

## Does Gender Ideology Matter? Pre-pandemic Gender Role Attitudes and the Division of Housework and Childcare During COVID-19 in Germany\*

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**Abstract:** Women and mothers perform the lion's share of unpaid family labor (i.e., housework and childcare) in Germany, negatively affecting their finances, time resources, opportunities in life, and mental health. The constraints brought by the COVID-19 pandemic, including the pandemic-related changes in working hours, are thought to have reorganized the division of unpaid family labor. However, changes in time availability alone cannot explain couples' heterogeneous pandemic responses. While framing the pandemic as a natural experiment, we first examine how individuals' pre-pandemic gender role attitudes (GRAs) shape the division of family labor during the pandemic. Second, we examine how individuals' pre-pandemic GRAs moderate the effect of changing working hours during the pandemic on the division of family labor.

We use Waves 11 and 13 of the German Family Panel "pairfam" to analyze two samples and questions. We examine (1) respondents in heterosexual, cohabitating relationships with and without children to study the division of housework and (2) respondents in heterosexual, cohabitating relationships living with at least one child to study the division of childcare. We find that individuals holding traditional pre-pandemic GRAs are, to some degree, more likely to have had a higher female share of family labor during the pandemic: for both housework and childcare, this association can be found for the samples as a whole, as well as for the sample with only men, but not for only women. However, the association is small and – for housework – only marginally significant.

Most notably, we find evidence for a three-way-interaction between gender, GRAs, and changes in time availability for childcare: egalitarian men who reduced working hours took on a significantly greater share of childcare than traditional men did, consistent with the idea of "gender deviance neutralization". Traditionally-oriented men might take on less female-connotated unpaid labor, as their reduced engagement in the labor market does not match their masculinity ideals. We found

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\* This article has an Online Appendix with supplementary material:  
<https://www.comparativepopulationstudies.de/index.php/CPoS/article/view/722/452>

no moderation effect of GRAs on the influence of increasing working hours during the pandemic on the division of family labor, neither for women nor men.

Our analysis provides new insights into gendered interactional processes regarding time availability and its association with the gendered division of housework and childcare in a quasi-experimental setting that reduces endogeneity. While association sizes are small, our findings support the notion of a complex interplay between gender, GRAs, and time availability in the gendered division of labor.

**Keywords:** COVID-19 pandemic • Gendered division of labor • Gender ideology • Gender equality • pairfam

## 1 Introduction

The global COVID-19 pandemic, which arrived in Germany mid-March 2020, featured many episodes of country-wide containment measures such as social distancing requirements, curfews, closures of businesses, schools, and formal childcare facilities. The constraints on outsourcing housework and childcare, as well as pandemic-related employment transitions such as reduced or increased paid working hours and working from home arrangements, re-organized the division of family labor (i.e., housework and childcare) and particularly affected families with small children (Kohlrausch/Zucco 2020; Kreyenfeld/Zinn 2021). With these unforeseen changes and external constraints, the COVID-19 pandemic represents an unprecedented “natural experiment” to investigate the behavior of families while reducing endogeneity usually complicating research on the gendered division of labor (Naujoks et al. 2022; Danzer et al. 2021; Hudde et al. 2022). The “gendered division of labor” refers to the often gender-stratified distribution of paid and unpaid labor within heterosexual couples, with women taking over the lion’s share of unpaid labor (Lachance-Grzela/Bouchard 2010). Unpaid family labor is typically separated into housework and childcare responsibilities. Housework is considered as the more feminine and unfulfilling task, while childcare is rated as more desirable and meaningful (Sullivan 2013).

There is much research examining how couples distributed family labor during the pandemic, including (additional) housework, childcare, and homeschooling. Multiple studies have found that women in Germany, particularly mothers, took over the lion’s share of family labor while reducing their hours in paid employment (e.g., Kohlrausch/Zucco 2020, Danzer et al. 2021). This trend increased the concern about a pandemic-related “re-traditionalization of gender roles” in Germany (Allmendinger 2020). In contrast, other studies found that men, especially fathers, stepped in more than they had before the pandemic (Kreyenfeld/Zinn 2021), leading to a more gender-equal division of family labor, especially with regard to childcare. Following time availability theory, which assumes that the partner with the greater time availability performs more unpaid labor (Bianchi et al. 2000; Kalleberg/Rosenfeld 1990), we argue that due to pandemic-related employment transitions that increased fathers’

time availability – such as short-time work (i.e., temporarily reduced working hours; furlough), unemployment, or working from home – fathers had the ability to take over more childcare responsibilities than before the pandemic (*Jessen et al.* 2021).

How family labor is distributed, especially during times of crisis, can have major implications for women's and men's well-being, financial and time resources, and mental health (*Hiekel/Kühn* 2024). Still, the exact mechanisms behind couples' division of labor remain unclear: The ambiguity of findings regarding the gendered division of family labor both before (*Grunow* 2019; *Perry-Jenkins/Gerstel* 2020) and during the pandemic (e.g., *Hank/Steinbach* 2020) has shown that time availability and changes therein alone cannot explain why the division of unpaid family labor is gendered. One major shortcoming of the time availability approach is its assumption of gender-neutrality (*Dominguez-Folgueras* 2022). Following *Risman* (2018), we acknowledge how "gender as a social structure" is a multi-level stratification system operating on the individual-, interactional-, and macro-level. The interactional perspective of "doing gender" (*West/Zimmermann* 1987) assumes that individuals act according to gender expectations connected to their sex category. Going further, approaches of "gender display" (*Brines* 1994) assume that in cases of non-gender-normative behavior, such as female breadwinning, individuals aim to reinforce their gender identity by acting accordingly to gender norms in other domains. Building on this, theories around "undoing gender" (*Deutsch* 2007), "gender ideology theory" (*Davis/Greenstein* 2009) and "(gender) deviance neutralization" (*Greenstein* 2000; *Bittman et al.* 2003) assume that to what extent individuals "do" and "display" gender is influenced by their gender ideology, operationalized by gender role attitudes (GRAs).

To analyze the impact of GRAs on the division of family labor in the setting of a natural experiment, we examine the following research questions:

1. How did pre-pandemic GRAs influence the division of family labor during the pandemic?
2. How did pre-pandemic GRAs moderate the influence of COVID-19 pandemic-related changes in time availability on the division of family labor during the pandemic?

We analyze data from the German Family Panel "pairfam" using the regressor variable method (*Allison* 1990). Our study contributes to the literature in multiple ways. First, we add another country to already existing studies on the influence of pre-pandemic GRAs on the division of family labor during the pandemic (e.g., *Hudde et al.* 2022, for the UK). Second, this study provides insights into both housework and childcare and related micro-level mechanisms. Third, by studying the interaction between gender, GRAs, and changes in time availability, we add insights on how gender and gender ideology influence the effect of time availability on the division of unpaid family labor, while the literature has largely focused on the interaction with relative income (*Brines* 1994; *Greenstein* 2000; *Bittman et al.* 2003; *Aassve et al.* 2014). Fourth and finally, focusing on the pandemic context reduces endogeneity issues that usually affect research on families, especially regarding changing time availability. Hence, conclusions drawn from this study also contribute to research on the division of family labor beyond the pandemic context, as it offers insights on the interplay between gender, GRAs, and time availability.

## 2 Background

### 2.1 The macro-level: Institutional settings and gender norms in Germany

We focus on the micro-level, however, as *Risman* (2018) and others (*Grunow* 2019; *Dominguez-Folgueras* 2022; *Scarborough/Risman* 2017) theorize, gender is a multi-level stratification system and the macro-level context is likely influential for and interacts with micro-level attitudes and behavior. Therefore, in the following, we describe the macro-level context of Germany. Following *Risman* (2018), we describe both “material” and “cultural” macro-level settings, including institutional influences as well as hegemonic beliefs such as gender norms.

In this respect, Germany is an interesting case study because of its different policies that either foster or tackle gender equality in the family (*Nitsche/Grunow* 2018). While after reunification Germany aimed to reduce gender inequality in the family with policies such as childcare expansions and the introduction of a father quota in the early 2000s (*Gangl/Ziefle* 2015), other remaining institutional structures still foster “male breadwinner” or “one and a half earner” models, such as joint taxation for married couples and comparably long parental leaves mostly taken by mothers (*Fauser* 2019). Consequently, while women’s labor force participation is generally high, the entry into parenthood marks a major change for female labor market behavior: Mothers often either drop out of the labor force entirely or remain in part-time employment, leading to a large gap between maternal and non-maternal employment (*Nitsche/Grunow* 2018; *Jessen et al.* 2024). Following the historical divide into the German Democratic Republic and the Federal Republic of Germany, women in East Germany continue to have a higher full-time employment rate, also as mothers, and institutionalized childcare is more widely available than in West Germany (*Zoch/Hondralis* 2017).

Regarding cultural macro-level influences, a widely accepted male breadwinner norm remains strong in Germany (*Sullivan* 2013), particularly in relation to attitudes about maternal employment (*Nitsche/Grunow* 2018). In line with the former East/West divide, differences in gendered norms and practices between East and West Germany persist. While both regions have moved towards egalitarianism, traditional attitudes are more prevalent in West Germany (*Kleinschrot* 2024). In conclusion, both material and cultural macro-level influences are connected to the gendered division of labor in Germany. Despite the differences between East and West Germany, the division of labor within heterosexual couples remains gendered in both regions (*Jessen et al.* 2024).

### 2.2 The COVID-19 pandemic in Germany

The COVID-19 pandemic imposed many external macro-level constraints, leading to an increase of all family labor responsibilities on the micro-level. Housework responsibilities grew due to the unavailability of external support services and people having to spend more time at home. Childcare responsibilities increased due to the

closures of childcare facilities and additional tasks such as home-schooling. Informal childcare became inaccessible when social contacts were limited. Additionally, pandemic-related employment transitions including unforeseen changes in paid working hours influenced individuals', couples', and families' lives. The severity of these external constraints varied across time. During periods of high infection numbers, lockdowns were introduced, including stricter containment regulations such as school and business closures, social distancing rules, and curfews. In the timeframe covered in this study, a so-called "lock-down light" (2 November – 16 December 2020) as well as a more restrictive lockdown was active (16 December 2020 – May 2021) (*Bundesministerium für Gesundheit* 2023).

The findings regarding family labor arrangements in Germany during the pandemic are ambiguous. Some studies found a trend of "re-traditionalization," with women stepping in more regarding both housework and childcare (e.g., *Illing et al.* 2022; *Kohlrausch/Zucco* 2020; *Naujoks et al.* 2022; *Zoch et al.* 2021; *Zucco/Lott* 2021). Others found a relative increase in paternal involvement and thus greater gender equality (i.e., "equalization") in labor arrangements, especially with regard to childcare (e.g., *Bujard et al.* 2020; *Globisch et al.* 2022; *Jessen et al.* 2021; *Kreyenfeld/Zinn* 2021; *Zinn et al.* 2020). Further studies found stability regarding pre-pandemic arrangements (e.g., *Boll et al.* 2021; *Hank/Steinbach* 2020; *Möhring et al.* 2020; *Zucco/Lott* 2021). In absolute terms, all studies agree that before and during the pandemic, women and especially mothers shouldered the lion's share of housework and childcare (*Bujard et al.* 2020), which influenced their well-being during the pandemic as domestic responsibilities increased (*Hiekel/Kühn* 2024).

In Germany, the household division of labor during the pandemic was determined by factors such as employment transitions, income, levels of education, the phase of the pandemic, and the age of co-resident children. Most of these factors had different implications for men and women. Considering changes in paid working hours, *Hank and Steinbach* (2020) found that if only men decreased their working hours, women's shares of housework and childcare decreased. Likewise, if only men increased their working hours, the female share of housework, but not of childcare, increased. In contrast, changes in women's working hours were not associated with changes in their shares of housework and childcare. *Zoch et al.* (2021) found that a reduction in mothers' working hours led to more exclusive maternal care, but an increase in mothers' working hours did not lead to less exclusive maternal care. Hence, changes in time availability alone cannot explain couples' heterogeneous responses to the pandemic.

### **2.3 The micro-level: GRAs, time availability, and the gendered division of labor**

On the individual and interactional level, two main theoretical branches are used to explain couples' division of labor: (1) economy-based approaches including resource-bargaining theory and the time availability approach and (2) social-psychological approaches, including gender perspectives (for an overview, see *Perry-Jenkins/Gerstel* 2020). These approaches are assumed to operate alongside one another

(Dominguez-Folgueras 2022). In this study, we examine the sole influence of individual gender ideology as well as the interaction between individual gender ideology and pandemic-related changes in time availability. As we can assume that time availability and gender ideology are themselves gendered (Dominguez-Folgueras 2022), we expect gender stratification. In the following, we briefly summarize all relevant micro-level theories.

Resource-bargaining theory assumes that external resources such as income or education can be translated into bargaining power, which is in turn used to negotiate oneself out of performing unpaid family labor (Blood/Wolfe 1960). This approach is supported by studies that find a negative linear effect of the woman's (relative and absolute) income on her share of unpaid labor (e.g., Gupta 2006; Sullivan/Gershuny 2016). Nevertheless, some other studies find a curvilinear relationship, with women who earn more than their male partner performing more unpaid labor than expected by the theory (Greenstein 2000; Killewald/Gough 2010).

According to the time availability approach, partners who spend more time in gainful employment perform less family labor (Bianchi et al. 2000; Kalleberg/Rosenfeld 1990). Pandemic-related changes in paid working hours influenced the time availability of women and men. Common changes in working hours during the pandemic included being laid off, in short-time work (furloughed), or working increased hours in critical sectors such as health care or supermarkets (so-called "system-relevant" jobs). As women more often work in system-relevant jobs, women were more likely to increase their working hours, especially early in the pandemic (Hipp/Bünning 2021). During this time, men were more likely to be furloughed or laid off (Möhring et al. 2021). Later in the pandemic, women were more likely to reduce their working hours than men were (Zucco/Lott 2021).

Time availability was found to significantly influence the division of family labor, with full-time employed men and women performing less housework than part-time or unemployed men and women (Aassve et al. 2014). Fauser (2019) found support for the time availability approach in Germany using longitudinal data and examining unemployment shocks as a way to reduce endogeneity. This approach is comparable to ours. However, among couples in which both partners had similar time availability, women still performed a greater share of family labor (Lachance-Grzela/Bouchard 2010). Therefore, and because of gendered time allocations, the time availability approach was criticized for its assumed gender neutrality (Dominguez-Folgueras 2022). Another criticism of the theory is its unclear causal order: Instead of labor market hours influencing unpaid labor, hours spent on unpaid labor might also affect labor market hours (Samtleben/Müller 2022; Carriero/Todesco 2018), and women might self-select into specific time availability patterns with the expectation of needing to reconcile work and family (Dominguez-Folgueras 2022). As an exogenous shock, the pandemic context reduces some of this endogeneity (Hudde et al. 2022).

As highlighted by gender perspectives, the role of gender cannot be neglected when examining heterosexual couples' behavior (Risman 2018). The interactional "doing gender" approach by West and Zimmermann (1987) assumes that women and men act according to gendered norms, especially in romantic relationships.



Hence, the “doing gender” approach assumes that women and men engage in behavior that matches gendered expectations, which traditionally entails paid labor for men and unpaid labor such as housework and childcare for women (Brines 1994; West/Zimmermann 1987).

However, West and Zimmermann’s “doing gender” approach has been criticized for emphasizing the reproduction of gender at the expense of examining change in such roles (Deutsch 2007; West/Zimmerman 2009). Deutsch (2007) argues that the approach underestimates how gender is “undone” in everyday interactions if individuals reflect upon internalized gender norms. Building on this critique, we assume that individuals’ attitudes affect to what extent they “do gender.” Specifically, Davis and Greenstein (2009) assume that individual gender ideology influences the division of labor, with traditional attitudes supporting the “male breadwinner” model and egalitarian attitudes supporting a gender-equal division of labor.

While gender ideology has long been treated as a unidimensional construct, more recent research acknowledges the multidimensionality of gender ideologies, which consist of different attitudes (Grunow et al. 2018; Knight/Brinton 2017; Begall et al. 2023). Thereby, GRAs concerning one dimension of gender equality (e.g., on male breadwinning) do not necessarily reflect other GRAs (e.g., on male supremacy).

Prior to the COVID-19 pandemic, evidence for the influence of individual GRAs on the division of housework has been found in multiple studies (e.g., Knudsen/Waerness 2008; Aassve et al. 2014). For Germany, Nitsche and Grunow (2016) found that a more gender-egalitarian ideology held by either the man or the woman predicts a more gender-equal division of housework. During the pandemic, Hudde et al. (2022) found no evidence that individual pre-pandemic GRAs affected couples’ divisions of housework in the UK. For Germany, we formulate the following hypothesis:

*H1 Traditional pre-pandemic GRAs were associated with a change towards a greater female share of family labor during the pandemic.*

More recently, scholarly attention has been paid to the fact that not only individuals’ gender ideology influences the division of labor, but also partners’ joint gender ideologies (e.g., Nitsche/Grunow 2018; Wang/Hu 2025). Both Nitsche and Grunow (2018) as well as Wang and Hu (2025) find that women perform the smallest share of unpaid labor in couples in which both partners hold egalitarian attitudes. Therefore, we test the interaction of both partners’ GRAs as a robustness check for H1.

Building on “doing gender,” “gender display” approaches (Brines 1994) have been used to explain why individuals do gender in unpaid labor in non-gender-norm-conforming labor market settings (e.g., female breadwinners). This approach hypothesizes that women and men aim to “display gender” to reinforce their gender identity, e.g., through housework, especially in cases of deviance from gender norms regarding labor market behavior. “Gender display” is used to explain the previously mentioned curvilinear relationship between a woman’s relative income and her engagement in unpaid labor: if the woman is the main earner, “gender display” predicts that she does more unpaid labor to compensate for her otherwise non-gender-norm-conforming behavior. Likewise, financially dependent men are assumed to perform less unpaid labor than economic theories would predict, in

order to reinforce their masculine identity, which is challenged by their financial dependence.

To stress the importance of individual gender ideology for "gender display," the process of "gender display" has been specified as "deviance neutralization" (Greenstein 2000) and "gender deviance neutralization" (Bittman et al. 2003). Hence, "gender deviance neutralization" approaches assume that especially traditional women and men aim to "display gender" in settings of non-gender-norm-conforming labor market behaviors, such as female breadwinning or male financial dependence.

Evidence on "gender display" in non-gender-normative income settings is mixed: Some studies have found a curvilinear relationship between the woman's income and share of housework (Greenstein 2000; Aassve et al. 2014), others summarize that evidence on "gender display" and "gender deviance neutralization" regarding relative income is inconsistent (Sullivan 2011). In contrast to relative income, how time availability and gender ideology interact is far less researched and a main contribution of our study.

Many people experienced a change in working hours during the COVID-19 pandemic. The time availability approach predicts that those who spent less time in the labor market will perform more family labor. However, due to gendered differences in the influences of time availability and the heterogeneous pandemic responses of couples, gender and GRAs may moderate this effect, with women and men either "doing" or "undoing" gender or "neutralizing gender deviance." We thus formulate two "doing/undoing gender" interaction hypotheses (H2a and H2b) and two "gender deviance neutralization" interaction hypotheses (H3a and H3b):

We expect traditionally-oriented individuals to "do gender" when time availability changes in gender-normative patterns:

H2a *If traditionally-oriented women reduced their paid working hours during the pandemic, they increased their share of family labor more strongly than egalitarian women did.*

Similarly,

H2b *If traditionally-oriented men increased their paid working hours during the pandemic, they decreased their share of family labor more strongly than egalitarian men did.*

Assuming symmetrical effects, the same hypotheses could be reformulated focusing on egalitarian persons and how they "undo gender."

In non-gender-norm-conforming time availability patterns, individuals may aim to "neutralize gender deviance", especially if they hold traditional attitudes (Greenstein 2000):

H3a *If traditionally-oriented women increased their paid working hours during the pandemic, their share of family labor decreased less strongly than when egalitarian women increased their hours.*

Likewise,

H3b *If traditionally-oriented men reduced their paid working hours during the pandemic, they took on less family labor than egalitarian men did.*



### 3 Data and methods

#### 3.1 Data and samples

In our analyses, we use Waves 11 and 13 from Release 13.0 of the German Family Panel “pairfam” (Brüderl *et al.* 2022a; Huinink *et al.* 2011). Pairfam is a representative multi-actor panel study launched in 2008. The initially 12,000+ anchors (i.e., primary respondents) were randomly drawn from four nationally-representative birth cohorts: 1971-1973, 1981-1983, 1991-1993, and 2001-2003. Wave 11 was conducted from October 2018 to May 2019 and contains 9,435 computer-assisted personal interviews (CAPIs). Wave 13 was conducted from October 2020 to April 2021 and contains 7,009 interviews. During the pandemic, data was collected using a mixed-mode strategy including computer-assisted telephone interviews (CATIs).

We analyze two balanced panel samples of anchor respondents who participated in Waves 11 and 13: a “housework sample” (including coupled parents and non-parents) and a sub-sample of the housework sample, the “childcare sample” (including only coupled parents living with at least one child). The samples include respondents older than 18 years in Wave 11 and living in a cohabitating (married and unmarried) heterosexual relationship in both waves. We only keep respondents who were employed in Wave 11. Respondents who did not answer the relevant items concerning their GRAs, their division of family labor, or their employment hours were dropped. The final housework sample contains  $N = 2,488$  respondents, and the childcare sub-sample contains  $N = 1,512$  respondents.

Information on partners’ GRAs would be valuable for our research questions (Wang/Hu 2025; Nitsche/Grunow 2018). While pairfam does offer partner data, unfortunately, case numbers are nearly halved after merging partner data to our samples (housework sample:  $N = 1,278$ ; childcare sample:  $N = 807$ ) which matches pairfam’s partner participation rate (Brüderl *et al.* 2022b). We thus do not include partner data to our main analyses. However, we analyze the influence of both partners’ GRAs as a robustness check for H1 (see Online Appendix Fig. A1-A4 and Tables A4-A7). In the main analyses testing Hypotheses 2a-3b, we control for partner working hours, as this information is included in the anchor data set. Due to missing information on this variable, sample sizes are slightly reduced for these models (housework sample:  $N = 2,205$ ; childcare sample:  $N = 1,336$ ). However, our results remain robust to when not including partner working hours.

#### 3.2 Variables

The dependent variable in all analyses is the female share of couples’ family labor, namely housework (e.g., laundry, cooking, and cleaning) and childcare. For both kinds of family labor, respondents in relationships were asked who performs these tasks: “(almost) completely my partner”, “for the most part my partner”, “split about 50/50”, “for the most part me”, and “(almost) completely me”. We recoded the items, so that a value of (1) indicates that (almost) no work is done by the woman, and a value of (5) indicates that (almost) all work is done by the woman.

To account for a possible “sex perception bias” (i.e., men reporting a more gender-equal division of family labor than women; *Jessen et al.* 2021) as well as the likely interaction of gender with GRAs (*Dominguez-Folgueras* 2022), we controlled for gender in the analyses and additionally estimated separate models for women and men.

The main independent variable is the respondents’ pre-pandemic gender ideology, operationalized by GRAs. Pairfam contains four GRA items:

- 1) “Women should be more concerned about their family than about their career.”
- 2) “Men should participate in housework to the same extent as women.”
- 3) “A child younger than six will suffer from having a working mother.”
- 4) “Children often suffer because their fathers spend too much time at work.”

Respondents could answer each item on a range from 1 (“completely disagree”) to 5 (“completely agree”). As gender ideologies are assumed to be multidimensional (*Grunow et al.* 2018; *Knight/Brinton* 2017), we refrained from building an additive index (Cronbach’s  $\alpha = 0.5$ ) and used individual GRA items, following other research on the influence of GRAs (e.g., *Nitsche/Grunow* 2016, 2018; *Hiekel/Ivanova* 2022). We follow the recommendation of choosing an item that is closely linked with the examined behavior (i.e., housework and childcare) (*Carriero/Todesco* 2018). Therefore, we relied on item (2) to operationalize attitudes around the division of housework. To operationalize attitudes concerning childcare, we used item (1). As a robustness check, we also use item (3) to operationalize attitudes concerning childcare. The items were recoded where necessary so that they all range from 1 (egalitarian) to 5 (traditional).

To ease the interpretation, we created dummy variables: We categorized respondents with a value of 1 or 2 as “egalitarian,” and all others as “traditional” (following *Nitsche/Grunow* 2016; *Hiekel/Ivanova* 2022). GRA item (2) is more strongly skewed towards egalitarianism than the other items are (see Table 1). To account for this, as a robustness check, we use a dummy variable in which only respondents with a value of 1 are classified as “egalitarian” and all others as “traditional” (here, nearly half of the sample holds a traditional attitude, see Table A4).

The other main independent variable is the pandemic-related change in paid working hours. To assess the change in working hours, we subtracted the weekly hours worked in Wave 13 from the weekly hours in Wave 11 and created a categorical variable with three categories: “no change” (no difference,  $\pm 1$  hour), “reduced hours” ( $>1$  hour weekly reduction), and “increased hours” ( $>1$  hour weekly increase).

In the models, we control for the birth cohort of the respondents, their educational level, whether they reside in East or West Germany, and the number of co-resident children. We also control for different levels of COVID-19 containment measures during Wave 13 data collection. In the models concerning childcare division, we control for the age of the youngest child. In the models concerning Hypotheses 2a, 2b, 3a, and 3b, we additionally control for the partner’s weekly working hours.

Table 1 provides descriptive statistics for the dependent and independent variables; separately for both samples, for the entire sample, and separated by gender. In both samples, the female shares of family labor (housework and childcare)

significantly decreased over time (i.e., -0.06 and -0.08 points, respectively, on the 1-5 scale); hence, on average, the division of family labor became more gender equal.

**Tab. 1:** Descriptive statistics for both samples

Variable	Housework sample			Childcare sample		
	All (n=2,488)	Women (n=1,285)	Men (n=1,203)	All (n=1,512)	Women (n=753)	Men (n=759)
<i>Female share of family labor, W11</i>	3.74	3.81	3.67	3.65	3.68	3.63
<i>Female share of family labor, W13</i>	3.68	3.76	3.61	3.57	3.62	3.52
<i>Change in female share of family labor</i>	-0.06***	-0.05*	-0.06***	-0.08***	-0.06*	-0.10***
<i>GRAs: W11:</i>						
Egalitarian	0.83	0.84	0.81	0.45	0.46	0.45
Traditional	0.17	0.16	0.19	0.55	0.54	0.55
<i>Change in hours in employment, anchor:</i>						
No change	0.37	0.34	0.39	0.36	0.32	0.40
Reduced hours	0.33	0.31	0.36	0.32	0.27	0.37
Increased hours	0.30	0.35	0.25	0.32	0.41	0.23
<i>Partner's weekly working hours: W13</i>	36.91	41.88	30.76	35.65	42.28	27.95
<i>Region:</i>						
West Germany	0.73	0.73	0.73	0.29	0.28	0.30
East Germany	0.27	0.27	0.27	0.71	0.72	0.70
<i>Cohort:</i>						
1991-93	0.19	0.20	0.18	0.05	0.04	0.06
1981-83	0.45	0.43	0.47	0.57	0.60	0.54
1971-73	0.36	0.37	0.35	0.38	0.36	0.40
<i>Education W11:</i>						
Low & medium	0.52	0.54	0.50	0.51	0.54	0.48
High	0.48	0.46	0.50	0.49	0.46	0.52
<i>Number of children W13:</i>						
0	0.29	0.30	0.28	-	-	-
1	0.23	0.22	0.23	0.25	0.26	0.25
2	0.36	0.35	0.36	0.56	0.55	0.56
3 or more	0.12	0.12	0.12	0.19	0.19	0.19
<i>Age of youngest child: W13</i>	-	-	-	8.22	9.18	7.28
<i>Pandemic conditions W13:</i>						
Lockdown light	0.50	0.50	0.49	0.47	0.48	0.47
Lockdown hard	0.50	0.50	0.51	0.53	0.52	0.53

Note: The numbers shown are the means of the respective variables. For categorical variables, the shown numbers represent the proportions of the categories.

FL=Family labor (housework and childcare); Level of t-tested mean difference (for change):

\*  $p < 0.10$ , \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Source: pairfam, own calculations.

### 3.3 Methods

We apply the regressor variable method (*Allison 1990; Taris 2000*) to estimate the change in the division of family labor, which is based on OLS regression. Conceptually related to the change score approach, the regressor variable method regresses the pre-treatment (i.e., pre-pandemic) outcome variable on the post-treatment outcome variable in order to control for path dependency and floor and ceiling effects (*Allison 1990*). The dependent variable is the division of family labor during the pandemic. By controlling for the division of family labor prior to the pandemic, the coefficients of the other variables can be interpreted as the change of the dependent variable net of the previous level of the dependent variable.

The model can be written as (*Allison 1990: 100*):

$$Y_{i2} = \alpha + \beta Y_{i1} + \delta X_i + \varepsilon_i \quad i = 1, \dots, n;$$

where  $Y_{i2}$  is the estimated division of family labor (housework and childcare) during the pandemic (W13),  $Y_{i1}$  is the division of family labor prior to the pandemic (W11),  $X_i$  is the individual GRA prior to the pandemic (W11), and  $\varepsilon_i$  are random disturbances. It should be noted that in our analysis, unlike in *Allison (1990)*,  $X$  is not measured in between  $Y_1$  and  $Y_2$ , but at  $Y_1$  for pre-pandemic GRAs and at  $Y_1$  and  $Y_2$  for estimating the change in working hours.

We test each of the hypotheses in the housework and in the childcare sample separately. Hence, our dependent variable is the female share of housework or the female share of childcare. In all models, we estimate cluster robust standard errors to account for heteroscedasticity and serial correlation.

To test Hypotheses 2a, 2b, 3a and 3b (i.e., the moderating effect of GRAs on the effect of changing working hours on the female share of family labor for women and men), we estimate a three-way interaction between a change in working hours, pre-pandemic GRAs, and gender. For better interpretation, we estimate the conditional average marginal effects (AMEs) of pre-pandemic GRAs for all categories of changes in paid working hours and separated by gender. Interpreting the conditional AMEs of pre-pandemic GRAs allows us to assess whether there are significant differences in the influence of changing hours for traditional compared to egalitarian women and men. The detailed regression results and AMEs can be found in Online Appendix Tables A1-A3.

As for robustness checks regarding GRA operationalization (Online Appendix Tables A8-A10 and Fig. A5-A8), we account for the partner's GRAs by interacting them with the anchor's GRAs (following *Wang/Hu 2025; Hudde et al. 2022*) (Online Appendix Tables A4-A7 and Fig. A1-A4).

## 4 Results

### Hypothesis 1: Main effects

First, we test whether traditional pre-pandemic GRAs are associated with a more traditional division of family labor (i.e., a higher female share) during the pandemic (H1). Table 2 examines the division of housework and Table 3 the division of childcare.

Table 2 shows that traditional pre-pandemic GRAs are associated with a change in the division of housework towards a more traditional distribution during the pandemic, adjusted for the control variables. However, the positive association of traditional pre-pandemic GRA with the female share of housework is small and only marginally statistically significant for the full sample ( $p = 0.09$ ) and for men ( $p = 0.06$ ), and insignificant for women ( $p = 0.58$ ). The largest association size can be found for men (0.10). In conclusion, we find weak support for H1 regarding housework.

Table 3 shows that traditional pre-pandemic GRAs are also associated with a change in the division of childcare towards a more traditional distribution during the pandemic. The association of a traditional pre-pandemic GRAs are statistically significant for the entire sample ( $p = 0.03$ ) and for men ( $p = 0.04$ ) and insignificant for women ( $p = 0.25$ ). Hence, concerning childcare, we find partial support for H1, specifically for men.

The robustness checks for operationalizing gender ideology reveal that accounting for the skewness of the housework GRA item yields robust results (Fig. A5), while using an alternative childcare GRA item yields insignificant results (Table A10), supporting the assumption of multidimensional gender ideologies. Similarly to other research (Wang/Hu 2025; Nitsche/Grunow 2018), the robustness checks in the Online Appendix concerning the interaction of both partners' GRAs highlight that individual attitudes do not operate in isolation, but are also shaped by the relational context of the couple.

### Hypotheses 2a and 3a: GRAs and changing working hours for women

Hypotheses 2a, 2b, 3a, and 3b assume a three-way-interaction between pre-pandemic GRAs, gender, and changes in working hours determined the division of family labor during the pandemic. For easier interpretation, we show plots of the conditional AMEs of traditional GRAs on the division of family labor by changes in working hours and gender. Throughout the text, we report the conditional AMEs of traditional GRAs as well as the corresponding p-value.

Hypothesis 2a suggests that traditional women who reduce their working hours will increase their share of family labor more strongly than egalitarian women as a way to "do gender." Hypothesis 3a suggests that traditional women will reduce their share of family labor less strongly when increasing working hours compared to egalitarian women as a way to "neutralize gender deviance."

Figure 1 shows the conditional AMEs of women's traditional GRAs by changing working hours in the housework sample. Supporting Hypothesis 2a, traditional women indeed perform marginally significantly more housework (0.18;  $p = 0.07$ )

**Tab. 2:** OLS regressions with the female share of housework (W13) as the dependent variable; housework sample

DV: Female share of housework W13	All	Men	Women
<i>Female share of housework W11</i>	0.52*** (0.00)	0.53*** (0.00)	0.51*** (0.00)
<i>GRA W11 (ref. egalitarian)</i>			
Traditional	0.07+ (0.09)	0.10+ (0.06)	0.03 (0.58)
<i>Education (ref. low &amp; middle)</i>			
High	-0.05+ (0.07)	-0.03 (0.48)	-0.07+ (0.07)
<i>Number of children (ref. 0)</i>			
1	0.12** (0.00)	0.13* (0.02)	0.11+ (0.06)
2	0.11** (0.01)	0.08 (0.13)	0.13* (0.02)
3+	0.18*** (0.00)	0.14+ (0.06)	0.22** (0.00)
<i>Lockdown (ref. lockdown light)</i>			
Hard lockdown	0.00 (0.86)	0.03 (0.46)	-0.02 (0.67)
<i>Birth cohort (ref. 1991-93)</i>			
1981-83	-0.09* (0.03)	-0.12* (0.04)	-0.07 (0.23)
1971-73	-0.02 (0.64)	-0.04 (0.50)	-0.00 (0.98)
<i>Gender (ref. male)</i>			
Female	0.078** (0.00)		
<i>Region (ref. West Germany)</i>			
East Germany	-0.092** (0.00)	-0.15*** (0.00)	-0.04 (0.38)
Constant	1.69*** (0.00)	1.66*** (0.00)	1.79*** (0.00)
Observations	2488	1203	1285

Note: DV = dependent variable; p-values in parentheses;

\*  $p < 0.10$ , \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Source: pairfam, own calculations.

when working reduced hours than egalitarian women. Unlike our expectation in Hypothesis 3a, there is no difference in the change of the female share of housework between traditional and egalitarian women who increased their paid working hours. In conclusion, the “doing gender” hypothesis (H2a) for housework is weakly



**Tab. 3:** OLS regression with the female share of childcare (W13) as the dependent variable; childcare sample

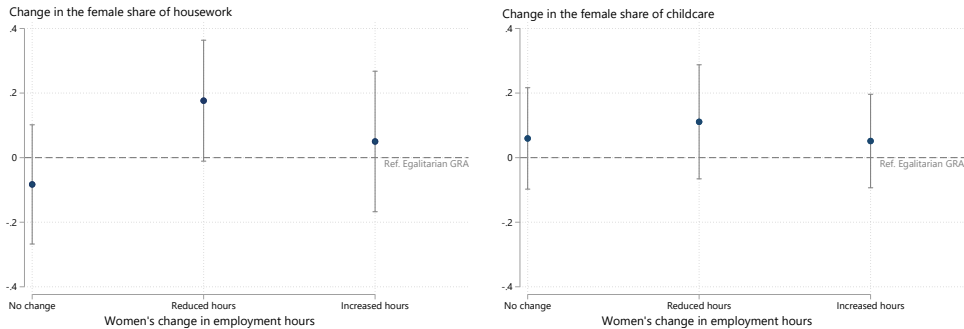
DV: Female share of childcare W13	All	Men	Women
<i>Female share of childcare W11</i>	0.39*** (0.00)	0.36*** (0.00)	0.42*** (0.00)
<i>GRA W11 (ref. egalitarian)</i>			
Traditional	0.07* (0.03)	0.09* (0.04)	0.05 (0.25)
<i>Education (ref. low &amp; middle)</i>			
High	-0.03 (0.37)	0.00 (0.94)	-0.06 (0.23)
<i>Number of children (ref. 1)</i>			
2	0.06+ (0.09)	0.07 (0.19)	0.05 (0.33)
3+	0.09+ (0.08)	0.07 (0.31)	0.10 (0.16)
<i>Age of youngest child W13</i>	-0.02*** (0.00)	-0.02** (0.00)	-0.01+ (0.08)
<i>Lockdown (ref. lockdown light)</i>			
Hard lockdown	-0.01 (0.86)	-0.01 (0.76)	0.01 (0.88)
<i>Birth cohort (ref. 1991-93)</i>			
1981-83	0.01 (0.90)	0.05 (0.65)	-0.07 (0.61)
1971-73	0.12 (0.22)	0.17 (0.19)	0.02 (0.88)
<i>Gender (ref. male)</i>			
Female	0.11** (0.00)		
<i>Region (ref. West Germany)</i>			
East Germany	-0.12** (0.00)	-0.10+ (0.07)	-0.13** (0.01)
Constant	2.13*** (0.00)	2.19*** (0.00)	2.21*** (0.00)
Observations	1512	759	753

Note: DV = dependent variable; p-values in parentheses;

+  $p < 0.10$ , \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Source: pairfam, own calculations.

**Fig. 1 and 2:** Conditional AMEs with 95% confidence intervals of women's traditional pre-pandemic GRAs (baseline = egalitarian GRA) on the female share of housework (Fig. 1) and childcare (Fig. 2) by change in working hours



Note: Adjusted for all control variables.

Source: pairfam, own calculations.

supported by our findings, while the “gender deviance neutralization” hypothesis (H3a) is not.

Analogously to Figure 1, Figure 2 shows the conditional AMEs of women's traditional GRAs by changing working hours in the childcare sample. In contrast to Hypothesis 2a, traditional women do not perform significantly more childcare (0.11;  $p = 0.22$ ) when they work reduced hours than egalitarian women do. Likewise, and against our expectation in Hypothesis 3a, there is no difference between traditional and egalitarian women who increased their paid working hours. In conclusion, both Hypotheses 2a and 3a need to be rejected when considering childcare.

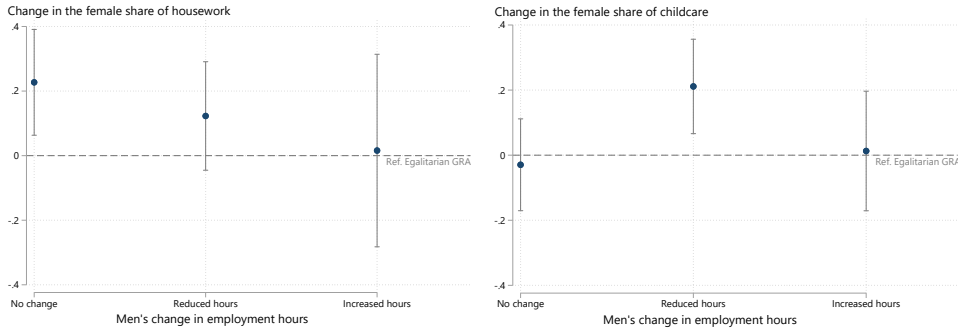
The robustness checks for the alternative gender ideology specification (Fig. A5 for housework; Fig. A7 for childcare) both show insignificant results.

### Hypotheses 2b and 3b: GRAs and changing working hours for men

Hypothesis 2b suggests that traditional men will decrease their share of family labor (and thus, increase the female share) more strongly than egalitarian men when increasing paid working hours as a way to “do gender.” Hypothesis 3b suggests that traditional men will increase their share (and thus, decrease the female share) less strongly than egalitarian men when reducing paid working hours as a way to “neutralize gender deviance.”

Figure 3 shows the conditional AMEs of men's traditional GRAs by changing working hours in the housework sample. Contrary to H2b, there is no significant difference (0.02;  $p = 0.92$ ) between traditional and egalitarian men who increase their working hours. Likewise, there is no significant difference (0.12;  $p = 0.15$ ) in the female share of housework between traditional and egalitarian men who reduced their working hours, contrary to H3b. Interestingly, only if men experienced no change in working hours the female share of housework is significantly higher (0.23;

**Fig. 3 and 4:** Conditional AMEs with 95% confidence intervals of men's traditional pre-pandemic GRAs (baseline = egalitarian GRA) on the female share of housework (Fig. 3) and childcare (Fig. 4) by change in working hours



Note: Adjusted for all control variables.

Source: pairfam, own calculations.

$p = 0.01$ ) for traditional than egalitarian men. In conclusion, both Hypotheses 2b and 3b need to be rejected for housework.

Analogously to Figure 3, Figure 4 shows the conditional AMEs of men's traditional GRAs by changing working hours in the childcare sample. Concerning Hypothesis 3b, we find no difference ( $-0.01$ ,  $p = 0.89$ ) between traditional and egalitarian men who increase their working hours. However, as hypothesized in H2b, there is a significant difference ( $0.21$ ;  $p < 0.01$ ) in the female share of childcare between traditional and egalitarian men who reduced their working hours. In conclusion, for childcare, the "doing gender" hypothesis (2b) needs to be rejected and the "gender deviance neutralization" hypothesis (3b) is supported.

The robustness checks for alternative gender ideology specifications (Fig. A6 for housework; Fig. A8 for childcare) both show similar (but partially insignificant) results.

## 5 Discussion

Using two waves of the German Family Panel "pairfam," we explored how pre-pandemic GRAs influenced the division of family labor (housework and childcare) during the COVID-19 pandemic in Germany. Additionally, we investigated whether and how pre-pandemic GRAs moderated the influence of pandemic-related changes in paid working hours and thus in time availability on the division of family labor. How the additional domestic workload was and is distributed during and beyond the pandemic has implications for finances, well-being, and mental health, especially for women and mothers who shoulder the majority of unpaid work (Hiekel/Kühn 2024).

Following Risman (2018) and Dominguez-Folgueras (2022), we assume that gender affects all levels of analysis. Derived from gender perspectives, we expect

that individuals' gender and gender ideology influence the division of labor as a way of "doing" (West/Zimmermann 1987) or "undoing" (Deutsch 2007) gender and, in interaction with time availability, can also foster "gender deviance neutralization" (Greenstein 2000; Bittman *et al.* 2003).

We approach our analysis of the division of family labor by framing the pandemic as an exogenous shock and natural experiment which minimizes endogeneity (Hudde *et al.* 2022). As expected (Hypothesis 1), we found that traditional pre-pandemic GRAs are somewhat associated with a change towards a more traditional division of family labor during the pandemic. For the division of housework, this association is marginally significant for the full sample and for men, and insignificant for women. Similarly, for the division of childcare, this association is significant for the full sample and for men, and insignificant for women. Acknowledging the small effect magnitudes and the weak statistical significance, particularly for the division of housework, pre-pandemic GRAs are not the main influence of pandemic behavior, which matches the findings of Hudde *et al.* (2022). Still, we find gender differences suggesting that GRAs seem to matter especially for men. The insignificance of women's pre-pandemic GRAs could indicate a ceiling effect in their engagement in unpaid family labor and hence their greater difficulty to synchronize lived and desired behaviors. Considering findings from Wang and Hu (2025) and our robustness checks in which we interact both partners' GRAs, the impact of individual beliefs might be conditional on the partner's orientation, reflecting the negotiated nature of unpaid labor. Hence, our results using only one partner's GRAs might be skewed.

Considering the interaction between GRAs, time availability, and gender, we expected different mechanisms: in cases of gender-norm-conforming time availability changes (i.e., women reducing or men increasing paid working hours), we expected traditional men and women to "do gender" in their family labor division (H2a and H2b). In cases of non-gender-norm-conforming time availability patterns (i.e., women increasing or men reducing paid working hours), we expected traditional women and men to "neutralize gender deviance" in their family labor division (H3a and H3b).

We find weak support for women "doing gender" when reducing hours concerning housework but not childcare, and find no support for women neutralizing gender deviance when increasing hours. Reasons for the difference between housework and childcare for women could include that housework is considered the more feminine task, while childcare is increasingly seen as objectively fulfilling and less gendered (Sullivan 2013). Fauser (2019) also finds that women especially use their increased time availability in female-connnotated housework tasks. For men, we find support for "gender deviance neutralization" concerning childcare when reducing hours, but no support for "doing gender" when increasing hours. For housework, we find no support for either hypothesis when paid working hours change. This supports the finding that paternal involvement in childcare is more diverse and dependent on circumstances than paternal involvement in housework (Sullivan 2013). This also supports other pandemic literature which found that if more gender-equal behaviors

were found, they were especially prevalent regarding childcare (e.g., *Kreyenfeld/Zinn* 2021).

We find no support for Hypotheses 2b and 3a (considering increased working hours), neither for housework, nor for childcare, which we interpret as not neutralizing gender deviance for women and not “doing gender” for men. Another explanation for this could be pandemic-related pragmatism (*Hiekel/Kühn* 2024): during the pandemic, women and men might have seen the workload increase as temporarily necessary and continued to perform their pre-pandemic share of family labor.

In conclusion, gender and GRAs should not be neglected when examining the division of family labor, especially in their interaction with time availability. Theoretically, our findings extend our understanding of “doing gender” theory by demonstrating that GRAs operate differently by gender and by the type of unpaid labor in question. Additionally, our findings provide novel insights that “gender deviance neutralization” mechanisms might also operate in response to non-norm-conforming changes in time availability, at least for men.

Our article has several limitations. A major data limitation is pairfam’s pandemic-related mixed mode strategy. Hence, a mode bias and pandemic-related selection biases cannot be ruled out. For example, it is plausible that especially time-constrained individuals who increased their working hours during the pandemic did not participate in the survey. Sample selection effects also need to be noted: For example, very traditional women might not have participated in the labor market at all and were thus excluded from the samples. Hence, any associations found might be biased by mode or selection effects. Furthermore, most association sizes were small, and, even if statistically significant, the independent variables we examine are certainly not the sole drivers of the division of family labor.

Another limitation connected to our analysis strategy is the loss of cases when merging pairfam’s partner data, which leads us to only analyze the influence of individuals’ GRAs in the main analyses, even though recent research highlights the importance of couples’ joint gender ideologies (*Nitsche/Grunow* 2018; *Wang/Hu* 2025). Considering *Wang and Hu’s* (2025) findings as well as our own robustness check in which we interact the anchors’ and partners’ GRAs, our main findings may be skewed, as individual-level data may underestimate the influence of GRAs in case of mismatching ideologies.

Another limitation to our results is that changes in working hours are likely connected to changes in income: Relative resource theory predicts that the division of family labor is determined by individual income. Hence, the effects of time availability we found could be overestimated, as we do not control for individual or relative income. We also only consider a relative measure of the division of family labor: We cannot know how many absolute hours women and men spend on family labor. Thus, even if the female share did not increase, the absolute amount of unpaid labor likely grew during the pandemic. Furthermore, future research should also incorporate measures of mental load, which became increasingly burdensome during the pandemic (*Dean et al.* 2022).

While we acknowledge the multidimensionality of gender ideology, relying on single GRA items to operationalize gender ideology has limitations: the robustness

checks show that using different specifications or alternate GRA items can yield partly inconsistent results. Future research should explore this further by testing more diverse GRA items or using latent class analysis. Surveys should also incorporate GRA items that capture broader nuances of egalitarianism. In our analyses, we assume that attitudes influence behavior. However, due to reverse causality (*Hudde et al.* 2022), associations found should not be interpreted in a causal manner. Finally, our findings are not generalizable: as macro-level contexts are highly influential for gender attitudes and behavior, cross-national comparisons are needed to examine the moderating effect of GRAs and gender on time availability patterns in different institutional settings (*Grunow* 2019).

## 6 Conclusion

Despite these limitations, our results drawn from rich, high-quality panel data show that GRAs are partly influential for the division of family labor and can moderate the influence of changes in time availability on the division of family labor in a setting with relatively low endogeneity. This adds to broader research on the gendered division of labor and the influence and interaction of gender, gender ideology, and time availability.

First, we show that pre-pandemic GRAs are somewhat associated with the division of housework and childcare during the pandemic, especially for men. Adding insights from Germany on the influence of pre-pandemic gender ideology on the division of unpaid family labor allows for cross-national comparisons (e.g., with findings by *Hudde et al.* 2022 for the UK). Additionally, we provide multiple robustness checks on the operationalization of individual gender ideology as well as on the interplay between partners' gender ideologies, which can inform future research. Second, we show that gender ideology can moderate the influence of changes in time availability on the division of family labor and that this process is gender-stratified and dependent on the type of unpaid labor. Thereby, we find support that "gender deviance neutralization" is also a relevant concept regarding time availability, at least for men. Therefore, our findings can also inform family policies aiming to increase gender equality within the family. For example, whether men take on more family responsibilities when reducing their paid working hours also depends on their gender ideology.

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### Data availability statement

*Brüderl, Josef, Sonja Drobnič, Karsten Hank, Franz J. Neyer, Sabine Walper, Philipp Alt, Elisabeth Borschel, Christiane Bozoyan, Madison Garrett, Svenja Geissler, Tita Gonzalez Avilés, Nicolai Gröpler, Kristin Hajek, Michel Herzig, Rüdiger Lenke, Renate Lorenz, Katharina Lutz, Timo Peter, Richard Preetz, Julia Reim, Barbara Sawatzki, Claudia Schmiedeberg, Philipp Schütze, Nina Schumann, Carolin Thönnissen, Katharina Timmermann & Martin Wetzel 2022: The German Family Panel (pairfam). GESIS Data Archive. ZA5678 Data file Version 13.0.0. Cologne.*

<https://doi.org/doi.org/10.4232/pairfam.5678.13.0.0>

We used Release 13.0 of the German Family Panel “pairfam.” The data collected by pairfam are accessible to the scientific community for scholarly analyses.

To access the data, a user must download an application form and indicate which data they would like to order. After entering the requested information, they can send the form to the pairfam user support office.

After the application is approved by pairfam, the scientific use file(s) will be provided by GESIS at a small charge (30€ per study, 3€ for every additional study).

Replication files for the data preparation and analyses can be found here: <https://doi.org/10.7802/2997>.

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