

Boll, Christina; Schüller, Simone

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The situation is serious, but not hopeless: Evidence-based considerations on the intracouple division of childcare before, during and after the Covid-19 lockdown

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German Socio-Economic Panel (SOEP)
DIW Berlin
Mohrenstrasse 58
10117 Berlin, Germany

Contact: soeppapers@diw.de



The situation is serious, but not hopeless - evidence-based considerations on the intra-couple division of childcare before, during and after the Covid-19 lockdown

Christina Boll^{a,b*} and Simone Schüller^{a,c,d,e}

^a German Youth Institute (DJI), Munich (Germany)

^b University of Munich (LMU), Munich (Germany)

^c FBK-IRVAPP, Trento (Italy)

^d IZA, Bonn (Germany)

^e CESifo, Munich (Germany)

Abstract. Drawing on data from the Socio-economic Panel (SOEP) for 2018, we use a sample of 2,145 heterosexual couples with children below age 13 to investigate the paternal involvement in domestic childcare and the relation of the underlying mechanisms to the two job-related “Covid-19 factors” systemic relevance (SR) and capacity to work from home (WfH). Based on bi- and trivariate analyses of the intra-couple distribution of time, income and gender roles before the crisis and their likely change during the pandemic depending on parents’ job characteristics SR and WfH, we nominate three couple constellations which are most likely to manifest an increase in the proportion of paternal childcare in the post-pandemic period. Depending on the specification of access to emergency care, we quantify a share of 7-8% of couples as ‘sources of hope’. We further expect positive impulses for gender equality not only in the private but also in the corporate sphere, especially through multiplier effects, which are likely to emanate from fathers in managerial positions.

JEL: D13; J13; J16

Keywords: Covid-19; intra-couple division of unpaid work; systemic relevance; work from home; childcare; SOEP

Corresponding author: German Youth Institute (DJI), Nockherstr. 2, D-81541 Munich (Germany). Tel. +49 89 62306-255. E-mail address: boll@dji.de.

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1. Introduction

In the current debate surrounding the effects of the Covid-19 crisis, two diametrically opposed expectations concerning the division of labor within families are emerging. On the one hand, there are fears of a massive relapse into traditional patterns of behavior (see Allmendinger, 2020; Kohlrausch and Zucco, 2020; Müller *et al.*, 2020). On the other hand, it is hoped that a considerable number of bread-earning fathers will get to know and appreciate family care work at home and permanently increase their share (see Alon *et al.*, 2020; Arntz *et al.*, 2020; Hupkau and Petrongolo, 2020). Interpretations of the pandemic as an opportunity for more equitable parental childcare roles are based on the assumption that the mere time that many fathers spend at home rather than at work during lockdown increases the amount of time they spend on childcare. Arntz *et al.* (2020) estimate that about 30% of parental couples with small children in Germany could experience a shift in family care work to the fathers. On the other hand, critics, who tend to advocate the ‘backlash’ thesis, emphasize the observed re-traditionalization of formerly egalitarian couples during lockdown. For example, based on survey evidence from Germany Kohlrausch and Zucco (2020) find that of those couples that had distributed childcare equally before the crisis, only 60% retain an equitable distribution during lockdown. Additionally, the proponents of the pessimistic view argue that mothers take over most of the additional childcare incurring during the lockdown due to the closure of daycare centers and schools. In fact, survey results for Germany from the early phase of the pandemic suggest that working mothers reduced their workload relatively more than fathers in order to meet the additional childcare needs caused by the pandemic (Bünning, Hipp and Munnes, 2020), that teleworking mothers spent 1.2 hours more on childcare than teleworking fathers (Adams-Prassl *et al.*, 2020)¹, and that full-time employed mothers (fathers) increased time spent on childcare in April 2020 by about 3 (2) hours compared to the previous year (Zinn 2020).² However, to date we still lack extensive representative evidence allowing for robust conclusions as to where reality in Germany lies on the spectrum between the pessimistic and optimistic view.

On closer inspection, two things stand out in the current debate. *Firstly*, it becomes clear that the question of pessimism or optimism depends on the respective reference point. It makes a difference whether one considers the gender distribution of the *additional* care provided during the crisis or rather the resulting change in the *overall gender gap* in care in the parental couple. Concerning the latter, the study by Kohlrausch and Zucco (2020) shows that the proportion of men who take on the predominant role of childcare has risen from 6 to 12 percent during the pandemic, while the proportion of couples in which this role is played by the mother has fallen by roughly the same amount. At the same time, the proportion of couples with equal childcare involvements of both partners has remained unchanged. This points to a decreasing *overall* gender gap in care provision, which Sevilla and Smith (2020) also find for the United Kingdom—although there, women shoulder the main burden of *supplementary* care, too. *Secondly*, the current discourse is strongly oriented towards the target measure—the father's share of childcare—without taking sufficient account of the underlying mechanisms and their empirical evidence in the extensive sociological and economic literature on time use and division of labor in couples (see, for example, Sullivan, 1996; Hook, 2006; Cooke, 2007). It is therefore by no means evident that “there will be more (paternal care) where there has been little and less where there has been a lot up to now”. Making credible medium to long-term predictions as to Germany’s place on the opportunity-backlash spectrum requires empirically supported considerations on which mechanisms of parental division of labor are affected by the pandemic crisis and in what way. Based on this, assumptions can be made as to for how many (and for which) parental couples the pandemic lockdown led to an immediate pressure

¹ Schröder *et al.* (2020) and Möhring *et al.* (2020) also present survey results from the early days of the pandemic.

² For all mothers and fathers, however, the increase is more balanced.

to adapt the division of family care work. This paper is an attempt to address these questions in the German context.

The **contribution of this study to the literature** is threefold. *First*, unlike previous studies that formulate expectations about how the division of labor is adjusted during the pandemic, we argue not only via the relative time budgets, but also via the distribution of income and roles within the couple, both in the initial state before the crisis and in terms of the changes expected during the crisis. Related to this, our hopes are not so much based on the target measure (paternal share of domestic childcare) as on the underlying mechanisms of division of labor within the couple. Thus, we expect progress (regression) not primarily in those areas where little (much) paternal involvement was visible before the crisis, but where the time, income and role constellation within the couple (before and during the pandemic) makes this progress (un)likely. *Secondly*, we specify our expectations using the job-related Covid-19 factors system relevance and ability to work from home. Furthermore, we derive their relevance for the division of labor theoretically and validate it with microdata from the 2018 SOEP. *Third*, on this empirical basis, we provide a quantitative estimate of the proportion of parental couples for whom we expect a change in behavior due to the pandemic.

Our **results** show that, in line with theory, the share of paternal childcare within the couple depends on the intra-couple distributions of time budgets, income and gender roles. Using bi- and trivariate analyses, we further show their relation to the two job-related parental characteristics, systemic relevance and ability to work from home (WfH). Finally, we nominate three couple constellations, of which an increase in fathers' childcare share can most likely be expected. We exclude parents with access to emergency childcare, since the pressure to adapt within the couple can (partly) be relieved by the provision of external childcare. Depending on the specification of emergency care, we quantify a total share of 7-8% of couples as 'sources of hope'. However, we expect positive impulses for gender equality not only in the private sphere but also in the business world, for example through multiplier effects, which are likely to emanate from fathers in managerial positions, as well as through the pandemic-induced irreversible digitalization push, with corresponding feedback effects back into the families.

Theory and empirical evidence on the division of labor in couples

Among the most influential mechanisms for the division of labor in couples documented in the literature are the relative time budget of the partners, the relative human capital of the partners (education, income) and the gender norms prevailing in the couple (see e.g. Boll, 2017; Beblo and Boll, 2014; Beblo, 2001). The time mechanism is grounded in the 'time availability' approach (Shelton, 1992). The higher the involvement in gainful employment, the less time is available for unpaid work. This approach emphasizes the importance of path dependence and the inertia of adjustment mechanisms resulting from habituation to established patterns and adjustment costs (e.g. when changing employment contracts). In fact, it has been shown many times that women who spend less time on gainful employment spend more time on domestic work than women who work more hours per week (England and Farkas, 1986; Bianchi *et al.*, 2000). The human capital ratio of partners as a productivity ratio for gainful employment, in combination with relative productivity for domestic work, gives rise to the comparative advantage of partners for market or domestic work, based on the unitary model of New Household Economics (Becker, 1965). Cooperative bargaining theories (McElroy and Horney, 1981, Manser and Brown, 1980) come to the same conclusion, albeit based on a different rationale; here the higher human capital reflects a higher bargaining position within the couple, which is caused by a higher extra-household utility reflecting a stronger potential fallback position in the event of separation. In the logic of bargaining mod-

els, an increased human capital (income potential) of one partner leads to an improved bargaining position, which has an effect on the division of labor, e.g. in the form of a lower share of domestic work. Grunow, Schulz and Blossfeld (2007) refer to “reversible mechanisms of the division of labor” (Grunow, Schulz and Blossfeld, 2007: 164). It is true that the literature has so far assumed that childcare, rather than household chores, has a positive benefit for those who perform it. However, this advantage of childcare over housework is likely to be at least partially lost with the ubiquitous character of childcare, which is demanded of parents 24/7 during lockdown. Parents, including fathers, are therefore increasingly stressed by childcare necessities. In Europe, for example, 22% of people living in households with children under 12 years of age report difficulties in concentrating on work, compared with only 5% of people with children aged 12-17 (Eurofound, 2020). In Germany, a decline in satisfaction with family life in April 2020 compared to the year prior was associated mainly with small apartment sizes (Liebig 2020).

Gender norms can conflict with the economic rationale of the division of labor. ‘Gender display’ or ‘doing gender’ theories assume that behavior constructs gender identity and that people therefore prefer behavior that conforms to gender stereotypes, avoiding stereotype-averse behavior (West and Zimmermann, 1987, Berk, 1985). Traditionally, unpaid activities such as childcare or housework have been considered ‘feminine’ or ‘unmanly’, whereas paid work has been considered ‘masculine’ or ‘unfeminine’. Akerlof and Kranton (2000) present an economic adaptation with their identity economics theory, in which identity-based preferences are explicitly modelled in the utility function. The importance of ‘doing gender’ has also been shown in the context of compensatory behavior within the couple (Greenstein, 2000): Overly stereotype-compliant behavior in one area can compensate for the identity damage caused to the partner by stereotype-averse behavior in another area (neutralization of gender deviation). Traditional gender roles are still quite common in Germany, more so in the western than in the eastern part (Schmitt and Trappe, 2014, Wenzel, 2010, Cooke, 2007). These mechanisms could play a role in explaining findings showing that unemployed men are less likely than unemployed women to spend the time they gain on additional domestic work (Seville and Smith 2020, van der Lippe, Treas and Norbutas, 2018). Moreover, women spend more time on housework if their husbands become unemployed (ibid.). The latter is compatible with approaches that link to gender identity norms, such as the compensation hypothesis of Brines (1994) or the approach of identity economics (Akerlof and Kranton, 2000). There is also evidence that unemployed mothers invest a larger share of their gained time budget in additional time with the child than unemployed fathers do (Pailhé and Solaz, 2008). This may be related to the fact that the ‘added worker’ effect (one partner compensates for losses in family income by increasing own employment activities when the other partner becomes unemployed) is less evident for mothers than for childless women, presumably due to the societal allocation of primary childcare responsibilities to the mother (Ehlert, 2016). This is further supported by the fact that even in two-earner couples with both partners full-time employed, women provide more childcare than men (Müller *et al.*, 2020). In line with the compensation hypothesis, women who become sole breadwinners due to the partner’s job loss sometimes even react to this situation with additional unpaid work (Lyonette, 2015). Cooke (2007) shows this for Germany by means of a positive association between women’s housework involvement and the regional unemployment rate.

In summary, the previous empirical evidence reveals that the formation of expectations regarding the parental division of labor after the Covid-19 crisis requires an analysis of the intra-couple resource ratios and norms. For this purpose, it is necessary to record and evaluate the respective initial constellation within the couple before the crisis and, based thereon, the changes caused by the Covid-19 crisis. In the following, we focus on *childcare*, which is of utmost interest in studying the intra-couple division of labor in the current pandemic for several reasons: it is less flexible in terms of time allocation compared

to housework, it is a compelling need and it is of limited scalability. At the same time, the pandemic supply shock on the labor market combined with an institutionally induced demand shock puts parents of young children under particularly high pressure to act.

Theoretically motivated expectations of pandemic-related changes in parental childcare

In theory, the pandemic as an unexpected, exogenous shock changes the working hours of many parents and thus their relative time budgets for childcare. At the same time, the closure of daycare centers and schools increases the need for childcare in the family, so that the supply and demand shocks of childcare in the couple are simultaneous (Sevilla and Smith, 2020). In addition, some parents face pandemic-related job risks that affect the income ratio of the partners. Furthermore, reductions in working hours may be induced not only by the employer but also on parents' own request in order to meet childcare responsibilities.

Depending on the initial constellation before the crisis, these changes have larger or smaller potential to stimulate the paternal involvement in childcare and thus to affect the division of labor in the couple. Specifically, we expect adjustments toward a more equal division of labor to be the more likely,

- the more modern the initial employment model (because the more likely it is that the pandemic-induced change in time budgets will result in a relative time advantage for the father),
- the smaller the paternal income advantage (because the more likely it is that the pandemic-induced financial change will result in a relative income advantage for the mother), and
- the more modern the gender roles within the couple (because the more likely it is that the aforementioned pandemic-induced shifts in relative time and income advantage will not be counteracted by 'gender display' behavior of the partners).

Generally, we do not expect the greatest (lowest) adjustments toward egalitarian parental childcare roles to occur where paternal involvement was lowest (highest) prior to the pandemic, but rather where the mechanisms of parental division of labor are most (least) favorable before and during the crisis. It is hence important to understand how the Covid-19 crisis affects these mechanisms.

Aims and outline of this paper

Our investigation has three objectives. First, we explore whether the postulated theoretic rationales for the gendered division of childcare in the household are supported by pre-pandemic microdata. Second, we use these data to show how the 'Covid-19 factors' systemic relevance and ability to work from home may shape the division of labor via these mechanisms during the pandemic. Third, we identify and quantify those couples for whom a significant shift toward an equitable division of parental childcare is expected.

The paper is structured as follows: Section 2 describes the methodological approach. Section 3 shows that the relevant rationales for the gender division of labor in the household as described in the literature are in fact associated to parental childcare involvement. Section 4 formulates expectations regarding the effects of the Covid-19 factors systemic relevance and capacity to WfH on the intra-couple division of childcare, while Section 5 quantifies the 'sources of hope' among the parental couples. Section 6 concludes with a summary of the results and an outlook on the expected medium- to long-term pandemic effects on gender equality among parents over time.

2. Methodology

Based on rich survey data from the 2018 Socio-economic Panel (SOEP),³ we investigate the association between the paternal share of childcare within the couple and the underlying mechanisms proposed in the literature, such as time budget ratio, income ratio and gender role attitudes within the couple (Section 3). Subsequently, we analyze the relationships between the Covid-19 factors systemic relevance and ability to work from home and the above-mentioned mechanisms based on SOEP data (Section 4). Finally, we deduce those couple constellations for which a shift towards a more equal distribution of childcare within the couple is most likely to be expected (Section 5). The study sample consists of 2,145 heterosexual couples aged 18 to 65 with children under 13 years of age, for each of whom information is available on all relevant characteristics (including employment status and occupation according to the 2010-KldB 2010 classification of occupations).⁴

To calculate the *paternal share of childcare*, we first compute the total number of hours of domestic childcare of the couple based on the statements of both parents on the hours spent on childcare on a normal working day. Since the division of childcare work during lockdown is mainly discussed in the context of the time conflict between work and family, the hours spent on childcare on weekends is not the focus of our study. The paternal share of childcare is then calculated as the father's percentage share of the total hours of childcare of the couple. To illustrate the distribution of the paternal childcare share in our sample, we specify childcare as "with both parents" in roughly equal shares if the father takes on 40 to 60% of total childcare, as "mainly with the mother" if the father takes on 0 to 39% of total childcare, and finally as "mainly with the father" if the father takes on 61 to 100% of total care. In 74.2% of the couples in our sample, the mother is the main carer (in 10% of the couples the father is not at all involved in childcare on weekdays). In 4.9% of the couples the father is the main carer, and in 20.9% of the couples both parents take on childcare in roughly equal shares (see **Table A.1** in the Appendix). The fact that only just under 26% of our sample couples the father provides more than 40% of childcare illustrates the still high prevalence of maternal primary responsibility for childcare as an aspect of a more traditional intra-couple division of labor in Germany.

We capture the *relative time budget* via the employment constellation in the couple; the higher the volume of work time contractually agreed with the employer, the scarcer the time.⁵ The employment constellations of couples are mostly rather traditional, which is also evident from the high proportion (86.3%) of married couples in the sample (see Table A.1 in the Appendix). 42.4% of the couples practice a male main breadwinner model (father full-time employed, mother part-time employed), 31.3% a male sole breadwinner model. In 13.0% of couples, both partners work full-time. In 1.7% of couples, the female main or sole earner model (mother full-time employed, father part-time employed or inactive/unemployed) applies. In 6.4%, both are inactive or unemployed and in 5.1% of the couples one of the residual categories applies (both part-time employed, combinations of part-time employment and unemployment). In summary, just under 74% of couples have a more traditional employment constellation

³ The SOEP is a representative longitudinal survey of over 25,000 individuals from about 16,000 households (see Goebel *et al.* 2019).

⁴ For the purpose of our analysis, we therefore exclude parental couples in which one parent has not answered individual questions in the SOEP. This is the case for 49.2 percent of all parent couples with a child under the age of twelve. If this group is a non-random selection of parental couples, this may influence the representativeness of the sample with respect to the target population.

⁵ We specify employment constellations based on individual information provided by each parent on his or her respective employment status, whereby we distinguish between full-time, part-time and unemployment/inactivity. Unemployment/inactivity also includes marginal employment.

and only just under 15% of couples have a modern employment constellation. In just under 12% of the couples, there is little or no labor market integration.⁶

We measure the *human capital ratio* by the partners' education and income ratios. The relative educational attainment of the partners is captured by an indicator showing whether the father's educational attainment corresponds to a higher level according to the ISCED-2011 classification than the mother's educational attainment. The income ratio is calculated as the father's share in the sum of the monthly gross earnings of the partners.⁷

We take the *modernity of gender roles* as agreement with the statement "It is best if the man and woman are both equally employed and both take care of the household and family to the same extent" on a Likert scale of 1-7, where the value 7 stands for "fully agree". We divide the respective values by 7 to normalize them to the range between 0 and 1.

During the pandemic, the systemic relevance of parents' occupations—granting access to emergency care—as well as parents' ability to work from home⁸ suddenly became crucially important. We determine both factors as occupational characteristics based on the 2010 classification of occupations (KldB 2010) and assign them to both parents based on information on their current occupational activity.

We employ the measure of *potential to work from home (WfH)* at the occupational level as calculated in Alipour, Falck and Schüller (2020) based on the 2018 BIBB/BAuA Employment Survey. To obtain a simple binary indicator of WfH potential, we further define an occupation as compatible with WfH if more than half of the employees in this occupation either work from home themselves or do not exclude the possibility of WfH in their job. This measure links up with parent's current occupations on the 2-digit KldB 2010 level.

To determine the *systemic relevance of occupations*, we use the classification employed in Koebe *et al.* (2020), which links up with parental occupations at the 3-digit KldB 2010 level. We additionally distinguish between systemically relevant occupations in the health and care sector (hereinafter **SRHealth**) and systemically relevant occupations in the infrastructure sector (hereinafter **SRInf**). We define all other professions as non-systemically relevant (hereinafter **NSR**). The distinction within the systemically relevant occupations is necessary because it determines parental access to emergency care in day-care centers and schools in many federal states. Access to emergency care relieves the parents of child-care obligations that must be provided within the couple. To be granted access to emergency care, both parents (only one parent) had to work in a systemically relevant infrastructure sector (SRInf occupation) in 12⁹ (2¹⁰) federal states until at least the end of April 2020. In addition, parents in 9¹¹ (5¹²) federal states were entitled to emergency care if both parents (at least one parent) were employed in occupations in the systemically important health and care sector (SRHealth occupation). It was not until the end of

⁶ The dominance of the traditional models is independent of children's age: even with a youngest child in the household of 5-10 years, about 71% of couples practice these models. In couples with a youngest child between 0-1 (2-4 or 11-12) years, the figure is even around 80 (74) %.

⁷ With earned income, we focus on the component of household income that can best be attributed to the partners individually. We use the gross income because according to the neoclassical theory of New Household Economics, productivity and thus the comparative advantage for gainful employment can be derived from the gross wage. According to bargaining theories, the opportunities to earn income outside the current partnership may act as a threat point that determines the individual bargaining position in the couple.

⁸ We use the terms WfH potential and WfH capability synonymously in this study.

⁹ Baden-Württemberg, Bavaria, Berlin, Brandenburg, Bremen, Mecklenburg-Vorpommern, Lower Saxony, North Rhine-Westphalia, Saxony, Saxony-Anhalt, Schleswig-Holstein, Thuringia.

¹⁰ Hesse, Rhineland-Palatinate.

¹¹ Baden-Württemberg, Berlin, Brandenburg, Mecklenburg-Western Pomerania, Lower Saxony, North Rhine-Westphalia, Saxony-Anhalt, Schleswig-Holstein, Thuringia

¹² Bavaria, Bremen, Hesse, Rhineland-Palatinate, Saxony

April that the transition to a one-parent rule also took place with respect to SRInf occupations in those federal states that had previously pursued a two-parent rule.¹³ In some federal states,¹⁴ this was only the case in May. Hamburg and Saarland did not link access to emergency care to the systemic relevance of parents' occupations from the outset¹⁵. In the course of April, and even more so in May, the federal states implemented further relaxation (in particular the discontinuation of the requirement of occupational systemic relevance for working single parents, parents of pre-school children, parents of children with special needs, etc.), so that the circle of parents entitled to claim emergency care has been steadily increasing since then.

Approximating these institutional arrangements (see **Table A.2** in the Appendix for an overview), we impose that the parents in our data have access to emergency care if either both parents are employed in an SRInf profession or at least one parent is employed in an SRHealth profession. According to this approximation, 13.1% of the couples in our sample have access to emergency day care. We assume that this scenario applied for the period of nationwide lockdown, i.e. mid-March to the end of April 2020. In employing the less restrictive access restriction to emergency care for parents in health and care professions (one-parent rule), we deliberately opt for the less optimistic scenario regarding the adjustment pressure on the division of labor within the couple. In quantifying the “sources of hope” constellations in Section 5, we also present results for the scenario that the two-parent rule applies to both SRHealth and SRInf occupations.

3. Before the Lockdown: Time, Money and Gender Norms Shape the Division of Labor

In our sample, the relevant impact mechanisms “time, money and norms” are associated in the expected way with the division of childcare in the parental couple (**Table 1**). To illustrate this, the couples were divided into five equally sized groups (quintiles) with an increasing proportion of male childcare workers. The lowest (top) quintile contains parental couples in which the father provides 0-11% (43-100%) of total childcare.

¹³ The only exception is Thuringia, where the one-parent rule was only introduced for those parents in SRGes professions who are directly entrusted with the care of sick or care-dependent persons.

¹⁴ Lower Saxony, Saxony, Saxony-Anhalt

¹⁵ For working single parents, the requirement of occupational systemic relevance was largely revoked as early as April; in the Saarland, working parents, including single parents, were granted access to emergency care from the start irrespective of their occupation.

Table 1: Couple characteristics according to quintiles of paternal childcare participation in the couple

	(1) Traditional employment model	(2) Father's share of income (of total earned income in the couple)	(3) Father higher educational level than mother	(4) Modernity of the gender roles attitudes of the mother on a scale from 0 to 1	(5) Modernity of the gender role attitudes of the father on a scale from 0 to 1
	% share	Average	% share	Average	Average
<i>Quintiles of the paternal childcare participation</i>					
Q1 (0–11%)	81,9%	80,2%	40,0%	0,71	0,64
Q2 (12–20%)	88,0%	81,7%	35,1%	0,64	0,65
Q3 (21–28%)	79,9%	73,3%	35,3%	0,71	0,74
Q4 (29–42%)	68,5%	65,1%	34,1%	0,75	0,75
Q5 (43–100%)	46,1%	52,9%	29,4%	0,79	0,79
<i>Total</i>	<i>73,6%</i>	<i>71,2%</i>	<i>34,9%</i>	<i>0,72</i>	<i>0,71</i>

Source: Own calculations based on SOEP 2018 (soep.v35), weighted.

Notes: N=2,145. Traditional employment models are the male sole and main wage earner model.

With father's share of childcare increasing:

- the proportion of couples with a traditional employment model decreases¹⁶. Specifically, the proportion falls from 81.9% in the lowest quintile to 46.1% in the highest quintile;
- father's income share (of the total earned income of the couple) decreases. That is, it falls from 80.2% in the lowest quintile¹⁷ to 52.9% in the highest quintile;
- the percentage of couples with an educational advantage of the father over the mother decreases, more precisely: from 40.0% in the lowest quintile to 29.4% in the highest quintile;
- the modernity of maternal gender role attitudes increases (from the 2nd quintile onwards), more precisely: from 0.64 to 0.79 (only in the lowest quintile, mothers hold more modern gender role attitudes than fathers);
- the modernity of paternal gender role attitudes increases, more precisely: from 0.64 in the lowest quintile to 0.79 in the highest quintile.

Thus, in line with the relevant theories, the father's participation in childcare appears to be higher the smaller his human capital and income advantage in the couple, the greater his relative time budget and the more modern his and the mother's gender role attitudes. The proportion of childcare provided by fathers varies greatly with the relative time budget (employment constellation) and to a relatively lesser extent with the modernity of gender role attitudes.¹⁸

4. The “Covid-19 Factors” and their Expected Relation to Paternal Participation in Childcare

We assume that during the pandemic, two factors significantly gain in relevance for the division of labor in the parental couple—firstly the possibility for parents to work from home (WfH), and secondly the systemic relevance (SR) of their respective occupations. We assume that the initial situation regarding the time budget and income relations within the couple before the pandemic-induced school and daycare center closures (lockdown) as well as the change in these relations during the pandemic are decisive for the share of paternal childcare during the pandemic. With regard to the gender norms in the couple, we

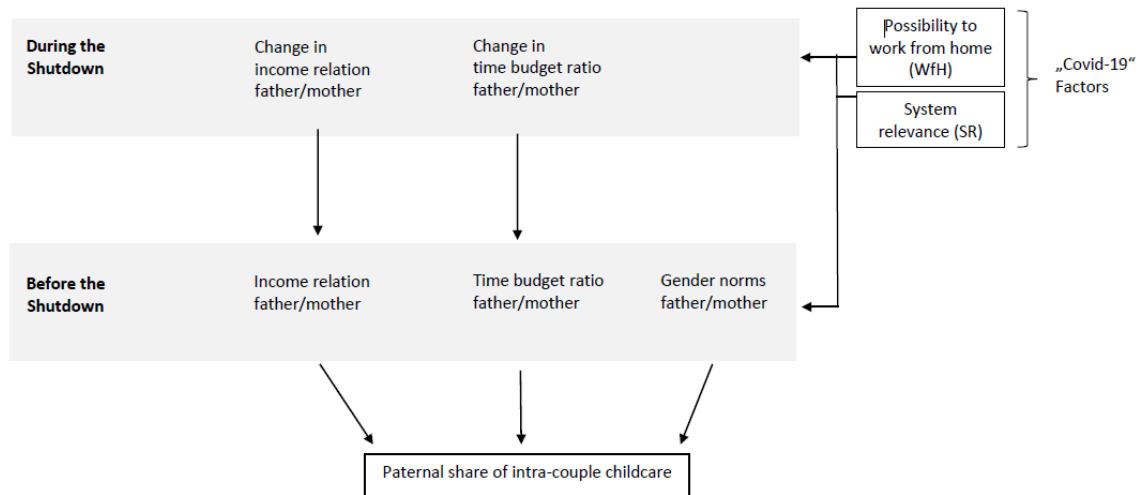
¹⁶ The traditional employment models are the male sole and main earner model.

¹⁷ In addition, the share of fathers with an income advantage over the mother (paternal income share of more than 50%) falls from 90.5% in the lowest quintile to 62.7% in the highest quintile (not shown in Table 1).

¹⁸ Multivariate analyses, which additionally control for factors such as household size, age of the youngest child in the household, as well as degree of agglomeration and state of residence, confirm these findings qualitatively.

expect only an influence of the initial situation; we assume that the gender role attitudes are unchanged in the short term. **Figure 1** illustrates these hypotheses graphically.

Fig. 1: Covid-19 factors and the mechanisms of parental division of labor



Source: Own representation.

The two Covid-19 factors systemic relevance and WfH potential may influence the extent to which the time budget and income ratio in the parental couple changes during the pandemic. Furthermore, they can also shape the initial situation in the parental couple pre-pandemic, because system-relevant occupations and WfH potential may be differently distributed across the dimensions of employment constellation, income ratio and couple's gender role attitudes.

Whether the parents work in **systemically relevant occupations** influences both the time budget and the income relation in the couple. For parents in these occupations, the *time available* for childcare is limited by the fact that in these occupations, a reduction of the contractually agreed working time during the crisis will rarely be enforceable. Systemically relevant occupations in the health care sector (e.g. nurses) can hardly or not at all be carried out from home. This also applies to some of the system-relevant infrastructure occupations, however other such occupations are well suited to WfH. Moreover, parents' access to emergency care in daycare and school is linked to occupational systemic relevance. As already mentioned, institutional emergency care relieves the childcare burden on parents to a large extent.¹⁹ Access to emergency care therefore acts as a valve through which some pressure to adapt the division of labor in the couple with regard to childcare is released.

In non-systemically relevant occupations, on the other hand, parents may face the risk of job loss, e.g. if one parent is employed in the hotel and restaurant industry or in another sector that has been severely affected by the crisis. In the event of unemployment or short-time work, the time budget of the affected parent increases dramatically, but this does not necessarily mean that the time gained is fully converted into additional childcare time. Time use analyses concerned with the economic and financial crisis of 2008/09 show that men spent less of the time released by unemployment on unpaid domestic work than

¹⁹ As analyses by Jessen, Waights and Spieß (2020) based on the 2012/13 German Time Use Survey show, parents whose children do not attend a daycare center spend significantly more time on childcare. This is particularly true for mothers.

women did (Aguilar et al. 2013). Moreover, it seems fundamentally problematic to pin hopes for the equitable division of labor primarily on the group of fathers who become unemployed during the crisis.

The pandemic-related job risk may also affect the *income ratio* in the couple during the pandemic. If the risk is more likely to lie with the father (the mother), this increases (decreases) the pressure on the couple to adapt toward an increased paternal participation in domestic childcare, both in terms of time budget and income ratio considerations.

Our **expectations regarding the systemic relevance of occupations** are therefore that c. p. (i.e., with unchanged maternal time budget and income)

- (1) economic job risks of fathers in non-systemically relevant occupations and the resulting *increase in time budgets and lower incomes* tend to be accompanied by a higher proportion of paternal childcare provision;
- (2) Fathers in systemically relevant health and care occupations that cannot be performed from home, as well as
- (3) fathers in couples who have access to emergency care tend to provide less additional child care;
- (4) Fathers without access to emergency care who work in ‘crisis-proof’, WfH-compatible NSR professions, as well as
- (5) fathers in WfH-compatible SR professions tend to be able to provide more child care *via an increase in time budget*.

The **occupational WfH capacity** of fathers potentially also affects both the time and income relations in the parental couple. WfH can increase the available *time budget*: WfH can save travel time, so that the time budget for childcare can increase even if the hours worked remain the same. Additionally, WfH might come with a generally greater time flexibility. In sum, this tends to indicate an increase in childcare time for fathers that work from home. However, this assumption cannot be made unreservedly for several reasons. First, the possibility to WfH tends to eliminate the need for more drastic working time reductions (e.g. via a reduction in the agreed weekly working time, holidays, to take time off in lieu of overtime, or unpaid leave)—measures that parents in WfH-incompatible jobs have to take in order to fulfil their childcare obligations. Such measures clearly result in a more radical increase in the time budget for childcare than WfH. Second, the higher degree of time flexibility when working from home exists only to a limited extent or not at all for parents who are in online contact with customers and have to observe business hours. For this group, WfH might even not result in an additional time budget for childcare.

In addition, for some fathers in WfH-compatible jobs, access to emergency care can relieve some of the father's pressure to adapt. Since childcare is traditionally left more to mothers, it can be assumed that fathers expect emergency care to relieve their own time budgets rather than the mothers’.

The relatively high level of job security provided by the possibility to WfH during the pandemic could *counteract* an expansion of paternal care commitments via the *income channel*. The negative correlation between WfH and short-time work during the pandemic is confirmed (Alipour, Fadinger and Schymik, 2020), as is the negative correlation between WfH and unemployment (Adams-Prassl et al. 2020). This may also be related to the fact that WfH capacity tends to increase with formal qualification (Alipour et al. 2020). Academics are systematically more likely to work from home during the crisis than employees with lower educational qualifications (Bünning et al. 2020, Schröder et al. 2020, Möhring et al. 2020 for Germany, Adams-Prassl et al. 2020 and Sevilla and Smith 2020 for the UK). Depending on the job

constellation in the couple, the WfH-compatible job can become the comparatively safer or less vulnerable job during the crisis. If the father has such a WfH-compatible job and the mother becomes unemployed or goes into short-time work due to the crisis, both the changed relative time budget and the changed income relation in the couple might prevent a higher paternal involvement in unpaid family work. Since relative time and income with respect to the partner is relevant for the division of labor in the couple, the father's childcare share ultimately also depends on the mother's ability to work from home.

Our **expectation for WfH capability** is therefore that the paternal WfH potential tends to increase the paternal childcare share c. p. if

- (1) the mother does not experience an increase in her time budget,
- (2) she does not suffer a decrease in her income share,
- (3) she herself is employed in an SR occupation but cannot work from home or
- (4) she works in a crisis-proof, WfH-compatible NSR occupation with a similar hourly volume as the father and
- (5) there is no access to emergency care.

The following applies to both Covid-19 factors: They act either via the channel of relative income and/or via the channel of relative time budget. As argued in Section 1, we expect that the more favorable the *initial situation*, the more sweeping the pandemic-related changes will be.

The more traditional the *starting situation regarding the employment model* before the crisis, the greater the maternal time budget for unpaid work compared to the father. It is therefore to be expected that an increase in the father's time budget during the crisis (e.g. through short-time work) is likely to stimulate the father's participation in childcare less if the mother is working part-time or was already inactive before the crisis than if both partners were working full-time pre-pandemic and the mother continues to work. Moreover, gender identity norms play a role in the extent to which fathers translate the time gained into additional commitment to family work (see Section 1).

The above-mentioned pre-crisis starting conditions should also play a role in determining which of the partners may request compensation for lost income due to care responsibilities under the Infection Protection Act. This benefit is particularly relevant for parents of small children, where both parents are employed in WfH-incompatible jobs.²⁰ Here, parents decide which of the two will claim the benefit and stay at home. Given the proportional income replacement, the greater the paternal hourly wage advantage, the more likely it is that the benefit will be claimed by the mother.

With regard to the *income ratio*, we assume that fathers are less likely to suffer a (net) income disadvantage compared to their partner as a result of a one-sided income deterioration during the crisis, than is the case for mothers. This is because during unemployment or short-time work, under certain conditions, parents are compensated for part of the lost income.²¹ However, since women earn 20% less than

²⁰ Parents with children under 12 years of age who have to look after their children themselves due to the closure of daycare centers and schools receive a compensation payment under the Infection Protection Act amounting to 67% of the lost income. The prerequisites are that no other care is available, that WfH is considered unreasonable due to the low age of the children (the question of what is reasonable is not regulated by law) and that no other income compensation (e.g. short-time work allowance) is paid.

²¹ Unemployed parents are paid unemployment benefit (ALG I) for varying lengths of entitlement (maximum 24 months), depending on their age and previous insurance obligation. The amount is 67% of the last net income. The precondition is that the parent has been in compulsory insurance for at least 12 months. The duration of entitlement to ALG I was extended once by three months with the Social Protection Package II of 14.05.20 for those individuals whose entitlement would expire between

men on average, fathers are less likely to arrive at an income disadvantage compared to their partners because of short-time work or unemployment. Such an income disadvantage is likely to occur above all if the mother (father) was already earning above-(below-) average before the crisis. Conversely, however, if the mother is affected by unemployment or short-time work, the probability is high that the income ratio in the couple will deteriorate further to her disadvantage. This is due to the fact that—although women are currently affected by short-time work almost as often as men (Hans-Böckler-Foundation, 2020)—women are not only less likely to receive wage replacement benefits if affected, but the average wage replacement benefits are also lower than for men.²²

In sum, we expect on the basis of theory, that pressure on the father to adapt would develop most strongly if his time budget for the family were to increase significantly, if there is no access to emergency care, and if the income ratio (which can change during the pandemic) and the gender norms in the couple do not stand in the way of such behavioral change.

To identify the potential **sources of hope**, the focus is therefore on couples who are not entitled to emergency care and that are either (1) both full-time employed in WfH-compatible occupations, (2) with mothers in WfH-incompatible, crisis-proof occupations or (3) with fathers in WfH-compatible crisis-proof occupations. In addition, an adjustment pressure on fathers is also to be expected (4) in couples without emergency care access and with fathers in non-systemically relevant, WfH-incompatible, i.e. potentially not crisis-proof occupations. Since the economic risk of father's short-time work or unemployment can lead to considerable financial distortions for the family (especially if a male single or main earner model was previously in place), we refrain from classifying couples in constellation (4) as “sources of hope”.

5. The Pressure to Adapt Division of Labor During Lockdown: Where are the Bearers of Hope?

From the expectations developed in Section 4, the necessity emerges to empirically examine the relationship between the two Covid-19 factors occupational SR and WfH capacity and the employment constellation, income ratio and gender role attitudes within the parental couple. This is step 1, and step 2 will build on this to quantify the above-defined group of “sources of hope” couples.

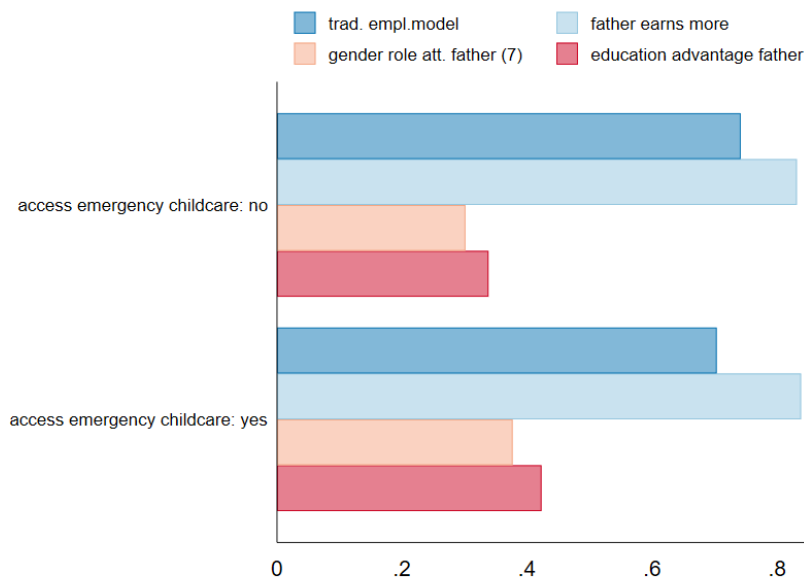
Step 1: The relationship between the Covid-19 factors and employment constellation, income ratio and gender role attitudes within the couple

Parental couples with access to emergency childcare are not expected to face pressure to adapt (see Section 4). As Figure 2 shows, our subsamples of parental couples with vs. without access to emergency childcare do not differ significantly with respect to the main mechanisms of the parental division of labor: The distribution of gender role attitudes and employment models is only slightly more traditional in couples without access to emergency care.

May 1, 2020 and December 31, 2020 (German Federal Ministry of Labour and Social Affairs, 2020). Parents on short-time work will be paid the same 67% wage replacement on the net income lost.

²² This is because the short-time work allowance is increased less frequently for women because women work more often than men in smaller companies that are not subject to corresponding collective bargaining agreements (WSI 2020). Since in Germany the short-time working allowance is linked to the last net remuneration (Schulten and Müller 2020), tax category 5, which is frequently occupied by women, puts them at a further disadvantage. Marginally employed mini-jobbers, of whom 70 or 90% (commercial or domestic) in Germany are women (German Pension Insurance Miners-Railway-Sea/Minijobzentrale, 2019), are not entitled to short-time work benefits at all.

Fig. 2: Mechanisms of parental division of labor in couples with and without access to emergency care



Source: Own calculations based on SOEP 2018 (soep.v35), weighted.

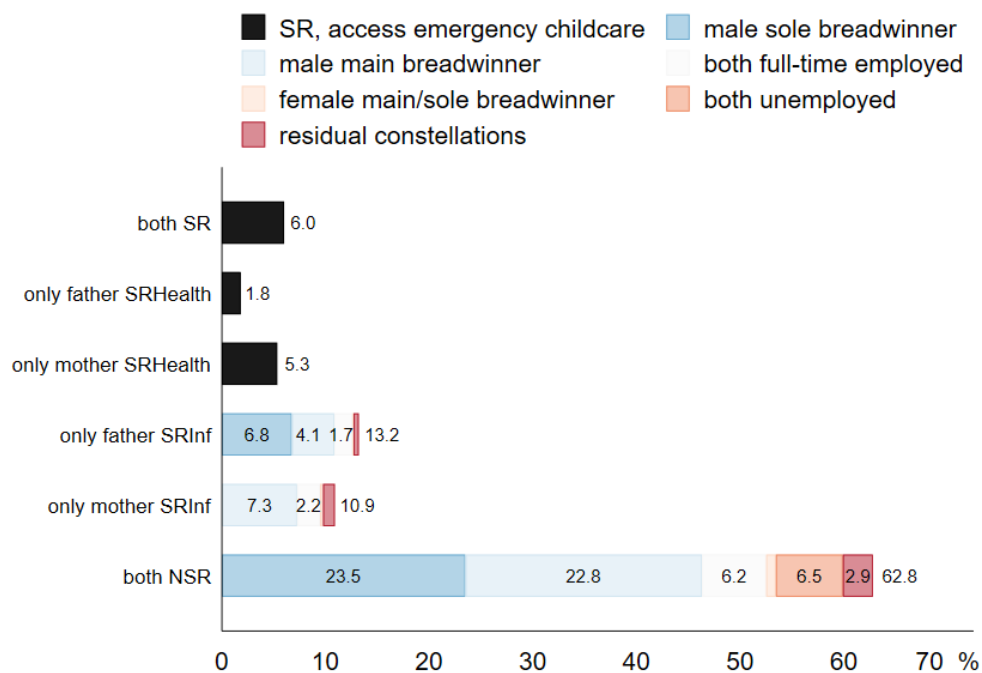
Notes: N=2,145.

Figure 3 shows the employment constellation for the six possible constellations of SR in the couple. In the top three categories (both SR, only father SRHealth, only mother SRHealth), all couples have access to emergency care. In 6.0% of couples both partners are employed in a systemically relevant occupation, and in 62.8% of couples, no partner is employed in a systemically relevant occupation.²³ In the remaining 31% of couples, only one of the partners is employed in a SR occupation, with systemically relevant infrastructure occupations being more common than health care occupations. In the large number of couples in which both partners work in NSR occupations, traditional models dominate.

As explained in Section 4, there is pressure for paternal childcare to adapt, especially when the mother cannot work from home. In addition to the relatively small proportion of couples (5.3%) not further considered here in which only the mother practices an SRHealth profession and who have access to emergency care, this also applies to those among the 10.9% of couples in which only the mother exercises an SRInf profession which is not WfH-compatible. Moreover, pressure to adapt is also conceivable in couples in NSR occupations with both parents working in WfH-compatible jobs if both have the same employment volume. Here, the 6.2% of couples with dual full-time employment models may be classified as “sources of hope”. In addition, pressure to adapt can also arise in couples in which only the father pursues a SRInf occupation (13.2% of couples, cf. Figure 4), provided both parents can work from home. Because if the mother is employed in a WfH-incompatible job without systemic relevance, this poses a job risk in the pandemic crisis, which in turn circumvents the pressure on fathers to adapt his care behavior via both the time and the income channel.

²³ The latter category also includes the 6.5% of couples in which both partners are inactive.

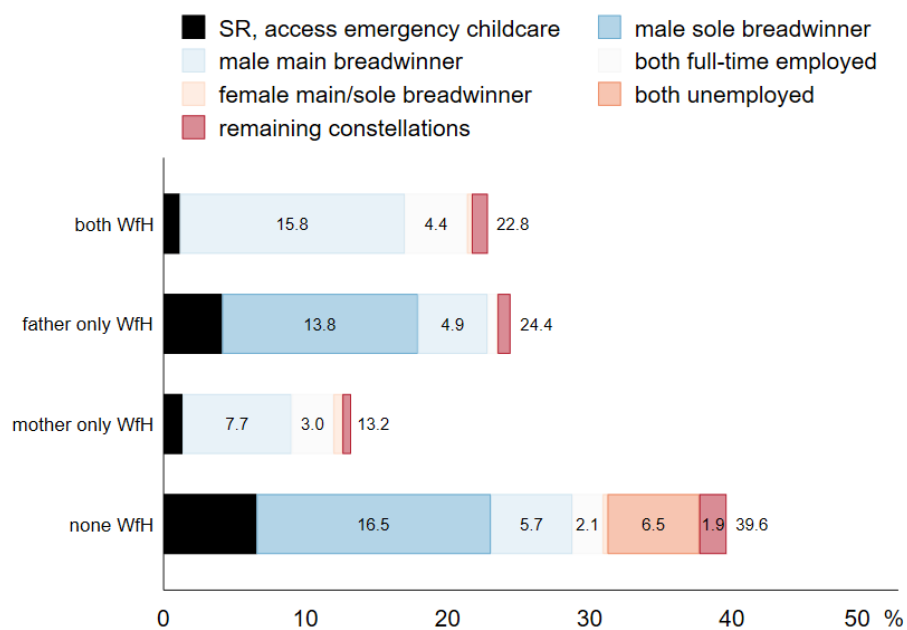
Fig. 3: Occupational systemic relevance in the parental couple, broken down by employment constellation and access to emergency care



Source: Own calculations based on SOEP 2018 (soep.v35), weighted.

Notes: N=2,145.

Fig. 4: WfH potential in the parent couple and breakdown by employment constellation



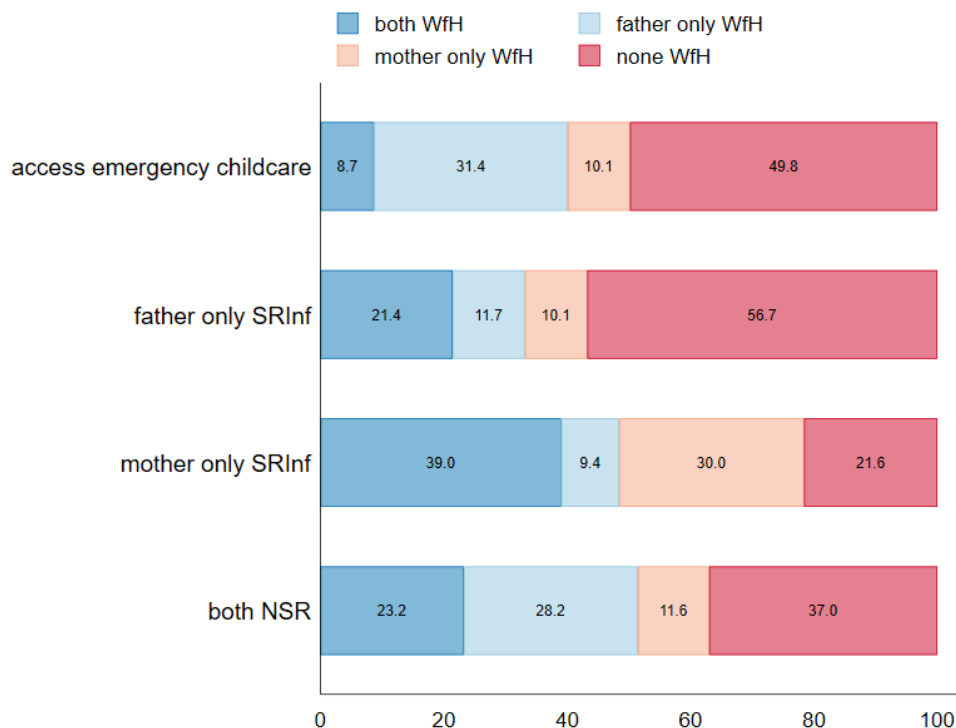
Source: Own calculations based on SOEP 2018 (soep.v35), weighted.

Notes: N=2,145.

Figure 4 shows the distribution of the four possible constellations of WfH capacity in the couple broken down by employment model. Couples with access to emergency care are identified separately within each of the WfH constellations since these are not considered to experience substantial pressure to adapt the division of domestic childcare during the pandemic. A total share of 13.1% of couples have access to emergency care. As the figure shows, in 22.8% of the parental couples both partners are employed in a WfH-compatible job, in 39.6% of the couples neither partner is. If only one of the parents can work from home, it is more often the father (24.4%) than the mother (13.2%). In the couples with only paternal or with bilateral WfH capability, in which pressure to adapt paternal childcare participation during the lockdown is most likely to be expected, traditional employment models are very pronounced. Hence, the initial relative time budget of the partners has a counteracting effect here. In 4.4% of couples, both partners are full-time employed in WfH-compatible jobs.

Figure 5 bundles both “Covid-19 factors” (system relevance and WfH capacity) into pair constellations, relating the two factors to each other.²⁴ If both partners are employed in NSR occupations, both can work from home in 23.2% of couples, but in 37% of these couples neither of the two occupations allows this. The highest proportion of couples with bilateral WfH capability (39%) is when only the mother works in a SRInf occupation; here, only in 21.6% of couples is no partner WfH-capable. If only the father has an SRInf job, both partners are WfH-capable in 21.4% of the couples. If only the father or only the mother is in an SRHealth profession or both are in an SR profession, the couple has access to emergency care. We have bundled these couples because they are not initially the subject of our study (see the modified specification at the end of the Section).

Fig. 5: WfH potential and system relevance in the parent couple



Source: Own calculations based on SOEP 2018 (soep.v35), weighted.

Notes: N=2,145.

²⁴ In this case, inactivity/unemployment is coded as WfH-incompatible and NSR. Since unemployed or inactive individuals already were without a job in the initial situation, their economic job risk cannot decrease (income channel) and their time budget cannot increase (time channel).

To summarize: The couple constellation in which at least the father’s job is WfH-compatible—and for which a change in paternal childcare participation is most likely to be expected—is most often given when only the mother or only the father works in an SRInf occupation or both are employed in an NSR occupation. However, these WfH constellations are very often accompanied by traditional employment models. At the same time, it has become clear that dual full-time models are most common in couples in which both parents work in NSR occupations.

The identification of the “sources of hope” couples based on SR and WfH constellations in the couple, with additional reference to the employment constellation, has already made it clear that there are risks. Evidence presented in Table 2, which combines the SR/WfH couple constellations with the information on the traditional employment model and further mechanisms of the division of labor, pours even more cold water on the matter.

Table 2: Mechanisms of the division of labor among parents according to the “Covid-19 factors” SR and WfH

	both WfH	father only WfH	mother only WfH	none WfH	Total
<i>A. Traditional employment model (proportion of couples in which the father works more hours)</i>					
access emergency care	59.6%	71.9%	60.2%	73.2%	70.3%
father only SRInf	77.4%	96.4%	58.5%	85.0%	82.0%
mother only SRInf	72.5%	99.1%	68.3%	39.3%	66.6%
both NSR	72.4%	91.2%	64.2%	64.3%	73.8%
Total	72.4%	88.6%	64.3%	68.2%	73.6%
<i>B. Income ratio (proportion of couples in which the father earns more)</i>					
access emergency care	87.9%	83.9%	76.3%	84.5%	83.8%
father only SRInf	92.7%	100%	75.0%	99.1%	95.4%
mother only SRInf	91.4%	89.3%	65.2%	49.5%	74.3%
both NSR	84.3%	93.7%	68.2%	76.1%	82.1%
Total	86.9%	92.3%	69.0%	80.3%	83.2%
<i>C. Modernity of paternal gender role attitudes (proportion of fathers who fully agree)</i>					
access emergency care	10.2%	37.2%	31.9%	43.9%	37.7%
father only SRInf	35.4%	36.5%	49.7%	26.6%	32.0%
mother only SRInf	22.4%	43.6%	31.1%	21.4%	26.8%
both NSR	29.0%	20.4%	40.4%	35.6%	30.3%
Total	27.7%	25.2%	38.2%	34.4%	31.1%
<i>D. Education ratio (percentage of couples in which father has higher education than mother)</i>					
access emergency care	36.7%	51.8%	20.7%	41.6%	42.3%
father only SRInf	13.6%	44.1%	13.7%	39.0%	31.6%
mother only SRInf	50.5%	32.7%	25.2%	50.3%	41.2%
both NSR	30.8%	42.3%	15.6%	32.7%	33.0%
Total	32.7%	43.6%	18.3%	36.4%	34.9%

Source: Own calculations based on SOEP 2018 (soep.v35), weighted.

Notes: N=2,145.

In **Table 2.A**, the traditionality of the employment constellation in the couple is measured by the proportion of couples who either practice a male sole or male main breadwinner model. A traditional employment constellation means that these couples have a greater maternal than paternal time budget available for family work, which reduces the pressure for behavioral change. Traditional employment models are most prevalent in couples where only fathers can work from home. In couples without access to emergency care where both partners’ jobs are WfH-compatible, the employment model is about average or only slightly above average traditional. **Table 2.B** shows the proportion of couples with a paternal income advantage by SR/WfH constellation and, unsurprisingly, shows that this proportion is also above average in couples with only paternal WfH ability, and also in couples with dual WfH capacity. By contrast, in couples with only NSR occupations, in which the dual full-time constellation is most common (Fig. 3), the father has an income advantage in only 68% of couples when only the mother can work from home; in this case, the father probably has a high level of education that goes hand in hand

with a high income.²⁵ **Table 2.C** reveals that paternal gender role attitudes in couples where at least the father can work from home are below average modern when both partners work in NSR occupations. If both are employed in WfH-compatible jobs, this also applies to couples where both are employed in SR occupations or where only the mother is employed in a SRInf occupation. In the case where only the father is employed in a SRInf occupation, the father has slightly above average modern gender role attitudes. **Table 2.D** illustrates that a paternal income advantage (2.B) is related either to a corresponding paternal educational advantage or a higher paternal employment level (2.A). For example, in couples in which only the mother has an SRInf job and only the father has a WfH-compatible job, the father earns more than the mother in 89.3% of the couples, although the father has a higher educational qualification in only 32.7% of the couples, because the father works more hours in 99.1% of these couples. In **summary**, Table 2 shows that there are risks in the groups we classify as “sources of hope” that could stand in the way of a change in paternal behavior.

Especially couples in which only the father’s job is WfH-compatible stand out in Table 2 due to unfavorable starting conditions. Is this also reflected in a particularly low childcare involvement on the part of fathers before the crisis?

Table 3 addresses this question by reporting on the relationship between the paternal childcare share and the WfH capacity of both parents’ jobs for couples without access to emergency care.²⁶ Again, the two groups “both WfH” and “father only WfH” are the focus of interest. The first (second/third/fourth) column of Table 3 shows the share of couples in the respective quintile of paternal childcare participation in which both parents (father only/mother only/none of the parents) can work from home. The sixth column shows the proportion of couples in which both partners are employed in WfH-compatible jobs *and* both work full-time. The quintiles are ordered according to the ascending share of domestic childcare provided by the father. As expected, the share of couples in which only the father can work from home decreases with increasing paternal childcare involvement, while at the same time the share of couples in which both partners work in WfH-compatible occupations decreases. In the 24.9% of couples in which both partners can work from home, one of the partners (presumably the mother) works less than full-time, so that the pressure on the father to adapt by increasing his childcare provision is limited due to the partner’s greater time budget. Constellations in which both parents can work full-time at home are rare—this applies to 5.0% of all couples without access to emergency care. The share of WfH-capable dual full-time couples increases with the father’s share of childcare and amounts to 14.0% in couples where the father provides at least 43% of the care, but only 1.9% in couples where the father provides a maximum of 11% of the care. The group among WfH-capable full-time couples with the highest percentage of paternal care represents a total of 2.8% (=14.0% of 20%) of couples without access to emergency care.

Even in the highly selective group of WfH-capable dual full-time couples (without access to emergency care), there is still a correlation between partners’ income ratio and male role models, as separate analyses show. If the father earns more than the mother (65% of these couples), only 46.7% of fathers fully agree with modern gender roles, while this is the case for as many as 55.7% of the remaining fathers. Unfavorable structural conditions prior to the crisis, which pose risks for behavioral adjustment in the couple and which have already been pointed out above in connection with a traditional employment

²⁵ The average maternal education is highest when she works in a NSR occupation, followed by SRHealth occupations. SRInf occupations come in third place, with inactive/unemployed mothers bringing up the rear in terms of education. For fathers, the educational ranking is identical with the exception of the top two places: here, SRHealth occupations rank ahead of NSR occupations.

²⁶ The column totals therefore differ slightly from those in Fig. 4.

constellation (unequal time budget), can thus also exist in couples with an egalitarian time budget - by way of a paternal income advantage.

Table 3: Parent couples without access to emergency care: WfH potential and paternal care participation before the lockdown

	both WfH	father only WfH	mother only WfH	none WfH	Total	both WfH & both full-time
<i>Quintiles of paternal care participation</i>						
Q1 (0–11%)	15.8%	31.7%	12.0%	40.4%	100%	1.9%
Q2 (12–20%)	18.9%	29.6%	9.9%	42.5%	100%	1.0%
Q3 (21–28%)	21.2%	22.4%	16.6%	39.8%	100%	2.0%
Q4 (29–42%)	36.0%	18.8%	13.5%	31.7%	100%	7.9%
Q5 (43–100%)	35.1%	10.2%	19.6%	35.1%	100%	14.0%
Total	24.9%	23.4%	13.7%	38.1%	100%	5.0%

Source: Own calculations based on SOEP 2018 (soep.v35), weighted.

Notes: N=1,840.

Step 2: Quantifying the “bearers of hope” among the parent couples

Based on the previous findings, step 2 now presents an attempt to quantify the number of couples classified as “sources of hope” for an equitable division of childcare in parent couples. Couples with access to emergency care and couples in which fathers become unemployed or go into short-time work are not classified as “sources of hope” for the reasons given and discussed above.

(1) Mother only employed in a SRInf occupation (10.9% of parent couples): No emergency childcare is available to the couple. However, the mother will still be required to continue working during the lockdown since her job is of systemic importance. We identify the 9.4% of parental couples in this group in which **only the father can work from home as a “sources of hope”** (see Figure 5). They represent **1.0% of all couples** (=9.4% of 10.9%). If only the father’s job is WfH-compatible, the paternal educational advantage is below average (Table 2.D) and the paternal gender role attitudes are more modern than average (Table 2.C), which in itself should stimulate a more equal division of tasks. In addition, the mother has to leave the house for the job. There are risks, however: In only one third of these couples (33% =3.6/10.9) is the mother at least as involved in working life as the father (Fig. 3). Yet, given the already low incidence of this group of hopefuls, this risk is hardly significant.

(2) Father only works in a SRInf occupation (13.2% of parent couples): If only the father works in a SRInf profession, the couple also has no access to emergency care, and in 21.4% of couples **both partners can work from home** (see Figure 5). This results in a share of (21.4% of 13.2%=) **2.8% of all couples**. This subgroup represents our **hopefuls** here. If the mother’s job were not WfH-compatible, in combination with her NSR occupation, she would be exposed to an economic job risk, which would allow a higher maternal time budget to circumvent pressures to increase paternal childcare participation. However, Table 2 reflects a slightly above-average traditional employment constellation in these couples, which is reinforced by an above-average income advantage of the father. However, this is countered by a below-average educational advantage of the father and above-average modern paternal gender role attitudes.

(3) Both parents are employed in NSR occupations (62.8% of couples): This is by far the largest group of couples (see Figure 3). Access to emergency care is not available in these couples, which in itself increases the pressure on the couple to adapt.

The economic job risk in this couple group is potentially eminent for both partners. If the mother (the father) is relatively more likely to be affected by this risk, this reduces (increases) the pressure on the

couple to adapt in the direction of higher paternal participation in childcare, both in terms of time and income: If the father is affected, additional obstacles that lie in traditional gender role attitudes may have to be overcome. Even in the event that both partners gain an equal amount of time through unemployment or short-time work, the income ratio in the couple most probably deteriorates to her rather than to his disadvantage due to gender differences in wage replacement payments (see discussion in Section 4).

On the other hand, the case that both jobs survive the crisis is all the more likely if both are WfH-compatible. This is the case for 23.2% of the couples in this group (see Figure 5), i.e. for about (23.2% of 62.8% =) 14.6% of the total number of parent couples considered. Paternal behavioral adjustments in the direction of more childcare are to be expected here especially if both partners have the same volume of gainful work, because otherwise the mother's higher time budget for unpaid work acts as a valve through which pressure can escape. With two full-time jobs, adjustment pressure is particularly eminent. At the same time, in only just under one-third (30.8%) of couples with two WfH-compatible jobs the father has an educational advantage over the mother (Table 2.D). Similar educational levels not only impart similar economic resources of the partners, but also similarly modern gender role attitudes. Of all conceivable educational constellations, couples with educational homogeneity on the graduate level are most likely to practice an egalitarian division of tasks (also) in childcare (van Berkel and de Graaf, 1999; Bonke and Esping-Andersen, 2011). As a longitudinal study by Schulz (2010) shows, the potential for re-traditionalization in couples over time, although also present here, is less pronounced than in other educational constellations. In light of this, we expect the highest pressure to adapt in this group for those **parental couples in which both partners work in WfH-compatible, NSR full-time jobs**; they are our **"sources of hope"** here and represent **2.9% of all parental couples** considered.

Overall, we classify 6.7% of the parental couples as "sources of hope":

- Couples in which only the mother works in a SRInf occupation, but cannot work from home (1.0% of all parental couples), and
- couples in which only the father works in a SRInf occupation and both partners hold WfH-compatible jobs (2.8% of all parental couples), and finally
- couples in which no partner works in a SR profession, but both are employed in WfH-compatible full-time jobs (2.9% of all parental couples).

Change in emergency care specification: two-parent rule also in SRHealth professions

If we change our assumptions regarding parents' access to emergency care as described in Section 2, and now assume that couples in which only one parent works in a SRHealth occupation *does not* have access to emergency care, then slightly more couples can be classified as "sources of hope". In particular, parent couples in which the **mother works in a SRHealth profession and the father is employed in a WfH-compatible NSR occupation come into consideration** as additional **sources of hope**; this is 3.8% of all couples. At the same time, 75.8% (approx. 22.8%) of this subgroup are couples with a male main wage earner (**couples with dual full-time employment**). Consequently, the mother appears to have a larger time budget than the father in a large proportion of the couples, which reduces the pressure on the father to adapt. The father's income and educational advantage, which is just as average in these couples as the paternal gender role attitudes, can do little to counteract this. In total, we assume that only **0.9% additional couples** meet our requirements as "sources of hope". This means that the number of parental couples as hopefuls will increase at most to a share of **7.6%** if we amend the emergency care rule as described above.

6. Summary and Outlook

Our analyses show that, in addition to the relative time budget of the partners, the income ratio and gender roles are likely relevant to the division of labor in couples and should be taken into account when forming expectations on how the pandemic affects the division of labor in parent couples. Strong hopes that are solely based on the time budget changes of the parents might therefore be disappointed. Fathers' time budgets have drastically increased during the lockdown, especially when unemployment or short-time work occurred, which—in view of the continued prevalence of the male main breadwinner model in Germany—tend to plunge families into financial turmoil. However, evidence from past crises give little reason to expect that this necessarily leads to a substantially increased paternal involvement. We therefore refrain from classifying parent couples as “sources of hope” because fathers become unemployed or get on short-time work. The hope for behavioral adjustments towards a more equitable division of labor therefore tends to lie in gradual changes—in many small steps which might occur in many couples. The focus here is on fathers that work from home. We expect them to make behavioral adjustments above all when they have sufficiently egalitarian gender role attitudes and have no or only a moderate advantage over their partners in terms of earnings and hours of (paid) work. According to our calculations, a share of about 7% of couples can be described as “sources of hope” according to these criteria. If we change the specification of access to emergency care by adopting the two-parent rule for health and care professions as well, the proportion of “sources of hope”-couples rises to about 8%. In addition, there are also couples with fathers who may make a leap in childcare due to unemployment or short-time work,²⁷ but who we deliberately do not classify as hopefuls here.

Outlook: The situation is serious, but not hopeless

Our findings offer no cause for euphoria. The situation is quite serious, but it is not hopeless. Whether the expectations expressed here will be fulfilled will depend, among other things, on the duration of the crisis.

We expect the behavioral changes to be more permanent, the longer the return to regular operation in daycare centers and schools will take. The sustainability of the learning-by-doing effects and new behavior patterns in childcare is likely to depend largely on the course of the post-lockdown phase. As soon as daycare centers and schools reopen, the need for extensive parental care will decrease, so that parents may revert to their old behavior patterns. However, the reopening of such facilities is happening rather sluggishly²⁸. As long as children attend external care sporadically rather than regularly, the compatibility situation in the couple remains tense and the pressure to adapt is thus maintained; especially as holidays and other forms of paid leave are increasingly being exhausted. The longer new routines can be practiced, the more any productivity advantage the mother may have had in childcare prior to the pandemic melts away and the more sustainable the adaptive change in behavior should be. The recently adopted measures of financial security for families²⁹ reduces the compatibility conflicts—and thus the pressure for adjustment in the couple—only to a limited extent. This applies in particular to parents in low income brackets, whose jobs are usually not WfH-compatible. Because unemployment and short-time work benefits (which are also linked to employment subject to compulsory insurance)

²⁷ In the current crisis, this applies generally to personal service professions.

²⁸ Latest calculations by the research alliance between the DJI and the Technical University of Dortmund assume that in Germany, half or more of the families will not be able to access regular care until the end of the summer holidays, i.e. until mid-August or mid-September (Rauschenbach *et al.*, 2020).

²⁹ Within the framework of the extension of the period of entitlement to compensation payments in accordance with §56 of the Infection Protection Act decided by the Federal Cabinet on 20.5.2020, 67% of the parents' income losses due to care are now reimbursed not only for 6 weeks but for a maximum of 10 (for single parents: maximum 20) weeks, and as the duration of the crisis increases, parents with entitlement to short-time working allowance will grow into the increased entitlement (from month 4 of receipt) of 77%.

only offer an income replacement rate of 67%, many parents with low incomes have to take advantage of opportunities to earn additional income.

The sustainability of the behavioral changes is both strengthened and limited by the broad effects of the pandemic. The pandemic affects the full range of families in all different family constellations. On one hand, such broad effects speak for the sustainability of the changes, since a critical mass of supporters is needed to change dominant social norms at the meta-level, which ultimately prevail over contrary impulses at the micro (couple) level (Bielby and Bielby, 1989). This distinguishes the crisis from the comparatively small group of fathers who take parental leave with lasting behavioral effects, as some studies have shown (e.g. Tamm, 2019). However, while the “daddy months” focus on the first few months after the birth of a child, during which (especially with the firstborn child) the course is set for the division of labor in the couple (Dechant and Schulz, 2014), the probability that in families with older children traditional patterns of behavior will be broken up and changed is lower. In addition, hopes based on experiences with the highly selective group of fathers who have voluntarily decided to take advantage of the paternity months (Reich, 2011; Tamm, 2019) cannot easily be transferred to fathers who have been (involuntarily) catapulted into a new role in the couple due to the pandemic.

Our cautious optimism is also based on the conviction that during the pandemic crisis learning processes take place not only in the private but also in the corporate sphere:

We expect that the sustainability of behavioral changes in the couple will be favored by multiplier effects of fathers that are also managers. As positive role models, fathers could pass on their experience with and reassessment of unpaid care work to their subordinates and colleagues and thus promote a cultural change in companies (von Alemann, Beaufays and Oechsle, 2017). This should drive the change in gender role attitudes. In quantitative terms, this effect is not negligible, as our calculations³⁰ show: 9% of all full-time fathers in our sample are managers; of those with WfH capacity, the figure is as high as 11.4%. Our data thus also confirms earlier findings of a positive association between WfH potential and management responsibility (Grunau *et al.*, 2019). In a subgroup of our sources of hope—the dual full-time couples with WfH capability—8.2% of fathers are managers. There is reason to hope that, after the end of the pandemic, these fathers will contribute to the spread of more egalitarian patterns of intra-couple division of labor with regard to childcare.

In principle, it can be assumed that learning effects take place not only in the private sphere, but also in the business sector; these should generate feedback effects in the families and thus further support the initiated change in the medium to long term. On the one hand, we assume that a *push for remote working* triggered by the pandemic will further promote gender equality in couples (see also Jessen *et al.*, 2020, Alon *et al.*, 2020). The Covid-19 crisis has led to a sharp increase in the skills and experience of employees and employers in using and implementing digital tools. This leap in knowledge regarding digital learning and work productivity at home is irreversible and, according to our expectations, will further push back the “presence culture” in companies. If this succeeds, maternal careers in particular, but also the careers of young fathers who are actively involved in family work, should benefit. This technological push will be supported by a change in job preferences during the crisis. Initial findings show that a good work-life balance is gaining in importance as a job attribute as a result of the pandemic (Baert *et al.*, 2020). On the other hand, if the current appreciation of *careers in the care sector* translates into an increased *monetary appreciation* of these professions after the crisis, a reduced gender wage gap could provide additional incentives for an alignment of the division of unpaid work in couples.

³⁰ We define managers by the fourth (“9”) and fifth (“4”) position of the KldB 2010 classification of occupations.

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Appendix

Table A.1. Descriptive Statistics of Key Variables

	Mean	Std.dev.
Married	0.863	(0.344)
<i>Focus of childcare in the couple</i>		
mother only (0% father)	0.100	(0.300)
mainly mother (1-39% father)	0.642	(0.479)
both parents (40-60% father)	0.209	(0.407)
mainly father (61-100% father)	0.049	(0.215)
Paternal share of childcare	0.269	(0.188)
<i>Employment model in the parental couple:</i>		
sole male breadwinner	0.313	(0.464)
main male breadwinner	0.424	(0.494)
both full-time employed	0.130	(0.337)
female main/sole earner	0.017	(0.131)
both unemployed or inactive	0.064	(0.246)
remaining constellations	0.051	(0.219)
Father's share of income	0.713	(0.275)
Tertiary education mother	0.355	(0.479)
Education years mother	12.91	(3.031)
Tertiary education Father	0.398	(0.490)
Educational years Father	12.84	(2.998)
Gender role attitudes mother	0.718	(0.272)
Gender role attitudes father	0.707	(0.269)
<i>N (parent couples)</i>	2,145	

Source: Own calculations based on SOEP 2018 (soep.v35), weighted.

Notes: "Remaining constellations" = both part-time, combinations of part-time employment and inactivity. Income share of father calculated as monthly gross earnings of the father in relation to the sum of the monthly gross earnings of the parent couple. Tertiary education defined as ISCED2011 level 5 or above. Gender role attitudes recorded as agreement with the statement "It is best if the man and woman are both equally employed and both take care of the household and family to the same extent", 7-point answer scale standardized to values between 0 and 1, with 1="fully agree".

Table A.2. Regulations for Emergency Care in the German Federal States during the Initial Phase of the Lockdown from Mid-March 2020 until the First Expansion of Emergency Care at the End of April

	One-parent rule	Two-parent rule
<i>Occupations of systemic relevance</i>		
in the health and care sector (SRHealth)	Bavaria, Bremen, Hesse, Rhineland-Palatinate, Saxony	Baden-Württemberg, Berlin, Brandenburg, Mecklenburg-Western Pomerania, Lower Saxony, North Rhine-Westphalia, Saxony-Anhalt, Schleswig-Holstein, Thuringia
in the infrastructure sector (SRInf)	Hesse, Rhineland-Palatinate	Baden-Württemberg, Bavaria, Berlin, Brandenburg, Bremen, Mecklenburg-Western Pomerania, Lower Saxony, North Rhine-Westphalia, Saxony, Saxony-Anhalt, Schleswig-Holstein, Thuringia

Sources: <https://www.baden-wuerttemberg.de/de/service/presse/pressemitteilung/pid/landesweite-schliessung-von-schulen-und-kindergaerten/>; <https://www.verkuendung-bayern.de/files/baymbl/2020/166/baymbl-2020-166.pdf>; <https://msgiv.brandenburg.de/msgiv/de/presse/pressemitteilungen/detail/~15-03-2020-use-specifications-for-emergency-care-in-kitas-and-hoarding>; https://www.transparenz.bremen.de/vorschrift_detail/bremen2014_tp.c.146950.de; <https://www.hamburg.de/allgemeinverfuegungen/13743812/2020-03-20-allgemeinverfuegung-kindertageseinrichtungen-kindertagespflagestellen/>; <https://www.regierung-mv.de/static/Regierungsportal/Ministerium%20f%C3%BCr%20Soziales%2C%20Integration%20und%20Gleichstellung/Dateien/Allgemeinverf%C3%BCgung%20vom%2017.04.2020%20zum%20Besuch%20von%20Schulen%20und%20Kitas.pdf>; https://www.mk.niedersachsen.de/startseite/aktuelles/basisinformationen_zu_covid_19_corona/fragen_und_antworten_zu_einrichtungsschliessung_und_notbetreuung_fur_kindertageseinrichtungen/fragen-und-antworten-zu-einrichtungss

Notes: Hamburg and the Saarland have not tied access to emergency care to the systemic relevance of parents' occupations from the outset.