

The Coronavirus Crisis, Fathers' Short-Time Work, and the Division of Child Care in Couples

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Objective. This paper examines how participation in the short-time work scheme affected the gendered division of child care during the COVID-19 crisis in Germany.

Background. Short-time work (*Kurzarbeit*) has been one of the main policies used to combat the economic and labour market repercussions of the coronavirus pandemic in Germany. We examine whether and, if so, how the growing prevalence of short-time work has affected care patterns.

Method. We use data from the IAB-HOPP, a longitudinal study monitored by the German Institute for Employment Research (IAB). The analytical sample includes couples with children aged 12 and younger (n=811). We employ multinomial logistic regressions in which the outcome variable is the change in the division of care work from a period before to a period during the coronavirus crisis (June to August 2020).

Results: We find that among men, receiving short-time work benefits resulted in more gender-equal care patterns. However, we also find that participating in the short-time work programme had no strong or significant effects on the gendered division of care among women.

Conclusion: The evidence from the coronavirus crisis suggests that changes in men's work patterns have the potential to shift the gendered division of care in the household.

Keywords: Gender division of care, fathers' involvement, employment, Germany

1 Introduction

Family lives have been affected by the coronavirus crisis in multiple ways. There is consistent empirical evidence that satisfaction with family life declined sharply during the (first) lockdown in Germany (Hübener et al. 2021), with lone-parent families, families with children of kindergarten age, and families with children with special needs reporting the largest declines in well-being (Langenkamp et al. 2020; Hübener et al. 2021; Möhring et al. 2021a). It has also been observed that the pandemic has led to increases in depression and decreases in mental well-being among children and young people, and particularly among those who were at critical life course transitions during the pandemic (Andresen et al. 2020; Ravens-Sieberer et al. 2021). While there is every reason to believe that the pandemic poses serious challenges for families and children, scholars have also pointed out that the crisis has resulted in some positive changes. For example, the pandemic may stimulate a long overdue digital transformation of the German labour market. In particular, it has promoted the adoption of “remote work”, which can make it easier for parents to combine work and family life (Nagel 2020). Furthermore, parents have been spending more time with their children during the pandemic than they did before. Clearly, this additional family time was the result of closures of schools and day care centres. Thus, in many families, this additional time spent with children may have felt more like a “care burden” than “quality time”, particularly if it was the result of a job loss. In Germany, however, job losses in the early phase of the pandemic were rare. One of the main labour market policy instruments the German government uses to discourage employers from laying off large numbers of employees in times of crisis is the “short-time work” programme (*Kurzarbeit*). Short-time work means that employees’ working hours are reduced, while the government subsidises their forgone wages. Thus, it operates in a same way as paid leave. Germany has made extensive use of this social insurance programme. In April 2020, 18 per cent of all employees were in short-time work, with men being more likely than women to be participating

in the programme (Konle-Seidl 2020; Statistik der Bundesagentur für Arbeit 2021). It is possible that the widespread use of this “pandemic policy” may have provided fathers with more leeway to spend time with their children.

In this paper, we use newly available data from the IAB-HOPP to examine the relationship between participation in the short-time work scheme and parental engagement in child care. The IAB-HOPP is an internet survey monitored by the Institute for Employment Research (IAB). The sample has been randomly drawn from the German employment registers. For this investigation, we used data gathered between June 2020 (wave 2) and August 2020 (wave 4). The data include prospective measures on the division of care work for wave 2 to wave 4, and retrospective measures for the period before the coronavirus pandemic that were collected in wave 2 of the survey. Based on these data, we are able to distinguish between couples for whom the gendered division of care has become more equal, those for whom it has become more unequal, and those for whom it remained the same over the course of the coronavirus pandemic. Thus, the data allowed us to investigate how care patterns have changed during the coronavirus crisis, and whether these changes can be attributed to the growing prevalence of short-time work.

The remainder of our paper proceeds as follows. In section 2, we provide relevant background information on the German institutional context, and a summary of prior research. In section 3, we formulate our argument regarding the interplay of short-time work among fathers and the division of care in couples, while drawing on theories of the division of labour. In section 4, we present the data and the analytical sample. In section 5, we provide a descriptive overview of the gendered division of child care before and during the coronavirus crisis, and analyse the changes in the gendered division of care based on IAB-HOPP data. Furthermore, we employ multinomial logistic regression to determine whether couples have changed their care patterns between the period before the coronavirus pandemic and June and August 2020. While the focus of the analysis is on how fathers’ participation in the short-time work programme has

affected the division of labour in the household, we present results for mothers as well. In section 6, we discuss the results within the broader societal context, and consider how contemporary societies can encourage couples to organise child care more equally.

2 Institutional context and prior findings

2.1 Background

Germany has regularly been classified as the ideal type of a conservative and familialistic welfare state regime in which the family is regarded as the main provider of care (Esping-Andersen 1990). As a result of the gendered division of care, the majority of women in post-World War II West Germany did not participate fully in the labour market. The legacy of this traditional male breadwinner system is still apparent in Germany's income-splitting taxation system, as well as in the country's public health insurance system, which allows for the co-insurance of the non-working spouse. This history also explains the low employment rates of married women and the gendered division of labour that has characterised the (West) German society for decades.

More recently, Germany has launched major family policy reforms. Since 2005, child care for children under the age of three has been expanded. In 2007, an earnings-related parental leave system was introduced. Since the implementation of this reform, parents have been eligible to receive 67 per cent of their previous income (65 per cent since 2011) for the first 12 months of parental leave. In addition, the so-called "daddy months" were introduced to incentivise fathers to take parental leave (Bünning 2020). Scholars have argued that these recent family policy reforms have led to a fundamental shift in Germany away from the country's conservative and familialistic heritage (Fleckenstein 2011). Thus, Germany is gradually moving toward becoming a "dual-earner dual-carer society". While this diagnosis may be premature, an evaluation of the abovementioned family policy reforms has indeed shown that the expansion of child care has led to significant increases in maternal full-time employment rates (Geyer et

al. 2015).

Child care patterns among fathers have also changed significantly in recent years. Following the implementation of the new parental leave system, the proportion of fathers who take parental leave has increased radically. While fathers still tend to take much shorter leave periods than mothers, around 40 per cent of all fathers use at least some of their parental leave benefits (Statistisches Bundesamt 2020). Furthermore, gendered care patterns have shifted in recent years, with fathers today performing more child care chores than their counterparts did in prior decades. For example, Samtleben et al. (2020) found that men in couple households were performing 30 per cent of child care tasks in 2017, up from just 20 per cent in the 1990s. It is, however, important to note that there are pronounced East-West differences in family behaviour. While part-time employment rates have been increasing among women in East Germany, mothers in the East are much more likely than mothers in the West to be in full-time employment (Trappe et al. 2015). There is also evidence that the gendered division of care in couple households is more equal in the East than in the West (Trappe 2010).

The coronavirus pandemic hit Germany at a time when the country's families had been undergoing significant changes. The families that were most affected by the closure of schools and day care centres were those with children aged 12 and under. These were families who had their children after the expansion of child care and the introduction of the parental leave system. On the one hand, it could be assumed that for this new generation of parents, having been exposed to these family policies led to fundamental changes in their gender role attitudes that guided their care patterns. Furthermore, it may be assumed that these families have become more aware that a single-earner model is a risky arrangement in times of high divorce and separation rates. In addition, the experience of the global financial crisis of 2007/08 may have sharpened the awareness of these parents to secure the well-being of the family, both partners have to be integrated into the labour market. On the other hand, it could be argued that these changes have been relatively recent, and that the changes in family life during the pandemic

might result in a backlash that nullifies the progress towards gender equality that had been made in recent years. Thus, the pandemic could lead to a “re-traditionalisation” of gender role behaviour (Allmendinger 2020).

2.2 Prior research on the division of care during the COVID-19 pandemic

Prior research on the “coronavirus-related” changes in the division of work has mostly refuted the abovementioned “re-traditionalisation hypothesis”. Based on longitudinal data from the German Family Panel (pairfam) that compare parents’ reports in 2019 with reports from March 2020, Hank and Steinbach (2021) showed that the division of care has remained largely unchanged over time. Kreyenfeld and Zinn (2021) corroborated this finding with data from the German Socio-Economic Panel (GSOEP). The latter study drew on data from 2019 that were linked to data collected during the first lockdown (March to May 2020). As expected, the results indicated that parents spent more time with their children during the lockdown than they did before, but that the increases were similar for both genders.

A study based on a non-probabilistic survey by Hipp and Bünning (2021) also rejected the hypothesis that during the coronavirus pandemic, there has been a backlash that has led to more gendered care patterns. Indeed, the findings suggested that the division of care even became somewhat more equal during the early stages of the pandemic, but that the effect wore off over time; i.e., between March and August 2020 (Hipp & Bünning 2021: 667). In a policy brief on the gendered division of care among German households, Kohlrausch and Zucco (2020) analysed data from a convenient sample that covers the period of time immediately after the first lockdown (April 2020), as well as retrospective data on the situation before the coronavirus pandemic. While strongly emphasising that women have been more seriously affected by the pandemic than men, the authors nevertheless showed that the gendered division of care in couple households remained largely unchanged – or, to the extent that it changed, it became more equal. For example, they found that the share of men in the sample who reported that they

were the main caregiver in the household increased from six per cent before the start of the pandemic to 12 per cent during the coronavirus crisis (Kohlrausch & Zucco 2020: 6). They also found that the women in the sample reported a less pronounced shift in the gendered division of care. This finding is in line with prior evidence showing that women's and men's perceptions of their contributions to housework and care often differ (Trappe 2010).

Thus, while prior research did not uncover any signs of a shift towards a re-traditionalisation of care patterns during the pandemic, most studies reported that couples' experiences have varied considerably (Hank & Steinbach 2021; Kohlrausch & Zucco 2020; Kreyenfeld & Zinn 2021). In other words, it appears that the pandemic has led to a more equal division of care in some households, and to a more unequal division of care in others. Thus, it is important to understand the factors that have led to this heterogeneity in the changes in care patterns.

2.3 Gendered work patterns during the COVID-19 pandemic

Whether and, if so, how the pandemic has affected the division of labour has depended on whether mothers or fathers have reduced their working hours, lost their jobs, worked in essential occupations, or taken advantage of the option to work remotely.

The Mannheim Corona Study, which is one of the first large-scale empirical surveys that has monitored work and family life in the course of the pandemic, provided very early evidence on the uptake of remote working (Blom et al. 2020). Based on these data, Möhring et al. (2020) showed that around one-quarter of women and men who were employed in January 2020 were working remotely between March and May 2020. In their analysis of data from the IAB-HOPP, Frodermann et al. (2021) limited their investigation to employers whose employees could work remotely. They showed that 46 per cent of male employees and 43 per cent of female employees were working completely (100 per cent) remotely in May 2020. While the gender differences were rather small, the study observed different "transition patterns" for men and women. Specifically, the findings indicated that more women than men shifted to remote work in the

course of the coronavirus pandemic (Frodermann et al. 2021: 4). Based on the findings of the Corona Study of the National Educational Panel Study (NEPS), Zoch et al. (2021) examined the relationship between remote work and the gendered division of care. They showed that remote work by the father was positively associated with a more gender equal division of care, whereas remote work by the mother increased the chances of “mother care only”.

There are several reasons to assume that mothers were more likely than fathers to have reduced their working hours or lost their jobs during the pandemic. First, a substantial share of mothers who work are in marginal employment, whereas marginal employment is rare among fathers. Workers who are marginally employed are especially likely to be laid off in times of crisis. In addition, these jobs are considered precarious, as they do not provide workers with unemployment benefits or short-time work compensation. Furthermore, mothers tend to be more likely than fathers to reduce their working hours by taking advantage of child-related sick leave benefits (*Kinderkrankentage*).¹ This scheme allows parents to stay home with sick children for up to 10 days per year and per child (20 days for lone parents). During the coronavirus pandemic, child-related sick leave was one of the key measures the German Family Ministry used to alleviate the care burden of families, and the number of sick leave days was extended to 20 (40 for lone parents). Although the scheme technically provides for “sick leave”, during the pandemic, it could be used by the parents of children who could not attend school or day care due to closures, or because the children had to quarantine. Unfortunately, there are no official statistics available that indicate to what degree parents made use of this leave programme, and whether there were differences by gender. Some evidence that mothers took advantage of this measure more than fathers came from the study by Möhring et al. (2021b), who found that women were more likely than men to be on unpaid leave in March 2020. However, this share rapidly declined over time (from 11 per cent in March to less than three

¹ Employees receive 90 per cent of their prior net earnings when taking child sick leave.

per cent in May 2020). In addition, Zoch et al. (2021: 582), who analysed data from the NEPS Corona Study, found that mothers were more likely than fathers to report that they were on unpaid leave.

While there are persuasive arguments for why women would have reduced their working hours more than men in course of the coronavirus pandemic, there is still no consistent evidence that this actually occurred (see also Jakob et al. in this Special Issue). As mothers were more likely than fathers to be marginally employed at the start of the pandemic, they may have left the labour market at higher rates. In addition, mothers may have been more likely than fathers to have taken child sick leave or sacrificed their paid vacation days to care for their children. In some respects, however, men were more heavily affected than women. It has been pointed out that the self-employed, who are more likely to be men, were hit especially hard by the pandemic (Hobler et al. 2020). Furthermore, as frontline jobs in the health care sector tend to be female-dominated, some women may have faced a lower risk than men of being made redundant (Koebe et al. 2020). However, among the most important differences in the experiences of male and female workers during the pandemic was that men were more likely than women to be in short-time work.

2.4 Short-time work in the German context

One of the main labour market policy instruments the German government uses to discourage employers from laying off large numbers of employees is the “short-time work” programme. Under this programme, the government subsidises a portion of employers’ payroll costs. Firms that experience a significant temporary loss of work are entitled to apply for short-time work subsidies from the Federal Employment Agency. The benefit employees receive depend on their prior earnings and on whether they have children. In the first three months of their participation in the short-time work programme, employees receive 60 per cent of their lost net salary, or 67 per cent if they have children. From the fourth month onwards, they receive 70 per

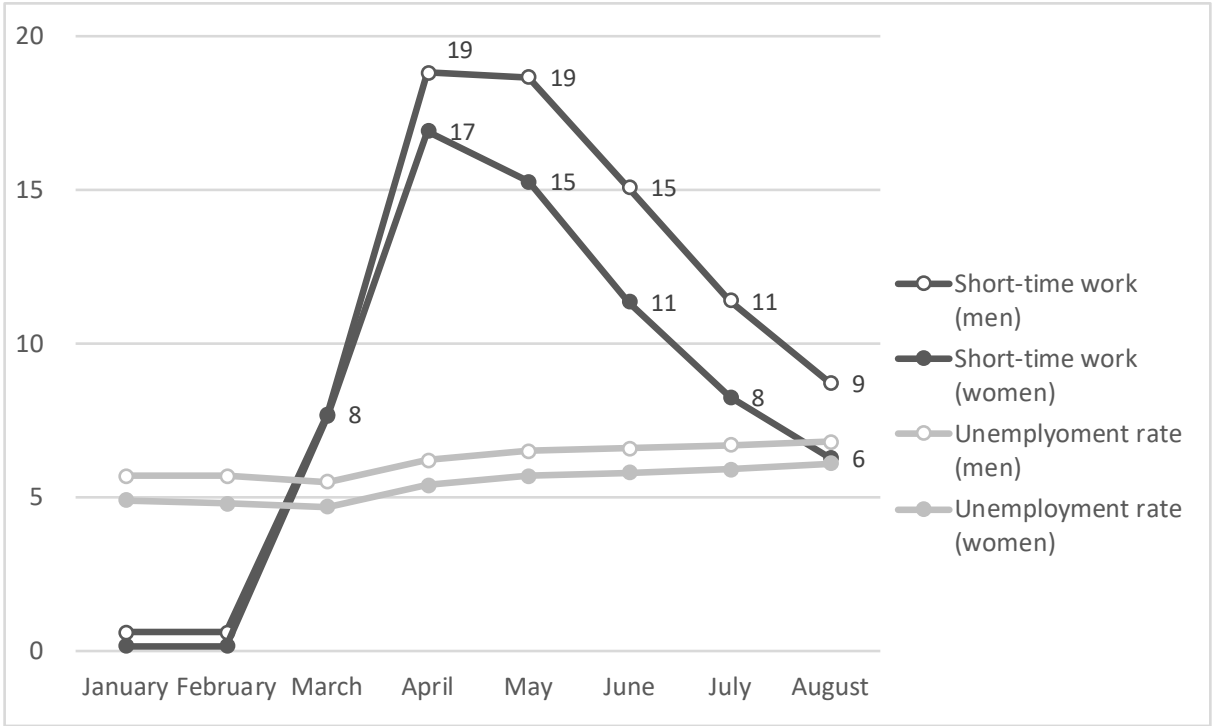
cent, or 77 per cent if they have children. After six months, employees receive 80 per cent, or 87 per cent if they have children.² Employees on short-time work may not work at all or they may work reduced hours, whereas only a fraction of their income is compensated. During the COVID-19 pandemic, several changes in the regulations of the short-time work scheme have been implemented (for a detailed overview, see Konle-Seidl 2020). In general, the changes made the eligibility criteria for participating in the programme less stringent, and allowed for more extended periods of short-time work.

In April 2020 alone, about six million employees – or around 18 per cent of all employees in Germany – were registered for short-time work (Statistik der Bundesagentur für Arbeit 2021). The COVID-19 pandemic led to a substantial increase in short-time work in many sectors with higher shares of female employees, especially the hospitality industry (accommodation and gastronomy); as well as other services in the areas of arts, entertainment, and recreation; and private household services (Gehrke and Weber 2020). Half of the sectors in which large numbers of employees were registered for short-time work benefits have an above-average share of female employees (Hammerschmid et al. 2020). Nevertheless, no correlation was found between the share of women among the employees in an industry and the share of employees in these sectors who were participating in the short-time work programme in March and April 2020 (Schäfer and Schmidt 2020). Overall, far more male than female employees were receiving short-time work benefits during the pandemic. At the height of participation in the short-time work programme in May 2020, 19 per cent of male employees and 15 per cent of female employees were receiving short-time work benefits. While participation in the short-time work scheme skyrocketed during the first half of 2020, unemployment rates in Germany

² Sectors with collective agreements receive higher benefits (Möhring et al. 2021b). As women primarily work in areas without collective agreements, they may be less likely to receive these “top-ups” (Hammerschmid et al. 2020).

remained at a modest level (Figure 1). It appears that compared to other countries, such as the US and UK (Adams-Prassl et al. 2020; Alon et al. 2021), Germany had been successful in averting potential layoffs by expanding short-time work benefits in this time period.

Figure 1: Unemployment rate by gender and share of women and men receiving short-time work benefits out of all employees, Germany by month in 2020



Source: Statistik der Bundesagentur für Arbeit (2021); Statistisches Bundesamt (2021).

While the short-time work scheme has been widely used in Germany during the coronavirus pandemic, we have very little evidence on how the availability of these benefits has affected parents’ behaviour and the gendered division of labour within the household. Möhring et al. (2021a) showed that fathers who were receiving short-time work benefits during the coronavirus pandemic in 2020 reported that their levels of family satisfaction increased significantly compared to their levels in 2019. Schmid et al. (2021) examined the effects of receiving short-time work benefits on relationship satisfaction. Their results indicated that

among couples, relationship satisfaction decreased if one partner was participating in the short-time work scheme, but that the effect was less pronounced for couples without children. Using cross-tabulations based on data from the Mannheim Corona Study, Bujard et al. (2020) found that the father receiving short-time work benefits was related to a more equal division of labour in the household. Overall, these prior results suggest that participation in the short-time work programme may have led to stronger paternal involvement. However, the conclusions that can be drawn from these results are still far from clear, as these studies did not explicitly focus on short-time work benefits. With our investigation, we seek to provide a more fine-grained analysis of the role of short-time work benefits. While we will analyse the experiences of both men and women, our focus is on how fathers' participation in the short-time work scheme affected the division of care in households.

3 Theoretical considerations and hypotheses

3.1 Time availability and bargaining approaches

The most crucial characteristic of the short-time work programme is that it allows for a reduction in working time. According to the time availability theory, differences in the spouses' participation in housework and child care depend on the family's demands and the available time (Coverman 1985). Thus, this approach argues that there is a strong relationship between the time women and men spend in paid employment and the time they spend on housework and child care. The more time parents spend in employment, the less time they have for child care, and vice versa. This time may be further moderated by the household composition, such as the presence and the number of children in the household, as well as the size of the dwelling. During the COVID-19 pandemic, the demands for child care have been higher than usual. Although schools and day care centres had partially re-opened at the time of our data collection, children still had irregular daily schedules, and some were having to quarantine due to COVID-19

outbreaks in their classes and day care centres. Furthermore, the range of leisure time and after-class activities was highly limited. Depending on the age and the health status of the grandparents, parents had few to no options to “outsource” child care. Hence, it could be argued that the combination of the availability of short-time work benefits and the greater child care demands in the family increased the pressure on fathers to spend their newly acquired time with their children.

Another relevant point is that short-time work benefits only cover 60 or 67 per cent of a worker’s net income. According to the relative resource theory (Blood & Wolfe 1978), the reduction in income leads to a lower comparative advantage in the bargaining process. The partner with a higher level of education and income is likely to minimise his/her participation in unpaid work by bargaining to avoid having to perform these tasks (Coverman 1985). Thus, it is possible that the drop in wages related to participation in the short-time work programme weakened the bargaining power of men in couple households.

3.2 “Doing gender”

In addition to the time availability theory and the theory of relative resources, cultural theories of the division of labour should be considered. The underlying premise of these cultural theories is that “doing” housework and child care reproduces gender roles and gender identities (West & Zimmermann 1987). Typically, domestic and care tasks, including child care, are ascribed to women, whereas paid work and the breadwinner’s role are attributed to men. The COVID-19 pandemic may have called into question these established gender roles. On the one hand, receiving short-time work benefits is associated with increased economic uncertainty (Möhring et al. 2021a). Thus, if the male partner is participating in the programme, the couple’s awareness of the economic risks associated with gendered work patterns should increase, which may, in turn, weaken their traditional gender role attitudes. On the other hand, perceived job insecurity may threaten a father’s gender identity (Brines 1994). Following this argument, the father will

probably resist increasing his share in work typically performed by women when he enters the short-time work scheme, because doing so could further jeopardise his gender identity. Similarly, we would expect to find that fathers receiving short-time work benefits are less involved in child care than fathers with regular working hours. Entrenched gender identities may override the economic rationale, such that even in situations in which the opportunity costs of the father's time have decreased, it is still the mother who performs more of the child care tasks.

3.3 Hypotheses

Above, we have laid out the different forces that are at play in the gendered division of child care. On the one hand, Germany is a country that is just starting to undergo a shift in family policies and parental work patterns. The parents who were most affected by the pandemic because they had small children were also the ones who had their children after Germany had enacted a series of policy reforms (in 2005 and subsequent years). Thus, these parents organised their care responsibilities more equally than their counterparts in previous decades. In addition, the Great Recession may have sharpened these parents' awareness that a more equal division of care and employment is a more secure arrangement in contemporary societies. On the other hand, it has been hypothesised that because these developments are relatively recent, they are not yet sufficiently solidified to prevent the pandemic from triggering a re-traditionalisation of behaviour patterns.

In particular, we argue that whether the pandemic leads to a re-traditionalisation of the division of care in a given couple depends on the employment situations of the partners. Here, we formulate two competing hypotheses that focus on the role of short-time work benefits. On the one hand, we argue that the division of care should have become more equal if the father was receiving short-time work benefits. The alternative hypothesis states that the father's

participation in the short-time work scheme should not have led to a major shift in the division of labour.

Similar hypotheses have been formulated with respect to the effects of men's unemployment on the division of household labour and care work (Voßemer & Heyne 2019). However, the analysis of short-time work has several advantages. Even though short-time work has characteristics similar to those of unemployment (no work, compensation of 60 or 67 per cent of previous income), short-time work differs from unemployment in several ways. First, the transition to short-term work is more likely to affect the whole company or even the entire sector, and not just one person because s/he has a limited contract, is laid off, or is terminated. In contrast to unemployment, in which workers may select themselves into the treatment, the sudden increase in the number of workers participating in the short-time work programme during the coronavirus crisis was an exogenous shock, or a "natural experiment". The onset of the pandemic suddenly affected people's work hours and their time budgets. Hence, we are in a better position than prior research on unemployment and care work to identify causal effects, and to determine whether the "treated" fathers were spending more time with their children than they had been before.

4 Data, variables and analytical strategy

4.1 Data and analytical sample

In order to examine the association between fathers' participation in the short-time work programme and the division of child care in couples, we use newly available data from the IAB-HOPP. This dataset is an internet survey panel monitored by the Institute for Employment Research (IAB). The sample has been randomly drawn from the German employment registers. The IAB-HOPP is still ongoing, and currently consists of four survey waves that are available for scientific use. We use data from wave 2 (June 2020), wave 3 (July 2020), and wave 4

(August 2020).³ Our investigation is restricted to female and male respondents who were living in a partnership at the time of the interview and had children who were born in 2007 or later, and who were, therefore, about 12 years old or younger at the time of the interview (in 2020). We further restricted the analysis to respondents who participated in the first two survey waves, as some crucial information (such as the age of the children) was only available in the second wave. The dataset is organised in a long format, with each person contributing up to three entries. The total number of subjects in the dataset is 811, which corresponds to 1,635 person-months (see Table 1 for the sample composition).

4.2 Variables

The dependent variable is the change in the *division of child care in a couple household*, and is based on two “original” variables. The first variable captures the division of child care before the coronavirus pandemic. This information was collected retrospectively in wave 2 using the following question: “*Thinking back to the time before the coronavirus crisis, how did you and your partner divide child care tasks?*” The second variable captures the division of child care at the time of the interview (in wave 2 to 4). The answers to those two questions were recorded on a five-point scale: “(almost) completely my partner”, “for the most part my partner”, “split about 50/50”, “for the most part me”, and “(almost) completely me”. Based on the information on the gendered care patterns before and during the pandemic, we constructed a “change variable”. This variable indicates the within-couple changes over time. We distinguish between:

³ We retrieved socio-demographic information (educational attainment, migration background, place of residence (federal state), gender, and household characteristics) from the first wave, but did not use this wave further in our analysis because it did not include information on the gendered division of care.

- couples in which the father has been more engaged in child care than before,
- couples in which the father has been less engaged in child care than before, and
- couples in which there was no change in the division of care.

The key independent variable is whether a person was receiving *short-time work* benefits at the time of the interview.⁴ We distinguish between (1) employed persons who were receiving short-time work benefits, (2) employed persons who were not receiving short-time work benefits, and (3) persons who were not working (in unemployment or in other forms of non-employment). We control for standard socio-demographic variables. *Level of education* is classified according to the CASMIN scheme, and differentiates between individuals who are and are not highly educated.⁵ We include *migration background*, and distinguish between individuals whose parents were born in Germany and those who have a parent born outside of Germany. We also take into account whether a person was living in *Eastern Germany* (including Berlin) at time of the survey. The *age of the youngest child* in the household was entered into the model as a continuous variable. We also control for the *month of in the interview* (also as a continuous variable). In addition, the *employment status of the partner* was accounted for in the analysis by distinguishing between employment and other statuses. Ideally, we would have liked to have included information on whether the partner was receiving short-time work benefits or was working remotely, but as this information was only surveyed in selected waves. Hence, the case numbers were too low. Whether the respondent was working remotely was not included in the analysis, as this information was only available for those who were employed, and was thus

⁴ The underlying question is: “Are you currently receiving short-time work compensation as reimbursement for loss of earnings in connection with the coronavirus crisis?”

⁵ Due to very small case numbers in the low category, we had to group the low and the medium education categories together.

collinear with the employment status. We have, however, provided additional analysis for the employed where we controlled for home-office (see online appendix, Table 5 and 6).⁶

Table 1 provides the weighted sample composition. The table shows that the distribution of educational attainment was very similar in the male and the female sample. However, the table reveals stark gender differences in the prevalence of short-time work. While 19 per cent of the men were receiving short-work benefits at the time of the interview, only six per cent of the women were. The gender differences in participation in the short-time work programme among parents seem to be even larger than in the total population (see above). Further analysis revealed that participation in the short-term work programme was much more common among low and medium educated workers than among highly educated workers (see Table A3 in the Appendix). However, we can also see that a much larger share of the women (37 per cent) than of the men (eight per cent) were not in the labour market at the time of the interview. This pattern was also reflected in the employment status of the partner. On average, the youngest child in the household was slightly older than age five.

⁶ Furthermore, we could not control for essential occupations, because occupational codes are only available from the employment registers. While the IAB-HOPP can be technically combined with the employment registers, only the occupation of those respondents who agree to record-linkage can be considered. However, this would further limit the sample and lead to low case numbers. Furthermore, it is not possible to add information on the partner's occupation.

Table 1: Sample composition, column per cent

	Women	Men	All
Gender			
Male	-	-	46
Female	-	-	54
Region			
Western Germany	83	81	82
Eastern Germany	17	19	18
Migration background			
No migration background	77	83	80
Migration background	23	17	20
Level of education			
Low or medium	64	69	66
High (CASMIN 3a,3b)	36	31	34
Employment status			
Employed: Short-time work	6	19	13
Employed: No short-time work	57	73	64
Not working	37	8	24
Employment status partner			
Not working	10	22	16
Working	90	78	84
Mean age of youngest child			
	5.7	5.4	5.6
Survey month			
June	57	56	57
July	22	20	22
August	21	24	22
Sample			
Respondents	389	422	811
Person-months	854	781	1,635

Source: IAB-HOPP wave 2-4, own weighted estimates.

4.3 Analytical strategy

In the following empirical analysis, we investigate how receiving short-time work benefits affected the gendered division of care work. In a first step, we provide descriptive insights into the division of care in the period of June to August 2020, as well as in the period before the pandemic. We also provide descriptive evidence on the changes across time. In a final step, we

employ multinomial logistic regression models. The dependent variable is coded “1” if the father reduced his child care share, “2” if the division of child care tasks remained stable, and “3” if the father expanded his relative contribution to child care tasks during the coronavirus crisis. The results are reported as average marginal effects. In addition, we visualise the average predicted probabilities of the main variable of interest (employment status) in figures. All investigations were conducted separately for women and men. Thus, the analysis also gives insights into the effects of mothers’ participation in the short-time work scheme on the gendered division of work, but these findings are not key to our investigation.

5 Results

5.1 Descriptive results

Table 2 displays the distribution of child care chores during the period of June to August 2020, and clearly shows that the child care patterns were gendered: only 26 per cent of all couples were sharing child care equally. In most cases, the woman was providing most of the care. In less than 10 per cent of the cases, the father was the primary caregiver. In essence, the overwhelming majority of couples (roughly 70 per cent) were following a more traditional division of labour. These results correspond well to recent evidence from other studies (Samtleben et al. 2020). While the observation that 70 per cent of couples were in a traditionally organised partnership may appear to show that German society is far from gender-equal, this finding has to be contextualised. Germany has been a strongly conservative and familialistic regime for decades, and is only gradually moving in a new direction. Other studies that have included longer time trends than ours have shown that in Germany, there is a strongly positive time trend towards greater gender equality (Samtleben et al. 2020; Zabel & Heintz-Martin 2013). The results of our analysis suggest that the pandemic may have even fuelled this positive trend, as the distribution was slightly more unequal before the crisis. We find the share of couples in which the father increased his engagement (21 per cent) was higher than the share

of couples in which the father reduced it (15 per cent). In 64 per cent of the couples, the pandemic left the division of care unchanged.

The analysis also shows that fathers and mothers had different perceptions of their contributions to child care, with women being much more likely than men to say they believe that the mother is “completely” responsible for child care, while the fathers were more likely to say that the mother is “mostly” responsible. Women and men also had different perceptions of the changes over time. According the female respondents, only 16 per cent of the fathers had increased their “care share” over the course of the coronavirus pandemic, while the corresponding figure cited by the male respondents was 26 per cent. While this discrepancy is very disturbing, it is in line with prior research, which has regularly shown that men and women tend to overstate their own contributions to housework and care, and to underestimate those of the other partner (Trappe 2010).

Table 2. Division of child care, column per cent

	Women	Men	Total
Division of care <i>during</i> the coronavirus crisis			
Father (completely or mainly)	3	8	5
Both equally	21	33	26
Mainly mother	33	41	36
Completely mother	43	18	32
Division of care <i>before</i> the coronavirus crisis			
Father (completely or mainly)	2	3	3
Both equally	24	25	25
Mainly mother	29	49	38
Completely mother	45	22	35
Change in division of care			
Father decreased share	19	11	15
No change	66	62	64
Father increased share	16	26	21
Sample size			
Persons	420	388	808
Person-months	854	781	1,635

Source: IAB-HOPP wave 2-4, own weighted estimates.

5.2 Multiple regression results

Figures 2 and 3 plot the predicted probabilities (average margins) from the multinomial logistic regression for the main variable of interest: namely, the employment status. For the male sample (Figure 2), we find a clear pattern. Receiving short-time work benefits significantly increased the chances that a father expanded his share of the child care tasks. The predicted probability of increasing the child care load was 31 per cent for fathers in short-time work, compared to only 21 per cent for fathers in regular employment. In addition, a large share of non-employed fathers increased their level of paternal engagement (30 per cent). While these are large effects, it is important to consider that only a small share of the fathers were not working during the study period (see Table 1). In addition, we cannot rule out the possibility that there was some selection into non-employment among the fathers, which we assume was attenuated for those receiving short-time work benefits.

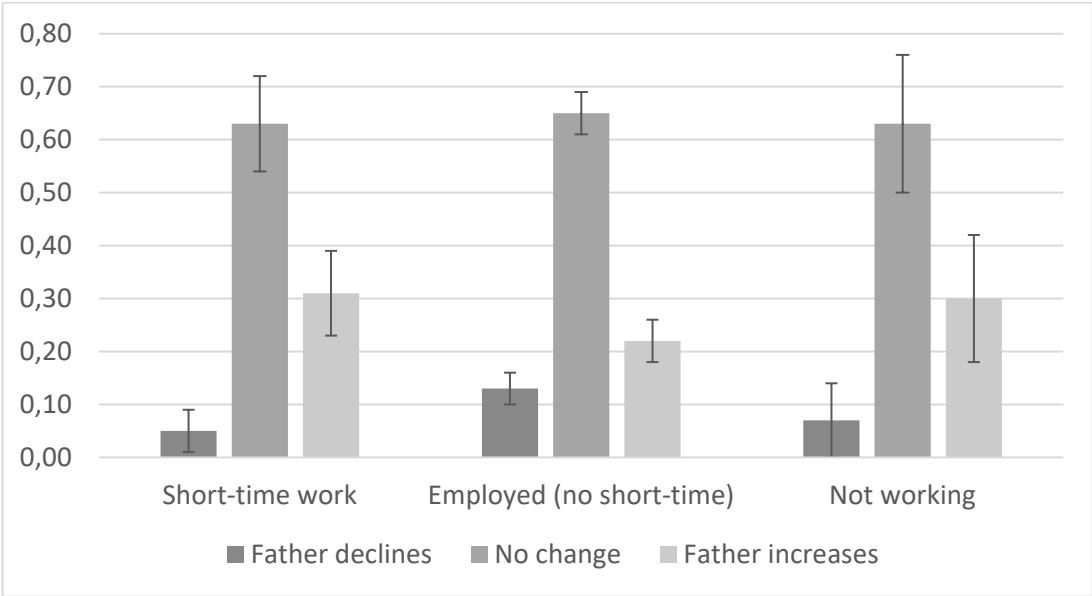
The full model results, and, thus, the effects of the other covariates, are displayed as average marginal effects (AME) in Table A1 in the appendix. While the partner's employment had the expected effect on changes in care patterns, the parameter was borderline insignificant. We also find that education had no significant effect on changes in behaviour. However, education and being in short-time work were strongly correlated, with fathers who were low or medium educated being more likely than highly educated fathers to be in short-time work (see Table A3 in the appendix). Thus, some of the effect of education can be explained by being in short-time work. The regression results also show a negative time trend on fathers' involvement, which is in line with earlier studies (Hipp & Bünning 2021).

The socio-demographic variables (such as Eastern and Western Germany, age of children, and migration background) had no significant effects on the changes in the division of care. Here, we have to emphasise that while we observe no significant effects on the *changes* in behaviour, we do find differences in the division of work between subgroups, such as between fathers in Eastern and Western Germany (for investigations on determinants of the division of care, see

Table 7 for before and Table 9 for during the coronavirus pandemic in the online appendix).

The fathers’ levels of engagement in child care during the pandemic also depended on their arrangements before the pandemic. If the father was already very engaged before the pandemic, there was little scope to increase his engagement. However, a sensitivity analysis in which we deleted all fathers who were completely engaged in child care tasks before the pandemic did not alter the results. In addition, a model that controlled for child care engagement before the pandemic generated comparable estimates (see online appendix, Tables 1).

Figure 2. Average predicted probabilities from multinomial regression model, male sample



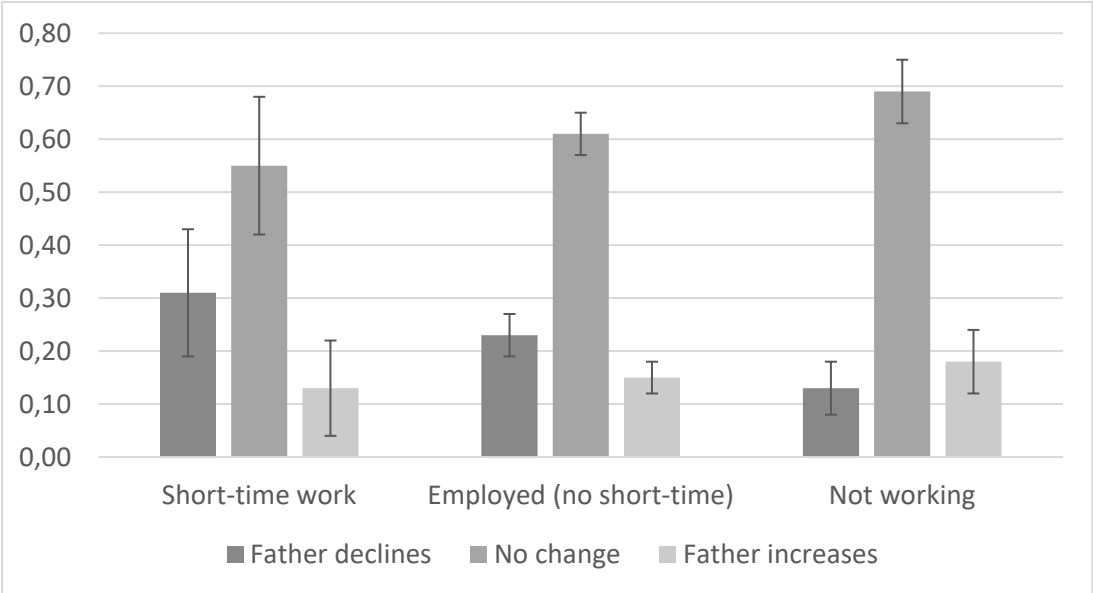
Note: Further control variables are education, migration background, age of youngest child, interview month, region (East/West), partner’s employment status.

Source: IAB-HOPP wave 2-4, own estimations.

Figure 3 provides the results for the female sample. Overall, the predicted probabilities of mothers increasing their child care share were lower than those for fathers. In contrast to fathers, mothers who were in short-time work were slightly less likely to increase their child care share than employed mothers who were not in short-time work. If the mother was in short-time work, the probability that she would increase her child care share was 13 per cent, compared to 15 per cent if she was in regular employment. A possible explanation for the finding that the effects

were less pronounced between these two groups of mothers than they were for fathers is that the mothers in regular employment were more heterogeneous than their male counterparts. While mothers often work reduced hours – and are thus in part-time or marginal employment – the vast majority of the fathers are employed full-time. The figure also shows that only 18 per cent of the mothers who were not working at the time of the interview increased their child care share. A likely explanation for this finding is that a large fraction of these mothers had not been working before the pandemic, and thus were already completely responsible for the care of their children. For these women, a further increase in their child care load was not possible. We conducted robust checks in which we excluded mothers who were completely responsible for taking care of their children before the pandemic. In these analyses, we see that the non-employment of the mother reduces the fathers’ contribution to child care (see Table 2 in the online appendix).

Figure 3. Average predicted probabilities from multinomial regression model, female sample



Note: Further control variables are education, migration background, age of youngest child, interview month, region (East/West), partner’s employment status.

Source: IAB-HOPP wave 2-4, own estimations.

Turning to the control variables, we find that, as expected, the partner’s employment had a negative impact on the father’s engagement in care. As in the male sample, the control variables

did not explain most of the changes in patterns over time. We also estimated separate models for the determinants of the division of child care tasks, as we did for the male sample (see Table 8 for before and Table 10 for during the coronavirus pandemic in the online appendix).

6 Conclusions

This paper has examined how the growing prevalence of short-time work among fathers affected changes in child care arrangements in couples in Germany between two time periods: before and during the COVID-19 pandemic. We used IAB-HOPP data that included prospective data on the division of child care for June, July, and August 2020. The study also surveyed the division of care with a retrospective question that asked respondents how they arranged care before the coronavirus pandemic (without specifying any further the exact time point). The analytical sample included men and women in couple households with children aged 12 and younger.

The results of our study may be summarised as follows. The division of child care in couples in Germany was found to be mostly traditional, with mothers shouldering the bulk of the child care duties in 70 per cent of families. While the patterns were traditional overall, we did not observe a shift towards a “re-traditionalisation” of care patterns during the pandemic. However, the results of the investigation also echo those of prior studies that have shown that there are substantial differences between couples. In some couples, the coronavirus crisis led to a decline in paternal engagement (15 per cent), while in other couples, fathers became more engaged (21 per cent). However, no changes were observed in 64 per cent of the couples.

There are various processes that may have contributed to a shift away from or towards greater gender equality in child care. In this study, we have primarily focused on the role of short-time work. The short-time work programme was one of the main measures the German government used to combat an increase in unemployment during the coronavirus pandemic, with men being more likely than women to participate in the scheme. In our study, 19 per cent of the fathers,

but just six per cent of the mothers, were in short-time work during June to August 2020. Our multiple regression results, which controlled for standard socio-demographic confounders, showed that short-time work benefits may have been an “enabler”, with a significant share of men using the time they gained to increase their engagement in care work. We found that 31 per cent of the fathers in short-time work, compared to 21 per cent of the fathers in regular employment, made progress towards a more equal division of care.

Taken together, the study refutes the re-traditionalisation hypothesis, and also provides evidence of a positive correlation between receiving short-time work benefits and involvement in child care among fathers. We further argued that examining the effects of participation in the short-time work programme can provide us with a deeper understanding of the potential to encourage men to change their work patterns through paid leave benefits. Thus, the implications of our research results go beyond the narrow context of the coronavirus pandemic by providing a positive assessment of the potential effectiveness of paid leave policies. The 9th Family Report (*9. Familienbericht*) advocates for an extension of paid parental leave for fathers (BMSFJ 2021). Our study provides support for the argument that measures of this kind are highly effective in encouraging fathers to become more involved in the lives of their children. As short-time work was more prevalent among low and medium educated fathers, we can also conclude that this positive effect is not limited to highly educated fathers – who are commonly regarded as the vanguards of engaged parenting – and that such measures can reach all layers of society.

While this study has provided novel and policy-relevant results, our investigation has many limitations. Most importantly, we found glaring differences in mothers’ and fathers’ perceptions of their own contributions to care. Our analysis relied on the standard operational division of care that distinguished between the following categories: (almost) completely my partner, for the most part my partner, split about 50/50, for the most part me, and (almost) completely me. We found that while mothers were more likely to believe that they do all of the care work,

fathers were more likely to believe that mothers do “most” of the care work. Furthermore, a substantial share of fathers reported that they had become the main carer during the pandemic, while most mothers did not share this view. We do not have any objective measure to judge whether mothers or fathers are more trustworthy. It is, however, clear that these standard item batteries used to measure the division of care in couple household are in dire need of revision. The IAB-HOPP relied on these well-tested item batteries to operationalise the gendered division of care, which are also used in other surveys. However, these batteries may no longer be suitable during periods when gender role behaviour is shifting, and in which substantial shares of fathers and mothers oscillate between the categories of “for the most part the mother” and “completely the mother”.

There are other limitations that must be mentioned. First, we relied on only retrospective information on the division of care before the coronavirus crisis. It is well known that the collection of past behaviour and attitudes is severely affected by recall bias. For example, the respondents may have had a more positive recollection of their past division of care. This would mean that the coronavirus pandemic had an even more positive effect on the gendered division of care than we measured with our data. Another important limitation of our investigation is that the IAB-HOPP is not a household survey. While it provided us with information on the gendered division of care in the household and some selected partner information, it did not allow us to examine the interaction of partner characteristics at the household level. A related problem is that we did not have sufficient information on whether the partner was working in a frontline occupation, or was working remotely (see footnote 6).

The survey was also limited in terms of household characteristics. For example, we had no information on whether the family was a nuclear family or a stepfamily. Thus, we labelled the respondents in our sample “fathers” and “mothers”, even though they may not be the biological parents of the children. As step-fatherhood is more common than step-motherhood, we may have underestimated the “care share” of biological fathers in Germany by using data of this

kind. As stepfamilies make up about 10 per cent of all families in Germany, this is a serious concern (Steinbach 2008). Furthermore, the gender of the respondents' partner was not surveyed in the IAB-HOPP. As a result, we were not able to differentiate between homosexual and heterosexual unions. This is a limitation, as there is evidence that heterosexual couples and homosexual couples organise their care work differently (Evertsson et al. 2021).

Last but not least, our analysis was restricted to June to August 2020. The "care burden" has varied strongly across time in Germany because of the erratic and regionally diverse patterns of school and day care closures, lockdown measures, and school holidays. As the IAB-HOPP includes regional information and is still ongoing, there is scope for future studies to better account for these contextual factors and the dynamics across time. Moreover, further studies can shed light on other questions, such as whether the early months of the coronavirus pandemic were unusual, and whether there have been additional shifts towards a more equal or unequal division of care with the increasing duration of the pandemic.

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Appendix

Table A1. Regression results. Male sample. Multinomial regression model. Average marginal effects. Dependent variable: Decline in father's engagement (base outcome), no change, increase in father's engagement.

	Decline	No change	Increase
Employment status			
Employed, no short-time work	Ref.	Ref.	Ref.
Employed, short-time work	-0.081*** (-3.22)	-0.018 (-0.35)	0.099** (2.06)
Not working	-0.065* (-1.83)	-0.023 (-0.33)	0.088 (1.35)
Educational status			
Low or medium education	Ref.	Ref.	Ref.
High education	-0.004 (-0.15)	-0.034 (-0.91)	0.037 (1.14)
Region			
Western Germany	Ref.	Ref.	Ref.
Eastern Germany	-0.020 (-0.62)	0.039 (0.83)	-0.019 (-0.46)
Age youngest child	-0.004 (-1.20)	0.005 (1.01)	-0.001 (-0.19)
Interview month	0.024* (1.80)	-0.032 (-1.49)	0.008 (0.42)
Migration background			
No migration background	Ref.	Ref.	Ref.
Migration background	-0.031 (-0.82)	-0.003 (-0.06)	0.035 (0.74)
Employment status partner			
Not working	Ref.	Ref.	Ref.
Working	-0.033 (-1.09)	0.039 (0.85)	-0.006 (-0.14)
N (person-months)	687	687	687

Source: IAB-HOPP wave 2-4, own estimations.

Note; * p<0.10, ** p<0.05, *** p<0.01

Table A2. Regression results. Female sample. Multinomial regression model. Average marginal effects. Dependent variable: Decline in father's engagement (base outcome), no change, increase in father's engagement.

	Decline	No change	Increase
Employment status			
Employed, no short-time work	Ref.	Ref.	Ref.
Employed, short-time work	0.083 (1.29)	-0.065 (-0.92)	-0.018 (-0.36)
Not working	-0.104*** (-3.31)	0.078* (1.87)	0.027 (0.79)
Educational status			
Low or medium education	Ref.	Ref.	Ref.
High education	-0.021 (-0.69)	0.037 (1.02)	-0.016 (-0.58)
Region			
Western Germany	Ref.	Ref.	Ref.
Eastern Germany	-0.026 (-0.71)	0.050 (1.12)	-0.024 (-0.69)
Age youngest child			
	-0.002 (-0.34)	-0.002 (-0.33)	0.003 (0.84)
Interview month			
	-0.015 (-0.82)	-0.046** (-2.21)	0.061*** (4.06)
Migration background			
No migration background	Ref.	Ref.	Ref.
Migration background	0.047 (1.25)	0.013 (0.25)	-0.059 (-1.40)
Employment status partner			
Not working	Ref.	Ref.	Ref.
Working	-0.100 (-1.52)	-0.051 (-0.52)	0.150 (1.57)
N (person-months)	761	761	761

Source: IAB-HOPP wave 2-4, own estimations.

Note; * p<0.10, ** p<0.05, *** p<0.01

Table A3. Distribution of Employment Status among the Sample, row per cent.

	Short-time work	Employed (no short- time work)	Not working
Region			
Western Germany	0.13	0.61	0.26
Eastern Germany	0.11	0.76	0.13
Migration background			
No migration background	0.12	0.63	0.25
Migration background	0.12	0.67	0.20
Level of education			
Low or medium education	0.14	0.59	0.26
High education	0.08	0.74	0.18
Employment status partner			
Not working	0.14	0.69	0.17
Working	0.12	0.63	0.25
Person-waves	854	781	1,635

Source: IAB-HOPP wave 2-4, own weighted estimates.

Online Appendix

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Table 1. Regression results. Male sample. Multinomial regression model. Average marginal effects. Dependent variable: Decline of father's engagement (base outcome), no change, increase of father's engagement. **Exclusion of fathers "doing care work completely" before Corona.**

	Decline	No change	Increase
Employment status			
Employed, no short-time work	Ref.	Ref.	Ref.
Employed, short-time work	-0.080***	-0.018	0.098**
Not working	-0.078**	-0.026	0.104
Educational status			
Low or medium education	Ref.	Ref.	Ref.
High education	-0.004	-0.033	0.037
Region			
Western Germany	Ref.	Ref.	Ref.
Eastern Germany	-0.016	0.037	-0.021
Age youngest child	-0.004	0.005	-0.001
Interview month	0.026**	-0.033	0.006
Migration background			
No migration background	Ref.	Ref.	Ref.
Migration background	-0.029	-0.004	0.033
Employment status partner			
Not working	Ref.	Ref.	Ref.
Working	-0.037	0.042	-0.005
N (person-months)	682	682	682

Source: IAB-HOPP wave 2-4, own estimations.

Note; * p<0.10, ** p<0.05, *** p<0.01

Table 2. Regression results. Female sample. Multinomial regression model. Average marginal effects. Dependent variable: Decline father's engagement (base outcome), no change, increase of father's engagement. **Exclusion of mothers "doing care work completely" before Corona.**

	Decline	No change	Increase
Employment status			
Employed, no short-time work	Ref.	Ref.	Ref.
Employed, short-time work	0.056	-0.030	-0.027
Not working	-0.093***	0.050	0.042
Educational status			
Low or medium education	Ref.	Ref.	Ref.
High education	-0.012	0.032	-0.019
Region			
Western Germany	Ref.	Ref.	Ref.
Eastern Germany	-0.004	0.038	-0.035
Age youngest child	-0.002	-0.002	0.004
Interview month	0.012	-0.032	0.020
Migration background			
No migration background	Ref.	Ref.	Ref.
Migration background	0.062	0.012	-0.074
Employment status partner			
Not working	Ref.	Ref.	Ref.
Working	-0.133**	-0.059	0.192
N (person-months)	603	603	603

Source: IAB-HOPP wave 2-4, own estimations.

Note; * p<0.10, ** p<0.05, *** p<0.01

Table 3. Regression results. Male sample. Multinomial regression model. Average marginal effects. Dependent variable: Decline of father’s engagement (base outcome), no change, increase of father’s engagement. **Including the division of child care before Corona as further control variable.**

	Decline	No change	Increase
Division of childcare pre-Corona			
Completely mother	Ref.	Ref.	Ref.
Mainly mother	0.098***	0.183	-0.281
50/50 or mainly/completely father ⁷	0.224***	0.224***	-0.357***
Employment status			
Employed, no short-time work	Ref.	Ref.	Ref.
Employed, short-time work	-0.071***	-0.009	0.080
Not working	-0.083***	-0.054	0.136
Educational status			
Low or medium education	Ref.	Ref.	Ref.
High education	-0.007	-0.037	0.043
Region			
Western Germany	Ref.	Ref.	Ref.
Eastern Germany	-0.029	0.021	-0.002
Age of youngest child	-0.003	0.005	-0.002
Interview month	0.025*	-0.031	0.006
Migration background			
No migration background	Ref.	Ref.	Ref.
Migration background	-0.032	0.013	0.019
Employment status partner			
Not working	Ref.	Ref.	Ref.
Working	-0.086***	-0.002	0.087
N (person-months)	687	687	687

Source IAB-HOPP wave 2-4, own estimations.

Note; * p<0.10, ** p<0.05, *** p<0.01

⁷ Due to low case numbers we summarized the categories “split about 50/50”, “mostly father”, and “(almost) completely father”.

Table 4. Regression results. Female sample. Multinomial regression model. Average marginal effects. Dependent variable: Decline of father's engagement (base outcome), no change, increase of father's engagement. **Including the division of child care before Corona as further control variable.**

	Decline	No change	Increase
Division of care pre-Corona			
Completely mother	Ref.	Ref.	Ref.
Mainly mother	-0.124***	-0.132***	0.256***
50/50 or mainly/completely father	-0.210***	-0.159***	0.369**
Employment status			
Employed, no short-time work	Ref.	Ref.	Ref.
Employed, short-time work	0.062	-0.083	0.020
Not working	-0.120***	0.055	0.066**
Educational status			
Low or medium education	Ref.	Ref.	Ref.
High education	-0.023	0.044	-0.022
Region			
Western Germany	Ref.	Ref.	Ref.
Eastern Germany	-0.017	0.056	-0.039
Age youngest child	-0.003	-0.001	0.004
Interview month	-0.018	-0.048**	0.066***
Migration background			
No migration background	Ref.	Ref.	Ref.
Migration background	0.044	0.016	-0.061*
Employment status partner			
Not working	Ref.	Ref.	Ref.
Working	-0.109	-0.063	0.172**
N (person-months)	761	761	761

Source: IAB-HOPP wave 2-4, own estimations.

Note; * p<0.10, ** p<0.05, *** p<0.0

Table 5. Regression results. Employed male sample. Multinomial regression model. Average marginal effects. Dependent variable: Decline of father's engagement (base outcome), no change, increase of father's engagement. **Including home office as further control.**

	Decline	No change	Increase
Short-time work			
No	Ref.	Ref.	Ref.
Yes	-0.050	-0.084	0.133**
Home office			
No	Ref.	Ref.	Ref.
Yes	-0.036	-0.019	0.055
Educational status			
Low or medium education	Ref.	Ref.	Ref.
High education	0.004	-0.031	0.028
Region			
Western Germany	Ref.	Ref.	Ref.
Eastern Germany	-0.016	0.071	-0.055
Age youngest child	-0.007	0.006	0.001
Interview month	0.008	-0.016	0.007
Migration background			
No migration background	Ref.	Ref.	Ref.
Migration background	-0.081	-0.042	0.040
Employment status partner			
Not working	Ref.	Ref.	Ref.
Working	-0.021	-0.004	0.024
N (person-months)	432	432	432

Source: IAB-HOPP wave 2-4, own estimations.

Note; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 6. Regression results. Employed female sample. Multinomial regression model. Average marginal effects. Dependent variable: Decline of father's engagement (base outcome), no change, increase of father's engagement. **Including home office as further control.**

	Decline	No change	Increase
Short-time work			
No	Ref.	Ref.	Ref.
Yes	0.060	-0.079	0.019
Home office			
No	Ref.	Ref.	Ref.
Yes	0.008	-0.025	0.016
Educational status			
Low or medium education	Ref.	Ref.	Ref.
High education	-0.043	0.033	0.008
Region			
Western Germany	Ref.	Ref.	Ref.
Eastern Germany	-0.027	0.050	-0.023
Age youngest child	0.002	-0.004	0.002
Interview month	0.007	-0.075***	0.069***
Migration background			
No migration background	Ref.	Ref.	Ref.
Migration background	0.159***	-0.043	-0.116*
Employment status partner			
Not working	Ref.	Ref.	Ref.
Working	-0.270***	0.106	0.164
N (person-months)	358	358	358

Source: IAB-HOPP wave 2-4, own estimations.

Note; * p<0.10, ** p<0.05, *** p<0.01

Table 7. Regression results. Male sample. Multinomial regression model. Average marginal effects. Dependent variable: Division of child care **before** Corona: Completely mother (base outcome), mainly mother, 50/50 and father contributes mainly or completely.

	Completely mother	Mainly mother	50/50 or mainly/completely father
Educational status			
Low or medium education	Ref.	Ref.	Ref.
High education	-0.018	0.034	-0.015
Region			
Western Germany	Ref.	Ref.	Ref.
Eastern Germany	-0.103*	0.023	0.080
Age youngest child			
	0.002	-0.002	0.000
Migration background			
No migration background	Ref.	Ref.	Ref.
Migration background	-0.011	0.008	0.003
Employment status partner			
Not working			
Working	-0.180***	0.073	0.107
N (subjects)	340	340	340

Source IAB-HOPP wave 2-4, own estimations.

Note; * p<0.10, ** p<0.05, *** p<0.01

Table 8. Regression results. Female sample. Multinomial regression model. Average marginal effects. Dependent variable: Division of child care **before** Corona: Completely mother (base outcome), mainly mother, 50/50 and father contributes mainly or completely.

	Completely mother	Mainly mother	50/50 or mainly/completely father
Educational status			
Low or medium education	Ref.	Ref.	Ref.
High education	0.003	0.001	-0.004
Region			
Western Germany	Ref.	Ref.	Ref.
Eastern Germany	-0.059	0.013	0.046
Age youngest child			
	-0.000	-0.002	0.002
Migration background			
No migration background	Ref.	Ref.	Ref.
Migration background	-0.014	0.031	-0.017
Employment status partner			
Not working	Ref.	Ref.	Ref.
Working	0.022	0.038	-0.060
N (subjects)	366	366	366

Source IAB-HOPP wave 2-4, own estimations.

Note; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 9. Regression results. Male sample. Multinomial regression model. Average marginal effects. Dependent variable: Division of child care **during** Corona: Completely mother (base outcome), mainly mother, 50/50 and father contributes mainly or completely.

	Completely mother	Mainly mother	50/50 or mainly/completely father
Educational status			
Low or medium education	Ref.	Ref.	Ref.
High education	-0.056**	0.049	0.007
Region			
Western Germany	Ref.	Ref.	Ref.
Eastern Germany	-0.012	-0.040	0.052
Age youngest child			
	0.002	-0.000	-0.002
Interview month			
	-0.019	0.055**	-0.036
Migration background			
No migration background	Ref.	Ref.	Ref.
Migration background	-0.009	0.014	-0.005
Employment status partner			
Not working	Ref.	Ref.	Ref.
Working	-0.183***	0.051	0.132***
N (person-months)	687	687	687

Source: IAB-HOPP wave 2-4, own estimations.

Note; * p<0.10, ** p<0.05, *** p<0.01

Table 10. Regression results. Female sample. Multinomial regression model. Average marginal effects. Dependent variable: Division of child care **during** Corona: Completely mother (base outcome), mainly mother, 50/50 and father contributes mainly or completely.

	Completely mother	Mainly mother	50/50 or mainly/completely father
Educational status			
Low or medium education	Ref.	Ref.	Ref.
High education	-0.014	-0.005	0.019
Region			
Western Germany	Ref.	Ref.	Ref.
Eastern Germany	-0.037	-0.034	0.070**
Age youngest child			
	-0.002	0.001	0.000
Interview month			
	0.051**	-0.000	-0.051***
Migration background			
No migration background	Ref.	Ref.	Ref.
Migration background	-0.073	0.059	0.014
Employment status partner			
Not working	Ref.	Ref.	Ref.
Working	0.061	0.172	-0.233***
N (person-months)	761	761	761

Source: IAB-HOPP wave 2-4, own estimations.

Note; * p<0.10, ** p<0.05, *** p<0.01

Table 11. Regression results. Logistic regression model. (Beta coefficients). Dependent variable: Short-time work (yes/no)

	Men	Women
Educational status		
Low or medium education	Ref.	Ref.
High education	-0.666***	-1.039***
Region		
Western Germany	Ref.	Ref.
Eastern Germany	-0.373	-0.283
Age youngest child	-0.017	-0.012
Interview month	0.035	-0.072
Migration background		
No migration background	Ref.	Ref.
Migration background	-0.139	0.818**
N	631	547

Source: IAB-HOPP wave 2-4 , own estimations.

Note; * p<0.10, ** p<0.05, *** p<0.01

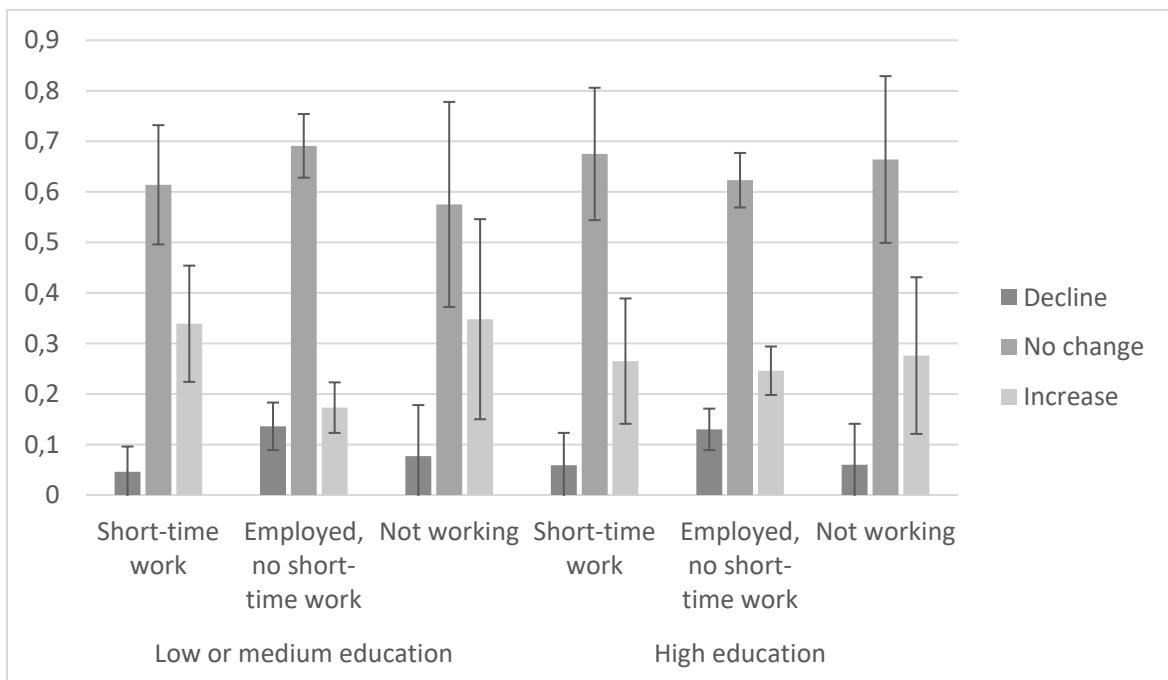
Table 12. Regression results. Predicted probabilities to be on short-time work by gender. (Predicted results from Logit model Table 11)

	Men	Women
Educational status		
Low or medium education	0.233	0.165
High education	0.136	0.066
Region		
Western Germany	0.189	0.114
Eastern Germany	0.139	0.089
Migration background		
No migration background	0.182	0.092
Migration background	0.163	0.184

Source: IAB-HOPP wave 2-4, own estimations.

Note; * p<0.10, ** p<0.05, *** p<0.01

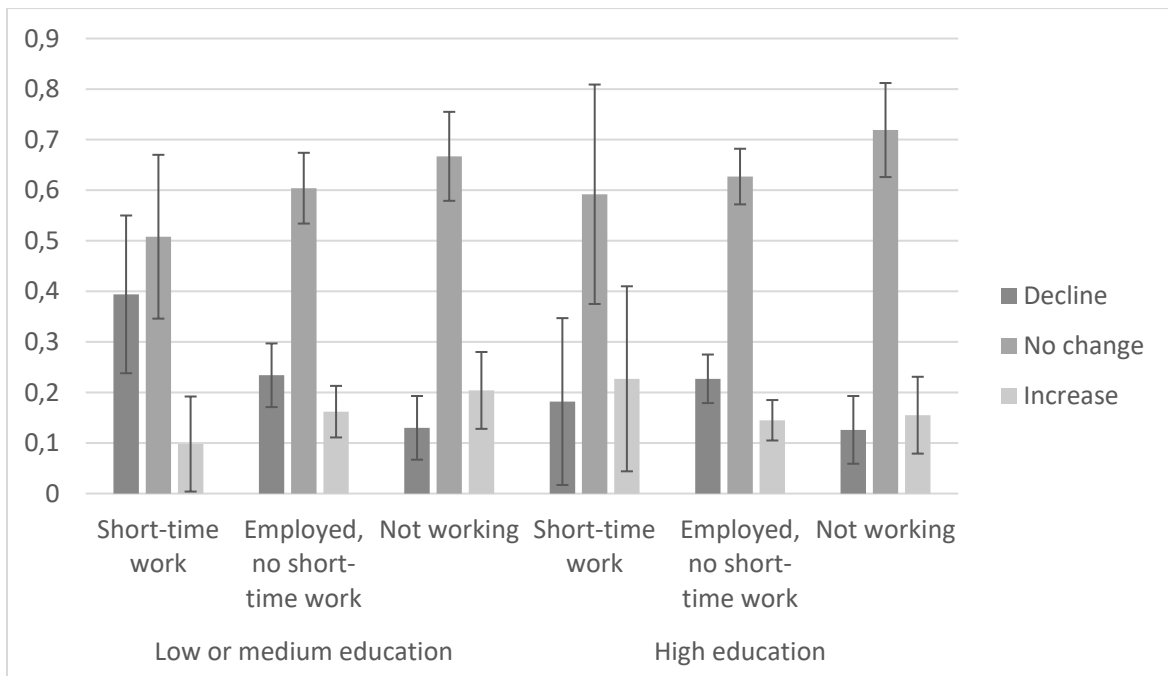
Figure 1. Average predicted probabilities from multinomial regression model, male sample



Note: Further control variables are education, migration background, age of youngest child, region (East/West), interview month.

Source: IAB-HOPP wave 2-4, own estimations.

Figure 2. Average predicted probabilities from multinomial regression model, female sample



Note: Further control variables are education, migration background, age of youngest child, region (East/West), interview month.

Source: IAB-HOPP wave 2-4, own estimations.