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35|2020 Care-Arrangements and Parental Well-Being during the COVID-19 Pandemic in Germany

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Care-Arrangements and Parental Well-Being during the COVID-19 Pandemic in Germany

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Abstract

This study examines the short-term consequences for care-arrangements and resulting changes in well-being among parents, who were affected by the closure of schools and institutional child-care during the COVID-19 pandemic in Germany. By applying multinomial logistic regression models to novel panel data from the National Educational Panel Study (NEPS-Corona_CAWI_C2), the study finds that mothers play a key role in the ad-hoc care-arrangements during the COVID-19 pandemic confirming the traditional division of family work in German couples. Moreover, the results illustrate the importance of working conditions, especially the possibility of remote work, in the bargaining processes of parents. However, contrary to our assumptions, parents' well-being was not influenced by the chosen care-arrangement during the first months of the crisis.

Zusammenfassung

Diese Studie untersucht die kurzfristigen Folgen für die Betreuungsarrangements von Eltern, die während der COVID-19-Pandemie in Deutschland von der Schul- und Kita-Schließung betroffen waren und die daraus resultierenden Veränderungen in ihrem Wohlbefinden. Mit multinomialen logistischen Regressionen, angewendet auf neue Paneldaten des Nationalen Bildungspanels (NEPS-Corona_CAWI_C2) findet die Studie, dass Mütter eine Schlüsselrolle in den Ad-hoc-Betreuungsarrangements während der COVID-19-Pandemie spielen, was die traditionelle Aufteilung der Familienarbeit bei deutschen Paaren bestätigt. Darüber hinaus veranschaulichen die Ergebnisse die Bedeutung der Arbeitsbedingungen, insbesondere die Möglichkeit des Homeoffice, für den Verhandlungsprozess der Eltern. Entgegen unseren Annahmen wurde das Wohlergehen der Eltern in den ersten Krisenmonaten jedoch nicht durch das gewählte Betreuungsarrangement beeinflusst.

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1 Introduction

Around the world, the COVID-19 pandemic has led to the closure of formal childcare facilities and schools so that childcare has fallen back into the responsibility of families.¹ Against this backdrop, scholars have quickly raised the question of how this increase in informal childcare will affect gender inequalities in the short to medium term: Will we experience a re-traditionalization of labour division in households or a role reversal (Hank and Steinbach, 2020; Sevilla and Smith, 2020)?

This study adds to a growing body of literature on how working parents in Germany – a country dominated by a modernized breadwinner model – rearrange informal childcare during the pandemic-related closure of schools and childcare facilities. We empirically examine the short-term consequences for informal care-arrangements under control of pandemic-related altered working conditions of the parents and analyse how informal childcare affects parental well-being.

In Germany, childcare facilities and schools were closed in mid-March from one day to another. This closure affected about 8.8 million children under 12 years of age and more than 4 million working parents (Müller et al., 2020). Translated into the affected working volume, this represents a loss of 8 percent of all usually worked hours (Fuchs-Schündeln et al., 2020). Moreover, to decrease infection rates and specially to protect the elderly, the population was encouraged to keep “social distance”, discouraging neighbours, friends and, in particular, grandparents to support informal childcare (Alon et al., 2020). This situation has put new challenges on parents as established institutional care-arrangements and informal caregivers were no longer available. Hence, at the end of March, about 93 percent of all parents provided childcare themselves (Möhring et al., 2020). Although the short-term closures were initially planned for a few weeks, most schools and childcare facilities only resumed regular operations after the summer vacation in August or September.

In addition to the closures of formal childcare facilities and schools, the professional situation of parents also changed in spring 2020. Although the changes were less pronounced than in other countries, employment in Germany declined significantly during the first months of the COVID-19 pandemic. Particularly women seem to have reduced their working hours or have lost their jobs. Those who remained employed were, however, more likely to work remotely, especially in high skilled jobs (e.g., Hammerschmidt et al., 2020; Hank and Steinbach, 2020; Kleinert et al., 2020; Frodermann et al., 2020). At the same time, however, it is mainly women who work in critical sectors and system-relevant occupations, such as health care, public services or security (Koebe et al., 2020; Kleinert et al., 2020). Such jobs are often not compatible with remote work, are associated with longer hours and, thus, could hardly be combined with childcare (Bünning et al., 2020; Möhring et al., 2020; Schröder et al., 2020).

Although working parents have had to adjust their work-care-arrangement across the world, initial studies show that the division of family work between partners varies across countries. During lockdown, British mothers, for example, spend substantially more time on informal childcare compared to fathers, especially if they have stopped working – but not vice versa (Andrew et al., 2020). Spanish fathers slightly increased their childcare time, yet leaving the brunt of work to mothers

¹ We distinguish between formal childcare, capturing centre-based care and family day care (i.e. “Tagespflege”), and informal childcare, capturing informal care provided by parents, friends or relatives.

(Farré et al., 2020). In Italy, parents shared childcare activities more equally, with greater involvement of fathers, but depending on which of the two parents had to continue working onsite (Del Boca et al., 2020; Mangiavacchi et al., 2020). Comparative studies show that, compared to pre-crisis times, fathers have significantly increased their share of childcare. However, this increase is still less pronounced than the one of mothers. Moreover, studies show that the changes in informal childcare have reduced life satisfaction, especially for mothers (e.g., Biroli et al., 2020).

In line with international studies, fathers in Germany have also increased their share of childcare. However, mothers still seem to take on the main part of family work (Möhring et al., 2020; Zinn et al., 2020). First studies also point to a higher mental burden of women with regard to childcare, as Czymara et al. (2020) show that women worried more about childcare during the first weeks of the lockdown than men did. In accordance with this finding, studies also show that mothers' satisfaction with work and family life in the pandemic is particularly different from the satisfaction before the corona crisis (Huebener et al., 2020).

Although pandemic-related inequalities in childcare provision can initially be observed within couples, scholars expect that social inequalities within the group of parents and particularly mothers have also risen sharply (Allmendinger, 2020). However, current evidence for Germany is mainly based on ad hoc online surveys, which can hardly account for biases due to self-selection in the sampling process. So far, most studies have been based on cross-sectional data, neither allowing a comparison with pre-pandemic measures nor investigating the influence of altered working conditions such as an expansion of remote work due to the COVID-19 pandemic. These studies were therefore unable to, first, determine exactly if and to what extent the same respondents had altered their informal care-arrangements due to the closure of schools and childcare facilities and, second, how altered work-care-arrangements have affected parental well-being. Hence, answering these questions is the focus of the present study.

Therefore, this study extends the existing evidence by (a) empirically examining whether earlier results on pandemic-related informal care-arrangements are reproducible with panel data that allows considering a rich set of control variables; (b) investigating which individual or job-related characteristics are related to different care-arrangements; (c) analysing how altered care-arrangements affect parental well-being; and (d) examining these relationships separately for mothers and fathers with children of different age to obtain a comprehensive picture. By using rich German panel data and focusing on three representative subsamples of parents, together with a large set of pre-pandemic control variables, the study provides a rare opportunity to examine first trends in gender inequalities caused by the COVID-19 pandemic in Germany.

2 Theoretical Framework

2.1 Explaining Inequalities in Care-Arrangements

Although mothers have greatly expanded their employment across all industrialized countries, they still bear the main brunt of family work (e.g., Nitsche and Grunow, 2016; Grunow, 2019; Kan et al., 2011). The gendered division of family work has so far been explained mainly by three approaches (Schober and Zoch, 2019): the neo-classical economic theory (Becker, 1981), resource-

bargaining perspectives (e.g., Lundberg and Pollak, 1996), and constructivist approaches of gender role identities (West and Zimmerman, 1987). We draw on these approaches to formulate hypotheses on the informal care-arrangements during the COVID-19 pandemic in Germany.

According to the neo-classical economic theory, the parent with the lower relative potential earnings will specialise in family work. This is supported by the resource-bargaining perspective, assuming the partner with the higher relative earnings or future career perspective will use these to negotiate lower contributions to family work. Gendered inequalities in the labour market, in particular, the substantial gender wage gap caused inter alia by women working in lower-paying occupations, sectors and positions (Boll and Lagemann, 2018), leave most women in a worse bargaining position than men. Against this background, we expect mothers to continue to serve as main caregivers during the COVID-19 pandemic (*hypothesis 1*).

However, according to identity theories and role occupancy perspective (Stryker and Burke, 2000; West and Zimmermann, 1987), there might be systematic differences in the division of family work depending on prevalent gender roles. Parents who identify with more egalitarian gender ideologies are presumed to have also a more egalitarian division of family work (Nitsche and Grunow, 2016). Accordingly, we expect parents who identify with more traditional gender ideologies to adopt a less equal division of informal childcare during the COVID-19 pandemic (*hypothesis 2*).

The gender-specific division of family work due to differences in relative income, career prospects and gender roles generally results from long-term negotiation processes and stable opportunity structures such as public childcare provision. With the COVID-19 pandemic, however, these long-term negotiation processes might become less important than short-term restrictions. We therefore expect the daily working conditions of each parent to play a particularly important role for the individual contribution to family work. In particular, the possibility of working from home and pandemic-related changes in working hours are likely to have a strong impact on parents' bargaining power. While parents in office jobs often worked remotely and were, therefore, able to take on much larger parts of family work, parents working in system-relevant occupations faced a particular challenge. They were usually unable to work remotely, and often even had to extend their working hours, especially in the health sector.² Following the neoclassical economic theory and the resource-bargaining perspective, we expect that in the course of the COVID-19 pandemic altered working conditions will influence the ad-hoc division of family work. Specifically, we expect that parents will have greater bargaining power and thus be less involved in parental childcare if they work in a system-relevant occupation (*hypothesis 3a*), have to work more hours (*hypothesis 3b*), and are unable to work remotely (*hypothesis 3c*).

2.2 Explaining Inequalities in Parental Well-Being

In recent years, capacities in formal childcare facilities have been greatly expanded throughout Europe. Next to evaluating the effects of this expansion on maternal employment, studies for Germany have also found that the childcare expansion is positively linked to the subjective well-being of parents, particularly among mothers (e.g., Schmitz, 2020; Schober and Schmitt, 2017). According to Voydanoff's (2005) demands and resources approach towards perceived work-family

² An exception are teachers and educators. Although these professions are among the system-relevant occupations, they were directly affected by the closure of schools and childcare institutions.

balance, the availability of institutional childcare is associated with reduced work-family conflicts and, hence, increased subjective life, work and family satisfaction (Schober and Stahl, 2016).

The sudden, pandemic-related closure of formal childcare and schools throughout Germany caused an abrupt divergence in work demand and family resources. In line with theoretical considerations and previous studies reporting increased work-family conflicts and a decrease in parental well-being (e.g., Biroli et al., 2020; Huebner et al., 2020), the closure should result in a decline of overall life, family and work satisfaction among parents. We presume that it is especially the main caregiver who must reconcile both obligations – family and work – at the same time and therefore should suffer most under the divergence in demands and resources. We therefore expect a negative effect of the chosen care-arrangement for the main caregiver regarding overall life satisfaction (*hypothesis 4a*), work satisfaction (*hypothesis 4b*) and family satisfaction (*hypothesis 4c*).

3 Data and Estimation Strategy

3.1 The National Educational Panel Study (NEPS)

The study uses novel data on adult respondents from three starting cohorts from the National Education Panel Study (NEPS) (Blossfeld et al., 2011): Starting Cohort 2 – Kindergarten (NEPS-SC2), Starting Cohort 5 – First-Year Students (NEPS-SC5) and Starting Cohort 6 – Adults (NEPS-SC6). Beginning in 2009, the six NEPS starting cohorts provide the largest long-term education study in Germany with detailed information on about 60,000 respondents born between 1944 and 2012.³ The applied data is based on a unique and innovative data set from three separate NEPS data sources: (1) rich panel data from scientific use files of the three NEPS starting cohorts, (2) recently collected consortium data of the three starting cohorts (SC2: B130_C1, SC5: B140_C1 and SC6: B145_C1), and (3) data from a supplementary online survey of all NEPS respondents on the COVID-19 pandemic (Corona_CAWI_C2, conducted Mai–June 2020).⁴ In this additional online survey, participants were asked about the direct consequences of the pandemic on their school, work, and family life. Based on a rich set of the individual- and household-level information of the respondents, these longitudinal data enable us to examine both current and retrospective-based differences in the pandemic-related care-arrangements.

3.2 The NEPS-Subsamples

The subsample NEPS-SC2 (2010–2019) consists of mothers with at least one child aged around 14. The subsample is originally based on a sample of pupils who attended the first grade of primary school in autumn 2012, as well as their relatives (Berendes et al., 2019). It provides detailed information on the child, its parents, and household context. In the supplementary online survey on the COVID-19 pandemic, only the parent who was usually the respondent in previous surveys was

³ From 2008 to 2013, NEPS data was collected as part of the Framework Program for the Promotion of Empirical Educational Research, funded by the German Federal Ministry of Education and Research (BMBF). As of 2014, NEPS is carried out by the Leibniz Institute for Educational Trajectories (LifBi) at the University of Bamberg, Germany, in cooperation with a nationwide network.

⁴ Consortium and CORONA_CAWI_C2 data are not yet available as Scientific Use Files. Table A14 in the appendix gives an overview over the original survey questions used in this report.

interviewed. In the overwhelming majority, this was the mother. In the survey, parents who were affected by the closure of schools or institutional childcare received special questions on the distribution of informal childcare and use of emergency care opportunities. Due to low case numbers, answers from fathers are excluded (N=130, i.e. 9 percent). Hence, based on observations with complete information on the chosen care-arrangement and relevant controls, the final sample consists of 897 mothers with at least one child around 14 years of age.

The subsample NEPS-SC5 (2010–2020) consists of young highly educated parents with at least one child under the age of 14. 59 percent of these families had one child younger than 6 years. The original sample is based on students who started a bachelor's degree in autumn 2010 and have since started working (Brachem et al., 2019). The supplementary online survey on the COVID-19 pandemic focused on all respondents in this cohort. Again, parents who were affected by the closure of schools and childcare facilities received specific questions on their informal care-arrangement. Taking only parents with complete information on the care-arrangements and relevant controls into account, 229 highly educated mothers and fathers remain in the final sample (80 and 77 percent, respectively, with university degree; the remaining parts with university entrance qualification).

The subsample NEPS-SC6 (2009–2020) consists of parents of all educational levels who have at least one child under the age of 14. 48 percent of these families had one child younger than 6 years. The original sample consists of more than 17,000 individuals born between 1944 and 1986 (Allmendinger et al., 2019). Again, the supplementary online survey on the COVID-19 pandemic focused on all respondents of this cohort but asked parents specific questions about the childcare situation. The final sample consists of 324 mothers and fathers that provide complete information on the care-arrangements and relevant controls.

All parents of these three NEPS cohorts answered the questions on informal childcare-arrangements only if they themselves indicated that they were affected from the closure of schools or childcare facilities. For the subsamples NEPS-SC5 and NEPS-SC6, 221 and 30 respondents with children under the age of 14 stated that they were not affected by the closure. As all respondents in the subsample NEPS-SC2 have at least one schoolchild, they were all affected by the school closure. In sum, the analysis samples consist of a total of 1,450 persons, including 897 mothers with a 14-year-old child based on subsample NEPS-SC2, 229 highly educated parents based on subsample NEPS-SC5 and 324 parents of all educational levels with at least one child under 14 years of age based on subsample NEPS-SC6 (Table A1). Overall, the three subsamples offer one of the first opportunities to analyse the COVID-19 pandemic related effects on the care-arrangement of mothers and fathers in Germany based on an informative data set.

It is important to note that all groups of respondents result from long-running panel surveys that are subject to different selection processes. The descriptive figures are therefore presented by using weights. These weights adjust both for the sampling design of the three subsamples as well as non-response failure processes between the initial samples of the first wave and the realized participation in the supplementary online survey. In addition, weights are post-stratified, i.e. the observed distributions are adjusted to the distributions observed in official statistics (Microcensus data from 2019). This calibration was implemented separately for the three starting cohorts based on different characteristics such as year of birth, gender, country of origin (Germany vs. other), and federal state (for more details see Würbach et al., 2020). Table A2 in the Appendix shows the case

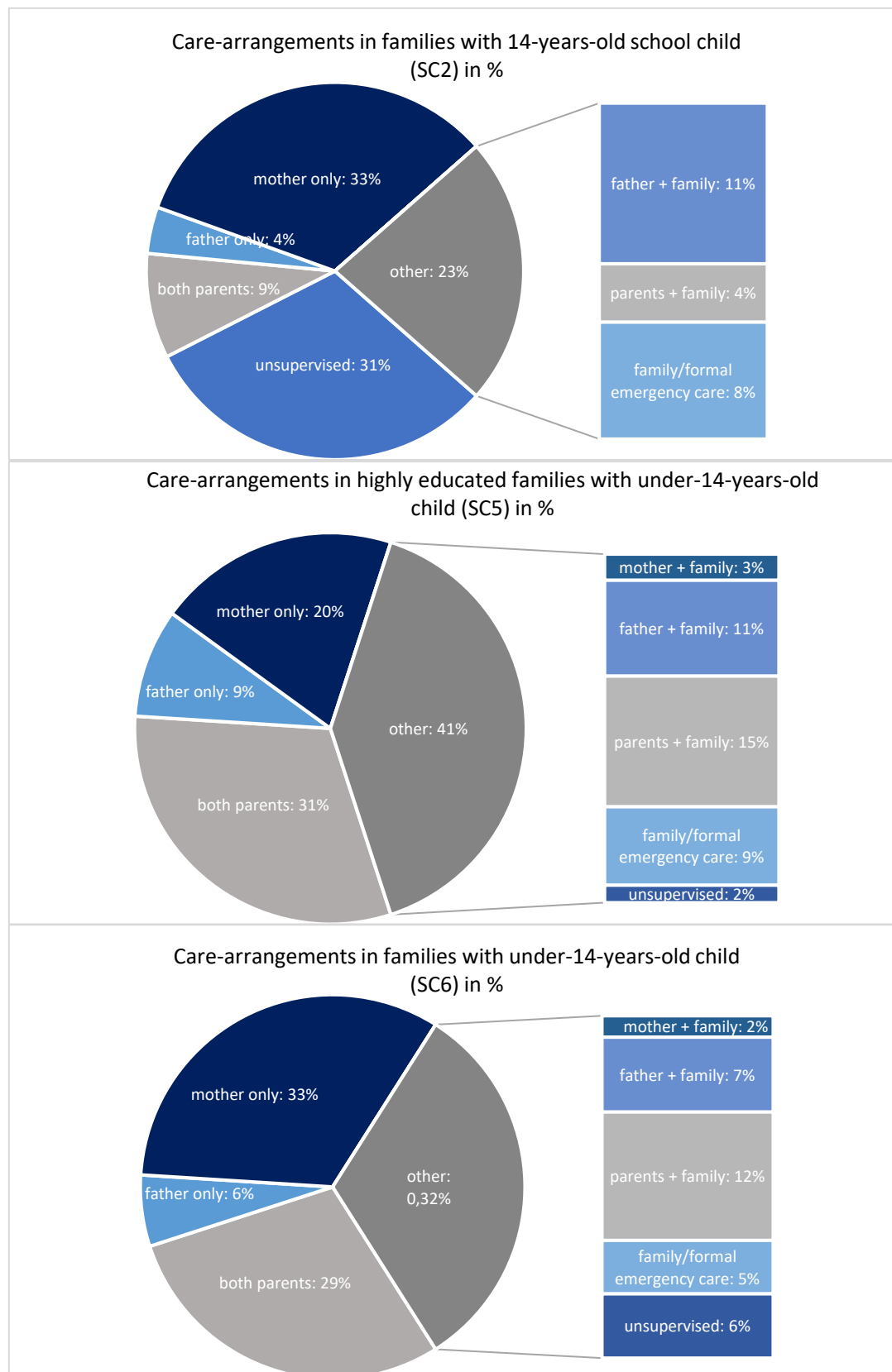
numbers realized in the supplementary online-survey on the COVID-19 pandemic as well as the shares of parents of children below the age of 14 in the unweighted and weighted data for the subsamples NEPS-SC5 and NEPS-SC6 (as mentioned above, all respondents in NEPS-SC2 were parents.) Based on Table A2, we see that parents are slightly overrepresented in NEPS-SC6.

3.3 Measures

3.3.1 Care-Arrangements

Table A1 presents the weighted summary statistics of all variables for the three starting cohorts. For all subsamples, respondents indicated mothers as the main caregivers to compensate for closed schools and formal childcare (57 to 86 percent). In families with a schoolchild around 14 years of age, only 18 percent of fathers contributed to family work. However, the share of involved fathers was substantially larger (35 to 70 percent) in the sample of parents with younger children (below the age of 14). Moreover, we also find a substantial share of families in which the child is sometimes unsupervised or taken care of by older siblings, particularly in families with an older schoolchild. Apart from parental care, other relatives only played a tangential role in the care-arrangements – an observation that is in line with the social distancing regulations and recommendations in Germany during the COVID-19 pandemic. Similarly, most families did not have access to emergency care during the early months of the pandemic. Yet, these observations do not hold true for the group of highly educated families: In this group relatives (and others) are more often involved in childcare (24 to 28 percent) and children more often attend formal emergency care (8 to 19 percent). Based on these multiple care indicators we created a variable, distinguishing whether care is provided (1) exclusively by the mother; (2) exclusively by the father; (3) by both parents, (4) by a mixed care-arrangement, consisting of care combinations by parents, family members, relatives, or formal emergency care; or whether (4) the child is predominantly unsupervised (only NEPS-SC2). Figure 1 displays the distribution of the care-arrangements for all three observed family types.

Figure 1: Care-arrangements in NEPS-SC2, NEPS-SC5 & NEPS-SC6



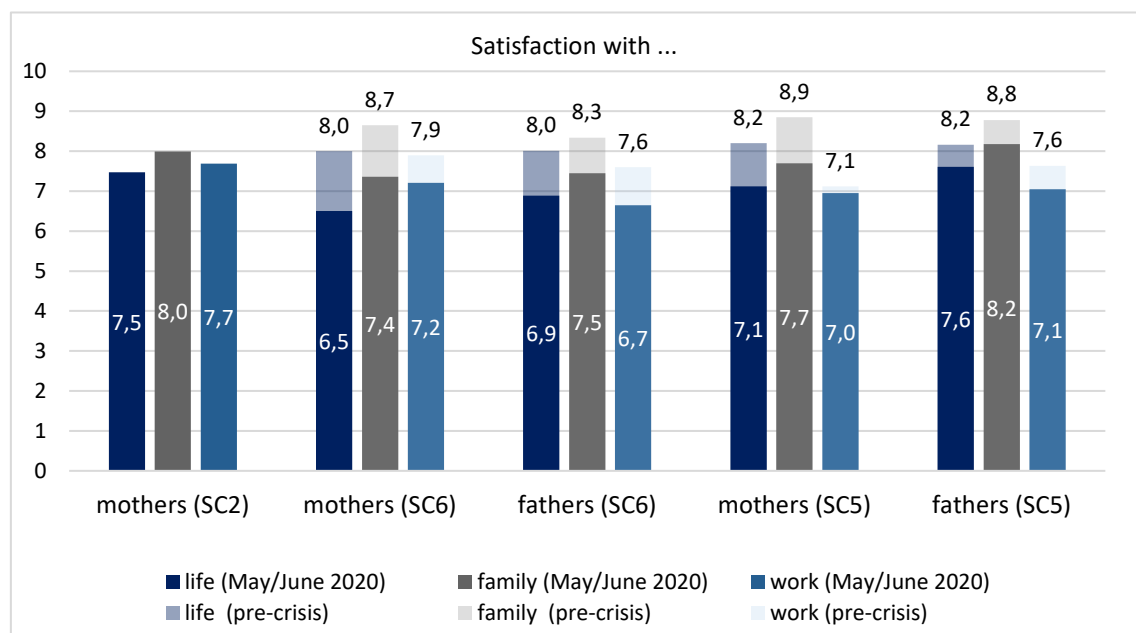
Source: NEPS Corona_CAWI_C2, weighted, own calculations.

3.3.2 Parental Well-Being

Table A1 also presents the weighted summary statistics of three variables capturing satisfaction with life overall, with family life and with work before and during the COVID-19 pandemic in May/June 2020. For the parents in the NEPS-SC2 subsample there were unfortunately no measurements of satisfaction from previous years available. For the other two subsamples the last available information from the regular NEPS surveys was used.⁵ The wording for the overall life satisfaction questions was ‘*All in all, how satisfied are you with your life at the moment?*’. To capture the domain specific satisfaction respondents were asked ‘*How satisfied are you with your family life/your work?*’. Answers to all questions were measured on an 11-point Likert scale, ranging from 0 ‘*completely unsatisfied*’ to 10 ‘*completely satisfied*’.

For all respondents, satisfaction with family life was highest before and during the COVID-19 pandemic (Figure 2). At the first glance, it is noticeable that satisfaction has decreased in all domains. Considering individual domains, life satisfaction has decreased particularly strongly in all subgroups, while the changes for satisfaction with work were the lowest for most groups. In addition, life satisfaction and satisfaction with the family decreased more for mothers than for fathers.

Figure 2: Parental satisfaction in three domains (pre-crisis and May/June 2020)



Source: NEPS Corona_CAWI_C2, weighted, own calculations.

3.3.3 Working Conditions

To analyse whether altered working conditions of the parents influence the chosen care-arrangement, we focus on three central characteristics of parents' jobs: working in a system-relevant occupation, altered working hours in comparison to the pre-corona time and working remotely. Table A1 presents the weighted summary statistics of these three variables.

⁵ For most NEPS-SC6 respondents this is 2019 (wave 12), for NEPS-SC5 respondents 2018 (wave 13). If no information is available in these waves, earlier information is used.

Between 29 and 65 percent of the respondents reported to work in a system-relevant occupation. Figure A1 in the Appendix gives an overview of the most frequent system-relevant occupations reported in the NEPS data. Regarding changes in the working hours, the respondents were asked whether they worked the same number of hours than before the crisis, more hours, less hours or not at all. For our analyses the categories ‘less hours’ and ‘not at all’ are combined. In all five observed groups the largest part of the respondents (between 41 to 50 percent) reported to work as many hours as before the crisis. Moreover, between 27 and 76 percent of the respondents were able to work remotely. It is important to note that this information was collected only for respondents who reported in the supplementary online survey on the COVID-19 pandemic that they still worked. More details about the distribution of the three central independent variables are provided in section 4.1.

3.4 Estimation Strategy

3.4.1 Care-Arrangements

We examine the relevance of different care-arrangements for parents with school and pre-school children by estimating multivariate multinomial logistic regression models. We thereby differentiate between five groups: First, we analyse the care-arrangements of families with children aged around 14 (NEPS-SC2) who were affected by the closure of schools. As this subsample consists of a large number of mothers who were employed before the corona crisis, it enables us to examine whether different care-arrangements depend on the individual and household characteristics or on mothers’ altered working conditions during the pandemic. In a second step, we extend our analyses to a smaller subsample of mothers and fathers (NEPS-SC6) supervising not only school-children but partly also younger children in the household. Since this sample includes both mothers and fathers of all educational levels, we are able to investigate to what extent the previously observed patterns apply to both parents. Finally, we focus on highly educated mothers and fathers (NEPS-SC5) to analyse whether this specific group of parents differs systematically. This might be the case as a higher educational level is often associated with more gender equal attitudes (Davis and Greenstein, 2009) as well as with a higher female work orientation (van der Lippe et al., 2011). Against this backdrop we analyse whether more egalitarian work-care-arrangements can be found in highly educated families or whether the observed patterns do not differ from the patterns in the NEPS-SC6 subsample.

We estimate stepwise multinomial regression models to study the influence of different parameters separately. In the first modelling step, we include information on the household context and individual characteristics of respondents (baseline model): respondent’s migration background and place of residence (East or West Germany) family status (partnered or single), household size and presence of children under age 14/age 6 in the household.

In a second step, we test the relevance of individual work-care preferences. Given the strong correlation between higher levels of education and less traditional gender ideologies (Davis and Greenstein, 2009), we therefore include respondent’s highest educational qualification as a proxy for individual work-care norms. We distinguish between no college degree (reference, CASMIN 1a, 1b, 1c, 2a, 2b), a college degree (CASMIN, 2c_gen, 2c_voc) and a university degree (CASMIN, 3a, 3b). Moreover, we include a measure on respondent’s agreement with the traditionally slanted gender

role item *‘it’s the man’s job to earn money and the woman’s job to take care of the household and family’* (answer scale: 1 ‘completely disagree’ to 4 ‘completely agree’). This item is taken from previous NEPS waves before the COVID-19 crisis.

In the third step, we explore the additional role of respondent’s working conditions for the chosen care-arrangement. To examine the importance of working in a system-relevant occupation during the crisis, we include a dummy indicating whether the parent identifies with working in an occupation that belongs to a system-relevant occupation (e.g., health care, power supply, food supply, public transport). In the next steps, we analyse the relevance of increased or decreased working hours (reference: no change) and whether the respondent was able to work remotely.

All models include robust standard errors and are estimated on the basis of unweighted data in order to avoid that very small groups of respondents who were given a higher weight due to the weighting distort the standard errors.

3.4.2 Parental Well-Being

Finally, we examine the link between informal care-arrangements and parent’s satisfaction. Employing OLS regression models with robust standard errors we estimate separate models for the three satisfaction domains described in section 3.3.2: life satisfaction, satisfaction with work and satisfaction with family-life. Again, we differentiate between five groups: mothers of schoolchildren aged around 14, mothers and fathers of younger children below the age of 14 and highly educated mothers and fathers of children below the age of 14.

Again, we follow a stepwise estimation strategy: After estimating baseline models that only include the chosen care-arrangement, we control for respondents’ individual and household characteristics. In a third step, we account for pre-crisis differences in satisfaction levels and therefore estimate changes in satisfaction scores (not for NEPS-SC2, as there was no pre-crisis measurement of satisfaction available). Accordingly, the models for the subsamples NEPS-SC5 and NEPS consider the pre-pandemic level of satisfaction as well as all control variables mentioned in section 3.4.1. All models are estimated on the basis of unweighted data in order to avoid that very small groups of respondents who were given a higher weight due to the weighting distort the standard errors.

4 Results

4.1 Descriptive Findings

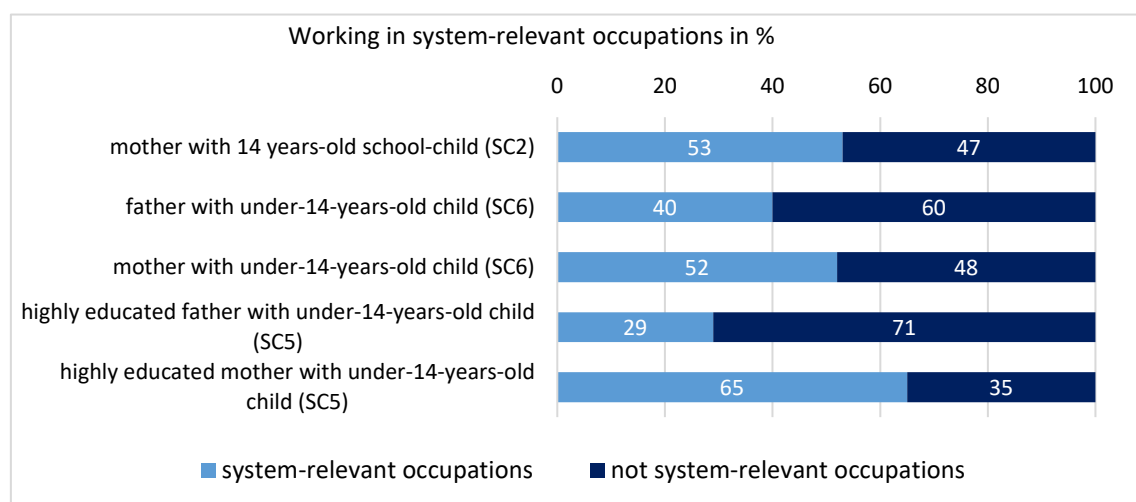
Table A1 in the Appendix presents summary statistics of the dependent and independent variables for the three subsamples (for NEPS-SC5 and NEPS-SC6 differentiated by mothers and fathers, for NEPS-SC2 only for mothers). The descriptive results illustrate that about one-third of families relied on exclusive maternal care (33 percent) whereas exclusive paternal care was rare (4 to 6 percent) (see also Figure 1 in section 3.3.1). Only in highly educated families the gap between exclusive maternal and paternal care was smaller with a fifth of the mothers caring exclusively and 9 percent of fathers. While a third of the older children are not looked after, between 29 and 31 percent of the parents shared the care of younger children below the age of 14 among themselves or

used other options in a mixed care-arrangement (32 to 41 percent). In line with our *first hypothesis*, these descriptive results suggest that during the first months of the corona crisis mothers continued to serve as the main caregiver, whereas fathers and relatives remained mostly in a supporting role.

As mentioned earlier, we assume that the chosen care-arrangement during the first months of the corona crisis should be affected by the working conditions of the parents. Therefore, in the next section we shortly describe the occupational routine of the observed parents with regard to system-relevant occupations, working hours and remote work. Moreover, we shortly discuss how the observed working conditions during the crisis are connected to different work-care-arrangements in the families. For this purpose, we refer to predictive margins based on basic multinomial logistic regression models controlling for relevant individual (highest educational attainment, gender roles, migration background, place of residence (East/West)) and household factors (household size, children in the household).

Concerning system-relevant occupations we find clear gender differences illustrated in Figure 3: While more than half of all mothers in our samples work in a system-relevant occupation (52 to 65 percent), this only applies for 29 to 40 percent of the fathers. This observation is in line with the fact that system-relevant occupations in Germany are often in sectors that are characterized by high proportions of women, such as the health sector or administration.

Figure 3: Working in system-relevant occupations



Source: NEPS Corona_CAWI_C2, weighted, own calculations.

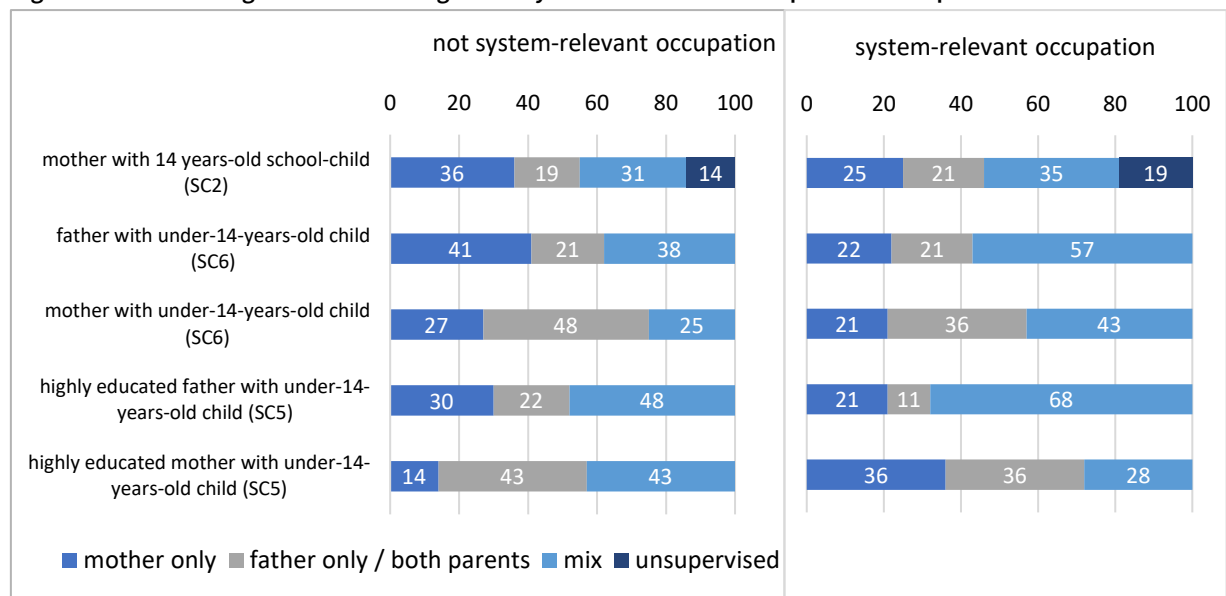
Figure 4 shows the association between working in a system-relevant occupation and the chosen care-arrangement in the observed families.⁶ A comparison of parents who do not differ in their individual and household characteristics shows that mothers working in a system-relevant occupation took over childcare less often than working mothers who were not employed in a system-relevant occupation (25 and 21 percent vs. 36 and 27 percent, respectively). Instead, they used more often help from third parties (35 or 43 percent vs. 31 or 25 percent), especially the formal

⁶ We combine exclusive paternal care and shared parental care due to low case numbers (father/both parents).

emergency care offered to employees in system-relevant occupations (not shown). Only highly educated mothers working in system-relevant occupations were more likely to care exclusively for their child (36 vs. 14 percent). However, many of these mothers stated to work as teachers and thus in an occupation in which most incumbents could work from home in the beginning of the corona crisis because of the closed schools.

For fathers with children under the age of 14, the probability that they looked after their children alone or together with their partner differs only for the group of highly educated in dependence of a system-relevant occupation (11 vs. 22 percent). At the same time, however, their partners were less likely to take care of the children alone, while the probability of third party help was significantly higher. This can partly be explained by a more frequent use of formal emergency care in this group.

Figure 4: Care-arrangements according to the system-relevance of the parents' occupation

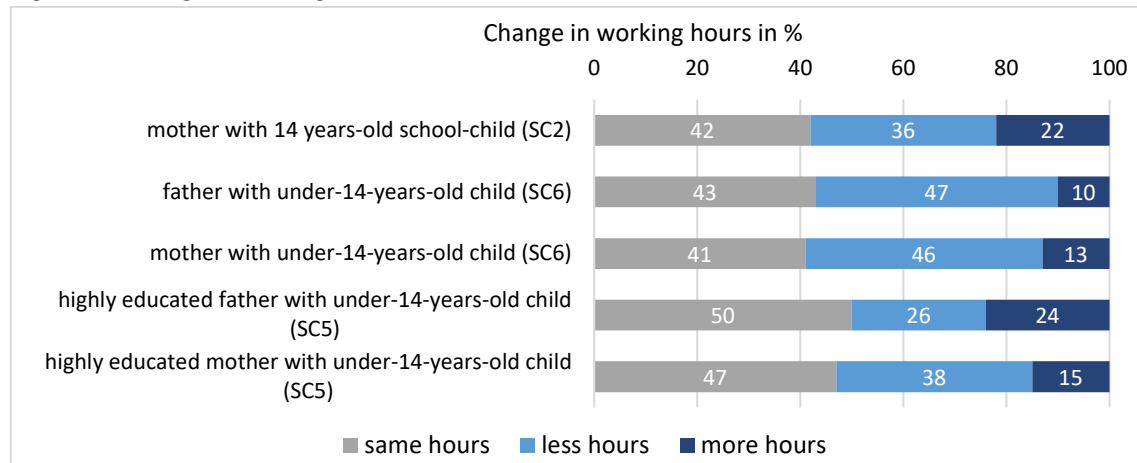


Probability in percent; under control of individual socio-demographic characteristics and characteristics of the family.

Source: NEPS Corona_CAWI_C2 combined with SUF and consortial data, own calculations.

Turning to the work volume in the first months of the crisis, descriptive results indicate that by far not all employees had to reduce their working hours (Figure 5). On the contrary, more than 40 percent of the respondents in all five groups reported no change in working hours in comparison to the pre-corona time. Moreover, a relevant share of the observed parents even increased their working hours. This increase was especially pronounced for mothers with older schoolchildren (22 percent) and highly educated fathers (24 percent). However, there are also substantial parts of employees who had to reduce their working hours in all five groups (26 to 47 percent). This reduction might be mainly traced back to exemption, reduction of overtime or reduced working hours due to economic reasons; however, we cannot fully exclude the possibility that parents also reduced working hours to care for their children. In the group of highly educated fathers we find the lowest share of employees who had to reduce their working hours.

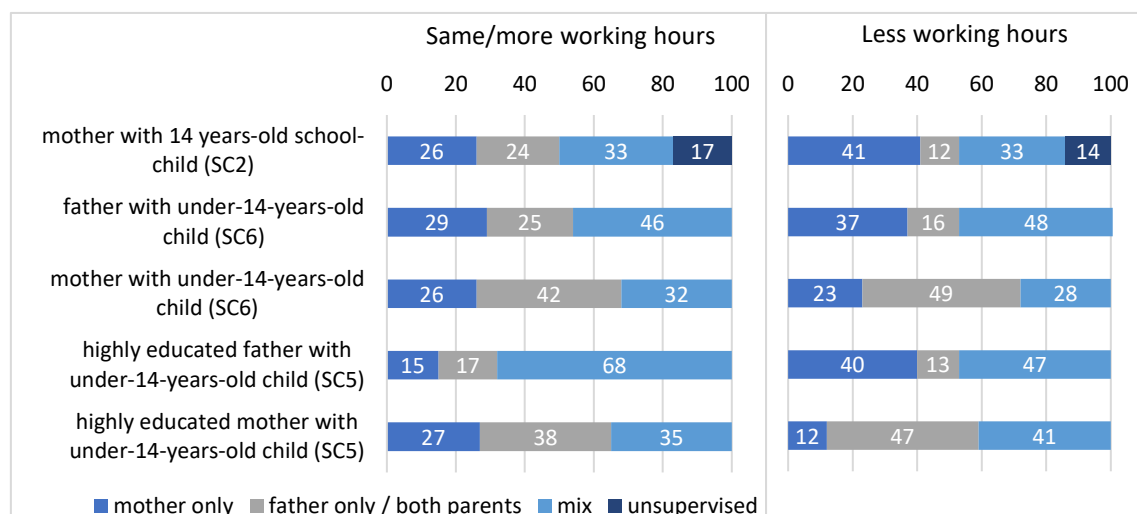
Figure 5: Change in working hours



Source: NEPS Corona_CAWI_C2, weighted, own calculations.

Depending on whether one parent had to reduce his/her working hours in the first few months of the pandemic, families organized informal childcare in different ways: A comparison of parents who do not differ in their individual and household characteristics indicates that mothers with schoolchildren around the age of 14 were more likely to act as exclusive caregiver when their working hours were reduced (Figure 6). Yet, this observation does not hold true for mothers with younger children. Moreover, the proportion of parents caring for their children together was not higher when fathers worked less in the course of the crisis. On the contrary, their partners often looked after the child exclusively, especially in the case of highly educated fathers with reduced working hours.

Figure 6: Care-arrangements according to changes in workload

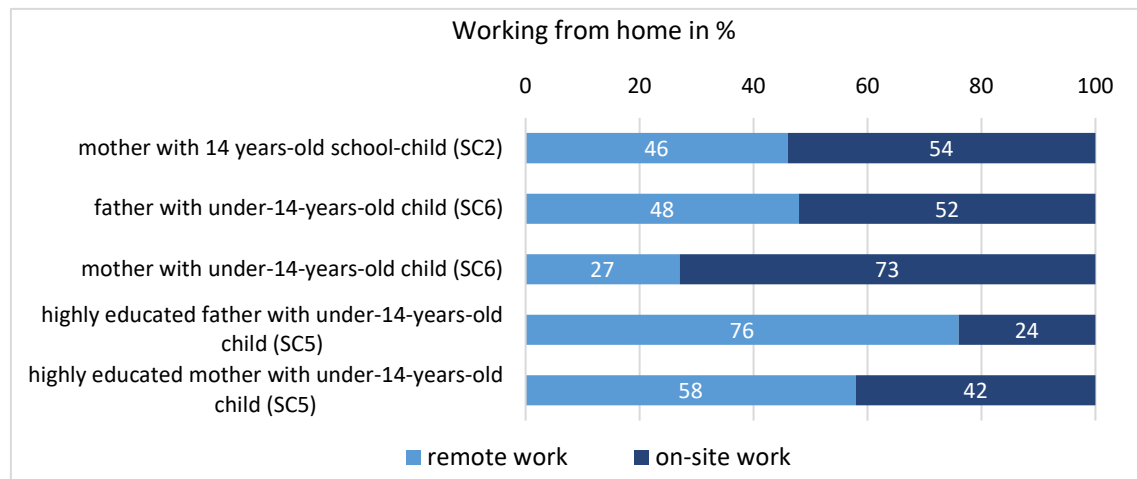


Probability in percent; under control of individual sociodemographic characteristics and family characteristics.

Source: NEPS Corona_CAWI_C2 combined with SUF and consortial data, own calculations.

In the last step, we examine parents' possibility of working remotely and how this possibility is connected to different care-arrangements in the observed families. In line with prior research, we find that the possibility to work from home highly differed by the educational level of the respondent (Figure 7): highly educated mothers and fathers were more often able to work from home (58 and 76 percent). Moreover, independent of the educational level, our results indicate that fathers could more often work remotely than mothers could.

Figure 7: Working from home

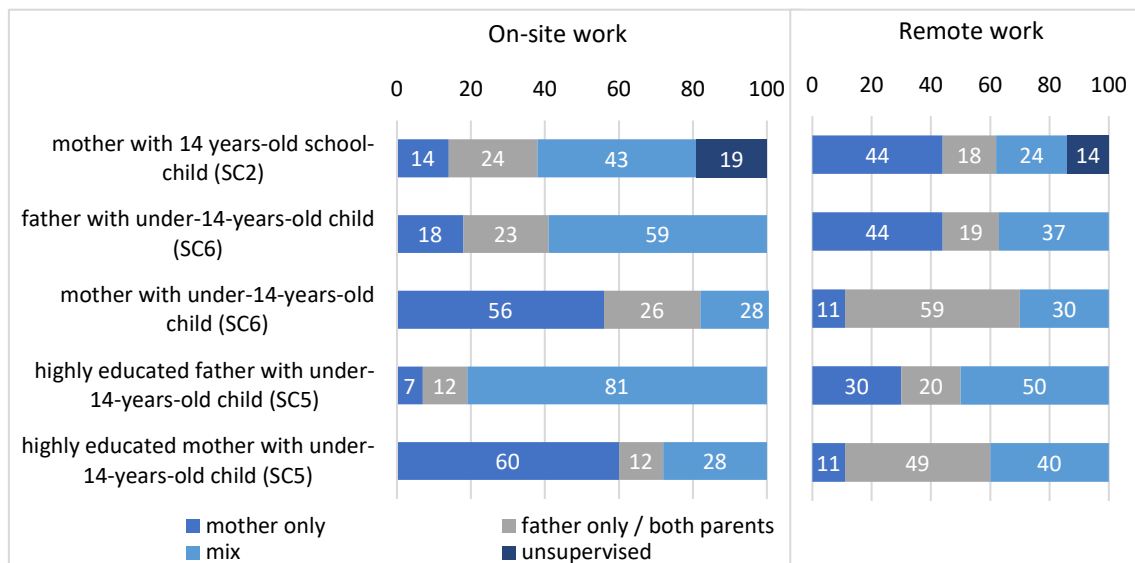


Source: NEPS Corona_CAWI_C2, weighted, own calculations.

Figure 8 illustrates differences in the care-arrangements of mothers and fathers who do not differ in their individual and household characteristics but in the possibility to work remotely. We find that mothers of around 14 years old schoolchildren were more likely to care for them exclusively when working from home (44 vs. 14 percent). If mothers were however unable to work remotely, older schoolchildren were more often not supervised at all (19 vs. 14 percent), looked after by their father or both parents together (24 vs. 18 percent), or by other family members or third parties (43 vs. 24 percent).

For families with younger children, these correlations do not hold. On the contrary, mothers with children under the age of 14 often looked after their children exclusively, even when they could not work from home. In highly educated families, however, it is apparent that both parents took care of the children together more often if at least one parent could work from home.

Figure 8: Care-arrangements depending on the possibility to work from home



Probability in percent; under control of individual sociodemographic characteristics and family characteristics.

Source: NEPS Corona_CAWI_C2 combined with SUF and consortial data, own calculations.

4.2 Multivariate Findings

Multivariate results are presented using average marginal effects that represent the probability for each care-arrangement dependent on the independent variable, that is, the average change in probability for the respective category among all observations in the sample. Tables A3 and A4 in the Appendix present the results for all full models. Moreover, we present results from intermediate modelling steps graphically by plotting point estimates of average marginal effects and their 95 percent confidence intervals (Figures 9 to 13).⁷

4.2.1 Care-Arrangements in Families with Older Schoolchildren

Figure 9 shows the average marginal effects of selected independent variables on the four care-arrangements for mothers with a 14 years old schoolchild from stepwise regression models. With the exception of educational attainment, the following intermediate modelling steps did not alter the associations between the baseline control variables and the chosen care-arrangement. Hence, we present coefficients for the control variables only in the full models in Table A3 (stepwise models are also included in the Appendix, Table A5).⁸

In line with *hypothesis 2*, the results for mothers with a 14 years old schoolchild provides some support for significant associations of mothers' work-care orientation and the chosen care-arrangement. A higher educational level of the mother, which is often used as a proxy for more liberal

⁷ Confidence intervals crossing the vertical zero line indicate statistically insignificant effects. For all estimated models, average marginal effects of all control variables, standard errors, and the number of observations are reported in the full model.

⁸ The results of the controls are in line with theoretical considerations: The presence of under-14-year-olds was positively associated with parental care, with a particularly pronounced link with exclusive maternal care. Conversely, under-14-year-olds were less likely to remain unsupervised, whereas larger families were positively linked to mixed care-arrangements. Moreover, the results indicate that children in East Germany were more likely to be unsupervised or cared for by the father/both parents and less likely in exclusive maternal care.

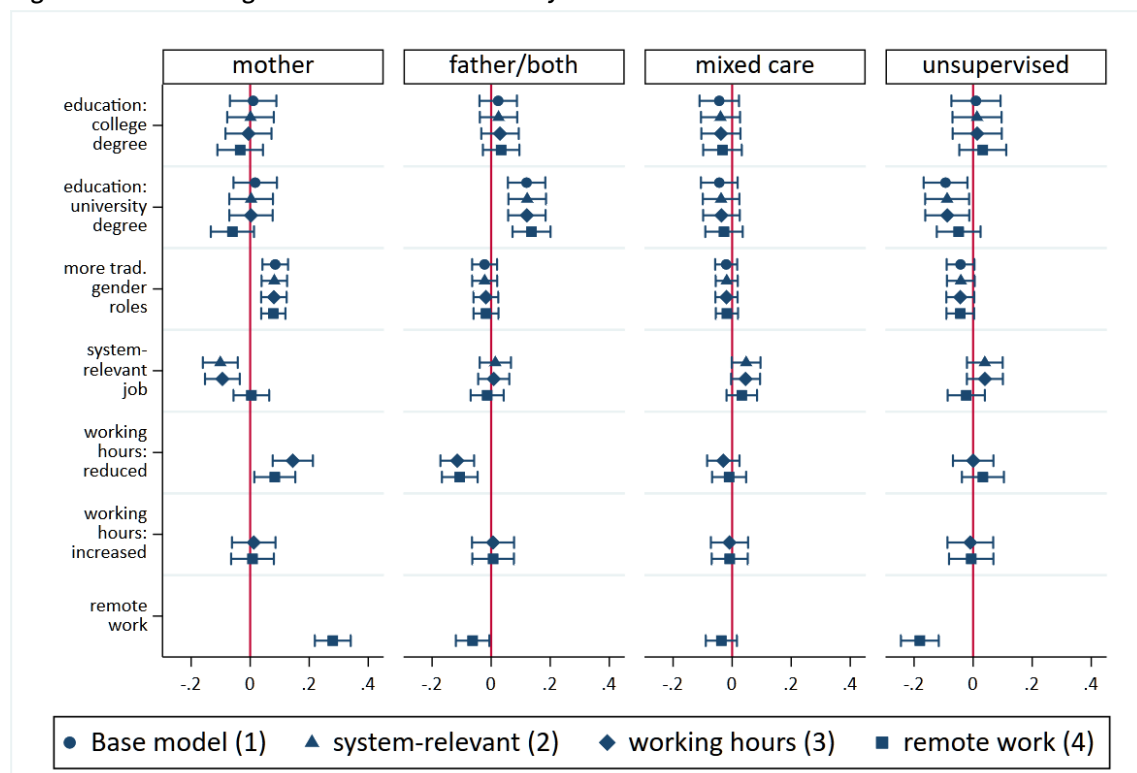
attitudes, was negatively associated with exclusive maternal care (Table A3, M1) and an unsupervised child (M4) but instead positively associated with fathers' or shared care (M2, $p = .000$). In line with that, more traditional gender role attitudes of the mother were negatively associated with fathers' or shared care as well as unsupervised children ($p = .069$), but instead positively linked to exclusive maternal care (M1, $p = .000$).

The results provide only partial support for *hypothesis 3*, presuming a higher negotiation power and, thus, less involvement in family work when working in a system-relevant occupation (3a), longer hours (3b), or offsite instead of working remotely (3c). While a system-relevant occupation of the mother substantially decreased the likelihood of exclusive maternal care ($p = .001$ and $p = .002$ in models 2 and 3, Figure 9), it seems to have no relevant impact on the involvement of fathers. Instead, mothers with a system-relevant occupation mainly chose mixed care-arrangements, including emergency care ($p = .056$ and $p = .069$ in model 2 and 3), or left their child unattended.

In line with *hypothesis 3b*, mothers' reduced working hours were positively linked to exclusive maternal care ($p = .018$), whereas the relationship with fathers' or shared care was significantly negative ($p = .001$). Surprisingly, increased working hours during the corona crisis did however not reduce the likelihood of exclusive maternal care. Hence, these mixed results do not provide strong support for *hypothesis 3b*.

Lastly, the strong positive relationship between remote work and maternal care ($p = .000$), provides support for *hypothesis 3c*, assuming a larger contribution to informal childcare when working from home.

Figure 9: Care-arrangements in families with 14-years-old schoolchildren – Mothers



Source: NEPS-Corona CAWI_C2 combined with (1) SC2 SUF Wave 8 and consortial data (B130_C1). Own calculation, $N = 897$.

4.2.2 Care-Arrangements in Families with Younger Children (Below the Age of 14)

Figure 10 shows the average marginal effects of selected independent variables on three care-arrangements for mothers and fathers with a school or pre-school child below the age of 14 in institutional care (for full models see Table A4 and for stepwise models Tables A6 and A7 in the Appendix).⁹ For the much smaller sample, the results provide only tentative support for significant associations of mothers' and fathers' work-care orientation and the chosen care-arrangement. For both parents, a higher educational degree was not particularly associated with any of the care-arrangements. However, more traditional gender role attitudes of the mother and the father were negatively associated with fathers' or shared care and instead positively associated with exclusive maternal care (statistically significant for fathers, $p = .044$) – a result that hints towards *hypothesis 2*.

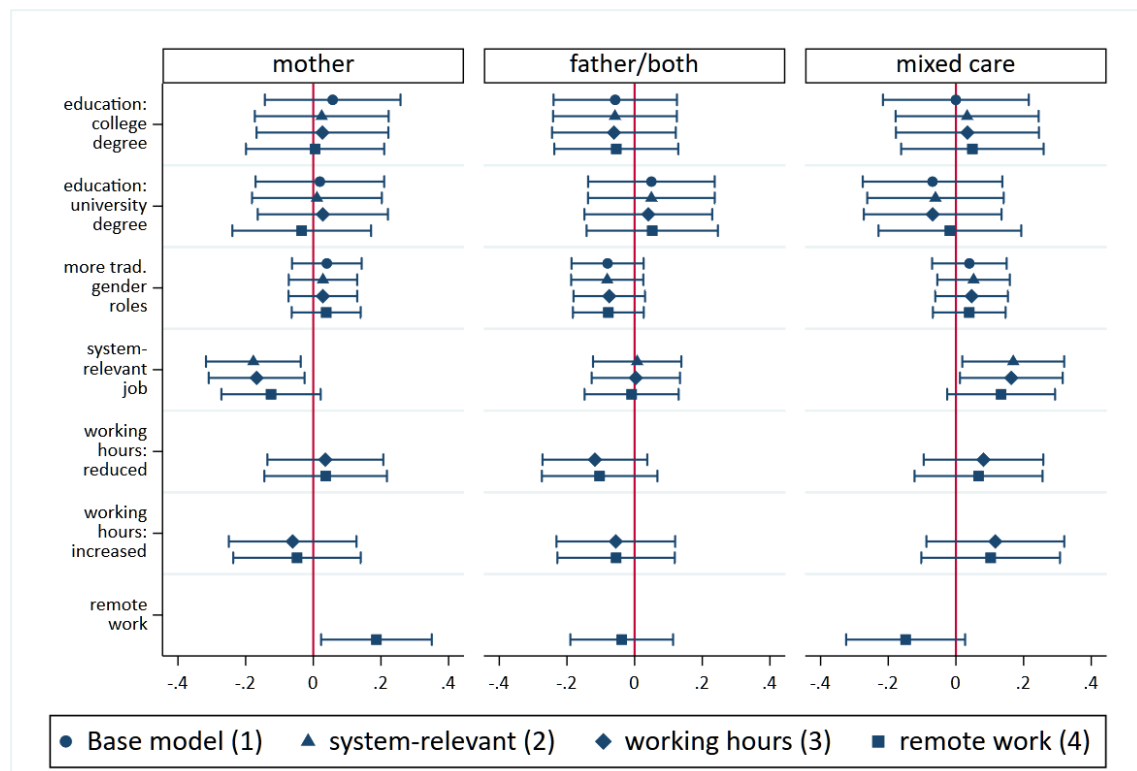
For both mothers and fathers, working in a system-relevant occupation was negatively associated with exclusive maternal care ($p = .095$ for mothers and $p = .065$ for fathers) and increased the likelihood for using a mixed arrangement, particularly for fathers ($p = .032$). The results provide therefore only partial support for *hypothesis 3a*, assuming a greater negotiating power and thus, a smaller share of family work for both parents working in a system-relevant occupation.

In line with *hypothesis 3b*, mothers' increased working hours were negatively associated with exclusive maternal care and fathers' or shared care. Instead, the relationship with mixed care was positive. Fathers increased working hours were also negatively associated with his or shared care, but positively linked to exclusive maternal care. Reduced working hours increased the likelihood of parental involvement, especially for fathers.

Lastly, the relationship between remote work and the chosen care-arrangement provides additional support for gender inequalities in the division of family work. For fathers, the relationship between remote work and own or shared care was positive ($p = .000$) and again negative for exclusive maternal care ($p = .000$). For mothers, however, remote working was positively associated with her own care ($p = .025$) and negatively associated with a mixed care-arrangement ($p = .097$) but again not substantially linked to paternal or shared care.

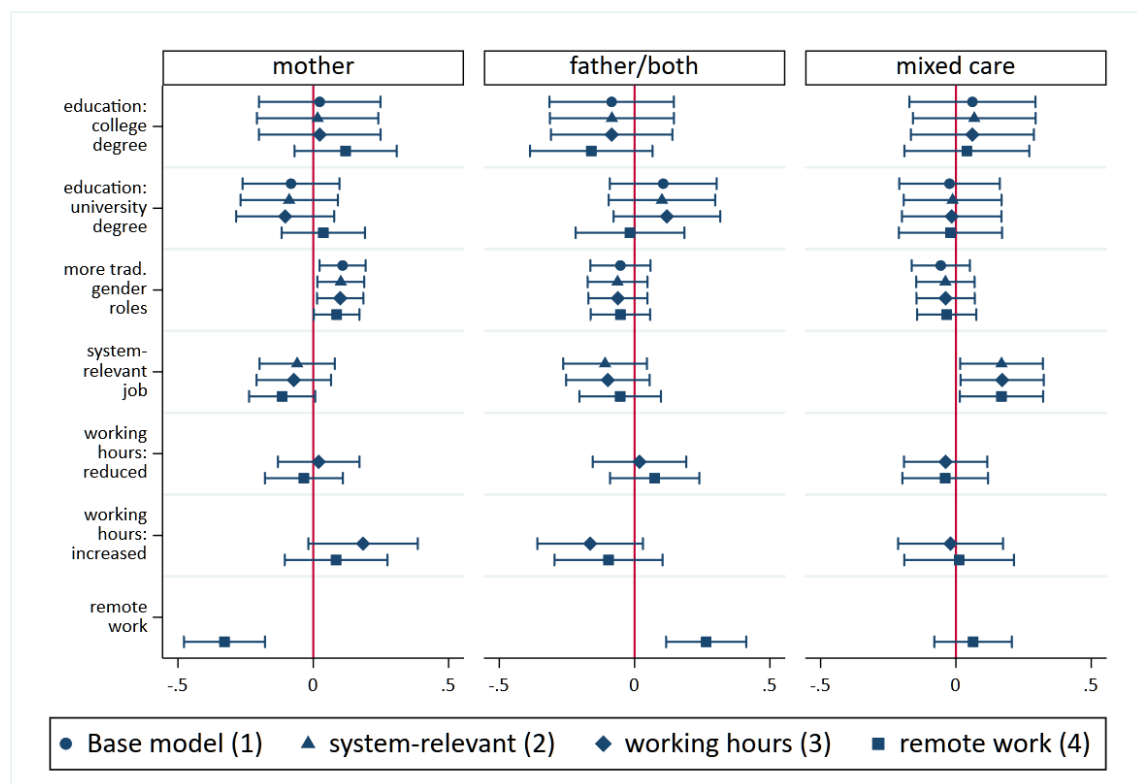
⁹ Given the younger age of the child, the number of unsupervised children was too small to consider as a separate category.

Figure 10: Care-arrangements in families with younger children (below the age of 14) – Mothers



Source: NEPS-Corona CAWI_C2 combined with SC6 SUF Wave 11 and consortial data (B145_C1). Own calculation, N = 156.

Figure 11: Care-arrangements in families with younger children (below the age of 14) – Fathers



Source: NEPS-Corona CAWI_C2 combined with SC6 SUF Wave 11 and consortial data (B145_C1). Own calculation, N = 168.

4.2.3 Care-Arrangements in Highly Educated Families with Younger Children (Below the Age of 14)

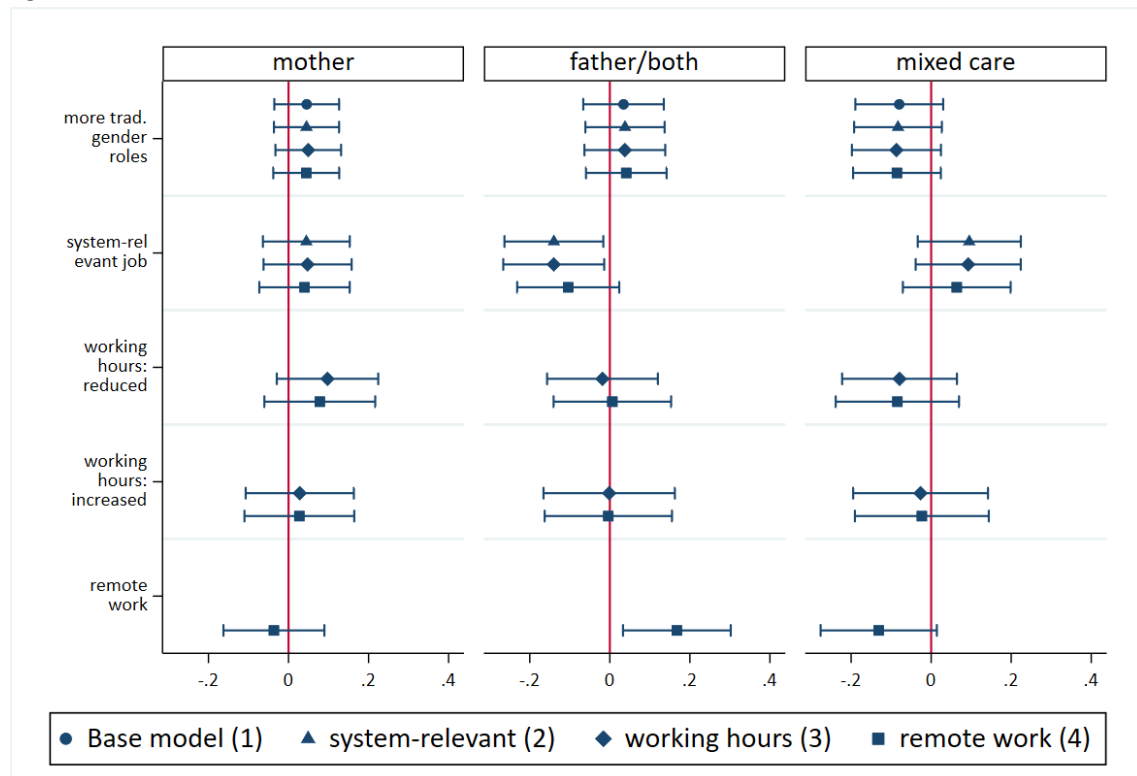
In the last step, we focus our analyses on highly educated mothers and fathers (for full models see Table A4 and for stepwise models Tables A8 and A9 in the Appendix). In line with our theoretical considerations and *hypothesis 2*, we find that more traditional gender roles were positively associated with exclusive maternal care – yet, this holds only true for the gender roles of the father ($p = .013$). Moreover, traditional attitudes were negatively associated with mixed care-arrangements (statistically significant only for fathers, $p = .067$). For highly educated mothers, we find, however, no significant effect of gender roles on the chosen care-arrangement in the family.

Turning to the working conditions of highly educated parents during the first months of the crisis, our models reveal different effects for mothers and fathers in system-relevant occupations: In families where mothers worked in a system-relevant occupation, mothers and fathers were less likely to care for their children together ($p = .070$). Instead they more often made use of mixed care-arrangement ($p = .081$). However, if the father worked in a system-relevant occupation this comes along with a higher probability that the mother took care of the children on her own ($p = .067$) and with a lower probability of mixed care-arrangements. Accordingly, we only find slight evidence for *hypothesis 3a* for the group of highly educated parents.

With regard to altered working hours in the course of the corona crisis, *hypothesis 3b* suggests that parents who had to work more hours should have been less involved in taking care of their children. We cannot confirm this assumption in the group of higher educated parents as neither for mothers nor for fathers an increase in working hours led to less involvement (Figure 12 and 13). Moreover, for highly educated fathers a reduction of working hours was only associated with a higher involvement when home office was not considered in the model. After controlling for this factor, the positive effect vanishes (Figure 13). On the contrary and in line with *hypothesis 3b*, our models reveal that a reduction in working hours of the mother is positively linked to her exclusive care ($p = .025$) and negatively linked to the probability of mixed care-arrangements and the involvement of both parents.

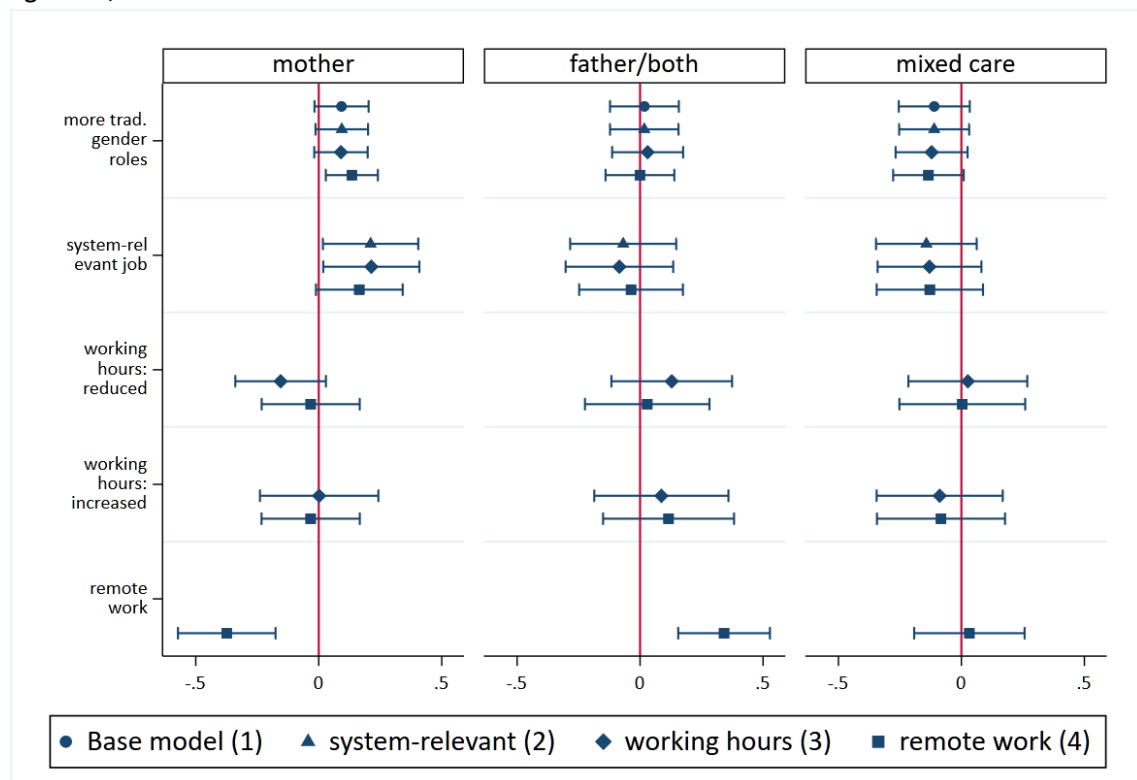
Lastly, we analyse the effect of remote work on the chosen care-arrangement. As shown in section 4.1, large shares of the highly educated parents were able to work remotely during the first months of the corona crisis. But did this also influence the care-arrangement in the family as assumed in *hypothesis 3c*? For both parents the linkage between remote work and their own involvement in childcare is positive ($p = .004$ for mothers and $p = .000$ for fathers). For mothers, moreover, working remotely comes along with a lower likelihood of mixed care-arrangements ($p = .006$). For fathers on the other hand, the possibility to work remotely highly reduces the probability of exclusive maternal care ($p = .000$). Overall, these results support our assumptions in *hypothesis 3c*.

Figure 12: Care-arrangements in families with highly educated parents and younger children (below the age of 14) – Mothers



Source: NEPS-Corona CAWI_C2 combined with SC5 SUF Wave 14 and consortial data (B140_C1). Own calculation, N = 140.

Figure 13: Care-arrangements in families with highly educated parents and younger children (below the age of 14) – Fathers



Source: NEPS-Corona CAWI_C2 combined with SC5 SUF Wave 14 and consortial data (B140_C1). Own calculation, N = 89.

4.2.4 Care-Arrangements in Families and Parental Well-Being

Finally, we examine the consequences of the chosen care-arrangement. Therefore, we analyse whether different care-arrangements are associated with differences in parental life satisfaction, or the subdomains work and family satisfaction. As we use panel data, we are able to compare the measures of satisfaction during the corona crisis with the measures of the last wave before the crisis (for NEPS-SC5 and NEPS-SC6; for NEPS-SC2 there are no pre-crisis measures on the satisfaction of parents available).

Table 1 reports the results for the observed five groups of parents: In the first step, we focus on mothers of 14 years old schoolchildren. As there are no pre-corona measure of satisfaction available for this group, we cannot analyse changes in the satisfaction for mothers with different care-arrangements. Yet, we can analyse whether different care-arrangements come along with different levels of satisfaction for these mothers. Our results reveal that neither the overall life satisfaction level nor the satisfaction with work differs systematically for mothers with different care-arrangements in May/June 2020. However, the results suggest that satisfaction with family-life is higher for women who took care of their children exclusively in comparison to mothers who shared care with their partners or whose partners cared exclusively. These findings contradict our *hypotheses 4a-c* – yet, it is important to note that we cannot control for differences in the satisfaction levels in pre-corona times in these models.

In the next step, we analyse how different care-arrangements influenced the well-being of mothers and fathers with a school or pre-school child below the age of 14. Our models in Table 1 reveal that the current level of life satisfaction and in the two subdomains, work and family, is highly influenced by the pre-corona measures. However, against our expectations there is no evidence for our *hypotheses 4a-c*: Even though we assumed a higher burden and more work-family conflicts for the main caregiver and accordingly lower levels of satisfaction in all analysed domains, the models do not show a negative effect of exclusive maternal care for mothers nor a positive effects of exclusive maternal care (in comparison to shared or exclusive paternal care) for fathers. However, for mothers the models point towards a positive effect of mixed care-arrangements (in comparison to exclusive father care or shared care) for overall life satisfaction ($p = .024$) and satisfaction with work ($p = .027$) and family life.

In the last step, we focus our analyses on the group of highly educated parents with children below the age of 14 (NEPS-SC5). Again, the pre-corona level of satisfaction is an important indicator for the level of satisfaction during the crisis. The chosen care-arrangement in the family has, however, no significant effect on the satisfaction of parents with their overall life or with their work and family life. Accordingly, also for the group of highly educated parents we do not find evidence for our *hypotheses 4a-c*.

Table 1: OLS Regression Results for Parental Satisfaction with Life, Work and Family-life

	Mother						Father										
	Life				Work	Family-life			Life				Work	Family-life			
	M1	M3	M1	M2	M3	M1	M2	M3	M1	M2	M3	M1	M2	M3	M1	M2	M3
Mother with 14 years old schoolchild (NEPS-SC2)																	
care: mother	0.01		-0.03	0.05		0.24*	0.29**										
(ref. father/both)	(0.10)		(0.10)	(0.10)		(0.10)	(0.11)										
care: mix	-0.01		0.00	0.00		0.10	0.10										
	(0.11)		(0.11)	(0.11)		(0.11)	(0.12)										
care: unsupervised	-0.03		0.04	0.03		0.14	0.16										
	(0.10)		(0.09)	(0.10)		(0.10)	(0.10)										
constant	0.00		-0.00	-0.08		-0.14+	-0.35										
	(0.08)		(0.07)	(0.21)		(0.08)	(0.22)										
controls				✓			✓										
N	897		891	891		897	897										
p	0.97		0.89	0.08		0.11	0.16										
Parent with child under 14 years old (NEPS-SC6)																	
care: mother	0.21	0.25	0.02		0.00	0.12	0.10	0.01	-0.13	-0.28	-0.28	-0.00	-0.11	-0.02	0.12	-0.07	-0.04
(ref. father/both)	(0.22)	(0.23)	(0.21)		(0.20)	(0.23)	(0.26)	(0.24)	(0.20)	(0.21)	(0.20)	(0.19)	(0.19)	(0.19)	(0.18)	(0.19)	(0.19)
care: mix	0.42*	0.49*	0.14		0.39*	0.14	0.16	0.18	0.01	-0.03	0.02	-0.14	-0.11	-0.05	-0.02	-0.08	-0.02
	(0.20)	(0.21)	(0.19)		(0.17)	(0.18)	(0.20)	(0.18)	(0.18)	(0.17)	(0.17)	(0.19)	(0.18)	(0.17)	(0.19)	(0.18)	(0.18)
pre-pandemic		0.30***			0.31***			0.28***			0.29***			0.21***			0.27***
satisfaction		(0.08)			(0.05)			(0.07)			(0.07)			(0.06)			(0.05)
constant	-0.25	-2.21**	-0.07		-2.26***	-0.10	-0.43	-2.54***	0.03	0.16	-2.20**	0.04	0.13	-1.40+	-0.03	0.41	-1.82**
	(0.17)	(0.81)	(0.14)		(0.50)	(0.14)	(0.51)	(0.75)	(0.12)	(0.48)	(0.70)	(0.11)	(0.56)	(0.71)	(0.12)	(0.47)	(0.66)
controls		✓			✓		✓	✓		✓	✓		✓	✓		✓	✓
N	156	156	156		154	156	156	156	168	168	168	168	168	167	168	168	168
p	0.11	0.00	0.72		0.00	0.75	0.40	0.01	0.77	0.75	0.02	0.74	0.41	0.00	0.77	0.54	0.00
Highly educated parent with child under 14 years old (NEPS-SC5)																	
care: mothers	-0.15	0.06	-0.08		0.00	-0.24	-0.32	-0.19	-0.47	-0.48	-0.43	-0.33	-0.14	-0.14	-0.31	-0.39	-0.35
(ref. father/both)	(0.27)	(0.22)	(0.26)		(0.26)	(0.24)	(0.25)	(0.23)	(0.28)	(0.30)	(0.26)	(0.27)	(0.26)	(0.27)	(0.27)	(0.31)	(0.27)
care: mix	0.06	0.11	0.14		0.32+	-0.28	-0.27	-0.13	-0.19	-0.21	-0.11	-0.22	-0.17	-0.17	-0.08	-0.19	-0.08
	(0.17)	(0.16)	(0.18)		(0.17)	(0.18)	(0.20)	(0.17)	(0.23)	(0.23)	(0.19)	(0.25)	(0.22)	(0.22)	(0.24)	(0.25)	(0.19)
pre-pandemic		0.47***			0.17*			0.45***			0.44***			0.01			0.37***
satisfaction		(0.08)			(0.08)			(0.06)			(0.09)			(0.10)			(0.08)
constant	-0.00	-4.25***	-0.05		-2.22**	0.19	-0.13	-4.36***	0.18	1.39**	-2.51*	0.16	2.09***	1.94	0.10	1.06*	-2.93**
	(0.13)	(0.77)	(0.14)		(0.70)	(0.13)	(0.51)	(0.75)	(0.15)	(0.48)	(0.97)	(0.16)	(0.51)	(1.18)	(0.15)	(0.52)	(1.03)
controls		✓			✓		✓	✓		✓	✓		✓	✓		✓	✓
N	140	140	140		126	140	140	140	89	89	89	88	88	87	89	89	89
p	0.73	0.00	0.61		0.03	0.28	0.83	0.00	0.25	0.10	0.00	0.42	0.00	0.00	0.53	0.01	0.00

Note: Satisfaction is standardized. Full models include migration background, education (not included for academics), East Germany, child under 7/14 years in household, household size, family status (not included for academics), change in working, system-relevant occupation, remote work. + $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, robust standard errors in parentheses.

Source: NEPS-Corona CAWI_C2 combined with (1) SC2 SUF Wave 8 and consortial data (B130_C1); (2) SC5 SUF Wave 14 and consortial data (B140_C1); (3) SC6 SUF Wave 11 and consortial data (B145_C1). Own calculation.

5 Discussion and Conclusion

By exploiting novel panel data from Germany, this study provides evidence on the short-term consequences of the COVID-19 pandemic related closures of schools and institutional childcare for the care-arrangements of parents with young children. Our results suggest a traditional division of care work in German families during the peak of the crisis, with mothers often acting as main caregivers. This result is in line with theoretical considerations based on the bargaining approach as women still face worse labour market conditions and wage prospects than men. Moreover, traditional gender roles in Germany might reinforce the expectation that mothers take care of their children if external childcare is not available, especially in times of crisis. This finding supports the concern that the COVID-19 pandemic strengthens existing inequalities by forcing women out of the labour market and back into the domestic field. Yet, the data also revealed that a substantial part of older schoolchildren (around 14 years old) had to take care of themselves – a result that hints towards the major challenge for parents to combine child-care, home-schooling, and working life during the crisis.

Moreover, our results point towards systematic differences in the care-arrangements of families depending on prevalent gender roles as well as on the current working conditions of the parents. In line with identity theories and role occupancy perspective, we find that more traditional gender roles go hand in hand with a lower involvement of the father while increasing the probability of exclusive maternal care. Additionally, in line with the resource-bargaining perspectives, our results hint towards a re-negotiation of the division of family work between partners during the crisis. We find that in these bargaining processes, working conditions become a relevant factor. However, hardly reconcilable working conditions did not increase the bargaining power of both mothers and fathers, but mainly of fathers: Remote work of the father significantly affects whether mothers act as exclusive caregivers. Conversely, for mothers working in a system-relevant occupation, working longer hours or onsite rather than working remotely was not associated with a higher likelihood for fathers' or shared care. This indicates that corresponding working conditions have a positive influence on the bargaining power mostly for fathers, but not for mothers.

With regard to parental well-being, our results indicate that there are no significant differences in parent's satisfaction in dependence of the chosen care-arrangement. Obviously, the higher burden for the main caregiver caused by the closure of formal childcare facilities and schools in the course of the corona crisis is not yet reflected in lower levels of satisfaction. Yet, it is important to note that with our data referring to May/June 2020 we of course only present short-term effects. Further research is needed to analyse changes in satisfaction in the longer run.

A major limitation of our study is the small sample sizes, especially for mothers and fathers with young children, which did not allow for further subsample analyses. By exploiting pre-corona information and a range of individual and household level controls, we try to account for unobserved heterogeneity. Yet, the risk of biased estimates remains due to other unobserved characteristics, such as partner characteristics, which are likely to correlate with respondents working conditions

and chosen care-arrangements. Consequently, the investigation of further mechanisms is not possible and must therefore be the subject of future research.

Despite these limitations, our findings align with previous studies highlighting the persistent gender inequalities in family work during the COVID-19 pandemic in Germany and beyond. With panel data that allows considering a rich set of control variables, our study adds an important contribution by reproducing earlier evidence on pandemic related care-arrangements based on potentially biased online surveys. Moreover, we provide new insights in the relevance of altered working conditions during the first months of the pandemic. Given the observed care-arrangements, the results overall highlight the importance of family policies, particularly institutional childcare, to foster the employment participation of all women. In the absence of these measures, gendered inequalities will reinforce, as an unequal division of care and domestic work within families simultaneously serves as an important source of gender inequality in the labour market.

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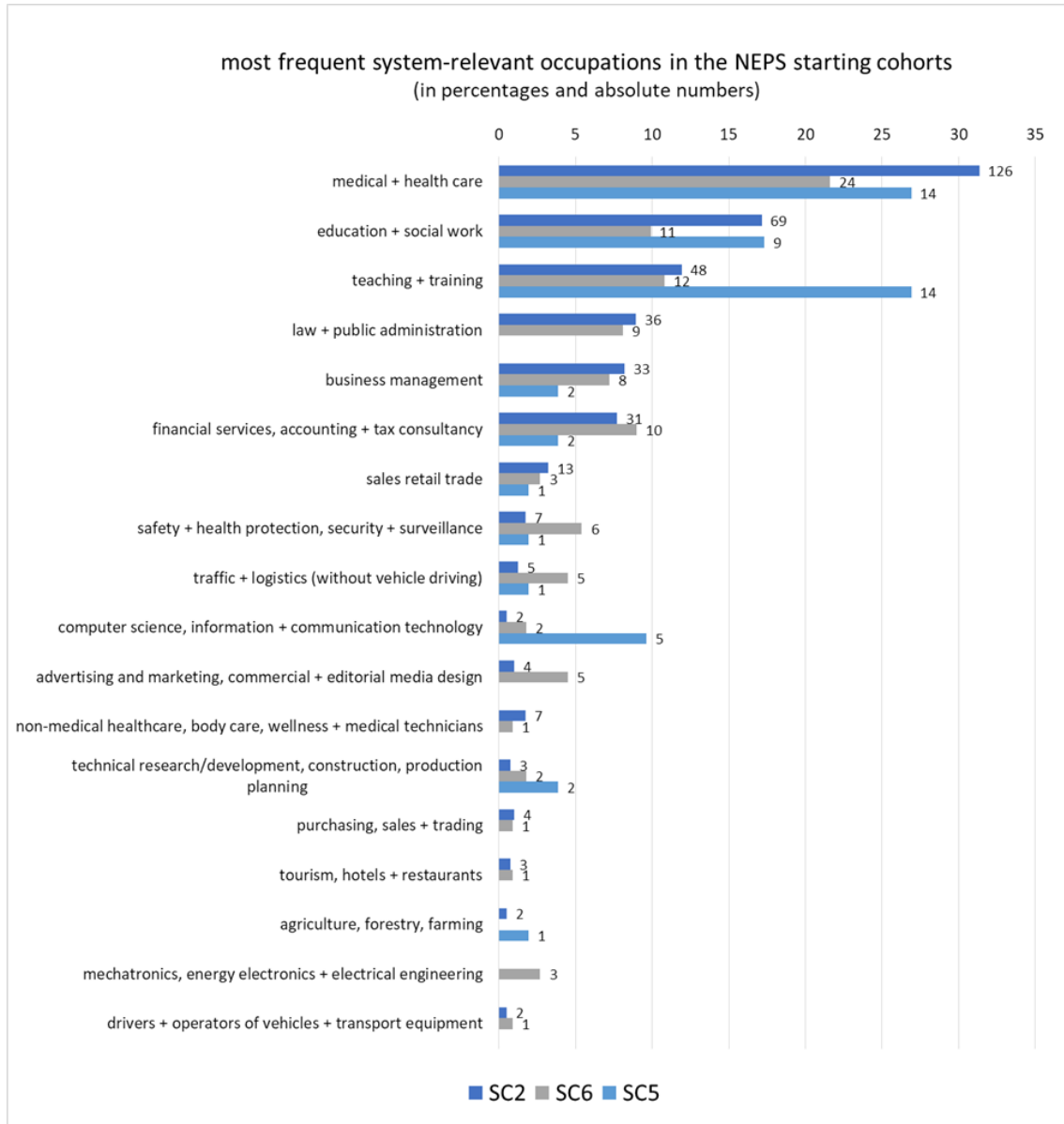
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Appendix

Figure A1: Most Frequent System-relevant Occupations in the NEPS Starting Cohorts 2, 5, and 6



Source: NEPS Corona_CAWI_C2 combined with SUF and consortial data, own calculations.

Table A1: Weighted Descriptive Statistics (Mean, Standard Deviation, Observations)

	14 year-olds (NEPS-SC2) mothers			under 14-year-olds (NEPS-SC6)						under 14-year-olds (NEPS-SC5)					
	m	SD	n	m	SD	n	m	SD	n	m	SD	n	m	SD	n
migration background (d)	0.10	0.30	901	0.38	0.49	156	0.20	0.40	168	0.13	0.33	140	0.32	0.47	89
East Germany (d)	0.23	0.42	901	0.23	0.42	156	0.15	0.36	168	0.34	0.47	140	0.22	0.41	89
age	41.93	5.44	901	42.16	4.62	156	41.83	5.96	168	33.83	4.75	140	32.17	3.10	89
<i>cohort</i>															
1. < 1970	0.10	0.30	901	0.05	0.22	156	0.10	0.30	168	0.02	0.14	140	0.00	0.00	89
2. 1970-1975	0.23	0.42	901	0.31	0.46	156	0.20	0.40	168	0.04	0.18	140	0.00	0.00	89
3. 1976-1979	0.33	0.47	901	0.30	0.46	156	0.29	0.45	168	0.02	0.14	140	0.02	0.14	89
4. 1980 and older	0.33	0.47	901	0.34	0.48	156	0.41	0.49	168	0.93	0.26	140	0.98	0.14	89
<i>education</i>															
1. no college degree	0.47	0.50	901	0.58	0.49	156	0.54	0.50	168	0.03	0.18	140	0.00	0.06	89
2. college degree	0.30	0.46	901	0.30	0.46	156	0.20	0.40	168	0.17	0.38	140	0.23	0.42	89
3. university degree	0.23	0.42	901	0.12	0.33	156	0.25	0.44	168	0.80	0.40	140	0.77	0.42	89
pre-covid gender role attitude (1 less - 4 more traditional)	1.75	0.74	901	1.51	0.79	156	1.61	0.66	168	1.18	0.50	104	1.77	0.90	73
single parent (d)	0.21	0.41	901	0.20	0.40	156	0.08	0.27	168	0.04	0.20	133	0.06	0.23	82
household size	4.22	1.02	901	3.84	0.70	156	4.27	0.96	168	3.43	0.68	140	3.70	0.78	89
child under 14 (d)	0.78	0.41	901	1.00	0.00	156	1.00	0.00	168	1.00	0.00	140	1.00	0.00	89
number childer under 14	1.31	1.03	901	1.46	0.56	156	1.98	0.82	168	1.45	0.51	140	1.68	0.71	89
child under 6 (d)	0.00	0.00	901	0.39	0.49	156	0.58	0.50	168	0.64	0.48	140	0.55	0.50	89
<i>care (multiple choice)</i>															
mother (d)	0.57	0.50	901	0.78	0.42	156	0.86	0.35	168	0.73	0.45	140	0.81	0.40	89
father (d)	0.18	0.38	901	0.35	0.48	156	0.65	0.48	168	0.46	0.50	140	0.70	0.46	89
older siblings (d)	0.20	0.40	901	0.17	0.38	156	0.08	0.27	168	0.02	0.14	140	0.00	0.00	89
relatives or other (d)	0.07	0.25	901	0.14	0.35	156	0.13	0.33	168	0.28	0.45	140	0.24	0.43	89
formal emergency care (d)	0.01	0.09	901	0.04	0.19	156	0.04	0.20	168	0.19	0.39	140	0.08	0.27	89
child unsupervised (d)	0.57	0.49	901	0.23	0.42	156	0.19	0.39	168	0.07	0.26	140	0.03	0.16	89
<i>care-arrangement (exclusive)</i>															
1. mother only (ref.)	0.33	0.47	897	0.37	0.48	156	0.28	0.45	168	0.19	0.39	140	0.20	0.41	89
2. father only	0.04	0.20	897	0.03	0.16	156	0.09	0.29	168	0.07	0.25	140	0.10	0.31	89
3. both parents	0.09	0.29	897	0.20	0.40	156	0.40	0.49	168	0.25	0.43	140	0.37	0.49	89
4. child unsupervised	0.31	0.46	897												
5. mixed care	0.23	0.42	897	0.41	0.49	156	0.22	0.42	168	0.50	0.50	140	0.32	0.47	89
<i>mixed care-arrangement</i>															
1. family / emergency care	0.08	0.27	897	0.07	0.26	156	0.02	0.15	168	0.11	0.31	140	0.07	0.25	89
2. mother & family	0.00	0.07	897	0.03	0.18	156	0.01	0.09	168	0.05	0.21	140	0.02	0.14	89

	14 year-olds (NEPS-SC2)			under 14-year-olds (NEPS-SC6)						under 14-year-olds (NEPS-SC5)					
	mothers			mothers			fathers			mothers			fathers		
	m	SD	n	m	SD	n	m	SD	n	m	SD	n	m	SD	n
3. father & family	0.11	0.31	897	0.12	0.32	156	0.02	0.16	168	0.19	0.40	140	0.03	0.17	89
4. both parents & family	0.04	0.19	897	0.10	0.30	156	0.15	0.36	168	0.10	0.30	140	0.20	0.41	89
system-relevant occupation (d)	0.53	0.50	901	0.52	0.50	156	0.40	0.49	168	0.65	0.48	140	0.29	0.46	89
<i>change in working hours</i>															
1. same (ref.)	0.42	0.49	901	0.41	0.49	156	0.43	0.50	168	0.48	0.50	140	0.50	0.50	89
2. less	0.36	0.48	901	0.46	0.50	156	0.47	0.50	168	0.38	0.49	140	0.26	0.44	89
3. more	0.22	0.41	901	0.13	0.34	156	0.10	0.30	168	0.15	0.35	140	0.24	0.43	89
remote work (d)	0.46	0.50	843	0.27	0.45	139	0.48	0.50	161	0.58	0.50	129	0.76	0.43	84
pre-covid life satisfaction	.	.	0	8.00	1.18	156	8.01	1.20	168	8.20	1.12	140	8.16	0.98	89
pre-covid satisfaction family	.	.	0	8.65	1.53	156	8.34	1.29	168	8.85	1.25	140	8.78	1.28	89
pre- covid satisfaction work	.	.	0	7.90	1.50	154	7.60	1.65	167	7.12	1.72	126	7.63	1.43	88
pandemic life satisfaction	7.47	1.83	901	6.50	1.82	156	6.89	1.94	168	7.12	1.55	140	7.61	1.39	89
pandemic satisfaction family	7.99	1.81	901	7.36	1.70	156	7.45	2.23	168	7.70	1.73	140	8.18	1.73	89
pandemic satisfaction work	7.69	1.94	895	7.21	2.10	156	6.65	2.34	168	6.95	2.18	140	7.05	1.84	88
life satisfaction Δ	.	.	0	-1.50	2.04	156	-1.13	2.28	168	-1.08	1.62	140	-0.55	1.37	89
satisfaction family life Δ	.	.	0	-1.30	1.90	156	-0.89	2.69	168	-1.15	1.54	140	-0.60	1.50	89
satisfaction work Δ	.	.	0	-0.69	2.32	154	-0.93	2.98	167	0.16	2.65	126	-0.59	2.21	87

Note: Binary variables indicated with (d). Unweighted results are available upon request.

Source: NEPS-Corona CAWI_C2 combined with (1) SC2 SUF Wave 8 and consortial data (B130_C1); (2) SC5 SUF Wave 14 and consortial data (B140_C1); (3) SC6 SUF Wave 11 and consortial data (B145_C1). Own calculation.

Table A2: Share of Parents with Children under the Age of 14 (NEPS-SC5 & NEPS-SC6)

		Subsamples	
		NEPS-SC5	NEPS-SC6
N	Not Parents	2297	2233
	Parents	552	423
	Total	2849	2656
% weighted	Not Parents	80.62	84.07
	Parents	19.38	15.93
	Total	100.00	100.00
% unweighted	Not Parents	78.14	79.32
	Parents	21.86	20.68
	Total	100.00	100.00

Source: NEPS-Corona CAWI_C2. Own calculation.

Table A3: Average Marginal Effects of Multinomial Regression Results for Care-arrangements in Families with 14 years-old Schoolchild (NEPS-SC2)

	mother M1		father/both M2		mix M3		unsupervised M4	
migration background (ref. none)	-0.14**	(0.05)	0.09	(0.07)	0.04	(0.06)	0.00	(0.07)
East Germany (ref. west)	-0.09*	(0.04)	-0.07+	(0.04)	0.06	(0.04)	0.10*	(0.05)
child under 14 (ref. older)	0.12***	(0.03)	0.06+	(0.03)	0.04	(0.03)	-0.21***	(0.04)
single parent (ref. not)	0.04	(0.05)	-0.07+	(0.04)	0.07	(0.04)	-0.04	(0.05)
household size	-0.03+	(0.02)	-0.01	(0.02)	0.06***	(0.01)	-0.01	(0.02)
education: college degree (ref. none)	-0.03	(0.04)	0.03	(0.03)	-0.03	(0.03)	0.03	(0.04)
education: university degree	-0.06	(0.04)	0.14***	(0.03)	-0.03	(0.03)	-0.05	(0.04)
more trad. gender roles	0.08***	(0.02)	-0.02	(0.02)	-0.02	(0.02)	-0.04+	(0.02)
system-relevant occupation (ref. not)	0.00	(0.03)	-0.01	(0.03)	0.03	(0.03)	-0.02	(0.03)
working hours: reduced (ref. same)	0.08*	(0.04)	-0.11***	(0.03)	-0.01	(0.03)	0.03	(0.04)
working hours: increased	0.01	(0.04)	0.01	(0.04)	-0.01	(0.03)	-0.01	(0.04)
remote work (ref. no)	0.28***	(0.03)	-0.06*	(0.03)	-0.04	(0.03)	-0.18***	(0.03)
remote work missing	0.42***	(0.06)	-0.10+	(0.05)	-0.11***	(0.03)	-0.21***	(0.04)
N	897							
p	0.00							

Notes: Standard errors clustered on individual level in parentheses. + p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001.

Source: NEPS-Corona CAWI_C2 combined with (1) SC2 SUF Wave 8 and consortial data (B130_C1). Own calculation.

Table A4: Average Marginal Effects of Multinomial Regression Results for Care-arrangements in Families with under-14-year-olds

	Mothers (NEPS-SC6)						Fathers (NEPS-SC6)					
	mother		father/both		mix		mother		father/both		mix	
migration background (ref. none)	0.11	(0.14)	-0.11	(0.10)	0.00	(0.14)	-0.08	(0.10)	0.06	(0.15)	0.03	(0.14)
East Germany (ref. west)	0.05	(0.10)	-0.28***	(0.05)	0.24*	(0.10)	-0.15	(0.10)	0.06	(0.13)	0.10	(0.14)
child under 6 (ref. older)	-0.01	(0.08)	0.10	(0.07)	-0.09	(0.08)	0.02	(0.07)	-0.07	(0.07)	0.04	(0.07)
single parent (ref. not)	-0.03	(0.10)	-0.08	(0.09)	0.10	(0.11)	-0.22**	(0.07)	0.19	(0.15)	0.03	(0.15)
household size	-0.03	(0.05)	0.03	(0.05)	-0.00	(0.05)	0.00	(0.04)	-0.10*	(0.04)	0.10*	(0.04)
education: college degree (ref. none)	0.01	(0.10)	-0.05	(0.09)	0.05	(0.11)	0.12	(0.10)	-0.16	(0.12)	0.04	(0.12)
education: university degree	-0.03	(0.10)	0.05	(0.10)	-0.02	(0.11)	0.04	(0.08)	-0.02	(0.10)	-0.02	(0.10)
more trad. gender roles	0.04	(0.05)	-0.08	(0.05)	0.04	(0.05)	0.09*	(0.04)	-0.05	(0.06)	-0.03	(0.06)
system-relevant occupation (ref. not)	-0.12*	(0.07)	-0.01	(0.07)	0.13	(0.08)	-0.12*	(0.06)	-0.05	(0.08)	0.17*	(0.08)
working hours: reduced (ref. same)	0.04	(0.09)	-0.10	(0.09)	0.07	(0.10)	-0.03	(0.07)	0.07	(0.08)	-0.04	(0.08)
working hours: increased	-0.05	(0.10)	-0.05	(0.09)	0.10	(0.10)	0.08	(0.10)	-0.10	(0.10)	0.01	(0.10)
remote work (ref. no)	0.19*	(0.08)	-0.04	(0.08)	-0.15*	(0.09)	-0.33***	(0.08)	0.26***	(0.08)	0.06	(0.07)
remote work missing	0.11	(0.15)	-0.08	(0.12)	-0.03	(0.14)	0.16	(0.20)	-0.45***	(0.04)	0.29	(0.20)
<i>N</i>	156						168					
<i>p</i>	0.02						0.02					
	Mothers with university degree (NEPS-SC5)						Fathers with university degree (NEPS-SC5)					
	mother		father/both		mix		mother		father/both		mix	
migration background (ref. none)	0.17	(0.16)	-0.32***	(0.04)	0.14	(0.16)	-0.09	(0.10)	0.09	(0.13)	0.00	(0.13)
East Germany (ref. west)	-0.07	(0.07)	0.09	(0.08)	-0.02	(0.08)	-0.00	(0.09)	-0.04	(0.11)	0.05	(0.11)
child under 6 (ref. older)	0.08	(0.07)	0.09	(0.07)	-0.17*	(0.08)	0.04	(0.09)	-0.02	(0.11)	-0.03	(0.12)
household size	-0.04	(0.04)	-0.02	(0.05)	0.06	(0.05)	0.04	(0.05)	-0.08	(0.06)	0.04	(0.06)
more trad. gender roles	0.01	(0.06)	0.06	(0.08)	-0.07	(0.08)	0.13*	(0.05)	-0.00	(0.07)	-0.13*	(0.07)
gender roles missing	0.01	(0.11)	0.18	(0.13)	-0.19	(0.14)	0.33*	(0.13)	0.00	(0.17)	-0.33*	(0.17)
system-relevant occupation (ref. not)	-0.01	(0.07)	-0.15*	(0.08)	0.15*	(0.09)	0.16*	(0.09)	-0.04	(0.11)	-0.13	(0.11)
working hours: reduced (ref. same)	0.19*	(0.08)	-0.04	(0.08)	-0.14	(0.09)	-0.03	(0.10)	0.03	(0.13)	0.00	(0.13)
working hours: increased	0.03	(0.08)	-0.08	(0.10)	0.04	(0.11)	-0.03	(0.10)	0.12	(0.14)	-0.08	(0.13)
remote work (ref. no)	0.17**	(0.06)	0.06	(0.08)	-0.24**	(0.09)	-0.37***	(0.10)	0.34***	(0.10)	0.03	(0.11)
remote work missing	0.36*	(0.17)	-0.32***	(0.04)	-0.04	(0.17)	-0.27***	(0.04)	0.39*	(0.21)	-0.12	(0.21)
<i>N</i>	140						89					
<i>p</i>	0.02						0.02					

Notes: Standard errors clustered on individual level in parentheses. + $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Source: NEPS-Corona CAWI_C2 combined with (1) SC5 SUF Wave 14 and consortial data (B140_C1); (2) SC6 SUF Wave 11 and consortial data (B145_C1). Own calculation

Table A5: Average Marginal Effects of Stepwise Multinomial Regression Results for the Care-arrangements in Families with 14-year-olds (NEPS-SC2, Part 2)

	M3				M4				M5				M6			
	mother	father/both	mix	unsuper-vised	mother	father/both	mix	unsuper-vised	mother	father/both	mix	unsuper-vised	mother	father/both	mix	unsuper-vised
migration background (ref. none)	-0.07 (0.06)	0.08 (0.07)	0.03 (0.06)	-0.04 (0.07)	-0.08 (0.06)	0.08 (0.07)	0.03 (0.06)	-0.03 (0.07)	-0.09 (0.06)	0.08 (0.07)	0.04 (0.06)	-0.03 (0.07)	-0.14** (0.05)	0.09 (0.07)	0.04 (0.06)	0.00 (0.07)
East Germany (ref. west)	-0.10* (0.04)	-0.07* (0.03)	0.06 (0.04)	0.11* (0.05)	-0.10* (0.04)	-0.08* (0.03)	0.06 (0.04)	0.11* (0.05)	-0.11** (0.04)	-0.07+ (0.04)	0.06 (0.04)	0.11* (0.05)	-0.09* (0.04)	-0.07+ (0.04)	0.06 (0.04)	0.10* (0.05)
child under 14 (ref. older)	0.12*** (0.03)	0.06+ (0.03)	0.04 (0.03)	-0.22*** (0.04)	0.12*** (0.03)	0.06+ (0.03)	0.04 (0.03)	-0.22*** (0.04)	0.13*** (0.03)	0.05+ (0.03)	0.04 (0.03)	-0.22*** (0.04)	0.12*** (0.03)	0.06+ (0.03)	0.04 (0.03)	-0.21*** (0.04)
single parent (ref. not)	0.04 (0.05)	-0.08* (0.04)	0.07 (0.04)	-0.03 (0.05)	0.05 (0.05)	-0.08* (0.04)	0.06 (0.04)	-0.04 (0.05)	0.04 (0.05)	-0.07+ (0.04)	0.07 (0.04)	-0.03 (0.05)	0.04 (0.05)	-0.07+ (0.04)	0.07 (0.04)	-0.04 (0.05)
household size	-0.03+ (0.02)	-0.02 (0.02)	0.06*** (0.01)	-0.01 (0.02)	-0.03 (0.02)	-0.02 (0.02)	0.06*** (0.01)	-0.01 (0.02)	-0.03+ (0.02)	-0.02 (0.02)	0.06*** (0.01)	-0.01 (0.02)	-0.03+ (0.02)	-0.01 (0.02)	0.06*** (0.01)	-0.01 (0.02)
education: college degree (ref. none)	0.01 (0.04)	0.02 (0.03)	-0.04 (0.03)	0.01 (0.04)	0.00 (0.04)	0.02 (0.03)	-0.04 (0.03)	0.01 (0.04)	-0.01 (0.04)	0.03 (0.03)	-0.04 (0.03)	0.01 (0.04)	-0.03 (0.04)	0.03 (0.03)	-0.03 (0.03)	0.03 (0.04)
education: university degree	0.02 (0.04)	0.12*** (0.03)	-0.04 (0.03)	-0.09* (0.04)	0.00 (0.04)	0.12*** (0.03)	-0.04 (0.03)	-0.09* (0.04)	0.00 (0.04)	0.12*** (0.03)	-0.04 (0.03)	-0.09* (0.04)	-0.06 (0.04)	0.14*** (0.03)	-0.03 (0.03)	-0.05 (0.04)
more trad. gender roles	0.08*** (0.02)	-0.02 (0.02)	-0.02 (0.02)	-0.04+ (0.02)	0.08*** (0.02)	-0.02 (0.02)	-0.02 (0.02)	-0.04+ (0.02)	0.08*** (0.02)	-0.02 (0.02)	-0.02 (0.02)	-0.04+ (0.02)	0.08*** (0.02)	-0.02 (0.02)	-0.02 (0.02)	-0.04+ (0.02)
system-relevant occupation (ref. not)					-0.10*** (0.03)	0.01 (0.03)	0.05+ (0.02)	0.04 (0.03)	-0.09** (0.03)	0.01 (0.03)	0.05+ (0.03)	0.04 (0.03)	0.00 (0.03)	-0.01 (0.03)	0.03 (0.03)	-0.02 (0.03)
working hours: reduced (ref. same)									0.14*** (0.03)	-0.11*** (0.03)	-0.03 (0.03)	0.00 (0.03)	0.08* (0.04)	-0.11*** (0.03)	-0.01 (0.03)	0.03 (0.04)
working hours: increased									0.01 (0.04)	0.01 (0.04)	-0.01 (0.03)	-0.01 (0.04)	0.01 (0.04)	0.01 (0.04)	-0.01 (0.03)	-0.01 (0.04)
remote work (ref. no)													0.28*** (0.03)	-0.06* (0.03)	-0.04 (0.03)	-0.18*** (0.03)
remote work missing													0.42*** (0.06)	-0.10+ (0.05)	-0.11*** (0.03)	-0.21*** (0.04)
<i>N</i>	897				897				897				897			
<i>p</i>	0.00				0.00				0.00				0.00			
<i>Cragg and Uhler adj. R²</i>	0.05				0.05				0.07				0.10			

Note: Standard errors in parentheses. + $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Source: NEPS-Corona CAWI_C2 combined with (1) SC2 SUF Wave 8 and consortial data (B130_C1). Own calculation.

Table A6: Average Marginal Effects of Stepwise Multinomial Regression Results for the Care-arrangements in Families with under-14-year-olds: Mothers (NEPS-SC6)

	M1			M2			M3			M4			M5			M6		
	mother	father/both	mix	mother	father/both	mix	mother	father/both	mix	mother	father/both	mix	mother	father/both	mix	mother	father/both	mix
migration background (ref. none)	0.09 (0.14)	-0.12 (0.10)	0.03 (0.14)	0.10 (0.14)	-0.11 (0.10)	0.02 (0.14)	0.10 (0.14)	-0.12 (0.10)	0.02 (0.14)	0.11 (0.14)	-0.12 (0.10)	0.01 (0.14)	0.10 (0.14)	-0.11 (0.11)	0.01 (0.14)	0.11 (0.14)	-0.11 (0.10)	0.00 (0.14)
East Germany (ref. west)	0.03 (0.10)	-0.28*** (0.05)	0.25* (0.10)	0.03 (0.10)	-0.28*** (0.05)	0.25* (0.10)	0.03 (0.10)	-0.29*** (0.05)	0.25* (0.10)	0.02 (0.10)	-0.29*** (0.05)	0.27** (0.10)	0.02 (0.10)	-0.28*** (0.05)	0.26** (0.10)	0.05 (0.10)	-0.28*** (0.05)	0.24* (0.10)
child under 6 (ref. older)	-0.02 (0.07)	0.13* (0.07)	-0.11 (0.08)	-0.01 (0.08)	0.10 (0.07)	-0.09 (0.08)	-0.02 (0.08)	0.11 (0.07)	-0.09 (0.08)	-0.00 (0.08)	0.11 (0.07)	-0.11 (0.08)	-0.00 (0.08)	0.10 (0.07)	-0.10 (0.08)	-0.01 (0.08)	0.10 (0.07)	-0.09 (0.08)
single parent (ref. not)	-0.02 (0.10)	-0.06 (0.10)	0.08 (0.11)	-0.02 (0.10)	-0.06 (0.10)	0.08 (0.11)	-0.02 (0.10)	-0.06 (0.10)	0.08 (0.11)	-0.01 (0.10)	-0.06 (0.10)	0.07 (0.11)	-0.01 (0.10)	-0.08 (0.09)	0.09 (0.11)	-0.03 (0.10)	-0.08 (0.09)	0.10 (0.11)
household size	-0.02 (0.05)	0.00 (0.05)	0.02 (0.05)	-0.03 (0.05)	0.01 (0.05)	0.01 (0.05)	-0.03 (0.05)	0.03 (0.05)	0.01 (0.05)	-0.03 (0.05)	0.03 (0.05)	0.00 (0.05)	-0.02 (0.05)	0.03 (0.05)	-0.01 (0.05)	-0.03 (0.05)	0.03 (0.05)	-0.00 (0.05)
education: college degree (ref. none)				0.04 (0.10)	-0.03 (0.09)	-0.01 (0.11)	0.06 (0.10)	-0.06 (0.09)	-0.00 (0.11)	0.02 (0.10)	-0.06 (0.09)	0.03 (0.11)	0.03 (0.10)	-0.06 (0.09)	0.03 (0.11)	0.01 (0.10)	-0.05 (0.09)	0.05 (0.11)
education: university degree				-0.01 (0.09)	0.10 (0.09)	-0.09 (0.10)	0.02 (0.10)	0.05 (0.10)	-0.07 (0.11)	0.01 (0.10)	0.05 (0.10)	-0.06 (0.10)	0.03 (0.10)	0.04 (0.10)	-0.07 (0.10)	-0.03 (0.10)	0.05 (0.10)	-0.02 (0.11)
more trad. gender roles							0.04 (0.05)	-0.08 (0.05)	0.04 (0.06)	0.03 (0.05)	-0.08 (0.05)	0.05 (0.05)	0.03 (0.05)	-0.07 (0.05)	0.05 (0.05)	0.04 (0.05)	-0.08 (0.05)	0.04 (0.05)
system-relevant occupation (ref. not)										-0.18* (0.07)	0.01 (0.07)	0.17* (0.08)	-0.17* (0.07)	0.00 (0.07)	0.16* (0.08)	-0.12* (0.07)	-0.01 (0.07)	0.13 (0.08)
working hours: reduced (ref. same)													0.04 (0.09)	-0.12 (0.08)	0.08 (0.09)	0.04 (0.09)	-0.10 (0.09)	0.07 (0.10)
working hours: increased													-0.06 (0.10)	-0.06 (0.09)	0.12 (0.10)	-0.05 (0.10)	-0.05 (0.09)	0.10 (0.10)
remote work (ref. no)																0.19* (0.08)	-0.04 (0.08)	-0.15* (0.09)
remote work missing																0.11 (0.15)	-0.08 (0.12)	-0.03 (0.14)
N	156			156			156			156			156			156		
p	0.04			0.07			0.07			0.03			0.04			0.04		
Cragg and Uhler adj. R ²	0.06			0.07			0.07			0.09			0.10			0.12		

Note: Standard errors in parentheses. * p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001.

Source: NEPS-Corona CAWI_C2 combined with SC6 SUF Wave 11 and consortial data (B145_C1). Own calculation.

Table A7: Average Marginal Effects of Stepwise Multinomial Regression Results for the Care-arrangements Families with Under-14-year-olds: Fathers (NEPS-SC6)

	M1			M2			M3			M4			M5			M6		
	mother	father/both	mix	mother	father/both	mix	mother	father/both	mix	mother	father/both	mix	mother	father/both	mix	mother	father/both	mix
migration background (ref. none)	-0.03 (0.13)	0.00 (0.16)	0.03 (0.14)	-0.03 (0.13)	0.02 (0.16)	0.01 (0.14)	-0.06 (0.12)	0.03 (0.16)	0.03 (0.15)	-0.06 (0.12)	0.04 (0.16)	0.02 (0.14)	-0.07 (0.12)	0.04 (0.16)	0.03 (0.14)	-0.08 (0.10)	0.06 (0.15)	0.03 (0.14)
East Germany (ref. west)	-0.22** (0.07)	0.08 (0.13)	0.14 (0.13)	-0.23** (0.07)	0.07 (0.13)	0.15 (0.13)	-0.20* (0.09)	0.07 (0.13)	0.14 (0.13)	-0.20* (0.09)	0.09 (0.13)	0.10 (0.13)	-0.19+ (0.10)	0.07 (0.13)	0.11 (0.13)	-0.15 (0.10)	0.06 (0.13)	0.10 (0.14)
child under 6 (ref. older)	0.03 (0.07)	-0.08 (0.08)	0.05 (0.07)	0.05 (0.07)	-0.10 (0.07)	0.05 (0.07)	0.04 (0.07)	-0.09 (0.07)	0.06 (0.07)	0.05 (0.07)	-0.08 (0.07)	0.04 (0.07)	0.07 (0.07)	-0.10 (0.08)	0.03 (0.07)	0.02 (0.07)	-0.07 (0.07)	0.04 (0.07)
single parent (ref. not)	-0.20* (0.09)	0.13 (0.15)	0.07 (0.15)	-0.20* (0.09)	0.14 (0.15)	0.05 (0.14)	-0.18+ (0.10)	0.14 (0.15)	0.04 (0.14)	-0.19+ (0.10)	0.12 (0.15)	0.06 (0.14)	-0.20* (0.08)	0.13 (0.15)	0.07 (0.14)	-0.22** (0.07)	0.19 (0.15)	0.03 (0.15)
household size	0.00 (0.04)	-0.11* (0.05)	0.11** (0.04)	0.00 (0.04)	-0.11* (0.04)	0.11** (0.04)	0.00 (0.04)	-0.11* (0.04)	0.11** (0.04)	0.00 (0.04)	-0.11* (0.04)	0.11** (0.04)	-0.00 (0.04)	-0.11* (0.04)	0.11** (0.04)	0.00 (0.04)	-0.10* (0.04)	0.10* (0.04)
education: college degree (ref. none)				-0.04 (0.12)	-0.06 (0.11)	0.10 (0.11)	0.02 (0.11)	-0.08 (0.12)	0.06 (0.12)	0.02 (0.11)	-0.08 (0.12)	0.07 (0.12)	0.02 (0.11)	-0.08 (0.11)	0.06 (0.12)	0.12 (0.10)	-0.16 (0.12)	0.04 (0.12)
education: university degree				-0.14 (0.09)	0.13 (0.10)	0.00 (0.09)	-0.08 (0.09)	0.11 (0.10)	-0.02 (0.09)	-0.09 (0.09)	0.10 (0.10)	-0.01 (0.09)	-0.10 (0.09)	0.12 (0.10)	-0.02 (0.09)	0.04 (0.08)	-0.02 (0.10)	-0.02 (0.10)
more trad. gender roles							0.11* (0.04)	-0.05 (0.06)	-0.06 (0.05)	0.10* (0.04)	-0.06 (0.06)	-0.04 (0.06)	0.10* (0.04)	-0.06 (0.06)	-0.04 (0.05)	0.09* (0.04)	-0.05 (0.06)	-0.03 (0.06)
system-relevant occupation (ref. not)										-0.06 (0.07)	-0.11 (0.08)	0.17* (0.08)	-0.07 (0.07)	-0.10 (0.08)	0.17* (0.08)	-0.12* (0.06)	-0.05 (0.08)	0.17* (0.08)
working hours: reduced (ref. same)													0.02 (0.08)	0.02 (0.09)	-0.04 (0.08)	-0.03 (0.07)	0.07 (0.08)	-0.04 (0.08)
working hours: increased													0.18* (0.10)	-0.16* (0.10)	-0.02 (0.10)	0.08 (0.10)	-0.10 (0.10)	0.01 (0.10)
remote work (ref. no)																-0.33*** (0.08)	0.26*** (0.08)	0.06 (0.07)
remote work missing																0.16 (0.20)	-0.45*** (0.04)	0.29 (0.20)
N	168			168			168			168			168			168		
p	0.05			0.04			0.02			0.01			0.01			0.00		
Cragg and Uhler adj. R ²	0.05			0.07			0.08			0.10			0.11			0.18		

Note: Standard errors in parentheses. * p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001.

Source: NEPS-Corona CAWI_C2 combined with SC6 SUF Wave 11 and consortial data (B145_C1). Own calculation.

Table A8: Average Marginal Effects of Stepwise Multinomial Regression Results for the Care-arrangements in Families with under-14-year-olds: Mothers with a higher Level of Educational Attainment (NEPS-SC5)

	M1			M2			M3			M4			M5		
	mother	father/both	mix	mother	father/both	mix	mother	father/both	mix	mother	father/both	mix	mother	father/both	mix
migration background (ref. none)	0.09 (0.15)	-0.32*** (0.04)	0.23 (0.15)	0.09 (0.15)	-0.32*** (0.04)	0.23 (0.15)	0.11 (0.15)	-0.32*** (0.04)	0.21 (0.16)	0.17 (0.16)	-0.32*** (0.04)	0.15 (0.16)	0.17 (0.16)	-0.32*** (0.04)	0.14 (0.16)
East Germany (ref. west)	-0.08 (0.07)	0.09 (0.08)	-0.01 (0.09)	-0.08 (0.07)	0.09 (0.08)	-0.01 (0.09)	-0.08 (0.07)	0.11 (0.08)	-0.04 (0.09)	-0.09 (0.07)	0.12 (0.08)	-0.03 (0.09)	-0.07 (0.07)	0.09 (0.08)	-0.02 (0.08)
child under 6 (ref. older)	0.10 (0.07)	0.07 (0.08)	-0.16+ (0.09)	0.09 (0.07)	0.07 (0.08)	-0.17+ (0.09)	0.10 (0.07)	0.07 (0.08)	-0.18+ (0.08)	0.11+ (0.06)	0.07 (0.08)	-0.18+ (0.08)	0.08 (0.07)	0.09 (0.07)	-0.17+ (0.08)
single parent (ref. not)	-0.03 (0.04)	-0.03 (0.05)	0.06 (0.05)	-0.03 (0.05)	-0.03 (0.05)	0.06 (0.05)	-0.03 (0.04)	-0.03 (0.05)	0.06 (0.05)	-0.04 (0.04)	-0.02 (0.05)	0.06 (0.05)	-0.04 (0.04)	-0.02 (0.05)	0.06 (0.05)
more trad. gender roles				0.00 (0.07)	0.04 (0.08)	-0.04 (0.09)	0.01 (0.07)	0.05 (0.07)	-0.05 (0.08)	0.01 (0.06)	0.04 (0.07)	-0.05 (0.08)	0.01 (0.06)	0.06 (0.08)	-0.07 (0.08)
gender roles missing				-0.00 (0.12)	0.13 (0.13)	-0.13 (0.14)	0.01 (0.12)	0.17 (0.12)	-0.18 (0.14)	0.03 (0.11)	0.16 (0.12)	-0.19 (0.14)	0.01 (0.11)	0.18 (0.13)	-0.19 (0.14)
system-relevant occupation (ref. not)							-0.05 (0.07)	-0.17+ (0.08)	0.22** (0.08)	-0.04 (0.07)	-0.17+ (0.08)	0.20+ (0.08)	-0.01 (0.07)	-0.15+ (0.08)	0.15+ (0.09)
working hours: reduced (ref. same)										0.23** (0.08)	-0.11 (0.08)	-0.12 (0.09)	0.19+ (0.08)	-0.04 (0.08)	-0.14 (0.09)
working hours: increased										0.05 (0.08)	-0.08 (0.11)	0.03 (0.11)	0.03 (0.08)	-0.08 (0.10)	0.04 (0.11)
remote work (ref. no)													0.17** (0.06)	0.06 (0.08)	-0.24** (0.09)
remote work missing													0.36+ (0.17)	-0.32*** (0.04)	-0.04 (0.17)
<i>N</i>	140			140			140			140			140		
<i>p</i>	0.11			0.27			0.09			0.03			0.00		
<i>Cragg and Uhler adj. R²</i>	0.05			0.05			0.07			0.11			0.16		

Note: Standard errors in parentheses. + $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Source: NEPS-Corona CAWI_C2 combined with SC5 SUF Wave 14 and consortial data (B140_C1). Own calculation.

Table A9: Average Marginal Effects of Stepwise Multinomial Regression Results for the Care-arrangements Families with under-14-year-olds: Fathers with a higher Level of Educational Attainment (NEPS-SC5)

	M1			M2			M3			M4 fa- ther/both			M5 fa- ther/both		
	mother	father/both	mix	mother	father/both	mix	mother	father/both	mix	mother	ther/both	mix	mother	ther/both	mix
migration background (ref. none)	-0.08 (0.11)	0.11 (0.14)	-0.03 (0.13)	-0.10 (0.10)	0.10 (0.14)	0.00 (0.13)	-0.06 (0.11)	0.08 (0.14)	-0.03 (0.13)	-0.06 (0.11)	0.07 (0.14)	-0.01 (0.13)	-0.09 (0.10)	0.09 (0.13)	0.00 (0.13)
East Germany (ref. west)	0.01 (0.10)	-0.04 (0.11)	0.03 (0.11)	0.01 (0.10)	-0.05 (0.12)	0.05 (0.11)	0.02 (0.10)	-0.06 (0.12)	0.04 (0.11)	0.04 (0.10)	-0.06 (0.12)	0.03 (0.11)	-0.00 (0.09)	-0.04 (0.11)	0.05 (0.11)
child under 6 (ref. older)	0.09 (0.09)	-0.00 (0.11)	-0.09 (0.11)	0.08 (0.10)	0.01 (0.12)	-0.08 (0.11)	0.03 (0.10)	0.02 (0.12)	-0.05 (0.12)	0.00 (0.10)	0.03 (0.12)	-0.03 (0.12)	0.04 (0.09)	-0.02 (0.11)	-0.03 (0.12)
single parent (ref. not)	-0.00 (0.05)	-0.06 (0.07)	0.06 (0.06)	0.01 (0.06)	-0.06 (0.07)	0.06 (0.06)	0.02 (0.05)	-0.07 (0.07)	0.05 (0.06)	0.03 (0.05)	-0.07 (0.07)	0.04 (0.06)	0.04 (0.05)	-0.08 (0.06)	0.04 (0.06)
more trad. gender roles				0.09 ⁺ (0.06)	0.02 (0.07)	-0.11 (0.07)	0.09 ⁺ (0.05)	0.02 (0.07)	-0.11 (0.07)	0.09 (0.06)	0.03 (0.07)	-0.12 (0.07)	0.13 [*] (0.05)	-0.00 (0.07)	-0.13 ⁺ (0.07)
gender roles missing				0.19 (0.15)	0.09 (0.17)	-0.29 ⁺ (0.17)	0.22 (0.15)	0.08 (0.17)	-0.30 ⁺ (0.16)	0.20 (0.14)	0.10 (0.17)	-0.30 ⁺ (0.16)	0.33 [*] (0.13)	0.00 (0.17)	-0.33 [*] (0.17)
system-relevant occupa- tion (ref. not)							0.21 ⁺ (0.10)	-0.07 (0.11)	-0.14 (0.10)	0.21 ⁺ (0.10)	-0.08 (0.11)	-0.13 (0.11)	0.16 ⁺ (0.09)	-0.04 (0.11)	-0.13 (0.11)
working hours: reduced (ref. same)										-0.16 ⁺ (0.09)	0.13 (0.13)	0.03 (0.12)	-0.03 (0.10)	0.03 (0.13)	0.00 (0.13)
working hours: increased										0.00 (0.12)	0.09 (0.14)	-0.09 (0.13)	-0.03 (0.10)	0.12 (0.14)	-0.08 (0.13)
remote work (ref. no)													-0.37 ^{***} (0.10)	0.34 ^{***} (0.10)	0.03 (0.11)
remote work missing													-0.27 ^{***} (0.04)	0.39 ⁺ (0.21)	-0.12 (0.21)
<i>N</i>	89			89			89			89			89		
<i>p</i>	0.90			0.81			0.55			0.60			0.04		
<i>Cragg and Uhler adj. R²</i>	0.02			0.04			0.07			0.08			0.18		

Note: Standard errors in parentheses. ⁺ $p < 0.1$, ^{*} $p < 0.05$, ^{**} $p < 0.01$, ^{***} $p < 0.001$.

Source: NEPS-Corona CAWI_C2 combined with SC5 SUF Wave 14 and consortial data (B140_C1). Own calculation.

Table A10: Original Questions and Response Categories used in this Discussion Paper

<p><i>Nachfrage <u>nicht an Subsample NEPS-SC2</u></i></p> <p>Aufgrund der Corona-Krise wurden Kindertageseinrichtungen und Schulen geschlossen und teilweise nur ein Notbetrieb aufrecht-erhalten. Wie waren Sie davon betroffen?</p> <p>1: Bei mindestens einem Kind wurde die Einrichtung geschlossen</p> <p>2: Ich habe kein Kind in einer der genannten Einrichtungen</p> <p>3: Ich habe keine Kinder</p>
<p><i>Nachfrage an Eltern, die von <u>Einrichtungs- bzw. Schulschließung betroffen waren</u></i></p> <p>Wie haben Sie die Kinderbetreuung in den ersten Monaten der Corona-Krise [i: Damit meinen wir die erste Zeit der Corona-Krise mit den Schulschließungen und Ausgangsbeschränkungen, d.h. seit März 2020 bis zu den ersten Lockerungen.], in der die Einrichtungen aufgrund der Corona-Krise geschlossen waren, organisiert?</p> <p>Bitte markieren Sie alles Zutreffende.</p> <p>1: Ich übernahm die Betreuung</p> <p>2: Mein Partner oder meine Partnerin übernahm die Betreuung</p> <p>3: Ältere Geschwister unterstützen bei der Betreuung</p> <p>4: Andere Personen unterstützen privat (z.B. Großeltern, Freunde, Bekannte)</p> <p>5: Mein Kind/Meine Kinder passten auf sich selbst auf</p> <p>6: Mein Kind/Meine Kinder besuchten eine Notfallbetreuung</p> <p>7: Sonstiges, und zwar offen:</p>
<p>Gehörte Ihr Beruf zu den sogenannten systemrelevanten Berufen?</p>
<p>Wie hat sich durch die Corona-Krise Ihre Arbeitssituation verändert?</p> <p>Haben Sie in den ersten Monaten der Corona-Krise [Info: Damit meinen wir die erste Zeit der Corona-Krise mit den Schulschließungen und Ausgangsbeschränkungen, d.h. seit März 2020 bis zu den ersten Lockerungen] mehr als sonst, genauso viel, weniger oder überhaupt nicht gearbeitet?</p>
<p><i>Nachfrage <u>an Erwerbstätige mit Arbeitszeit > 0</u></i></p> <p>Und wo haben Sie zu dieser Zeit <u>überwiegend</u> gearbeitet?</p> <p>1: weiterhin an meinem Arbeitsort</p> <p>2: aufgrund der Corona-Krise von zuhause aus</p> <p>3: weiterhin von zuhause aus</p> <p>4: etwa gleich häufig am Arbeitsort und zuhause</p> <p>5: an einem anderen Ort</p>
<p>Wie Sie sich vielleicht erinnern, fragen wir Sie in den NEPS-Befragungen häufig zu Ihrer Zufriedenheit mit unterschiedlichen Aspekten Ihres Lebens.</p> <p>Wie zufrieden sind Sie ...</p> <ul style="list-style-type: none"> • gegenwärtig, alles in allem, mit Ihrem Leben? • mit Ihrem Familienleben? • mit Ihrer Arbeit? <p>Antwortskala von 0 ganz und gar unzufrieden - 10 ganz und gar zufrieden</p>
<p>Ich lese Ihnen nun einige Aussagen vor. Bitte sagen Sie mir jeweils, wie sehr Sie der Aussage zustimmen.</p> <ul style="list-style-type: none"> • Die Aufgabe des Mannes ist es, Geld zu verdienen, die der Frau, sich um Haushalt und Familie zu kümmern <p>Antwortskala von 1 .stimme gar nicht zu - 4 stimme völlig zu</p>

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