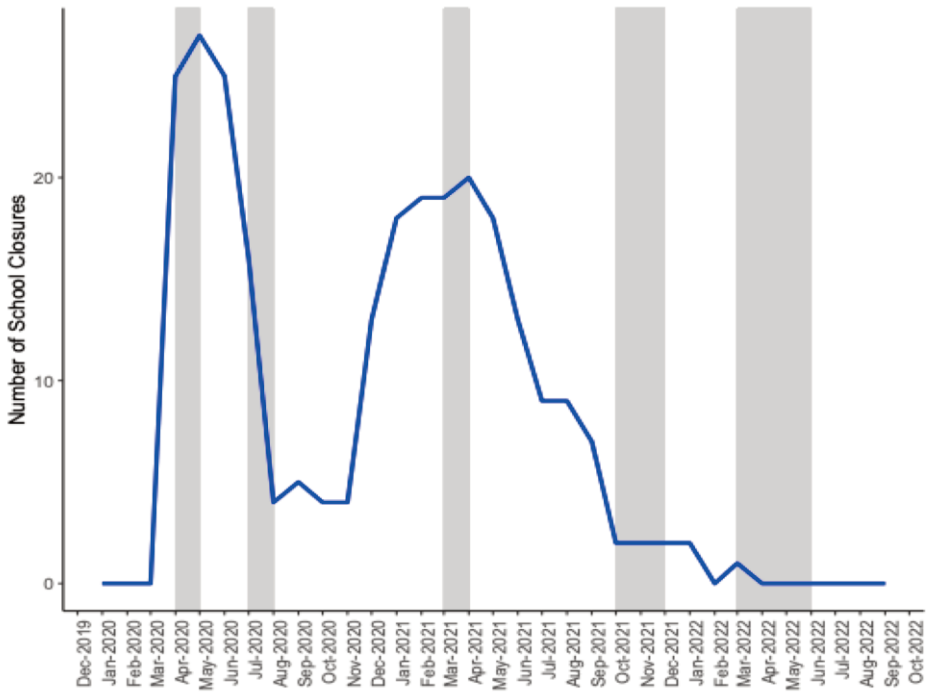
Throughout the surging and receding waves of infection that characterised the global COVID-19 pandemic, the European Union witnessed diverse and multifaceted approaches to school closure policies among its 27 Member States. National-level responses were shaped by many factors, including the severity of infection rates, healthcare infrastructure, economic considerations, and guidance from health authorities such as the European Centre for Disease Prevention and Control (ECDC, 2021). The complexity of school closure policies across the EU underscores the challenges in reconciling public health interventions with their socio-economic repercussions.

Most EU countries initiated school closures at the onset of the pandemic to reduce the transmission of SARS-CoV-2. Countries including Germany, France, Italy and Spain implemented nationwide school closures in March 2020 as part of their comprehensive lockdown strategies. However, some nations, like Sweden, adopted a different approach by keeping schools for younger children open with certain preventive measures in place. Concurrently, Denmark initiated prompt school closures but gradually reopened them, employing reduced class sizes and social distancing measures, along with a blend of online and in-person learning. Moreover, Belgium, the Netherlands, and Ireland implemented nationwide school

closures, with subsequent efforts focused on regionalised approaches to contain outbreaks. Similarly, Portugal, Greece and Austria implemented widespread school closures but monitored the epidemiological situation closely to determine reopening strategies.

Figure 1 summarises the extent of school closures across the EU over the period January 2020 – August 2022, and indicates the periods of data collection for the various rounds of Eurofound's *Living, Working and COVID-19* survey. In March 2020, almost all EU countries closed their schools. A second set of school closures coincided with the second COVID-19 wave in winter 2020/21. After the spring of 2021, school closures became less common, although some school closures took place in early 2022. By April 2022, all Member States had reopened schools.

Figure 1: Number of EU Member States Implementing School Closures



Source: Authors' analysis based on Eurofound's *Living, Working and COVID-19* survey and European Centre for Disease Prevention and Control's ECDC Country Response Database.

Notes: The line graph displays the number of EU Member States that implemented school closures during a given month between January 2020 and August 2022. The grey areas indicate the data collection periods of Eurofound's *Living, Working and COVID-19* survey. In the analysis, we use Waves 2-5, which were collected between July 2020 and June 2022.

2.2 Theoretical Considerations: School Closures and the Allocation of Paid and Unpaid Work

The immediate benefit that was sought from school closures during the COVID-19 pandemic was the curtailment of the transmission of the virus as a result of social distancing, providing scientists with valuable time for the development of vaccines to combat the virus and the incidence of the illness. Subsequent research suggests that the effect of school closures on the virus' spread was minimal at best (Fukumoto *et al*., 2021; Walsh *et al*., 2021).

As well as the intended benefit, school closures (and the use of digital learning technologies and remote learning) have been shown to impact the children in question, e.g. by affecting student motivation, academic performance and learning inequalities, as well as children's health and well-being (Hoffman and Miller, 2020; Rajmil *et al*., 2021; Hammerstein *et al*., 2021; Viner *et al*., 2022).

Standard economic models of the family predict that school closures lead to a disproportionate increase in childcare among women relative to men. According to the canonical model of Becker (1965), time allocation is determined at the household level. A household that is faced with an additional constraint – the fact that they have to take care of children at home during periods of school closures – can adjust its time allocation along various margins: it can spend less time on paid work or leisure, or multi-task. Once the canonical model is extended to families and single members of the households are considered, the allocation of time between men and women depends on each member's comparative advantage for generating work income and child-rearing (Becker, 1981). For example, the comparative advantage for child-rearing may stem from labour market discrimination against women, or from social norms. In families where men have a comparative advantage in earning income and women in child-rearing, school closures will increase the time a woman spends on childcare and lower the amount of time she spends on paid work. For men, the model predicts the opposite effect.

Although the standard model makes plausible predictions, it does not account for several empirical facts observed in many countries, for example that women perform the majority share of unpaid work in the home while working full time, constituting what has been termed the *Second Shift* (Hochschild, 1989). Work by Bianchi *et al*. (2012) shows that, although the share of housework done by women has decreased and the one done by men has increased since the 1990s, there is still an unequal division of housework and paid work in many households. In this context, it is possible that school closures reversed some of the progress towards greater gender equality in unpaid housework.

The existing literature examining COVID-19 pandemic school closure effects has focused in particular on parental time spent on paid and unpaid work tasks, as summarised in the introduction of this paper. The mechanism through which closures may impact people's time-use results from the children's need to spend more time at home, under adults' care and supervision, with the adults often also

providing or supervising education for the children. As a result of the increased demand for parental provision of care and education for children in the home, parents may have had less time available to engage in alternative activities such as paid work, leisure, care for other family members, or physical exercise. In addition, the extent to which time reallocation was needed or possible would have been contingent on the presence of another adult in the household, and in the case of parents engaged in paid work, on (both) parents' labour market status. Status includes the type of job (in particular, if remote work was possible, or if the job was deemed essential on the 'front line'), and the flexibility provided in the employment contract (e.g. allowing for reduced work hours).

Among parents, engagement in – and the time allocated to – various activities, is influenced not only by personal preferences and circumstances but also by social norms (Akerlof and Kranton, 2000). Existing gender inequalities are deeply grounded in social norms about women's and men's roles when it comes to issues such as labour market participation, unpaid work within the home, and leisure (Pailhé *et al*., 2021).

In summary, economic and sociological theory predicts that school closures lead to an increase in time spent on housework among women and a decrease in time spent on paid work. For men, the effect goes in the opposite direction, with more time spent on paid work and less on housework. This hypothesis is supported by the literature from the early phase of the pandemic. In the remainder of this paper, we test this hypothesis based on panel data that span the entire duration of the pandemic.

III DATA AND DESCRIPTIVE STATISTICS

3.1 Data

3.1.1 The Living, Working and COVID-19 Survey

Our main data source is the *Living, Working and COVID-19* (LWC) survey, administered by the European Foundation for the Improvement of Living and Working Conditions (Eurofound). The first round of the survey was launched in April 2020, during the first wave of the COVID-19 pandemic in Europe. To date, six survey rounds have been completed, the latest round having been fielded in 2023. We focus on the main intervention period of pandemic-related school closures, meaning that we analyse data collected up until the fifth survey round, fielded in May 2022. The period of the data collection covers the entire acute phase of the pandemic, in contrast to the surveys used in most other studies in related literature.

The LWC survey contains questions on a variety of topics, including demographics, attitudes toward society, physical and mental health, paid work and home life, as well as time use. The mean completion time for the survey ranged

between ten minutes (the first round) and 21 minutes (the fifth round). The survey covers all 27 EU Member States and was conducted online via the platform *SoSciSurvey*. The participants were recruited via uncontrolled convenience sampling, by publishing the link to the survey on social media, and through targeted advertisements that aimed to gain responses from under-represented groups. Over the five survey rounds, a total of 129,514 individual responses were recorded. The survey also includes a panel component: in each round, participants who completed the survey for the first time were invited to provide their email addresses to be re-contacted for follow-up surveys. Overall, 92,651 respondents participated in more than one survey round. A balanced panel is available for 3,872 respondents.

Many of the LWC survey questions have been used previously in the European Quality of Life Survey (EQLS) and the European Working Conditions Survey (EWCS), two long-running surveys administered by Eurofound. Because the survey is non-probabilistic, *a posteriori* weighting has been developed. Details on the weighting variables are provided in Appendix A.1. In all regressions, we apply the weights to reflect the socio-demographic composition of the European Union and its Member States.

Our main outcome variable is a respondent's self-reported time use. In different survey rounds, respondents were asked how many hours per week they spent on average, during the past month, on the following activities: (1) paid work; (2) caring for and/or educating children; (3) caring for elderly or disabled relatives; (4) food preparation, serving meals and washing dishes; (5) hours on cleaning and laundry; (6) gardening and home repairs; (7) shopping and transporting family members; (8) leisure; (9) volunteering and charitable activity; and (10) training and education. Respondents did not receive any further explanation about time use, such as the fact that a week has 168 hours or how to classify activities such as sleep.

Based on this information, we construct four main outcome variables. The first variable is *paid work*, which is the hours spent on paid work per week in the last month. The second variable *chores*, is derived by combining the information available on time spent in household production. This includes *housework* involving hours reported to have been spent on food preparation, serving meals, washing dishes, cleaning, laundry, gardening, house repairs, shopping and transporting family members as well as *childcare* involving the hours spent on unpaid childcare. We chose to construct *chores* as a broad measure of housework and childcare because during lockdowns it was often not clear whether a particular moment was spent on childcare, cooking or other household chores. The third variable is time spent on *leisure* activities. The outcome *any other activity* represents the residual of all activities that do not fall into one of the other categories.

In large parts of the analysis, we consider the outcome variable to be the share of a person's reported total time they spend on a given category. For example, for a respondent whose total time use is 100 hours, of which 40 hours are spent on paid work, the outcome variable *Share of time spent on paid work* is 40 per cent. We

use shares rather than absolute numbers of hours because the total number of hours reported by respondents varies considerably across respondents and over time. By taking shares, we hold the total amount of time constant and ask whether school closures affected the distribution of time spent on different items.

One challenge with survey data is missing information. Respondents typically did not answer all questions. We address missing information as follows. Regarding time use, if a respondent reported positive values for some time-use variables but not others, we coded the missing values as zero. If a respondent did not answer any time-use questions, we dropped these individuals from the sample. If individual, time-invariant characteristics were missing in one or more rounds of the panel, we impute these values from the remaining rounds. A description of the imputation procedure can be found in Appendix A.3.

3.1.2 Data on School Closures

The European Centre for Disease Prevention and Control (ECDC) tracked, daily, all the non-pharmaceutical interventions and response measures in various countries in the *ECDC Country Response Database* (ECDC, 2022). To match the LWC data with the information on school closures from the ECDC database, we take the interview date and construct a dummy that equals one if schools were partially or fully closed for more than 14 out of the preceding 28 days and zero otherwise. We construct the measure this way because of the retrospective nature of the time-use questions. These ask about a person's typical time use in the past four weeks. We consider schools as closed if, for more than two out of the last four weeks, at least one school type was closed, i.e. daycare, primary and secondary. An alternative would be to construct an indicator of whether schools were closed on the interview day. However, this indicator would be misleading if, for example, schools were open for most of the past four weeks but closed on the day of the interview. In Appendix A.7, we show how often respondents of the pooled cross-sectional dataset were interviewed during school closures. The largest number of respondents was interviewed once during school closures, although a considerable number were interviewed twice during school closures.

3.2 Estimation Sample and Descriptive Statistics

3.2.1 Estimation Sample

In the analysis, we use both the cross-sectional and the panel dimensions of the survey. To construct our estimation sample, we use survey rounds 2 to 5 (which include time-use information), resulting in a sample of 144,344 observations. We further drop respondents with missing information and implausible values in the time-use variables, leaving us with 139,030 observations. We further exclude observations where total time use – the sum across all categories mentioned in Section 3.1.1 – is greater than 185 hours per week (7,943 respondents). The

rationale for this restriction is that a week has 168 hours in total. Because people may not necessarily know about the total number when they fill in the survey, we allow for an additional 10 per cent, i.e. 185 hours.[1] Furthermore, we drop observations with time-use variables with unreasonably high values. For the outcomes *paid work*, *housework*, *volunteering*, *education and training*, we drop all observations with values greater than 100 hours per week (539 respondents). We do not apply the same restrictions for *leisure*, *care and/or education of children*, and *care for elderly or disabled relatives*, as it is plausible – yet unlikely— that people spend more than 100 hours per week on these activities. Because our focus is on parents, we also drop respondents who are older than 64 years of age (25,518 observations). With this age restriction, we focus on a group that is more likely to be parents than grandparents. Finally, we drop respondents with missing basic demographic information – age, gender, whether children live in the household, education, household type – and respondents who are singletons month-country strata, as these are excluded in the fixed effect estimation (82,495 observations). After applying these restrictions, our estimation sample consists of 22,544 observations, and a sub-sample balanced panel consisting of 3,374 respondents who participated in all survey rounds (2 to 5). Appendix A.4 illustrates the sample restrictions in a flow diagram. A replication package with all the codes for data cleaning and analysis can be found on the Harvard Dataverse: https://doi.org/10.7910/DVN/V5YAKM.

3.2.2 Descriptive Statistics

Table 1 displays the descriptive statistics of the cross-sectional data and the balanced panel of the main estimation sample. For respondents who answered in multiple survey rounds, we take the first available answer to all demographic questions and report the average time use across all survey rounds. For time-use variables, we report the average number of hours and the shares across all four survey rounds. The demographic characteristics of respondents in the balanced panel are similar to those in the cross-section.

The mean age of respondents is 48 years. Women make up 61 per cent of the respondents, 42 per cent live in a household with children, and 61 per cent live with a spouse or partner. *No children* means that no children are living in the same household. This category includes people with no children of their own as well as people whose children have moved out of the household or are not living there for other reasons. Two-thirds of respondents have a tertiary education and about one-third have a secondary-level education. Relative to the population, certain groups are over-represented in the sample. Respondents are on average older, more

[1] For respondents who provided time-use information in more than one survey round, we apply this restriction to the average total time use across all survey rounds for which this information is available. For example, if a person answered the questions twice and the total time use in Round 1 was 180 hours and in Round 2 was 200 hours, we take the mean (190) and exclude the respondent from the sample.

Table 1: Descriptive Statistics

	Full Sample					*Balanced Panel*				
	Mean	*SD*	*Min*	*Max*	*N*	*Mean*	*SD*	*Min*	*Max*	*N*
Age	47.93	11.90	18.00	64.00	22,544	48.53	11.66	18.00	64.00	3,374
Women	0.61	0.49	0.00	1.00	22,544	0.68	0.47	0.00	1.00	3,374
Children in household	0.42	0.49	0.00	1.00	22,544	0.42	0.49	0.00	1.00	3,374
Lives with spouse	0.61	0.49	0.00	1.00	22,544	0.63	0.48	0.00	1.00	3,374
Education										
Primary	0.02	0.15	0.00	1.00	22,544	0.03	0.18	0.00	1.00	3,374
Secondary	0.31	0.46	0.00	1.00	22,544	0.28	0.45	0.00	1.00	3,374
Tertiary	0.66	0.47	0.00	1.00	22,544	0.69	0.46	0.00	1.00	3,374
Family status										
Single, no children	0.28	0.45	0.00	1.00	22,544	0.25	0.43	0.00	1.00	3,374
Single parent	0.12	0.32	0.00	1.00	22,544	0.12	0.33	0.00	1.00	3,374
Couple, no children	0.30	0.46	0.00	1.00	22,544	0.33	0.47	0.00	1.00	3,374
Couple with children	0.30	0.46	0.00	1.00	22,544	0.30	0.46	0.00	1.00	3,374
Time-use data (hours per week)										
Paid work	27.44	19.83	0.00	100.00	22,544	29.39	17.51	0.00	73.75	3,374
Chores (childcare & housework)	19.62	19.89	0.00	185.00	22,544	18.63	16.32	0.00	116.25	3,374
Leisure	4.96	6.51	0.00	150.00	22,544	5.25	5.36	0.00	59.00	3,374
Other	12.26	13.64	0.00	160.00	22,544	12.54	12.06	0.00	93.50	3,374

Table 1: Descriptive Statistics (Contd.)

	Full Sample					*Balanced Panel*				
	Mean	*SD*	*Min*	*Max*	*N*	*Mean*	*SD*	*Min*	*Max*	*N*
Time-use data (shares)										
Paid work	43.31	34.12	0.00	100.00	22,544	47.09	33.28	0.00	100.00	3,374
Chores (childcare & housework)	33.17	28.80	0.00	100.00	22,544	29.81	27.01	0.00	100.00	3,374
Leisure	10.30	15.97	0.00	100.00	22,544	10.48	15.88	0.00	100.00	3,374
Other	13.21	21.12	0.00	100.00	22,544	12.62	20.75	0.00	100.00	3,374

Source: Authors' analysis based on Eurofound's *Living, Working and COVID-19* survey.
Notes: This table displays the descriptive statistics for the full sample and balanced panel. In the statistics of the balanced panel, each respondent is represented once. For the time-use variables, we report each respondent's panel average. For all other variables, we report the characteristics in the first available survey round. The total number of hours is taken to be a maximum of 185 hours per week. These data are not weighted.

educated, more likely to be women, and less likely to live in a household with children than the average adult in the EU. The fact that the sample is not representative of the EU population is potentially problematic because the responses of survey participants may differ substantially from those of the full population. To correct for non-representativeness, we apply the survey weights discussed in Section 3.1.1 in all regressions. We provide further information on the survey weights in Appendix A.1.

The average respondent in our sample spent 27 hours per week on paid work. They also spent about 19 hours on housework and childcare, five hours on leisure and about 12 hours on the remaining items. The table also reports the shares of the total time spent on these activities.

IV SCHOOL CLOSURES AND GENDER GAPS IN TIME USE: RESULTS

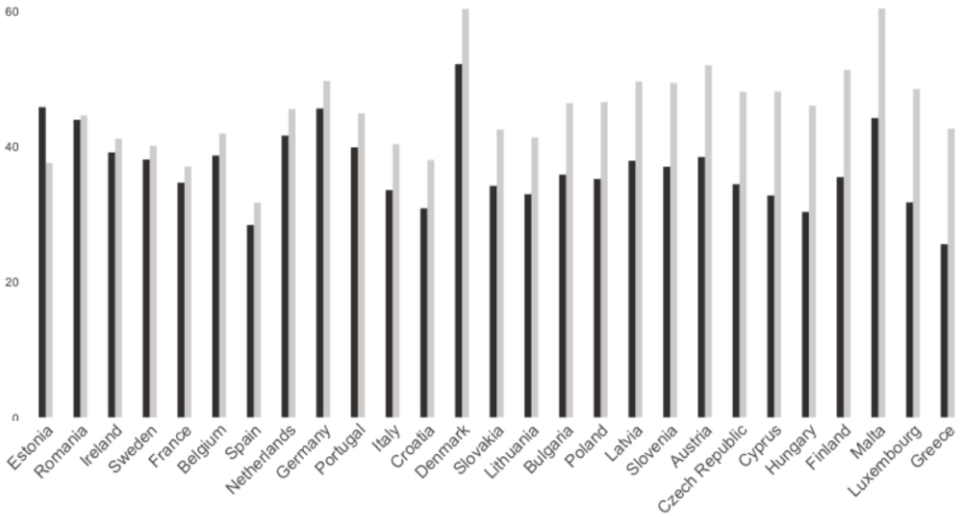
4.1 Descriptive Patterns

Before turning to the estimation results, we discuss descriptive patterns of time use for different groups during school closures and times when schools were open. Figures 2a and 2b show the average gender differences in the share of time spent on paid work and household chores, respectively. Each bar represents the share of an average woman's or man's weekly time spent on a particular activity. In all countries, women spent a smaller share of their time on paid work than men and a larger share of their time on household chores. The gender gaps in both variables range from near equality in time spent on paid work in France to women in Bulgaria spending twice the share of total time, compared to men, on household chores.

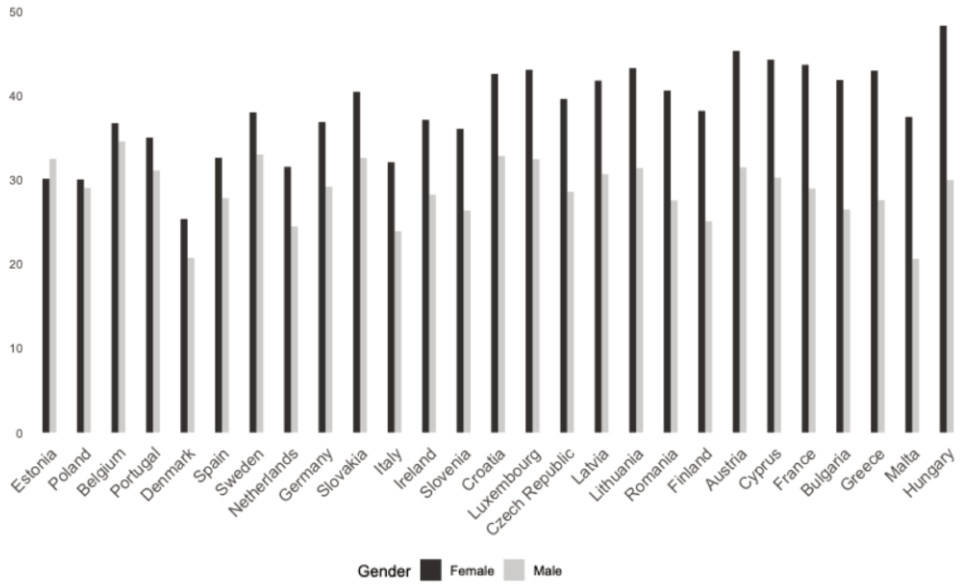
Figure 3 displays the average time use during times when schools were open vs. closed for different groups. Each "dumbbell" reports the share of total time spent on a given activity during periods when schools were closed (grey dots) vs. open (black dots). Several interesting patterns emerge. During periods of school closures, all groups reduced the share of time spent on paid work, with the reduction being more pronounced among women than among men. The smallest reduction in the share of time spent on paid work was among men without children, whereas women with and without children saw larger reductions, and these reactions were similar among women with and without children. All groups except men without children increased the share of time spent on household chores during school closures. The increase in the share of time spent on chores was larger for women than for men. When it comes to leisure, all groups except women without children reported a larger share of leisure time spent during periods of school closures. The increase in the share of leisure time was larger among men than among women. Panel d) shows an interesting difference between parents and non-parents, with parents spending less time on other non-leisure activities whereas non-parents spent a considerably larger share of their time on these items. As this time-use category includes

Figure 2: Share of Total Time Use (per cent) Spent on Paid Work and Chores by Gender

(a) Share of time spent on paid work by gender



(a) Share of time spent on chores by gender



Source: Authors' analysis based on Eurofound's *Living, Working and COVID-19* survey.
Notes: This graph displays the share of time spent on paid work and household production by men and women in the EU on average, sorted by the absolute difference of weighted means between men and women. The graphs are based on the pooled cross-sectional sample of the LWC survey.

education and training, as well as voluntary and charitable activities (as well as care for elderly and disabled relatives) it is plausible that non-parents engaged to a greater extent in such activities during the more severe stages of the pandemic, when many workplaces were closed and activities curtailed.

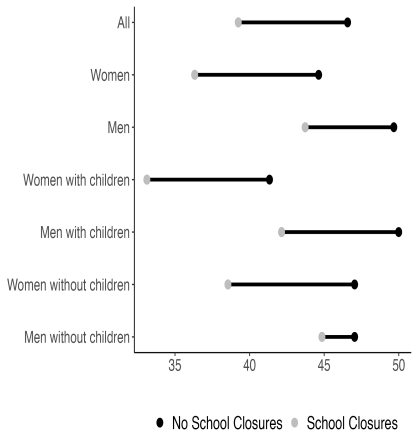
Overall, the descriptive patterns point to two dividing lines, namely between men and women, and between parents and non-parents. The difference in responses between men and women appears to be considerably stronger than the difference between parents and non-parents. For example, during school closures, women show stronger reductions than men in time spent on paid work, stronger increases in time spent on household chores, and smaller increases in the time spent on other non-leisure activities. Men without children show very little change in their behaviour, except for an increase in their self-reported leisure time.

4.2 Regression Analysis

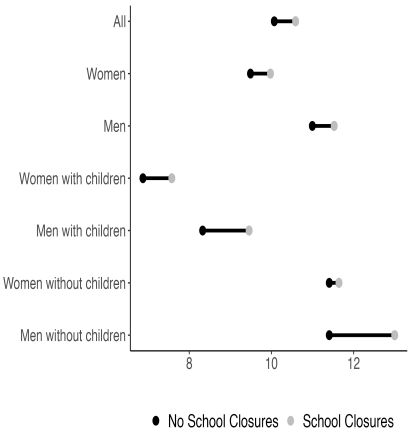
After documenting gender differences in time use and responses to school closures that differ by gender, we perform a more systematic analysis based on linear regression. Regressions allow us to control for predetermined characteristics and condition on country fixed effects, thus enabling us to compare respondents residing in the same country with similar characteristics who were surveyed during periods when schools were open vs. closed. Controlling for observable characteristics is particularly important if different demographic groups answered the survey at different times, for example, if people with children were less inclined to respond during school closures. The inclusion of control variables ensures that the results are not driven by the different demographics of respondents, but rather reflect the actual differences in time use in response to school closures. Another advantage of regressions is that we can exploit the panel structure of the survey. For 3,374 respondents who have answered the survey in all four waves, we can run regressions within individual-level fixed effects, allowing us to assess how the same person reacts to school closures. In the remainder of this section, we present the regression models along with the results.

In the discussion of the results, we distinguish between statistical significance (the strength of evidence against the null hypothesis that the true effect is zero) and economic significance (the size of the point estimate). This distinction is important because statistical significance does not tell us whether an effect is economically important. For example, a coefficient can be statistically significant – and, thus, we can rule out with confidence that it is zero – but it may be so small that its size is irrelevant for the population. On the other hand, a coefficient may be large but imprecisely estimated, and thus statistically insignificant. In that case, we cannot rule out that the true effect is zero, but our best guess points to a large effect. If the true effect was indeed that large, the effect would be highly relevant for the population, i.e. economically significant. However, because we cannot rule out a true effect of zero, we should not place too much emphasis on these coefficients.

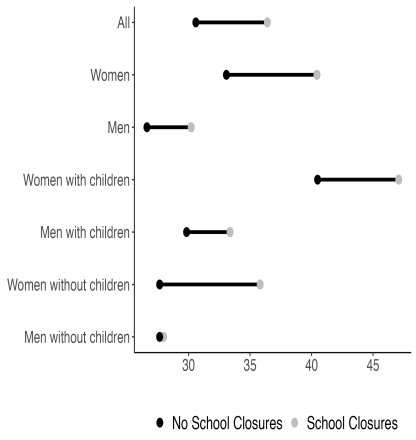
Figure 3: Time Use When Schools Are Open Vs. Closed



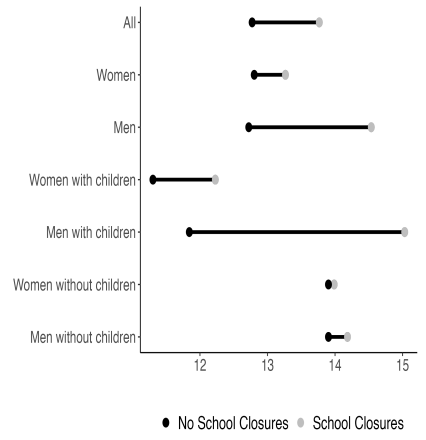
(a) Paid work



(c) Leisure



(b) Housework and Childcare



(d) Other

Source: Authors' analysis based on Eurofound's *Living, Working and COVID-19* survey and European Centre for Disease Prevention and Control's ECDC Country Response Database.

Notes: These graphs display the mean self-reported share (per cent) of total time spent on specific activities for respondents in our analysis sample, during school closures and periods when schools were not closed. The indicator "school closures" equals one if schools were closed on more than 14 out of the last 28 days and zero otherwise. This figure is based on the pooled cross-sectional sample of the LWC survey.

Unlike with statistical significance, there is no formal procedure to establish economic significance. Whether an effect is deemed economically significant depends on the benchmark we compare it to and is up to the interpretation of authors and readers. Nonetheless, as pointed out by Ziliak and McCloskey (2008), social scientists need to provide guidance on the size and relevance of an effect, not just the precision of the estimation procedure.

4.2.1 Gender Gaps in Time Use

We begin by estimating average gender gaps in time use. We estimate the following regression:

$$y_{i(c)t} = \beta_0 + \beta_1 female + X_{i(c)t}'\gamma + \delta_c + \delta_t + \varepsilon_{i(c)t} \quad (1)$$

The outcome variable is the time spent in a given category by person *i* who lives in country *c* during survey round *t*. We consider two measures for time use: the number of hours a person spent in a typical week in a given category, and the share of total time use a person spent in a given category. The regressor of interest is *female*, a binary indicator that equals unity if the person is female and zero otherwise. The vector of control variables, $X_{i(c)t}$, includes dummies for five-year age groups, dummies for education levels, marital status and whether children are present in the household. The country fixed effects δ_c absorb average differences in time use and right-hand side variables across countries. The month fixed effects δ_t absorb any overall trend over time.

The coefficient of interest, β_1, measures the average difference in time use between women and men within the same country. In specifications with control variables, it measures these average differences conditional on the control variables, that is, conditional on having similar demographic characteristics.

The error term $\varepsilon_{i(c)t}$ summarises all the determinants of time use that are not captured by the variables and fixed effects on the right-hand side. Our full sample contains multiple observations of respondents who participated in the panel survey. To account for serial correlation within respondents as well as within respondents residing in the same country, we cluster the standard errors at the country level.

The results, displayed in Table 2, show the average gaps in time use between men and women measured in hours (Columns 1-4) and share of total time (Columns 5-8), respectively. Each coefficient is the result of a separate regression. In Columns (1) and (5), we only condition on month fixed effects to absorb general time trends throughout the pandemic. In the remaining columns, we introduce control variables and country fixed effects.

On average, women spent around 4.5 fewer hours per week than men on paid work and seven hours more on chores, holding other factors constant. These gaps translate into women having spent 7.7 percentage points less of their total time on paid work, 10.4 percentage points more on household chores, and 2 percentage

Table 2: Gender Gaps in Time Use

	hrs/week				*share of total time use*			
	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*
A. Paid work								
Women	–4.356***	–5.283***	–4.018***	–4.992***	–7.590***	–7.841***	–6.825***	–7.365***
	(1.027)	(0.818)	(0.988)	(0.790)	(1.628)	(1.432)	(1.576)	(1.397)
B. Housework & Childcare								
Women	7.170***	5.864***	7.107***	5.980***	10.119***	10.114***	10.378***	10.340***
	(1.003)	(0.692)	(0.995)	(0.684)	(1.117)	(1.021)	(1.100)	(1.011)
C. Leisure								
Women	–0.311	–0.485	–0.457	–0.564	–1.219	–1.008	–1.514*	–1.223
	(0.390)	(0.378)	(0.375)	(0.359)	(0.875)	(0.818)	(0.818)	(0.765)
D. Other time use								
Women	0.261	–0.096	–0.244	–0.424	–1.310	–1.265	–2.039*	–1.752*
	(0.739)	(0.598)	(0.706)	(0.585)	(1.215)	(0.955)	(1.155)	(0.921)
Country FE	No	No	Yes	Yes	No	No	Yes	Yes
Month FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Individual FE	No	No	No	No	No	No	No	No
Ind. controls	No	Yes	No	Yes	No	Yes	No	Yes
N	22,544	22,544	22,544	22,544	22,544	22,544	22,544	22,544

Source: Authors' analysis based on Eurofound's *Living, Working and COVID-19* survey and European Centre for Disease Prevention and Control's ECDC Country Response Database.

Notes: This table displays the estimates from cross-sectional regressions of time-use variables on a female dummy and controls and fixed effects listed at the bottom. Month fixed effects refer to unique month-year combinations. Individual controls in Columns (2) and (4) include a control for the total number of hours of time use indicated by the participant. The time-use variables in Columns (1)-(4) refer to hours spent on a given category in a typical week, whereas those in Columns (5)-(8) refer to the share of total time use. The standard errors are clustered at the panel level. Significance levels: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

points less on leisure. There appears to be no statistically or economically significant gap in leisure or other time use (Panels C and D). The coefficients are stable across columns, which suggests that the inclusion of control variables does not have a strong influence on the estimation results. This result is important because it alleviates the concern that gender gaps in time use are related to differences in other demographic characteristics rather than gender differences.

4.2.2 School Closures and Time Use

To estimate the average difference in time use during times when schools were closed vs. open, we run the following regression:

$$y_{i(c)t} = \beta_0 + \beta_1 SC + X_{i(c)t}'\gamma + FE + \varepsilon_{i(c)t} \quad (2)$$

The outcome $y_{i(c)t}$ is the share of total time use person *i* spends in a given category in period *t*. The vector of control variables is the same as in Section 4.2.1. The fixed effects *FE* vary by the datasets we use. In Table 3, we use the cross-sectional dataset and condition on month and country fixed effects, i.e. $FE = \delta_c + \delta_t$. In Table 4, we use the panel dataset and condition on month and individual fixed effects, i.e. $FE = \delta_i + \delta_t$. Because we have multiple observations for a subset of the cross-sectional dataset, we cluster the standard errors at the individual level.

In Table 3, each coefficient is the result of a separate regression of a person's share of total time spent on a given category, an indicator for school closures (SC), individual controls and month and country fixed effects. Each column displays the results for the subgroups shown at the top of the columns. All coefficients in Columns (1)-(5) are statistically insignificant. This result is interesting because the gaps in time use between periods with and without school closures in the raw data, shown in Figure 3, are sizeable. However, once we control for demographic characteristics and country fixed effects, the gaps become considerably smaller and statistically insignificant. One explanation could be that different types of people answer the survey during periods of school closures vs. openings. For example, the reduction in the coefficient size is consistent with people who have more free time being more likely to answer the survey during periods of school closures.

To further address the challenge of omitted variables, we estimate panel regressions with individual and month fixed effects. The results, shown in Table 4, confirm some of the cross-sectional results but present different results for some groups and outcomes. Column (1) suggests that, overall during times of school closures, people increased the share of time spent on paid work and household chores and reduced the share spent on leisure and other items. However, this average effect is small – less than one percentage point in all outcomes – and masks some interesting heterogeneity. Women on average reduced the share of time spent on paid work and increased the share spent on chores, whereas for men the opposite holds. Men increased the share of time spent on paid work by 4.2 percentage points

Table 3: Impact of School Closures on Time Use – Pooled Cross-sectional Estimates

	All	*Women*	*Men*	*With children*	*Without children*
	(1)	*(2)*	*(3)*	*(4)*	*(5)*
A. Paid Work					
School Closure	–0.097	–1.456	0.363	0.342	–0.533
	(1.770)	(2.230)	(2.566)	(2.519)	(2.417)
B. Housework and Childcare					
School Closure	–1.196	1.062	–2.339	–1.810	–0.653
	(1.396)	(1.935)	(1.788)	(2.103)	(1.799)
C. Leisure					
School Closure	1.035	–0.469	2.218	2.571	–0.238
	(1.198)	(1.226)	(1.833)	(1.589)	(1.661)
D. Other Time Use					
School Closure	0.257	0.863	–0.242	–1.103	1.424
	(1.386)	(1.719)	(2.015)	(2.047)	(1.846)
N	22,544	13,768	8,776	9,484	13,060

Source: Authors' analysis based on Eurofound's *Living, Working and COVID-19* survey and European Centre for Disease Prevention and Control's ECDC Country Response Database.

Notes: This table displays the estimates from cross-sectional regressions of time-use variables (share of total time) on a school closure dummy, individual controls and fixed effects for country and month. Month fixed effects refer to unique month-year combinations. Observations are weighted by survey weights. The standard errors are clustered at the individual level. Significance levels: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

and reduced the share of chores by one percentage point. In contrast, we find no consistent pattern between people with and without children.

The fact that the panel estimates in Table 4 are larger than the cross-sectional estimates in Table 3 suggests that the cross-sectional estimates may be biased by unobserved heterogeneity between people who answer during periods when schools are open and closed. The panel regressions eliminate any average differences between respondents that could affect the results and instead only exploit variation within respondents. For this reason, we consider the panel estimation more trustworthy. Additionally, separate results for housework and childcare can be found in Tables B.1 and B.2 in the Appendix. One should, though, interpret the results as suggestive, given the low level of statistical significance.

Table 4: Impact of School Closures on Time Use – Panel Estimates

	All (1)	*Women* (2)	*Men* (3)	*With children* (4)	*Without children* (5)
A. Paid Work					
School Closure	0.931	–2.880	4.277*	2.080	0.853
	(2.828)	(5.034)	(2.425)	(2.287)	(3.930)
B. Housework and Childcare					
School Closure	0.751	2.840	–1.022	–1.341	1.253
	(2.546)	(4.654)	(2.169)	(2.863)	(3.284)
C. Leisure					
School Closure	–0.894	0.186	–2.689	–0.121	–0.771
	(1.610)	(1.930)	(2.088)	(2.425)	(2.068)
D. Other Time Use					
School Closure	–0.787	–0.145	–0.566	–0.619	–1.336
	(1.473)	(2.389)	(1.572)	(2.772)	(1.787)
N	3,374	2,291	1,084	1,415	1,962

Source: Authors' analysis based on Eurofound's *Living, Working and COVID-19* survey and European Centre for Disease Prevention and Control's ECDC Country Response Database.

Notes: This table displays the estimates from regressions of time-use variables (share of total time) on a school closure dummy and fixed effects for individuals and months. Month fixed effects refer to unique month-year combinations. Observations are weighted by survey weights. The standard errors are clustered at the individual level. Significance levels: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

4.2.3 Heterogeneous Effects: Parental Status and Gender Norms

After showing that the responses to school closures differ between men and women, we assess whether the responses differ between respondents with and without children and across countries with different gender norms.

We estimate the following interaction model using the panel data:

$$y_{i(c)t} = \beta_0 + \beta_1 SC_{c(i)t} \times kids_{i(ct)} + \beta_2 SC_{c(i)t} + X_{i(c)t}'\gamma + \delta_i + \delta_t + \varepsilon_{i(c)t} \qquad (3)$$

The variable $kids_{i(ct)}$ is a binary indicator that equals unity if a respondent has children in the household and zero otherwise. We do not include this variable as a separate regressor because it does not vary at the individual level over the sample period and, thus, gets absorbed by the individual fixed effects. Our coefficient of interest is β_1, which measures the difference in the response to school closures between respondents with and without children in the household.

We estimate this model separately for men and women and respondents in countries with high vs. low gender equality. As a marker for gender norms, we use the gender wage gap in 2019 reported by the OECD (OECD, 2019) – see Appendix A.2 for details. We classify countries as having a high gender equality if their unadjusted gender wage gap is above the median and as having a low gender wage gap if it is below the median.

The results are shown in Table 5. Each panel shows the coefficients $\beta_2(SC_{c(i)t})$ and $\beta_1(SC_{c(i)t} \times kids_{i(ct)})$ from Equation (3) for the subsamples indicated at the top. The outcome variables are the shares of total time spent on a particular item. The coefficient $\beta_2(SC_{c(i)t})$ can be interpreted as the benchmark effect of the pandemic because this is the effect for non-parents, who were not directly affected by school closures. The coefficient of the interaction effect can be interpreted as the additional effect of school closures relative to general adjustments due to lockdowns or other pandemic measures. All regressions include controls for individual characteristics, month fixed effects and individual fixed effects. As such, the coefficients have a *ceteris paribus* interpretation, that is, holding other factors constant. In Columns (1)-(3), we consider the entire balanced panel.

Column (1) shows the results for the full sample. The coefficients of SC and (SC x kids) go in opposite directions, suggesting that respondents with children may have reacted differently to school closures than those without. However, none of the effects is statistically significant. Thus, there is a strong possibility that the true effects are zero and respondents did not change their time use in a meaningful manner during periods of school closures.

Columns (2) and (3) show significant differences between countries with high vs. low gender equality. In countries with high gender equality, we find suggestive evidence that parents respond to school closures by working less than non-parents; in countries with low gender equality, they work relatively more, although both effects are statistically insignificant. The effects on chores, leisure, and other time use also differ between both types of countries. In countries with low gender equality, the gap between parents and non-parents widens mostly in leisure – parents increase the share of time spent on leisure by around 6 percentage points relative to non-parents. In countries with high gender equality, the relative effects on chores as well as leisure were smaller.

In Columns (4) and (7), we consider separate effects for women and men, respectively. Some differences in the responses to school closures are evident. Men, be they parents or not, spent a larger share of their time on paid work – around 5 percentage points for men without children and around 3 percentage points for men with children. The results for women are statistically insignificant, although the point estimates suggest that women reduced their time spent on paid work and this change was potentially more pronounced among women with children than among those without. When it comes to other categories, the responses are sometimes stronger among women and sometimes among men. Several effects are statistically

significant. For example, women with children considerably increased the time spent on other activities, which includes care for the elderly and education and training. We find no such effect among men. Among men without children, we see a significant reduction in leisure time, whereas we see no such effect among men with children or women in general.

In Columns (5), (6), (8) and (9), we split the sample further and separately consider women and men in countries with high and low gender equality. Among women, we do not find statistically significant effects except for other items in Panel D. Nonetheless, the difference in coefficients between countries with high vs. low gender equality in Columns (5) and (6) is interesting. In countries with low gender equality, women considerably reduced the share of time spent on paid work and increased the share of time spent on chores. These effects were less pronounced for women with children, but still sizeable. In countries with high gender equality, the effects are smaller and go in the opposite direction. Among men, we also find differences between those in countries with high and low gender equality. In countries with high gender equality, men with children responded to school closures with an increase in the time spent on housework and childcare of around 4.5 percentage points, whereas those without children decreased the time spent on chores. Conversely, men without children spent considerably more time on paid work – around 9.8 percentage points – whereas the increase among men with children was less than half of that, around 4.6 percentage points. Men with and without children spent less time on leisure, with a reduction of about 8 percentage points. In countries with low gender equality, we see little difference in the reaction to school closures between men with and without children when it comes to paid work or chores. The only significant difference we see is in leisure time. During school closures, men with children increased the share of time spent on leisure by over 10 percentage points whereas we find no significant change among men without children.

In Appendix B.2 and B.3, we perform the same analysis using interactions with dummy variables and with the cross-sectional data based on regressions with country and month fixed effects, respectively. The coefficients mostly have the same sign although the magnitude is somewhat smaller.

4.3 Discussion

The empirical analysis in Sections 4.1 and 4.2 has two purposes. First, we present new descriptive evidence on how men's and women's time use responded to school closures during the COVID-19 pandemic. Second, guided by the previous literature and the public discussion about women shouldering a heavier caregiving burden during the pandemic, we test two hypotheses: (i) women experienced a disproportionate increase in unpaid work during school closures compared to men, and (ii) men increased their time spent on paid work relative to women during periods of school closures. If both these hypotheses were true, this would mean that

Table 5: Heterogeneous Effects – Panel Estimates

	Full dataset			*Women*			*Men*		
	All (1)	*High GEI* (2)	*Low GEI* (3)	*All* (4)	*High GEI* (5)	*Low GEI* (6)	*All* (7)	*High GEI* (8)	*Low GEI* (9)
A. Paid Work									
SC	1.520	7.387**	–5.401	–2.596	4.419	–10.920	4.982*	9.835**	–0.024
	(3.615)	(2.920)	(6.529)	(6.522)	(3.071)	(10.927)	(2.860)	(4.594)	(3.514)
SC x kids	–1.448	–4.317	2.365	–0.825	–3.739	3.027	–1.805	–5.252	–0.867
	(2.768)	(2.793)	(4.501)	(4.462)	(4.159)	(5.746)	(2.977)	(4.274)	(4.761)
B. Housework & Childcare									
SC	1.923	–2.605	5.778	6.021	–2.873	12.750	–1.571	–2.849	–1.278
	(3.391)	(2.579)	(5.737)	(6.198)	(3.515)	(9.048)	(2.588)	(3.405)	(3.564)
SC x kids	–2.884	1.291	–7.129	–7.575	–3.058	–5.437	–1.405	7.292*	–4.886
	(3.173)	(2.821)	(5.165)	(5.107)	(3.727)	(5.723)	(3.381)	(4.098)	(5.039)
C. Leisure									
SC	–1.996	–3.750	0.040	–0.789	1.547	–1.235	–3.707*	–8.069**	0.937
	(1.639)	(2.631)	(2.106)	(2.234)	(3.339)	(3.295)	(2.188)	(3.367)	(2.054)
SC x kids	2.709	–0.016	6.431**	2.402	–1.449	1.231	2.606	–0.418	9.274**
	(2.079)	(2.927)	(3.256)	(2.712)	(3.739)	(2.846)	(3.112)	(4.312)	(4.307)

Table 5: Heterogeneous Effects – Panel Estimates `(Contd.)

	Full dataset			*Women*			*Men*		
	All (1)	*High GEI* (2)	*Low GEI* (3)	*All* (4)	*High GEI* (5)	*Low GEI* (6)	*All* (7)	*High GEI* (8)	*Low GEI* (9)
D. Other Time Use									
SC	–1.447	–1.032	–0.418	–2.636	–3.093	–0.595	0.295	1.082	0.365
	(1.633)	(2.074)	(2.339)	(2.717)	(3.712)	(3.761)	(1.778)	(2.174)	(2.462)
SC x kids	1.623	3.043	–1.667	5.997**	8.246*	1.178	–2.205	–1.622	–3.521
	(1.985)	(2.590)	(2.928)	(2.967)	(4.204)	(3.626)	(2.387)	(2.946)	(3.902)
N	3,374	1,686	1,677	2,288	1,140	1,142	1,084	546	535

Source: Authors' analysis based on Eurofound's *Living, Working and COVID-19* survey, European Centre for Disease Prevention and Control's ECDC Country Response Database and Gender Wage Gap Index by OECD (2019) and Eurostat.

Notes: This table displays the estimates from regressions of shares of total time use on the full interactions between the dummies for school closure and children, month fixed effect and individual fixed effects for the weighted panel data. Here 'SC' refers to school closures. Month fixed effects refer to unique month-year combinations. The dataset in Columns (1)-(3) includes all respondents from the main estimation sample. The dataset in Columns (4)-(6) only contains respondents who are female. The dataset in Columns (7) – (9) only includes respondents who are male. The standard errors are clustered at the individual level. The labels High GEI and Low GEI refer to countries with above- and below-average gender wage gaps, respectively. Observations are weighted by survey weights. Significance levels: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

school closures led to a significant widening of the gender gap in paid and unpaid work.

The descriptive evidence in Figures 2 and 3 and Table 2 reveals two important patterns: it shows that the allocation of paid and unpaid work generally differs between men and women and that the time spent on paid and unpaid work changed during periods of school closures. The aggregate statistics in Figure 2 and the regression results in Table 2 point to significant gender differences. Figure 2 shows that in most EU countries during the pandemic, women spent considerably more time on household chores and less time on paid work than men, as evidenced also outside of the pandemic period. In Table 2, we control for observable characteristics, thus comparing women and men with otherwise similar characteristics. Still, the gap in paid and unpaid work remains. Moreover, Figure 2 shows that the gender gaps differ significantly between countries. Similar results have been documented before by Bianchi *et al*. (2012), Fleche *et al*. (2020), Hook (2010), Horne *et al*. (2018), and Mandel *et al*. (2020), among others. Figure 3 also suggests that people changed their time use during periods of school closures. Across demographic groups, people spent less time on paid work and more time on household chores, leisure and other items. These results are in line with evidence from the onset of the pandemic, for example, Albanesi and Kim (2021), Oreffice and Quintana-Domeque (2021) or Farré *et al*. (2022).

After having established that gender gaps in time use and responses to school closures exist, we turn to the interaction effects and study whether the response of women to school closures differed from that of men. The descriptive evidence in Figure 3 does not point to differential responses between men and women: the share of time spent on paid work decreased to the same extent for men as it did for women. Likewise, the share of time spent on household chores and leisure increased to a similar extent for women and men. We do see, though, differences in the responses between parents and non-parents. For example, men with children spent more time on household chores whereas for men without children, the time use remained constant. Overall, these descriptive statistics do not confirm our hypotheses, namely that school closures caused shifts in the allocation of paid and unpaid work that widened the gender gaps overall.

In Tables 3 and 4, we perform a more systematic analysis based on linear regressions. The regressions offer the advantage that we can control for observable differences between male and female respondents to the survey and we can apply survey weights to make the sample representative of the population in the EU. In the panel regressions in Table 4, we can also condition on individual fixed effects, allowing us to exploit within-person variation and observe the same people during periods when schools are open and closed. As in the descriptive statistics, we do not find evidence in support of our hypotheses, namely that school closures led to a disproportionate shift of unpaid work towards women and an equivalent shift in paid work towards men. This result may appear surprising in light of results from

the early phase of the pandemic, which pointed to a significant widening of the gender gap in paid and unpaid work (e.g. Adams-Prassl *et al*., 2020; Zamarro and Prados, 2021; Andrew *et al*., 2022).

One explanation for the difference in results could be that responses were more pronounced in the early phases of the pandemic, whereas throughout the entire pandemic, the difference in responses between men and women turned out not to be as drastic. As furloughs ended and the pressures on 'frontline' workers eased after the initial phase of the pandemic, families adapted to the new situations, while also being able to rely more on support from outside of the household. In Table 5 we explore another explanation, namely social norms. The responses may differ between countries with high vs. low gender norms. On average, these responses may cancel each other out. The results in Table 5 point in this direction. When we split the sample between countries with high and low gender equality, we often find effects of opposite signs. For example, in countries with high gender equality, men responded to school closures by spending less time on leisure activities, whereas in countries with low gender equality, men spent more time on these activities.

4.4 Limitations

The advantages of our analysis compared to previous studies on the allocation of paid and unpaid work during the COVID-19 pandemic are that our data cover almost the entire duration of the pandemic, have a panel structure, and cover many countries. Once we consider many countries and a longer time horizon, our results suggest that the initial fear that the pandemic widened the gender gap in paid and unpaid work may have been exaggerated.

However, because the data were collected during the pandemic, our study also has several limitations. One limitation is the survey design. During the pandemic, data collection was challenging because many demographic groups were hard to reach and surveys could not be conducted face-to-face. This means that sample sizes per country are relatively small, the samples are not representative of the population and some of the information may be noisy. We corrected for the non-representativeness with survey weights, but we cannot rule out that some results would be more precisely estimated with less noisy data. A further limitation is the fact that the time-use information is self-reported and, thus, may suffer from measurement error and recall bias (Juster, 1986; Niemi, 1993). Both problems can lead to noisy estimates and systematic biases in the estimation. One advantage of our study is the availability of panel data. To the extent that recall bias and measurement error remain constant within individuals, they can be captured by individual fixed effects. Still, it is possible that a person's perception of their time use changed throughout the pandemic, which may result in biased or noisy estimates.

Another potential limitation is the definition of paid work, household chores, leisure and other categories. In non-pandemic times, these definitions may be

clearer because each category is typically carried out in a different location and at different times. During the pandemic, many people were forced to do everything at home: paid work, household work, childcare, etc. Moreover, people may have engaged in several activities simultaneously, such as paid work or housework while looking after children. From our data, we do not have a good grasp of the extent of multitasking. It is possible that we do not find differential responses by men and women because people found it harder to classify different tasks during the pandemic. However, we also see in Figure 3 that people did respond to school closures in entirely plausible ways – they spend more time on housework and leisure and less on paid work. Based on this result we believe that the misclassification of time-use items cannot account for the absence of a differential response between men and women.

Finally, based on the information in the survey, we only have a coarse definition of parents, namely everyone with children in their home. Thus, we group together parents with small children who may need a lot of care and those with teenagers who may be more independent and less in need of supervision. With clearer information about a child's age, we could draw more precise comparisons between parents with younger vs. older children.

4.5 Additional Analysis

In Appendix B, we perform several robustness checks. In Appendix B.1 we show that our results remain similar when we split the outcome *housework and childcare* into separate components *housework* and *childcare.* In Appendix B.2, we present a heterogeneity analysis based on interactions of the school closure dummy with indicators for men with children, women with children and women without children. The results are similar to those in Table 5.

V CONCLUSION

In this paper, we study whether school closures during the COVID-19 pandemic led to a change in the time allocation of men and women. We combine daily data on school closures across the EU with data from Eurofound's *Living, Working and COVID-19* online survey, which includes respondents from the 27 EU Member States, surveyed up to four times during two years between 2020 and 2022 that spans the acute phase of the pandemic. The survey data include information on people's time use in various categories. An important feature of the survey is a panel component, which allows us to compare the time use of the same people during times when schools were open and closed. To separate the effect of school closures from the impact of other non-pharmaceutical interventions, we compare respondents with and without children. The logic behind this comparison is that everyone is affected by lockdowns and other pandemic-related restrictions that are

likely to impact time use, whereas only parents are directly affected by school closures.

Our results turn out to be more nuanced compared to those from the previous literature, which mainly focuses on the early stage of the pandemic. Although the descriptive evidence shows that women tend to spend more time on housework than men and men tend to spend more time on paid work than women, we do not see differential responses to school closures. Overall, people reduced the time spent on paid work and increased the time spent on household chores and leisure. However, our results do not support the hypothesis that school closures had a disproportionate impact on the time women spend on household chores and childcare. An interesting set of results emerges when we compare parents to non-parents. School closures induced parents to spend a larger share of their time on leisure and a smaller share on chores, whereas the share of time spent on paid work remains approximately constant. Another interesting finding is that the effects are more pronounced in countries with low gender equality. In those countries, we find that school closures induced women to spend more time on housework and childcare and less on paid work, whereas for men, the opposite is true. We find no such effect in countries with high gender equality. If anything, the effect in these countries goes in the opposite direction.

For policymakers, these results highlight the importance of recognising the role of gendered social norms in societies. On the one hand, as the findings presented in this paper highlight, shocks such as the COVID-19 pandemic that disrupt support networks and services such as children's education and care can serve to shed light on the gendered divisions of tasks within families. The increase in remote work – instigated by the necessity to ensure social distancing during the pandemic – can increase flexibility in paid work, potentially narrowing gender gaps by increasing women's labour market participation, and by allowing men to take on a more prominent role in the unpaid work carried out in the home. On the downside, the challenges presented by increased remote work include the potential implications for work-life balance if a reallocation of time use runs in the direction of increased paid work being carried out by women, without the corresponding increase in time allocated to unpaid work among men. As the pandemic experience highlights, it is vital in this regard that there are adequate and accessible childcare supports in place that families can avail of. In addition, remote work carries the risk of blurring boundaries between different responsibilities, activities and realms of life, as also indicated by our research.

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DATA APPENDIX

A.1 Details on Survey Weights

The survey data were weighted using the following variables: **Age crossed with gender**: 12 combinations: 18-24, 25-34, 35-44, 45-54, 55-64, 65+, male and female. People who answered "in another way" to the question on gender were randomly allocated to male and female groups for weighting purposes. Targets for age and gender were 2020 Eurostat estimates by country for the population aged 18 years and over. **Urbanisation**: two categories: urban and rural, based on a respondent's assessment collected in four urbanisation categories. For weighting, respondents with missing values were randomised into the categories. Targets for urbanisation were (weighted) estimates for self-defined urbanisation from the 2016 European Quality of Life Survey by country, using the same question, by age, gender and country. **Education**: two categories: tertiary and non-tertiary. For weighting, respondents with missing values were randomised into the two categories. Targets for education levels were results from the 2020 Labour Force Survey by age, gender and country. The limit for discrepancy for selecting variables was set at 0.05 (5 per cent). The cap (maximum weight) started at 4 and was increased for each country in the function until convergence, minimum weight was set at 0.05. Extreme weights were trimmed. The resulting weights were grossed up to adult population size by country, then rescaled to have a mean of 1.

A.2 Data on Gender Wage Gaps

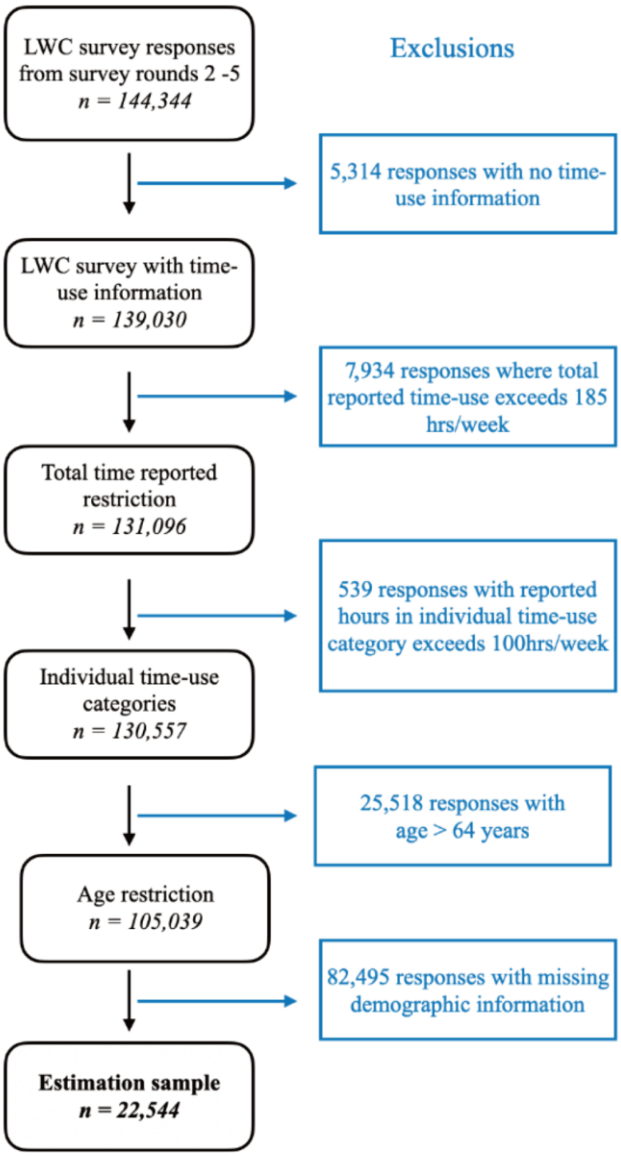
The primary data source for constructing the Gender Wage Gap Index was the OECD dataset on the gender wage gap for the year 2019 (OECD, 2019). Data are missing for three countries: Malta, Luxembourg, and Slovenia. To address this data gap, additional information was obtained from Eurostat. To reconcile the missing data, we conducted a correlation analysis between the OECD dataset and the Eurostat dataset, resulting in a correlation coefficient of 0.676, indicating a moderate positive correlation between the two datasets. To assess the reliability of the imputed values, we conducted a thorough validation process, involving comparing the imputed gender wage gap values with any available alternative data sources and cross-referencing the results with other relevant socio-economic indicators to ensure internal consistency.

A.3 Imputation Process in Panel Dataset

We address missing data within longitudinal datasets using a simple imputation process. We identify consecutive non-missing observations followed by a missing one within each individual's panel sequence. The missing value is then imputed by replacing it with the last non-missing observation within that sequence. This approach maintains temporal continuity in individual observations while minimising the impact of missing data on our analyses.

A.4 Estimation Sample: Flow Chart

Figure A.1: Sample Creation and Exclusion Process



Source: Authors' analysis based on Eurofound's *Living, Working and COVID-19* survey.
Notes: This flowchart outlines the steps taken to create and exclude data for the estimation sample. Starting with the initial LWC dataset, records are excluded based on predefined criteria to ensure data quality and relevance.

Figure A.1 illustrates the systematic process used to create and refine the estimation sample, as detailed in Section 3.2.1 of the main text. Starting with the raw LWC dataset, we applied a series of exclusion criteria to remove incomplete records, outliers, and other non-relevant data points. Each step in the flowchart represents a crucial filtering process, ensuring that the final sample is both robust and representative for reliable estimation.

A.5 Classification in Countries with High vs. Low Gender Equality

To measure gender equality, we classify countries into those with high and below-average gender wage gaps. This classification is based on the Gender Wage Gap Index constructed using the OECD dataset for the year 2019 (OECD, 2019), which provides comprehensive information on gender wage disparities across various countries.

Table A.1: Gender Equality in Countries

Low Wage Gap	*High Wage Gap*
Belgium	Austria
Bulgaria	Cyprus
Croatia	Czechia
Denmark	Estonia
Greece	Finland
Ireland	France
Italy	Germany
Lithuania	Hungary
Luxembourg	Latvia
Malta	Netherlands
Poland	Portugal
Romania	Slovakia
Slovenia	
Spain	
Sweden	

Source: Authors' analysis based on the Gender Wage Gap Index from OECD dataset (OECD, 2019) and supplemented by data from Eurostat.
Notes: The table displays the classification of countries into those with low and high gender wage gaps based on the Gender Wage Gap Index. Countries are grouped into two categories: those with low wage gaps and those with high wage gaps. This classification is derived from the OECD dataset (OECD, 2019) and supplemented by data from Eurostat.

A.6 Ethics, Data Access and Replication Codes

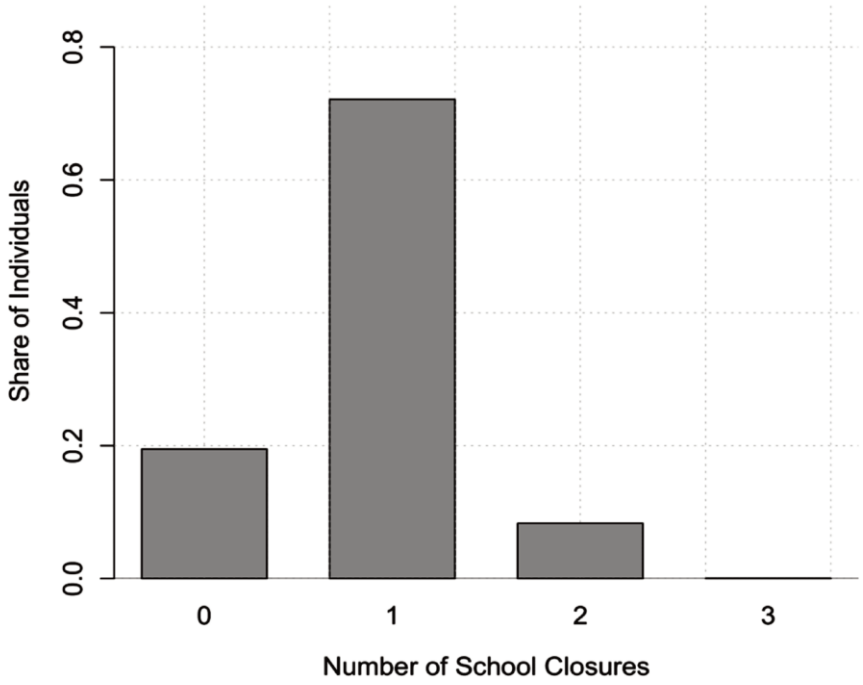
This research is based on secondary data and, thus, does not require ethics approval. The main dataset, the survey *Living, Working and COVID-19*, is confidential. Users who want to access the data for replication purposes can apply for data access with

Eurofound. We provide a replication package on Harvard Dataverse that includes all the codes that allow other researchers to replicate the findings of the paper. The replication package can be accessed here: https://doi.org/10.7910/DVN/V5YAKM.

A.7 Number of School Closures per Respondent

Figure A.2 displays the distribution in the number of school closures in the cross-sectional dataset. This dataset also contains all the panel observations, meaning that we can observe some participants multiple times. The graph shows that 20 per cent of survey responses were recorded in periods when schools were open. In around 70 per cent of cases, we observe an individual when schools are closed. In about 10 per cent of cases, we have respondents who are in the panel data and who were interviewed during two periods of school closures.

Figure A.2: Variability in School Closure Frequency Across Individuals



Source: Authors' analysis based on Eurofound's *Living, Working and COVID-19* survey and European Centre for Disease Prevention and Control's ECDC Country Response Database.

Notes: This figure is based on the cross-sectional sample created by combining the LWC dataset and the ECDC dataset. This distribution illustrates the variability in the number of school closures among the participants studied.

B ADDITIONAL RESULTS

B.1 Impact of School Closures on Time Use

In Tables 3 and 4 in the main text, we present the impact of school closures on time allocation. Table B.1 and B.2 provide the corresponding results by separating the outcomes for childcare and housework (Panels B and C), using cross-sectional and panel data, respectively. Overall, the effects we observe are quite similar.

Table B.1: Impact of School Closures on Time Use (Extended)

	All	*Women*	*Men*	*With children*	*Without children*
	(1)	*(2)*	*(3)*	*(4)*	*(5)*
A. Paid Work					
School Closure	0.109	–0.892	0.390	0.342	–0.533
	(1.770)	(2.237)	(2.561)	(2.519)	(2.417)
B. Childcare					
School Closure	–1.180	–2.791*	0.207	0.065	–0.407
	(0.919)	(1.542)	(0.996)	(1.577)	(0.703)
C. Housework					
School Closure	–0.466	2.816	–2.609	–1.875	–0.246
	(1.229)	(1.722)	(1.599)	(1.631)	(1.703)
D. Leisure					
School Closure	1.194	–0.144	2.243	2.571	–0.238
	(1.208)	(1.252)	(1.841)	(1.589)	(1.661)
E. Other Time Use					
School Closure	0.343	1.012	–0.230	–1.103	1.424
	(1.388)	(1.740)	(2.014)	(2.047)	(1.846)
N	22,544	13,768	8,776	9,484	13,060

Source: Authors' analysis based on Eurofound's *Living, Working and COVID-19* survey and European Centre for Disease Prevention and Control's ECDC Country Response Database.

Notes: This table displays the estimates from cross-sectional regressions of time-use variables (share of total time) on a school closure dummy, individual controls and fixed effects for country and month. Month fixed effects refer to unique month-year combinations. Observations are weighted by survey weights. The standard errors are clustered at the individual level. Significance levels: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table B.2: Impact of School Closures on Time Use – Panel Estimates (Extended)

	All	*Women*	*Men*	*With children*	*Without children*
	(1)	*(2)*	*(3)*	*(4)*	*(5)*
A. Paid Work					
School Closure	0.931	–2.938	4.277*	2.080	0.818
	(2.828)	(5.082)	(2.425)	(2.287)	(3.955)
B. Childcare					
School Closure	–0.665	–2.181	0.679	–0.490	–0.976
	(0.755)	(1.388)	(0.513)	(1.671)	(0.822)
C. Housework					
School Closure	1.415	5.064	–1.701	–0.850	2.262
	(2.395)	(4.192)	(2.130)	(1.929)	(3.197)
D. Leisure					
School Closure	–0.894	0.207	–2.689	–0.121	–0.762
	(1.610)	(1.948)	(2.088)	(2.425)	(2.082)
E. Other Time Use					
School Closure	–0.787	–0.152	–0.566	–0.619	–1.342
	(1.473)	(2.407)	(1.572)	(2.772)	(1.795)
N	3,374	2,288	1,084	1,415	1,959

Source: Authors' analysis based on Eurofound's *Living, Working and COVID-19* survey and European Centre for Disease Prevention and Control's ECDC Country Response Database.

Notes: This table displays the estimates from regressions of time-use variables (share of total time) on a school closure dummy and fixed effects for individuals and month. Month fixed effects refer to unique month-year combinations. Observations are weighted by survey weights. The standard errors are clustered at the individual level. Significance levels: * $p < 0.1$, ** $p < 0.05$, $^{***}p < 0.01$.

B.2 Heterogenous effects

In the main text, we analyse the heterogenous effects using different subgroups. We extend the analysis using interactions in Table B.3 to examine the impact of school closures on time allocation across various activities for different demographic subgroups. To do so, we interact the dummy for school closures with dummies for three distinct groups, namely women with children ($g1$), women without children ($g2$), and men without children ($g3$). The reference group is men without children. In the cross-sectional dataset, we run the following regression:

$$y_{i(c)t} = \beta_0 + \beta_1 SC_{c(i)t} \times g1_{i(ct)} + \beta_2 SC_{c(i)t} \times g2_{i(ct)} + \beta_3 SC_{c(i)t} \times g3_{i(ct)} + \\ + \beta_4 SC_{c(i)t} \times X_{i(c)t}'\gamma + \delta_c + \delta_t + \varepsilon_{i(c)t}$$

The results are shown in Table B.3. Columns (1) and (2) show the coefficients of all terms including the dummy $SC_{c(i)t}$ based on the cross-sectional dataset. For the estimates shown in Columns (3) and (4), we replace the country fixed effects δ_c with individual fixed effects δ_i. The results are similar to those in Table 5. Women reduced the amount of paid work relative to men, and increased the amount of time spent on leisure activities. In addition, women without children spent more time on housework and childcare.

Table B.3: Heterogenous effects

	Full Sample		*Balanced Panel*	
	(1)	*(2)*	*(3)*	*(4)*
A. Paid work				
SC	3.457	3.313	3.707	3.253
	(2.746)	(2.625)	(2.745)	(2.617)
SC x women with kids	–5.681*	–4.601	–5.905*	–5.125
	(3.314)	(3.037)	(3.338)	(3.211)
SC x women without kids	–6.209*	–5.752*	–4.820	–1.506
	(3.236)	(3.055)	(4.787)	(2.901)
SC x men with kids	–5.229	–5.004	–1.574	–1.656
	(3.548)	(3.200)	(2.922)	(2.844)
B. Housework & Childcare				
SC	–1.362	–1.880	–1.626	–1.169
	(1.967)	(1.920)	(2.257)	(2.192)
SC x women with kids	–2.467	–1.504	0.315	0.203
	(2.629)	(2.501)	(2.547)	(2.405)
SC x women without kids	3.858*	4.026*	7.642	3.810
	(2.309)	(2.188)	(5.497)	(2.967)
SC x men with kids	0.414	0.869	1.168	0.749
	(2.343)	(2.218)	(3.280)	(3.245)
C. Leisure				
SC	–0.966	–0.932	–2.284	–2.288
	(1.555)	(1.487)	(2.008)	(2.006)
SC x women with kids	5.585***	5.040***	3.112	2.660
	(1.760)	(1.677)	(2.480)	(2.483)
SC x women without kids	1.035	0.889	0.626	1.752
	(1.707)	(1.675)	(2.768)	(2.575)
SC x men with kids	3.074	2.848	2.900	3.114
	(2.129)	(1.966)	(3.142)	(3.080)
D. Other time use				
SC	–1.129	–0.501	0.203	0.204
	(2.102)	(2.033)	(1.710)	(1.712)
SC x women with kids	2.564	1.064	2.478	2.262
	(2.579)	(2.278)	(2.505)	(2.313)

Table B.3: Heterogenous effects (Contd.)

	Full Sample		*Balanced Panel*	
	(1)	*(2)*	*(3)*	*(4)*
D. Other time use (Contd.)				
SC x women without kids	1.316	0.836	–3.448	–4.057
	(2.224)	(2.066)	(2.583)	(2.761)
SC x men with kids	1.741	1.287	–2.495	–2.207
	(2.640)	(2.263)	(2.557)	(2.540)
Country FE	Yes	Yes	No	No
Month FE	Yes	Yes	Yes	Yes
Individual FE	No	No	Yes	Yes
Ind. controls	No	Yes	No	Yes
N	22,544	22,544	3,374	3,374

Source: Authors' analysis based on Eurofound's *Living, Working and COVID-19* survey and European Centre for Disease Prevention and Control's ECDC Country Response Database.

Notes: This table displays the estimates from regressions of time-use variables on dummy variables specified, and the controls and fixed effects listed at the bottom. Month fixed effects refer to unique month-year combinations. The dataset in Columns (1)-(2) provides the results for a cross-sectional dataset in terms of shares of total hours per week while the Columns (3)-(4) provide the results for the panel dataset in terms of share of total time use. The standard errors are clustered at the individual level. Significance levels: * $p<0.1$, ** $p<0.05$, *** $p< 0.01$.

B.3 Heterogeneous Effects with Cross-sectional Data

In Table 5 in the main text, we present heterogeneous effects based on panel data. In Table B.4 we present the equivalent results based on the cross-sectional data and regressions with country and month fixed effects. By and large, we find similar effects, namely that, during school closures, parents significantly reduced the amount of time spent on chores. Here we find significant positive effects on the share of time spent on leisure. Unlike in Table B.4, we find no effects of school closures on *other time use*. We consider the panel results more trustworthy because the panel data allow us to track the same people over time. With cross-sectional data, we face the problem that the demographic profiles of respondents change during school closures, and this pattern may bias the estimates.

Table B.4: Heterogeneous Effects

	Full dataset			*Women*			*Men*		
	All	*High GEI*	*Low GEI*	*All*	*High GEI*	*Low GEI*	*All*	*High GEI*	*Low GEI*
	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*	*(9)*
A. Paid Work									
SC	0.801	2.239	–1.103	–1.800	0.753	–5.671	2.409	2.702	1.282
	(2.005)	(2.139)	(3.470)	(2.482)	(2.922)	(4.197)	(2.945)	(3.006)	(4.742)
SC x kids	–1.982	–2.076	–2.664	0.731	–0.209	1.087	–4.655	–4.130	–5.445
	(2.149)	(2.684)	(3.311)	(2.764)	(3.526)	(4.035)	(3.133)	(3.917)	(4.777)
B. Housework & Childcare									
SC	–0.122	–1.004	0.151	3.349	–0.041	7.950**	–2.771	–1.936	–4.351
	(1.590)	(1.707)	(2.718)	(2.146)	(2.193)	(3.797)	(2.113)	(2.485)	(3.245)
SC x kids	–2.370	–2.598	–1.355	–4.867**	–5.352*	–3.605	0.984	1.931	0.070
	(1.735)	(2.242)	(2.564)	(2.389)	(2.887)	(3.694)	(2.209)	(2.882)	(3.171)
C. Leisure									
SC	–0.557	–2.506*	1.991	–2.373*	–2.972	–1.903	1.098	–1.732	4.405
	(1.278)	(1.306)	(2.244)	(1.318)	(1.833)	(1.894)	(1.97)	(1.75)	(3.283)
SC x kids	3.515***	3.343**	4.055**	4.053***	5.296**	3.042*	2.547	0.497	5.532*
	(1.243)	(1.542)	(1.925)	(1.377)	(2.069)	(1.591)	(1.909)	(2.069)	(3.045)

Table B.4: Heterogeneous Effects (Contd.)

	Full dataset			*Women*			*Men*		
	All (1)	*High GEI* (2)	*Low GEI* (3)	*All* (4)	*High GEI* (5)	*Low GEI* (6)	*All* (7)	*High GEI* (8)	*Low GEI* (9)
D. Other Time Use									
SC	–0.122	1.271	–1.038	0.824	2.260	–0.376	–0.736	0.966	–1.335
	(1.501)	(1.537)	(2.620)	(1.729)	(2.069)	(2.873)	(2.190)	(1.892)	(3.771)
SC x kids	0.837	1.331	–0.036	0.083	0.266	–0.524	1.125	1.702	–0.157
	(1.530)	(2.139)	(2.073)	(1.881)	(2.828)	(2.064)	(2.197)	(2.743)	(3.148)
N	22,544	12,932	9,612	13,768	7,669	6,098	8,776	5,263	3,513

Source: Authors' analysis based on Eurofound's *Living, Working and COVID-19* survey, European Centre for Disease Prevention and Control's ECDC Country Response Database and Gender Wage Gap Index by OECD (2019) and Eurostat.

Notes: This table displays the estimates from regressions of shares of total time-use variables on full interactions between the dummies for school closure and children, and the individual controls, month fixed effect and country fixed effects for the cross-sectional data. Month fixed effects refer to unique month-year combinations. The dataset in Columns (1)-(3) includes all respondents from the main estimation sample. The dataset in Columns (4)-(6) only contains respondents who are female. The dataset in Columns (7) – (9) only includes respondents who are male. The labels High GEI and Low GEI refer to countries with above- and below-average gender wage gaps, respectively. The standard errors are clustered at the individual level. Observations are weighted by the survey weights. Significance levels: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.