How Gender Role Attitudes Shape Maternal Labor Supply

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We examine the influence of gender role attitudes, specifically views about the appropriate role of mothers, on parents' labor supply decisions after childbirth. Using German panel data, we show that mothers with traditional gender attitudes are 15% less likely to work than their egalitarian counterparts during early motherhood. Conditional on working, they work four hours less, with these differences persisting for at least seven years. Fathers' attitudes predict maternal labor supply to a similar extend as mothers' attitudes, emphasizing joint decision-making within couples. We then examine how gender role attitudes interact with changes in economic incentives by looking at the introduction of a cash-for-care payment for parents who abstain from using public childcare. The policy reduced traditional mothers' labor supply substantially, but not the labor supply of egalitarian mothers. The findings underscore that gender role attitudes are of first-order importance for maternal labor supply decisions and can mediate the effects of policies. This implies that measured average policy effects cannot be easily transferred to other contexts, e.g., over time or to other countries, without accounting for differences in attitudes.

Keywords: Labor supply, Gender role attitudes, Cash-for-care

1 Introduction

A large share of remaining gender inequality in the labor market can be attributed to labor supply decisions of parents (Cortes and Pan, forthcoming). Globally, mothers participate substantially less in market work than women without children, fathers, or childless men. This has, potentially, large consequences for the long-term development of wages on the individual and aggregate economic output on the society level. Furthermore, it can negatively affect future female labor supply due to statistical discrimination of women. Nevertheless, the driving forces of parental labor supply decisions are still largely unclear.

The fact that maternal labor supply varies strongly across countries (Kleven, Landais, and Mariante, 2023) points to the role of behavioral motives like norms or attitudes. However, evidence on this channel mostly relies on group-level measures of norms, either comparing labor supply across countries (Kleven, Landais, Posch, Steinhauer, and Zweimüller, 2019), or using country of ancestry of immigrants as individual-level measure of gender attitudes following Fernández and Fogli (2009). Evidence on direct measures of attitudes is scarce. Furthermore, we know very little how gender role attitudes and economic incentives interact. If parents with traditional gender attitudes respond differently to policies than egalitarian parents, measured average policy effects cannot easily be transferred to other contexts in which gender attitudes differ, like to other subgroups of the population, over time periods, or to other countries.

This paper attempts to fill these gaps by studying how individual-level gender role attitudes shape parental labor supply decisions, with a particular emphasis on how such attitudes mediate the effect of policy changes. Using German panel data containing self-reported gender role attitudes measured before the birth of the first child, we find that gender attitudes are of first-order importance. In an event study framework around birth of the first child, attitudes of both parents play a crucial role for labor supply choices of mothers on both the extensive and intensive margin. After the introduction of a transfer which required parents to not use public childcare, labor supply of mothers with traditional gender attitudes decreased substantially, but not the labor supply of egalitarian mothers.

We measure gender role attitudes based on self-reported data in the German Family Panel (pairfam). Pairfam is an annual survey of up to 12,000 respondents and their partners. The survey contains rich information on the household composition, labor market outcomes, and values and beliefs of both partners. Gender role attitudes are elicited in eight of the fourteen waves, which allows us to measure them before the birth of the first child. We obtain measures of gender role attitudes based on agreement to three statements, e.g. 'Women should be more concerned about their family than about their career', 'Men should participate in housework to the same extent as women.', and 'A child under 6 will suffer from having a working mother.'. For ease of interpretation, we aggregate the three measures to a gender

role index and use a median split to identify 'egalitarian' and 'traditional' mothers in our main specification.[1]

In the first step of our analysis, we document the relevance of gender role attitudes for maternal labor supply decisions. We make use of an event study framework around birth of the first child (Kleven, Landais, and Søgaard, 2019). By non-parametrically controlling for life-cycle and time trends, we compare mothers to women of the same age in the same calendar year who do not have a child yet, but do so one year later. This makes sure the comparison group is as similar as possible, in contrast for instance to women who never get a child and, hence, likely differ in other aspects.

To examine the difference in the motherhood penalty by gender attitudes, we interact event time dummies with gender role attitude groups, leading to a diff-in-diff setup. Labor supply is strikingly similar for egalitarian and traditional mothers before birth of the first child, but deviates substantially thereafter: Mothers with traditional gender role attitudes are 15% less likely to participate in the labor market when their first child is one year old compared to egalitarian mothers. When the child is older, differences on the extensive margin attenuate slightly, but persist for up to seven years after child birth. Differences emerge also on the intensive margin. Conditional on working, both groups of women work slightly below 40 hours per week before the birth of the first child. Afterwards, conditional working hours drop persistently by 10 hours for egalitarian mothers, but by fourteen hours for traditional mothers.

Interestingly, gender role attitudes of the father are similarly important for maternal labor supply decisions as their own attitudes which suggests joint decision-making of couples.[2] Mothers in couples in which both partners hold traditional attitudes reduce labor supply the strongest. In line with previous findings (Kleven, Landais, and Mariante, 2023), the labor supply of fathers themselves does not react to child birth and we do not find any heterogeneity by gender role attitudes.

A challenge in the study of gender role attitudes is that it is naturally hard to study exogeneous changes in attitudes and, hence, it is typically unclear whether all observed differences are caused by the attitudes themselves. One advantage of our approach over aggregate-level measures of norms is that we can examine to what extend the observed labor supply differences between traditional and egalitarian mothers are driven by other observed characteristics. We collect several pieces of evidence that the labor supply differences in labor supply appear to reflect their attitudes. First, despite looking at a broad set of background variables, we can only

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1. We find very similar results when using other splits, e.g. in three groups. Also when looking at the three measures of gender role attitudes separately, we results are quantitatively similar for two of the three items and qualitatively similar for all of them.

2. An alternative explanation would be assortative mating which we find evidence for. However, the correlation of attitudes within couples of 0.41 seems unlikely to solely drive the high relevance of paternal attitudes as the predictive power is on a similar level as mothers' attitudes.

explain 13% of the variation in gender role attitudes, suggesting that a substantial share of the differences is unrelated to potential confounding factors. Second, in terms of household composition, both the likelihood to have a partner and the number of children at the end of the observation period are very similar with the only difference being that egalitarian mothers are one and a half years older at the time of first birth. Third, we employ a number of robustness checks to show that the results are not driven by differences in observed background characteristics. Most importantly, the results are very similar when restricting the sample on West Germany and when controlling for a set of variables which are correlated with attitudes, such as education, being religious, and the state of residence.

In the next step of our analysis, we investigate how gender role attitudes interact with changes in economic incentives. Traditional and egalitarian mothers not only differ in their labor supply choices at baseline, but they also respond differently to the introduction introduction of a cash-for-care policy ('Betreuungsgeld'). The policy was introduced in 2013 and paid a subsidy for one- and two-year old children if the parents did not use (subsidized) public childcare. The amount was 100€ per month, equaling 9% of median net income of women before birth. Given that maternal labor supply is in many households strictly tied to the use of public childcare, this policy raises the opportunity costs of working for mothers. Since the policy required that the parents do not use any public childcare, it is expected to have the strongest effect on mothers who would have taken up small levels of childcare in absence of the policy while mothers taking up full-time childcare are expected to be unaffected as long as the subsidy is not large enough to induce them to reduce their childcare take-up to zero. Mothers not taking up any childcare even without the subsidy should also not be affected by the reform.

We make use of a sharp eligibility threshold by birth date (August 1, 2012) during the introduction of the policy and compare mothers with children born in the two years before the cutoff date to those with children born in a two-year window after the threshold. We employ a triple-diff strategy comparing mothers with children below and above the age threshold by gender role attitudes around birth of the first child. We find that the policy reduced labor supply of traditional mothers by 7 hours or 40% when the child is one year old, but had no effect on the labor supply of egalitarian mothers with the difference between egalitarian and traditional mothers being statistically significant. The labor supply changes of traditional mothers are solely driven by the extensive margin, which is in line with the payment requiring that the parents do not use any public childcare. Results are robust to a range of specific changes including restricting to a balanced panel, restricting to West German mothers, and the inclusion of additional control variables.

Our paper contributes to a growing literature that highlights the relevance of gender role attitudes and gender norms for labor supply of mothers. Proxies of gender norms like the origin country or region of migrants (Fernández and Fogli, 2009; Boelmann, Raute, and Schönberg, 2021), labor supply of the grandmother (Fernán-

dez, Fogli, and Olivetti, 2004), the difference between same-sex and heterosexual couples (Andresen and Nix, 2022), or peer effects (Nicoletti, Salvanes, and Tominey, 2018; Olivetti, Patacchini, and Zenou, 2020) are related to maternal labor supply.

However, the evidence using elicited gender role attitudes on the individual level is still rather limited, especially using an event study framework around child birth.[3] Kuziemko, Pan, Shen, and Washington (2018) primarily look at changes in parental attitudes after a child is born, but also report results of a heterogeneity analysis of child penalty estimates by gender attitudes. In three data sets in the UK and the US, they do not find a significant difference although coefficients in all data sets go in the expected direction. Conversely, Rafols (2023) finds in the US that long-run child penalties are larger for mothers with traditional attitudes.[4] Our study confirms the latter results of Rafols (2023) in a country with relatively traditional gender attitudes and high part-time rates. Furthermore, we look specifically at the importance of paternal gender role attitudes and the interaction with a policy induced change in economic incentives.

One of the rare papers looking at the interaction of economic policies and gender norms is Ichino, Olsson, Petrongolo, and Thoursie (2023). They examine a tax reform in Sweden and find that migrants originating from countries with relatively traditional norms are more likely to reallocate childcare to mothers following a reduction in the father's tax rate, and less likely to reallocate childcare to fathers following a reduction in the mother's tax rate. We use measures of gender role attitudes on the individual level instead of group-level differences and look at a change in a policy directly addressed to families.

Our paper also contributes to the literature on the effects of changes in child-care costs (e.g., Blau and Tekin, 2007; Lundin, Mörk, and Öckert, 2008; Black, Devereux, Løken, and Salvanes, 2014) and, in particular, cash-for-care policies. Cash-for-care policies are associated with negative labor supply effects of mothers in several Scandinavian countries (e.g., Hardoy and Schøne, 2010; Gruber, Kosonen, and Huttunen, 2023) and in the German states Thuringia (Gathmann and Sass, 2018) and Bavaria (Fendel and Jochimsen, 2022). Collischon, Kuehnle, and Oberfichtner (2022) look at the same policy we investigate in our paper and find small negative employment effects and larger effects on childcare choices. None of these studies look at gender norms or attitudes. However, some report heterogeneity analyses which our results may help to explain. They find that not having a university degree (Drange and Rege, 2013), having a migration background (Hardoy and Schøne, 2010; Fendel and

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3. There exists a longer-running literature in sociology on the determinants (e.g., Cunningham, 2008; Zoch, 2021) and consequences of gender role attitudes. Individual measures of gender role attitudes are related to labor supply in the UK (Uunk and Lersch, 2019), the Netherlands (Stam, Verbakel, and de Graaf, 2014), and the US (Cunningham, 2008). The literature typically makes use of longitudinal panel models which relate changes in attitudes to changes in female labor supply. We see our event study approach around child birth as complementary to this evidence.

4. Boneva, Golin, Kaufmann, and Rauh (2022) elicit measures of perceived social norms, i.e., second order beliefs, and show that they predict labor supply intentions of women.

Jochimsen, 2022), living in a rural area (Giuliani and Duvander, 2017), or in West Germany instead of East Germany (Collischon, Kuehnle, and Oberfichtner, 2022) is associated with stronger negative labor supply responses to a cash-for-care subsidy. In our data, all these characteristics predict more traditional gender attitudes.

2 Institutional background and data

In this section, we lay the foundation of the later analyses by describing the institutional background and the data we use.

2.1 Institutional background

We start by describing aggregate maternal labor supply and the institutional background which families face in Germany.

Labor supply of women in Germany is characterized by high employment rates of just over 70%, more than 10 percentage points above the OECD average (OECD, 2017), but relatively many women work part-time. While in the OECD, on average every fourth working women works part-time, this share is 37% in Germany. Internationally, the reduction in labor supply of women after child birth is among the strongest (Kleven, Landais, and Mariante, 2023).

These patterns differ substantially between East and West Germany. During the separation of Germany from 1945 to 1990, policies and norms in the Eastern, socialist part of Germany encouraged mothers to return to work quickly after childbirth. Conversely, in West Germany a male-breadwinner norm prevailed in both norms and policies. Although the policy system was fully aligned after the reunification, differences in labor market outcomes between East and West Germany persist (Jessen, 2022).

Several policies are in place to support families. Germany utilizes a comprehensive means-tested welfare system to provide assistance to low-income households. Furthermore, parents have a legal right of parental leave which allows them to return to the same or a similar job within three years. Paid parental leave is available for for up to 14 months where each parent can claim at most 12 months. The replacement rate is at 67% of the parent's drop in net income, but at least 300 EUR and at most 1800 EUR per month.[5] Additionally, parents receive a monthly child benefit which was gradually increased over the observation period and amounted in 2018 to 194 EUR for the first and second child, 200 EUR for the third child, and 225 EUR for every additional child.

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5. See Olivetti and Petrongolo (2017) for a comparison to family policies in other high-income countries.

In 2015, 33% of children below the age of three went to public childcare, compared to 94% of children between 3 and 5 years old.[6] The supply and take-up of public childcare services for children under three years of age has been steadily progressing since 2005, but slowed down in recent years: from 2015 to 2019, the share of children below the age of three in public childcare increased by only one percentage point to 34%.

The tax system adopts income splitting for married couples which implies that each partner is taxed as if they earned half of the combined income. Due to the progressive nature of the tax rates, this arrangement provides substantial tax advantages to married couples, which are increasing in the income gap, and leads to high marginal tax rates for the lower-earning spouse.

2.2 Data set

To understand the labor supply choices of mothers, we need detailed information on the household context, labor market outcomes, and, importantly, the gender role attitudes of individuals.

We use the German Family Panel (pairfam) which provides us with all this information. It yearly surveys up to 12,000 randomly sampled subjects and their partners from 2009 on (Brüderl, Drobnič, Hank, Neyer, Walper, et al., 2023). The subjects are drawn from three cohorts, born in 1971-73, 1981-83, and 1991-93 (Huinink, Brüderl, Nauck, Walper, Castiglioni, et al., 2011). The questionnaire contains detailed information on the household composition, labor market outcomes, and values and beliefs of both partners. The latter is an important advantage over administrative data sets which provide larger sample sizes, but do not contain this information. Another important feature of the pairfam data set is that, conversely to many other surveys, partners of the main subjects are tracked and surveyed whether or not they are (already) living in the same household. This allows us to use pre-birth information of both parents even if couples move together only shortly before having their first child.

In wave 11, a refreshment sample is drawn which replaces drop-outs and adds the cohort born in 2001-2003. From wave 2 on, the DemoDiff (Demographic Differences in Life Course Dynamics in Eastern and Western Germany) is part of the pairfam sample which leads to respondents living in Eastern Germany being overrepresented in the two oldest cohorts in the final sample. We use the available data from 2009 to 2022. For the event studies in the next section, we restrict the sample to mothers who have their first child in the observation period and are not younger than 18 or older than 40 when giving birth. Furthermore, we exclude same-sex couples such that all subjects are either single or have a male partner. We look at up to

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6. Data based on: https://www.statistischebibliothek.de/mir/servlets/MCRFileNodeServlet/DEHeft_derivate_00021684/Datenreport2016.pdf and https://www.destatis.de/DE/Service/Statistik-Campus/Datenreport/Downloads/datenreport-2021.pdf

5 years prior and 7 years past the birth and require for each subject at least two observations before and two observations after the birth of the first child. This results in a sample of 839 mothers. In robustness analyses, we replicate the results among others for a balanced panel of 551 mothers running from 2 years before to 3 years after birth.

2.3   Gender role attitudes

In eight of the fourteen waves in pairfam, subjects are asked about a set of attitudes. Subjects indicate their agreement with several statements on a 5-point scale ranging from 'strongly disagree' to 'strongly agree'. We focus in this study on three items which refer to the role of mothers. 'Women family' and 'Equal housework' are normatively framed while 'Child suffers' is framed as a belief, but constitutes a clear normative imperative about the role of a mother. Figure 1 shows the distribution of responses to these items over all waves and subjects and lists the full wording of the items in the Figure note.
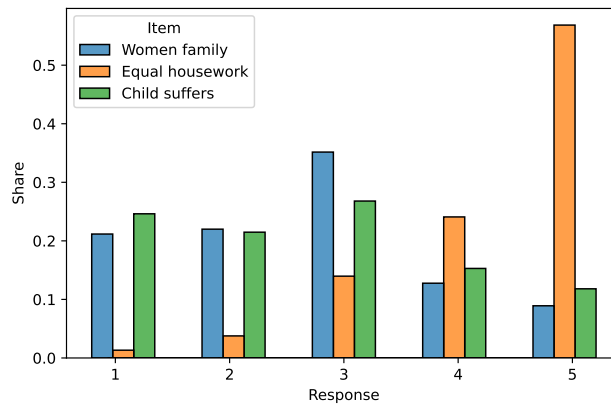
Figure 1. Distribution of elicited gender role attitudes

Notes: Distribution of responses to three items measuring gender role attitudes in pairfam. The 5-point scale ranges from 'strongly disagree' to 'strongly agree'. Responses are pooled over all waves. Sample: All three items observed. The wording of the items is listed below:

Item label	Item wording
Women family	'Women should be more concerned about their family than about their career.'
Equal housework	'Men should participate in housework to the same extent as women.'
Child suffers	'A child under 6 will suffer from having a working mother.'

For the items 'Women family' and 'Child suffers', the modal response is the central value and the distribution is wide ranging from more than a fifth of subjects

strongly disagreeing and about a tenth of subjects strongly agreeing. The distribution of the item 'Equal housework' is more concentrated on the right of the scale. Note that in contrast to the other items, stronger agreement with 'Equal housework' item indicates more egalitarian attitudes. We, hence, reverse the scale for this item in the following such that higher values are associated with more traditional attitudes for all items.

For the later analysis, we primarily focus on a gender role attitudes index which we create as the standardized mean of the items. Inter-item correlations are between 0.17 and 0.38 indicating that the three items measure different aspects of role attitudes towards mothers. We, hence, also consider the three items separately in robustness analyses.

We next show that gender role attitudes vary over demographic variables in very reasonable ways. Table 1 reports coefficients of OLS regressions of the index (in the first column) and the three individual items on a set of background variables. The dependent variables are standardized such that effect sizes are comparable. The observed patterns are very similar over all four columns. Men hold more traditional attitudes than women. The same is true for subjects with lower education, any migration background, who don't live in urban municipalities, and who feel affiliated with a religion. Interestingly, living in East Germany is strongly associated with egalitarian attitudes for item 'Child suffers', but not with respect to the other items, conditional on the other background variables. Subjects born in earlier cohorts tend to hold more traditional attitudes when attitudes are elicited at the same age. However, we also document an age trend which is almost as strong as the birth year effect: Gender role attitudes of subjects born in a given birth year become more egalitarian over time.

We draw three conclusions from these results. First, the items are very similarly distributed in the population, suggesting that they measure the same concept in line with our interpretation. Second, gender role attitudes are related to demographic variables in reasonable ways thereby validating our elicited measures. Third, the explanatory value of background variables is limited as no more than 13 percent of the observed variance can be explained. A substantial part of the variation in gender attitudes between subject seems to be unrelated to confounding variables.

The panel structure of pairfam allows us to measure gender role attitudes before the birth of the first child. We use the last observation before birth as a measure of pre-birth attitudes. The index is fairly stable within individuals over time ($\rho = 0.63$). However, as discussed above, we also observe an age trend towards more egalitarian gender attitudes, as well as a slight trend towards more traditional gender attitudes around child birth (see Figure A.2). For the following analyses, we assume that despite these aggregate trends the classification of individuals remains intact over time. We, hence, classify mothers in two groups based on a median split of their pre-birth gender role attitudes and label the groups 'egalitarian' and 'traditional'.

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Table 1. Predicting gender role attitudes

	Gender role attitudes	Women family	Disagreement: Equal housework	Child suffers
Male	0.22***	0.054***	0.3***	0.31***
	(0.0089)	(0.012)	(0.012)	(0.012)
Age	−0.021***	−0.024***	−0.0066***	−0.032***
	(0.0007)	(0.0009)	(0.001)	(0.0009)
Birth year	−0.024***	−0.03***	−0.015***	−0.027***
	(0.0007)	(0.001)	(0.0009)	(0.001)
Living in East-Germany	−0.12***	−0.015	−0.021	−0.32***
	(0.012)	(0.015)	(0.015)	(0.015)
Education: tertiary	−0.25***	−0.31***	−0.16***	−0.28***
	(0.0094)	(0.012)	(0.012)	(0.012)
Any migration background	0.25***	0.33***	0.13***	0.28***
	(0.012)	(0.015)	(0.015)	(0.015)
Municipality ≥ 100k inhabitants	−0.14***	−0.15***	−0.15***	−0.11***
	(0.01)	(0.013)	(0.013)	(0.013)
Any confession	0.18***	0.18***	0.16***	0.19***
	(0.011)	(0.015)	(0.014)	(0.014)
Observations	74836	74836	74836	74836
Adj. R²	0.13	0.074	0.049	0.13

Notes: OLS regressions of gender role attitudes on a set of background variables. In columns (2) to (4), the dependent variables are the individual items (not restricted on being observed before birth of the first child). In the first column, the dependent variable is the gender role attitude index, the standardized mean of the three items. All dependent variables are standardized and coded such that higher values are associated with more traditional gender attitudes. Sample: All three items observed. Standard errors are clustered on the individual level and reported in parentheses. $* - p < 0.1, ** - p < 0.05, *** - p < 0.01$

Table 2 shows summary statistics of these two groups in our event study sample as described above.

Unsurprisingly, traditional women in our sample hold more traditional gender role attitudes based on all three items. In line with a within-household correlation of gender role attitudes of 0.41, the attitudes of the fathers, also measured before birth of the first child, differ in the same direction although less pronounced. Egalitarian women tend to have egalitarian partners, but assortative mating is far from perfect and there are several couples with unaligned gender attitudes.

In the third part of Table 2, we focus on differences in background variables. This comparison shows us in which dimensions and how strongly the gender attitude groups differ in other dimension and, therefore, facilitates the interpretation of later empirical results. In line with the findings of Table 1, egalitarian mothers are more likely to have a tertiary degree and to live in East-Germany or urban municipality. They are less likely to have a migration background and to have any confession. Egalitarian subjects are 1.5 years older when getting their first child, but have almost the same likelihood to have a partner and to be married in the period before giving birth. This pattern is confirmed in Appendix Figure A.1 which looks at partnership variables five years prior to seven years past birth of the first child. Both groups have the same likelihood to have a married partner during the 13 years considered and the likelihood of having any partner is only slightly and mostly insignificantly higher for egalitarian mothers. Also the number of children over time develops in exactly

Table 2. Summary statistics of gender role attitude groups

	Gender role attitudes group	
	egalitarian	traditional
Women family	2.01	3.27
	(0.04)	(0.04)
Equal housework	4.82	3.97
	(0.02)	(0.05)
Child suffers	1.60	2.95
	(0.03)	(0.05)
Partner: Women family	2.41	2.92
	(0.05)	(0.06)
Partner: Equal housework	4.29	4.02
	(0.05)	(0.06)
Partner: Child suffers	2.37	2.85
	(0.06)	(0.07)
Age at birth first child	30.40	28.90
	(0.21)	(0.24)
Education: tertiary	0.56	0.37
	(0.02)	(0.02)
Any migration background	0.13	0.19
	(0.02)	(0.02)
Living in East-Germany	0.36	0.24
	(0.02)	(0.02)
Municipality $\geq$ 100k inhabitants	0.34	0.22
	(0.02)	(0.02)
Any confession	0.61	0.75
	(0.02)	(0.02)
Has a partner before birth	0.87	0.84
	(0.02)	(0.02)
Has a married partner before birth	0.46	0.47
	(0.02)	(0.02)
N subjects	434	405

Notes: Mean and standard errors (in parentheses) of several variables for both gender role attitudes groups. In the first part, we display mean values of the three gender role attitudes items, measured before birth of the first child on a five point scale. The second part reports the respective attitudes of the partner. In the third part, we report means of background variables. The last row reports the number of subjects in each group. Partner attitudes and some background variables are only available for a subsample. The groups are determined via a median split on the gender role attitude index for all women in the full sample. Sample: observed at least twice before and twice after the birth of the first child.

the same way, seven years after birth of the first child both groups have slightly below two children on average.

3 Gender role attitudes and labor supply around child birth

In this section, we look at the labor supply of mothers in an event study setting. We show that gender role attitudes are highly relevant for labor supply choices on both the extensive and intensive margin after birth of the first child.

3.1 Empirical strategy

We focus on the time five years before the birth of the first child to seven years after birth. The main sample consists of mothers which we observe at least twice before and after the birth of the first child. In robustness analyses, described at the end of this section, we replicate our findings for a balanced panel running from 2 years before to 3 years after birth.

   To account for age and time trends, we run event study regressions based on Kleven, Landais, and Søgaard (2019) which is frequently used in the literature to examine the effect of children on a large range of outcomes. Kleven, Landais, and Søgaard (2019) discuss the assumptions under which the coefficients of event dummies can be interpreted as the causal effect of the first child birth. Importantly, the estimated effects include the impact of additional children and do not account for any anticipatory effects of child birth on the outcome variable. Under a smoothness assumption that all determinants of outcome variables which are not controlled for are similar before and after child birth, the method identifies the effect of the first child conditional on those determinants. This is plausible in the short term, and, given that we control non-parametrically for life-cycle and time trends, seems also justified in the medium and long-term.

   We adjust the specification such that we interact event dummies with gender attitude type. For individual i with gender attitude type A, in year s, and event time t, we estimate the following equation:

$$
\begin{aligned}
Y_{ist}^A =& \alpha_{-1}^{A_0} + \sum_{a \neq A_0} \beta_{-1}^{a-A_0} \cdot \mathbb{I}[a = A] \\
& + \sum_{k \neq -1} \gamma_k^{A_0} \cdot \mathbb{I}[k = t] \\
& + \sum_{k \neq -1} \sum_{a \neq A_0} \delta_k^{a-A_0} \cdot \mathbb{I}[k = t] \cdot \mathbb{I}[a = A] \\
& + \phi_{age_{is}} + \psi_s + \nu_{ist}
\end{aligned}
\tag{1}
$$

   At event time -1, the outcome variable Y_{ist}^A depends on the intercept $\alpha_{-1}^{A_0}$ and the $\beta_{-1}^{a-A_0}$ coefficients indicating differences relative to the left-out attitude type A_0 at time -1. For other event times, we add a $\gamma_k^{A_0}$ and a $\delta_k^{a-A_0}$ coefficient each. In the applications below, A_0 is the group of egalitarian mothers. Event time 0 corresponds

to the birth year of the first child. Furthermore, we control for age ($\phi_{age_{is}}$) and year (ψ_s) fixed effects.

Under the assumptions outlined above, the $\delta_k^{a-A_0}$ coefficients depict the difference between gender attitude groups in the effect of the first child birth. They do not necessarily represent a causal effect of gender attitudes as the groups differ in other dimensions, as well (see Table 2). This is common in the literature on gender role attitudes as it is difficult to exogenously vary attitudes and quasi-experimental variations potentially change attitudes and beliefs in other dimension, as well. While this might not be relevant for policy recommendations in many cases, we, nevertheless, collect several pieces of evidence that the differences between traditional and egalitarian mothers appear to reflect their attitudes. As shown in Section 2, despite looking at a broad set of background variables, we can only explain 13% of the variation in gender role attitudes suggesting that a substantial share of the differences is unrelated to potential confounding factors. In terms of household composition, the likelihood to have a partner and the number of children at the end of the observation period is very similar with the only difference being that egalitarian mothers are one and a half years older at the time of first birth. Additionally, we employ a number of robustness checks to show that the results are not driven by differences in observed background characteristics. Most importantly, the results are very similar when focusing on West Germany only and when controlling for a set of variables which are correlated with attitudes like education, being religious and state of residence.

3.2 Results

The left panels of Figure 2 display means of labor supply outcomes around the birth of the first child for both gender role attitude types without applying the event study framework. Labor supply is very similar in the five years before birth of the first child at a labor force participation of around 80% (Panel 2c) and conditional working hours of slightly below 40 hours (Panel 2e). After the birth of the first child, working hours differ strongly. Mothers with egalitarian gender norms have a substantially higher likelihood to work than those with traditional attitudes with the difference being strongest when the child is one year old. Conditional on working, egalitarian women work 30 hours per week on average and traditional women only 25.

The right panels of Figure 2 display the results of the event study regressions (The corresponding coefficients are reported in Appendix Tables A.1, A.2, and A.3.) More specifically, we plot the difference in event study dummies between traditional and egalitarian mothers (the $\delta_k^{a-A_0}$ coefficients in equation 1). Mothers with traditional gender role attitudes are 15% less likely to participate in the labor market when their first child is 1 year old. When the child is older, differences on the extensive margin become slightly smaller and in some years only marginally significant. However, differences in unconditional and conditional working hours remain very
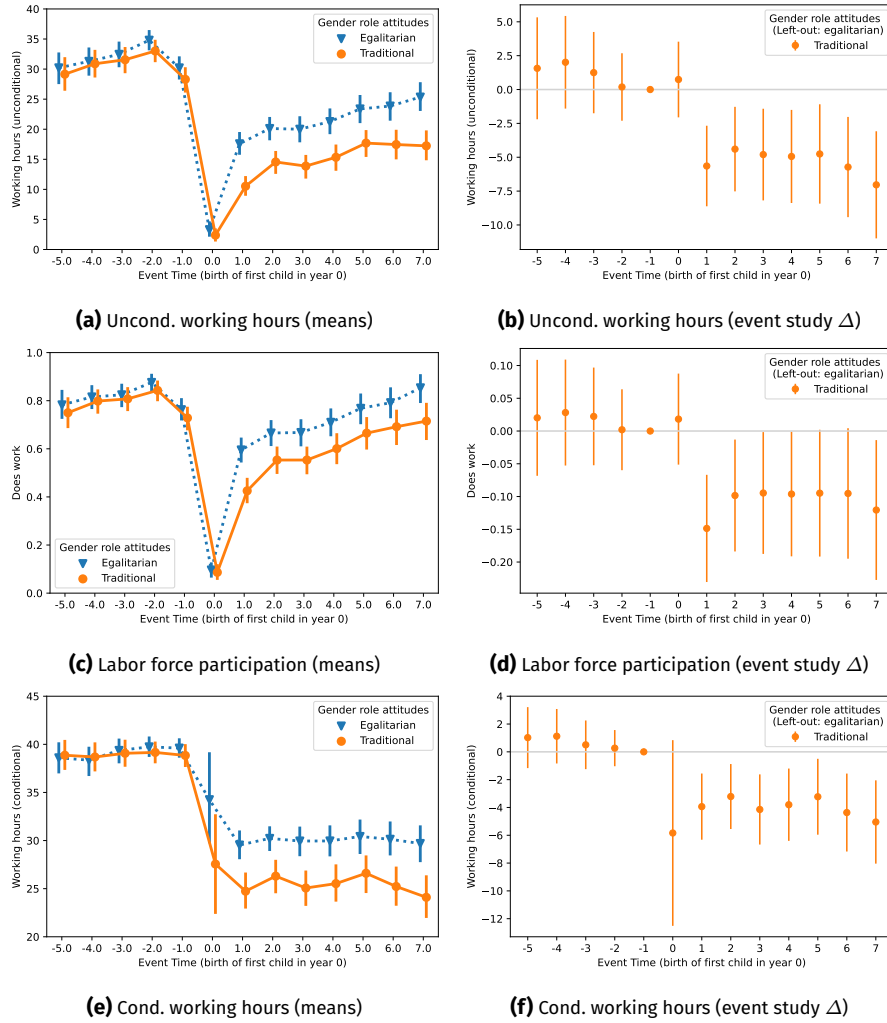
Figure 2. Female labor supply around birth of the first child by gender role attitudes

Notes: The left panels depict means over time around child birth by gender role attitude group (observed before birth of the first child). The right panels depict the difference between traditional and egalitarian mothers in event study regressions as specified in Equation 1 (i.e. the $\delta_k^{a-A_0}$ coefficients). The corresponding coefficients are reported in Appendix Tables A.1, A.2, and A.3. The dependent variable is unconditional working hours in panel (a) and (b), a dummy variable whether the woman is working in panel (c) and (d), and conditional working hours in panel (e) and (f). Sample: observed at least twice before and twice after the birth of the first child.

stable until the end of the observation period at around five or four working hours, respectively. Furthermore, Appendix Figure A.3 reveals that the differences between traditional and egalitarian mothers carry over to measures of income and, to a lesser extend, long-term wages.

3.3 Gender role attitudes of fathers

In this section, we focus on the gender role attitudes of fathers and investigate their relation to maternal labor supply. At the end of the section, we also briefly look at the labor supply of fathers.

In the top row of Figure 3, we examine female labor supply depending on the gender role attitudes of their partner, again measured before birth of the first child. The attitude groups of the fathers are based on a median split for all fathers. For brevity, we focus on unconditional working hours, but the results are very similar when looking at the extensive or intensive margin. Before the birth, working hours hardly differ, but afterwards mothers with a traditional partner work more than five hours less than those with an egalitarian partner.

We next look at the interaction of own and partner's gender attitudes in the bottom row of Figure 3. This leads to four groups where in 33% of couples, both parents hold egalitarian gender attitudes and in 29% both hold traditional attitudes. In 21% of the couples, the father holds traditional and the mother egalitarian attitudes while the remaining 17% of couples deviate in the other direction. If only one of the parents has traditional gender attitudes, maternal working hours are only slightly below those of all-egalitarian couples. Only if both parents have traditional gender attitudes, female labor supply after birth of the first child is substantially and significantly lower.

These findings highlight that the decision how quickly mothers return to the labor market is a joint household decision.

In Appendix B we look at the labor supply decision of fathers around birth of their first child. We find very weak to no changes in labor supply over event time and no significant difference by either gender attitudes of themselves or their female partners. For almost all parents, the option that the father reduces labor supply seems to be not in their choice set. The relevant trade-off for most households, hence, seems to be whether the mother stays at home to care for the children or whether she continues working earlier after child birth and with more hours and the household employs external childcare.

3.4 Robustness

A range of robustness checks confirms that the findings of the previous section are robust to different classification approaches of attitude groups, alternative sample restrictions, and the addition of further control variables.

First, we investigate alternative classifications of women by their gender role attitudes. Appendix Figure A.4 shows the results for the classification into 3 or even 5 groups which lead to very similar patterns. In Appendix Table A.1, we classify subjects based on the individual gender role attitudes items instead of our index. Throughout, we measure negative working hours differences between traditional

(a) By father's attitudes (means)

(b) By father's attitudes (event study Δ)

(c) By own and father's attitudes (means)

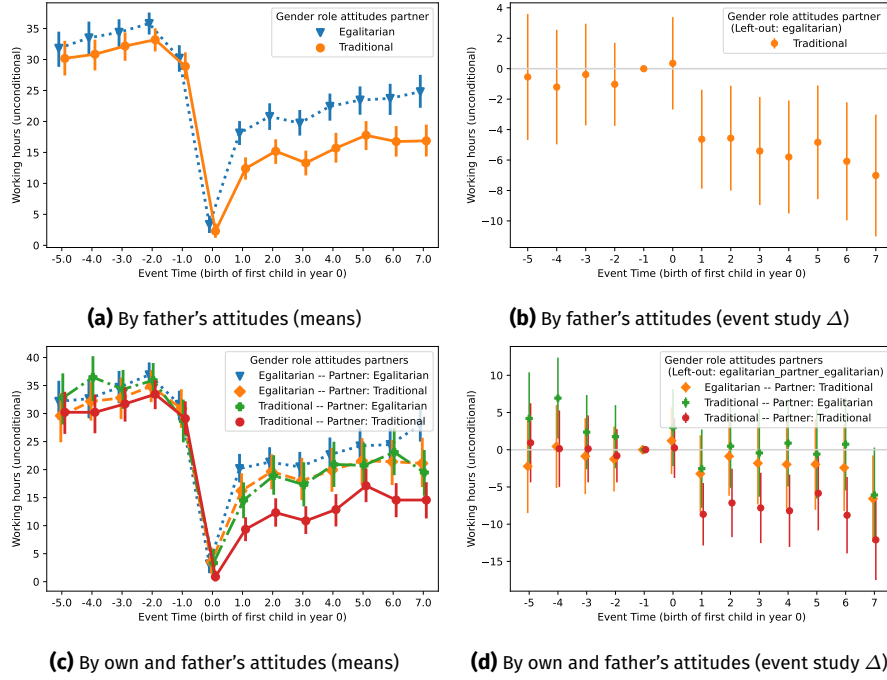**(d)** By own and father's attitudes (event study Δ)

Figure 3. Female (unconditional) working hours by fathers' gender role attitudes

Notes: The left panels depict means over time around child birth by gender role attitude group (observed before birth of the first child). The right panels depict the difference between groups in event study regressions as specified in Equation 1 (i.e. the $\delta_k^{a-A_0}$ coefficients). The dependent variable is unconditional working hours. In the top row, the sample is split by gender role attitudes of the partner and in the bottom row, by both own and father's attitudes which results in four groups: in 33% of couples, both parents hold egalitarian gender attitudes and in 29% both hold traditional attitudes. In 21% of the couples, the father holds traditional and the mother egalitarian attitudes while the remaining 17% of couples deviate in the other direction. Sample: observed at least twice before and twice after the birth of the first child.

and egalitarian subjects after birth. For the item 'Child suffers', the coefficients are substantially lower and in many cases not significantly different from 0. Conversely for the other two items, the results are very similar to the classification by the index. On the intensive margin (Appendix Table A.3), however, we find very strong and persistent differences for all items.

Second, we look at alternative sample restrictions. Appendix Figure A.5 replicates Figure 2 for a balanced sample running from 2 years before to 3 years after birth. The results are very similar to the main specification. Appendix Table A.4 replicates the regression shown in Figure 2b for alternative samples. Both quantitatively and quantitatively, the coefficients are very similar when only looking at subjects living in West Germany and when dropping all observations from 2020 onwards (to abstract from any effects by the Covid-19 pandemic).

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Third, we add control variables to the event study regressions: living together with a partner, education, migration background, having any confession, municipality size, and state fixed effects. The last column of Appendix Table A.4 reveals that the coefficients are almost unaffected.

Overall, we conclude that gender role attitudes are a pivotal factor for maternal labor supply decisions.

4   Gender role attitudes and public policies

In this section, we look at the introduction of a cash-for-care policy and show that gender role attitudes shape the labor supply response to the policy: only traditional mothers reduce their labor supply. After describing the policy and explaining our empirical strategy based on a regression discontinuity design, we present the results.

4.1   Cash-for-care policy

In 2013, Germany introduced a cash-for-care policy ('Betreuungsgeld'). When the child is between age one and three, parents could claim a subsidy of initially 100 EUR/month if they did not use public childcare facilities. This amounts to approximately 9% of median net income of women before birth, 4% of median net income of eligible households, or 50% of average childcare costs (Collischon, Kuehnle, and Oberfichtner, 2022). Given that the use of public childcare is particularly important when both parents are working, the policy increased the opportunity costs of working for mothers. In contrast to similar policies in Norway, Sweden, and the German state Thuringia, eligibility for the cash-for-care policy is withdrawn completely when any subsidized public childcare is taken up. We hence expect the effect of the policy to be more concentrated on the extensive margin compared to these other contexts in which the payment is gradually withdrawn. The subsidy was fully credited against welfare transfers such that the policy did not increase disposable income for very poor households.

Importantly for our empirical strategy, the policy reform employed a clear eligibility cutoff based on the date of birth. Only children born after the cutoff date are eligible for the payment. The eligibility cutoff was planned to be January 1, 2012 in the first version of the parliamentary bill and was unexpectedly changed during the legislative process to August 1, 2012. Importantly, this did not allow parents to adjust their behavior in anticipation of the policy change. In July 2015, the Federal Constitutional Court abolished the cash-for-care policy ruling the policy exceeds the federal legislative authority. As there is no clear cutoff in terms of birth date for the withdrawal of the policy, we focus on the introduction.

In our data set, subjects are asked whether the household receives the cash-for-care payment. The share of eligible households that use the subsidy is almost twice as high for traditional mothers (38% vs 21%).[7]

4.2 Empirical strategy

To evaluate the program's impact, we employ a treatment group comprising all children born in a two-year window after the cutoff date (August 1, 2012), while the control group comprises those born in a two-year window before the cutoff date, totaling approximately 450 births. The identification assumption underlying this approach is that the two groups are similar in all respects except for their eligibility for the cash-for-care payment. Under this assumption, observed differences in outcomes can be attributed to the program's effects.

In spirit of a triple-difference design, we interact dummies of event time t, gender attitude A and eligibility for the cash-for-care payment $cash\text{-}for\text{-}care_{st}$ and estimate the following event study specification:

$$
\begin{aligned}
Y_{ist}^A ={}& \sum_a \mathbb{I}[a = A] \cdot \left(\alpha_{-1}^a + \zeta_{-1}^a \cdot cash\text{-}for\text{-}care_{st} \right) \\
&+ \sum_{k \neq -1} \sum_a \mathbb{I}[k = t] \cdot \mathbb{I}[a = A] \cdot \left(\gamma_k^a + \eta_k^a \cdot cash\text{-}for\text{-}care_{st} \right) \\
&+ \phi_{age_{is}} + \nu_{ist}
\end{aligned}
\tag{2}
$$

We add age fixed effects ($\phi_{age_{is}}$), but conversely to the analyses in the last section, no year fixed effects, as all children in the sample were born around the same time and, hence, event time and year are highly collinear. Our coefficients of interest are the η_k^a which indicate the treatment effect of the cash-for-care policy for gender attitude type a at event times k.

Similar policies have been in place in some German states before the introduction of the federal policy. We exclude residents of Baden-Württemberg from the analysis as a cash-for-care policy was abolished in 2013 in this state. In Saxonia, Thuringia, and Bavaria, a similar policy was in place throughout the observation window. As the federal and state policies could be claimed simultaneously, we do not exclude observations from these states in our main specification.

4.3 Results

The impact of the cash-for-care policy on the labor supply of mothers varies substantially depending on their traditional gender attitudes. Figure 4 displays the results

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(a) Egalitarian and traditional mothers   **(b)** Δ egalitarian and traditional mothers
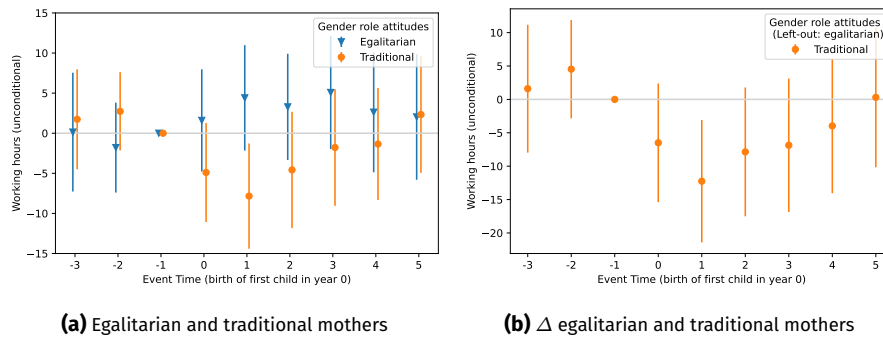
Figure 4. Difference in female (unconditional) working hours by cash-for-care eligibility by gender role attitudes around birth of the first child

Notes: The figure displays coefficients of event study regressions around birth of the first child. Event dummies are interacted with both a dummy whether the child is eligible for cash-for-care and gender role attitudes type (see Equation 2). The eligible group consists of all children born in a two year window after the cut-off date and the non-eligible group consists of all children born in a two year window before the cut-off date. The left panel displays, separately for egalitarian and traditional mothers, the difference in unconditional working hours by cash-for-care eligibility around birth of the first child, relative to event time -1. The corresponding coefficients are reported in Appendix Table A.5. The right panel plots the respective difference between egalitarian and traditional mothers. Sample: observed at least twice before and twice after birth of the first child, not living in Baden-Württemberg.

of the event study regressions. For mothers with traditional gender roles and beliefs, the policy demonstrates a notably negative treatment effect of 8 hours when their child is one year old (panel 4a). As non-eligible traditional mothers reduce working hours at that event time by 17h, the cash-for-care effect amounts to an additional 46%. Further analysis reveals that this effect is primarily driven by changes on the extensive margin, indicating that more mothers in this group choose to reduce labor force participation during this specific period. In contrast, there is no discernible impact on the labor supply of mothers with more egalitarian views towards gender roles. The difference between the two groups is statistically significant (panel 4b).

    When examining the full sample without a split by gender attitude type we find a relatively small negative and not statistically significant effect of the policy. This aligns with the results by Collischon, Kuehnle, and Oberfichtner (2022), who also find only minor negative employment effects when analyzing administrative data. Overall, these results highlight the complex interplay between the cash-for-care policy and mothers' gender attitudes.

C:
add table.

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4.4 Robustness

In this section, we investigate the robustness of our finding that the labor supply of traditional mothers decreased under a cash-for-care policy, but not so the labor supply of egalitarian mothers. We do so by replicating our analyses with different samples and specifications.

First, Appendix Figure A.6 replicates Figure 4 using a balanced panel. The results are very similar to the main specification, indicating that the results are not driven by the fact that we observe some mothers not in all periods. Second, Appendix Table A.5 shows the results when we restrict the sample on mothers living in West Germany or drop those living in states with a cash-for-care policy on the state level (Saxonia, Thuringia, or Bavaria). In both cases, we detect even a slightly stronger negative labor supply effect for traditional mothers when their child is one year old. However, for the latter robustness check we detect a significant difference between treatment and control group already at event time -1 indicating that the identification assumption of parallel trends might not be fulfilled. Finally, we also add a set of controls to our main specification in the last column Appendix Table A.5. Results remain qualitatively and quantitatively very similar. We conclude that our main results are robust to different sample restrictions and specifications. Nevertheless, we interpret the results with caution as the observation window of 4 years is relatively large and the sample size does not allow us to narrow down the window.

5 Conclusion

TBD

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Appendix for online publication

A   Additional tables and figures

In this section, we present additional tables and figures.

(a) Has partner   **(b)** Has married partner   **(c)** Number of children
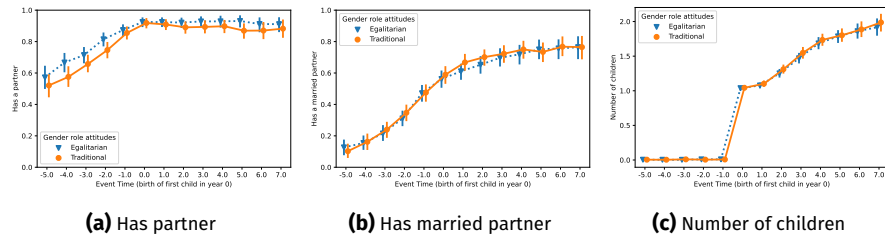
Figure A.1. Household characteristics around birth of the first child by gender role attitudes

Notes: The panels depict means of household characteristics over time around child birth by gender role attitude group (observed before birth of the first child). The dependent variables are whether the subject lives together with a partner (Figure A.1a), whether the subject lives together with a married partner (Figure A.1b), and the number of children (Figure A.1c). Sample: observed at least twice before and twice after the birth of the first child.
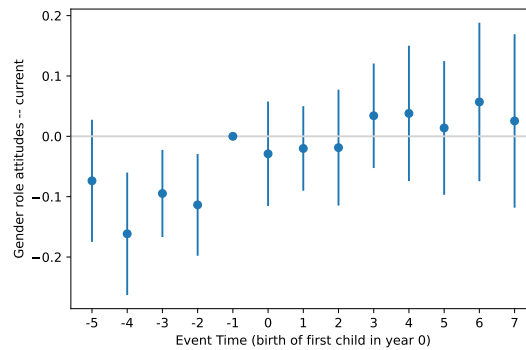
Figure A.2. Gender role attitudes around birth of the first child

Notes: Event study regressions including age and year fixed effects with current gender role attitudes as the dependent variable. Sample: observed at least twice before and twice after the birth of the first child.

(a) Log gross income (means)

(b) Log gross income (event study Δ)

(c) Hourly wage (means)

(d) Hourly wage (event study Δ)
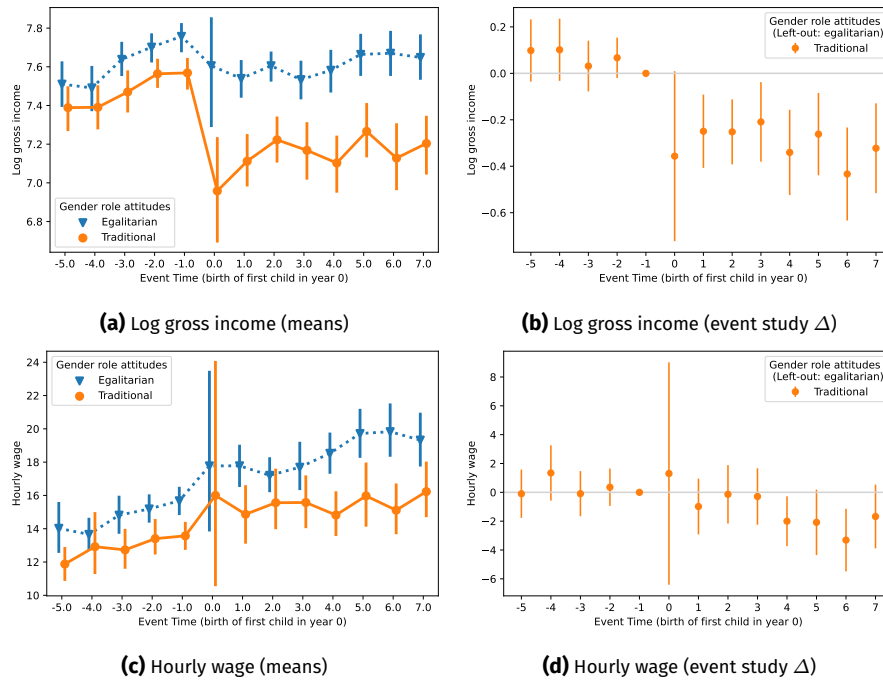
Figure A.3. Female income around birth of the first child by gender role attitudes

Notes: The left panels depict means over time around child birth by gender role attitude group (observed before birth of the first child). The right panels depict the difference between groups in event study regressions as specified in Equation 1 (i.e. the $\delta_k^{\text{traditional}-A_0}$ coefficients). The dependent variable is log gross income in the top row and hourly wage in the bottom row. Sample: observed at least twice before and twice after the birth of the first child.

Table A.1. Event study regressions of unconditional working hours (individual items)

	Gender role attitudes (index)	Women family	Equal housework	Child suffers
	(1)	(2)	(3)	(4)
Traditional	−0.64	0.81	0.98	−3.69***
	(1.26)	(1.27)	(1.27)	(1.31)
Event time = -5	2.54*	2.96*	2.09	2.44*
	(1.42)	(1.54)	(1.37)	(1.27)
Traditional × Event time = -5	1.57	0.75	3.05	1.35
	(1.92)	(1.96)	(1.92)	(1.98)
Event time = -4	3.08**	3.44**	3.88***	2.79**
	(1.27)	(1.40)	(1.22)	(1.10)
Traditional × Event time = -4	2.01	1.19	0.71	2.62
	(1.74)	(1.78)	(1.77)	(1.85)
Event time = -3	3.84***	3.47***	4.38***	3.49***
	(1.12)	(1.27)	(1.04)	(0.97)
Traditional × Event time = -3	1.25	1.72	0.36	1.99
	(1.53)	(1.58)	(1.56)	(1.62)
Event time = -2	5.26***	5.75***	5.61***	4.90***
	(0.96)	(1.09)	(0.85)	(0.84)
Traditional × Event time = -2	0.19	−0.64	−0.48	0.84
	(1.27)	(1.33)	(1.31)	(1.30)
Event time = 0	−27.56***	−26.21***	−26.48***	−29.02***
	(1.00)	(1.15)	(0.94)	(0.91)
Traditional × Event time = 0	0.74	−1.80	−1.95	4.81***
	(1.43)	(1.46)	(1.45)	(1.46)
Event time = 1	−13.37***	−13.07***	−14.95***	−15.14***
	(1.12)	(1.24)	(1.00)	(1.02)
Traditional × Event time = 1	−5.65***	−5.43***	−3.13**	−2.16
	(1.52)	(1.56)	(1.58)	(1.58)
Event time = 2	−10.85***	−11.22***	−12.47***	−11.92***
	(1.19)	(1.31)	(1.09)	(1.09)
Traditional × Event time = 2	−4.40***	−3.33**	−1.80	−2.45
	(1.59)	(1.64)	(1.63)	(1.63)
Event time = 3	−11.26***	−11.04***	−11.90***	−12.91***
	(1.31)	(1.43)	(1.22)	(1.20)
Traditional × Event time = 3	−4.80***	−4.72***	−4.85***	−1.42
	(1.73)	(1.76)	(1.75)	(1.78)
Event time = 4	−9.93***	−10.31***	−10.10***	−11.58***
	(1.37)	(1.51)	(1.26)	(1.28)
Traditional × Event time = 4	−4.94***	−3.88**	−6.25***	−1.55
	(1.75)	(1.81)	(1.79)	(1.81)
Event time = 5	−7.92***	−7.07***	−7.97***	−9.22***
	(1.50)	(1.65)	(1.38)	(1.41)
Traditional × Event time = 5	−4.76**	−5.86***	−6.37***	−2.10
	(1.87)	(1.92)	(1.90)	(1.92)
Event time = 6	−7.44***	−7.03***	−9.00***	−9.25***
	(1.55)	(1.67)	(1.45)	(1.46)
Traditional × Event time = 6	−5.72***	−6.07***	−4.18**	−2.04
	(1.89)	(1.91)	(1.93)	(1.96)
Event time = 7	−6.20***	−6.96***	−8.83***	−7.69***
	(1.63)	(1.78)	(1.61)	(1.56)
Traditional × Event time = 7	−7.04***	−5.30***	−3.40*	−4.05*
	(2.02)	(2.03)	(2.05)	(2.10)
Year FE	Yes	Yes	Yes	Yes
Age FE	Yes	Yes	Yes	Yes
Observations	7880	7880	7880	7880
Adj. R^2	0.30	0.30	0.30	0.30

Notes: The table depicts the coefficients of event study regressions as specified in Equation 1. The dependent variable is unconditional working hours. In the first column, subjects are classified based on the gender role attitudes index (observed before birth of the first child). This column is visualized in Figure 2b. In the remaining columns, the classification variables are the individual items. Sample: observed at least twice before and twice after the birth of the first child, all three items observed. Standard errors are clustered on the individual level and reported in parentheses. $* - p < 0.1, ** - p < 0.05, *** - p < 0.01$

Table A.2. Event study regressions of labor force participation (individual items)

	Gender role attitudes (index)	Women family	Equal housework	Child suffers
	(1)	(2)	(3)	(4)
Traditional	0.00	0.03	0.03	−0.07**
	(0.03)	(0.03)	(0.03)	(0.03)
Event time = -5	0.09***	0.10***	0.08***	0.09***
	(0.03)	(0.04)	(0.03)	(0.03)
Traditional × Event time = -5	0.02	0.00	0.05	0.03
	(0.05)	(0.05)	(0.05)	(0.05)
Event time = -4	0.11***	0.11***	0.13***	0.10***
	(0.03)	(0.03)	(0.03)	(0.03)
Traditional × Event time = -4	0.03	0.04	0.00	0.05
	(0.04)	(0.04)	(0.04)	(0.04)
Event time = -3	0.11***	0.10***	0.12***	0.10***
	(0.03)	(0.03)	(0.03)	(0.02)
Traditional × Event time = -3	0.02	0.04	0.00	0.04
	(0.04)	(0.04)	(0.04)	(0.04)
Event time = -2	0.14***	0.14***	0.13***	0.13***
	(0.02)	(0.03)	(0.02)	(0.02)
Traditional × Event time = -2	0.00	0.00	0.01	0.02
	(0.03)	(0.03)	(0.03)	(0.03)
Event time = 0	−0.69***	−0.65***	−0.66***	−0.72***
	(0.02)	(0.03)	(0.02)	(0.02)
Traditional × Event time = 0	0.02	−0.05	−0.05	0.12***
	(0.04)	(0.04)	(0.04)	(0.04)
Event time = 1	−0.19***	−0.20***	−0.24***	−0.23***
	(0.03)	(0.03)	(0.03)	(0.03)
Traditional × Event time = 1	−0.15***	−0.12***	−0.06	−0.08*
	(0.04)	(0.04)	(0.04)	(0.04)
Event time = 2	−0.12***	−0.14***	−0.16***	−0.14***
	(0.03)	(0.03)	(0.03)	(0.03)
Traditional × Event time = 2	−0.10**	−0.05	−0.03	−0.06
	(0.04)	(0.04)	(0.04)	(0.04)
Event time = 3	−0.13***	−0.15***	−0.14***	−0.17***
	(0.03)	(0.04)	(0.03)	(0.03)
Traditional × Event time = 3	−0.09**	−0.07	−0.10**	−0.02
	(0.05)	(0.05)	(0.05)	(0.05)
Event time = 4	−0.10***	−0.13***	−0.09***	−0.13***
	(0.04)	(0.04)	(0.03)	(0.03)
Traditional × Event time = 4	−0.10**	−0.04	−0.14***	−0.02
	(0.05)	(0.05)	(0.05)	(0.05)
Event time = 5	−0.04	−0.03	−0.04	−0.07**
	(0.04)	(0.04)	(0.03)	(0.03)
Traditional × Event time = 5	−0.09*	−0.11**	−0.14***	−0.03
	(0.05)	(0.05)	(0.05)	(0.05)
Event time = 6	−0.03	−0.03	−0.06	−0.08**
	(0.04)	(0.04)	(0.04)	(0.04)
Traditional × Event time = 6	−0.10*	−0.09*	−0.06	0.02
	(0.05)	(0.05)	(0.05)	(0.05)
Event time = 7	0.02	0.01	−0.06	−0.01
	(0.04)	(0.05)	(0.04)	(0.04)
Traditional × Event time = 7	−0.12**	−0.10*	0.01	−0.06
	(0.05)	(0.05)	(0.06)	(0.06)
Year FE	Yes	Yes	Yes	Yes
Age FE	Yes	Yes	Yes	Yes
Observations	7880	7880	7880	7880
Adj. R^2	0.25	0.25	0.25	0.25

Notes: The table depicts the coefficients of event study regressions as specified in Equation 1. The dependent variable is labor force participation. In the first column, subjects are classified based on the gender role attitudes index (observed before birth of the first child). This column is visualized in Figure 2b. In the remaining columns, the classification variables are the individual items. Sample: observed at least twice before and twice after the birth of the first child, all three items observed. Standard errors are clustered on the individual level and reported in parentheses. $* - p < 0.1, ** - p < 0.05, *** - p < 0.01$

Table A.3. Event study regressions of conditional working hours (individual items)

	Gender role attitudes (index)	Women family	Equal housework	Child suffers
	(1)	(2)	(3)	(4)
Traditional	−0.78	−0.35	−0.17	−1.21
	(0.71)	(0.71)	(0.71)	(0.77)
Event time = -5	−1.23	−1.18	−1.22	−1.00
	(0.85)	(0.92)	(0.87)	(0.77)
Traditional × Event time = -5	1.02	0.83	1.35	0.37
	(1.12)	(1.15)	(1.12)	(1.15)
Event time = -4	−1.44**	−0.78	−1.11	−1.26*
	(0.73)	(0.83)	(0.72)	(0.67)
Traditional × Event time = -4	1.12	−0.17	0.74	0.73
	(1.00)	(1.04)	(1.01)	(1.03)
Event time = -3	−0.40	−0.27	−0.28	−0.55
	(0.63)	(0.75)	(0.63)	(0.57)
Traditional × Event time = -3	0.51	0.21	0.47	0.91
	(0.89)	(0.93)	(0.89)	(0.95)
Event time = -2	−0.11	0.31	0.49	−0.13
	(0.47)	(0.57)	(0.45)	(0.40)
Traditional × Event time = -2	0.27	−0.50	−1.00	0.32
	(0.66)	(0.69)	(0.66)	(0.73)
Event time = 0	−5.31**	−6.71***	−6.36***	−5.57**
	(2.30)	(2.36)	(2.16)	(2.32)
Traditional × Event time = 0	−5.84*	−2.85	−4.34	−5.33
	(3.41)	(3.47)	(3.62)	(3.40)
Event time = 1	−10.00***	−9.44***	−10.73***	−10.68***
	(0.80)	(0.87)	(0.82)	(0.76)
Traditional × Event time = 1	−3.94***	−4.09***	−2.29*	−2.69**
	(1.21)	(1.18)	(1.23)	(1.33)
Event time = 2	−9.15***	−9.04***	−10.30***	−9.48***
	(0.81)	(0.93)	(0.85)	(0.74)
Traditional × Event time = 2	−3.21***	−2.82**	−1.08	−3.13**
	(1.19)	(1.19)	(1.19)	(1.29)
Event time = 3	−9.20***	−8.62***	−10.15***	−9.65***
	(0.94)	(1.07)	(0.95)	(0.88)
Traditional × Event time = 3	−4.14***	−4.44***	−2.89**	−3.71***
	(1.29)	(1.31)	(1.30)	(1.37)
Event time = 4	−8.85***	−8.33***	−9.63***	−9.35***
	(1.00)	(1.13)	(0.98)	(0.92)
Traditional × Event time = 4	−3.80***	−4.02***	−3.18**	−3.15**
	(1.33)	(1.33)	(1.36)	(1.44)
Event time = 5	−8.34***	−7.94***	−8.87***	−8.63***
	(1.14)	(1.28)	(1.09)	(1.07)
Traditional × Event time = 5	−3.23**	−3.53**	−3.19**	−2.95**
	(1.39)	(1.42)	(1.41)	(1.46)
Event time = 6	−8.45***	−8.10***	−9.52***	−8.45***
	(1.18)	(1.29)	(1.17)	(1.13)
Traditional × Event time = 6	−4.37***	−4.42***	−3.10**	−4.86***
	(1.43)	(1.43)	(1.45)	(1.50)
Event time = 7	−8.54***	−9.27***	−9.25***	−9.03***
	(1.35)	(1.42)	(1.34)	(1.30)
Traditional × Event time = 7	−5.05***	−3.04**	−4.58***	−4.31***
	(1.53)	(1.55)	(1.55)	(1.59)
Year FE	Yes	Yes	Yes	Yes
Age FE	Yes	Yes	Yes	Yes
Observations	5103	5103	5103	5103
Adj. R^2	0.24	0.24	0.23	0.24

Notes: The table depicts the coefficients of event study regressions as specified in Equation 1. The dependent variable is conditional working hours. In the first column, subjects are classified based on the gender role attitudes index (observed before birth of the first child). This column is visualized in Figure 2b. In the remaining columns, the classification variables are the individual items. Sample: observed at least twice before and twice after the birth of the first child, all three items observed. Standard errors are clustered on the individual level and reported in parentheses. $* - p < 0.1, ** - p < 0.05, *** - p < 0.01$

(a) 3 groups (means)

(b) 3 groups (event study Δ)

(c) 5 groups (means)

(d) 5 groups (event study Δ)

Figure A.4. Female (unconditional) working hours around birth of the first child by gender role attitudes

Notes: The left panels depict means over time around child birth by gender role attitude group (observed before birth of the first child). The right panels depict the difference between groups in event study regressions as specified in Equation 1 (i.e. the $\delta_k^{\text{traditional}-A_0}$ coefficients). The dependent variable is unconditional working hours. In the top row, the sample is distributed by terciles and in the bottom row, by quintiles. Sample: observed at least twice before and twice after the birth of the first child.

(a) Uncond. working hours (means)

(b) Uncond. working hours (event study Δ)

(c) Labor force participation (means)

(d) Labor force participation (event study Δ)

(e) Cond. working hours (means)

(f) Cond. working hours (event study Δ)

Figure A.5. Female labor supply around birth of the first child by gender role attitudes (balanced panel)

Notes: The figure replicates Figure 2 for a balanced panel. Sample: observed in all periods from two periods before to three periods after the birth of the first child.

Table A.4. Event study regressions of working hours (robustness)

	West Germany	Pre-2020	Full sample including controls
	(1)	(2)	(3)
Traditional	−0.37	−0.70	−0.18
	(1.51)	(1.44)	(1.28)
Event time = -5	2.83*	4.19**	2.44*
	(1.70)	(1.75)	(1.47)
Traditional × Event time = -5	1.28	−0.59	1.62
	(2.25)	(2.29)	(1.95)
Event time = -4	4.12***	3.62**	2.92**
	(1.56)	(1.53)	(1.32)
Traditional × Event time = -4	0.68	1.18	1.95
	(2.09)	(2.04)	(1.77)
Event time = -3	4.24***	3.37**	3.67***
	(1.35)	(1.36)	(1.16)
Traditional × Event time = -3	0.18	1.08	1.25
	(1.80)	(1.78)	(1.56)
Event time = -2	5.60***	5.19***	5.29***
	(1.19)	(1.13)	(0.99)
Traditional × Event time = -2	−0.42	−0.27	0.26
	(1.50)	(1.43)	(1.31)
Event time = 0	−28.00***	−27.44***	−27.58***
	(1.20)	(1.20)	(1.03)
Traditional × Event time = 0	−0.26	0.76	0.69
	(1.67)	(1.65)	(1.46)
Event time = 1	−15.89***	−12.69***	−13.49***
	(1.32)	(1.33)	(1.14)
Traditional × Event time = 1	−6.16***	−6.81***	−5.53***
	(1.72)	(1.74)	(1.54)
Event time = 2	−13.88***	−10.39***	−11.02***
	(1.54)	(1.42)	(1.21)
Traditional × Event time = 2	−4.99***	−5.41***	−4.15**
	(1.90)	(1.80)	(1.61)
Event time = 3	−13.60***	−12.22***	−10.94***
	(1.69)	(1.59)	(1.34)
Traditional × Event time = 3	−5.76***	−4.30**	−5.08***
	(2.09)	(1.97)	(1.75)
Event time = 4	−12.62***	−10.60***	−10.05***
	(1.71)	(1.78)	(1.41)
Traditional × Event time = 4	−5.10**	−4.68**	−4.85***
	(2.10)	(2.07)	(1.77)
Event time = 5	−10.14***	−9.09***	−8.02***
	(1.88)	(2.01)	(1.54)
Traditional × Event time = 5	−5.16**	−4.64**	−4.92***
	(2.23)	(2.32)	(1.89)
Event time = 6	−10.55***	−7.80***	−7.86***
	(1.99)	(2.09)	(1.58)
Traditional × Event time = 6	−5.97***	−7.05***	−5.58***
	(2.25)	(2.33)	(1.90)
Event time = 7	−9.74***	−8.83***	−6.38***
	(2.13)	(2.44)	(1.67)
Traditional × Event time = 7	−6.01**	−5.22*	−6.51***
	(2.41)	(2.88)	(2.05)
Education: tertiary			0.35
			(0.67)
Any migration background			−1.88**
			(0.89)
Municipality ≥ 100k inhabitants			−0.23
			(0.83)
Any confession			−1.12
			(0.77)
Has a partner			−1.31
			(0.93)
Year FE	Yes	Yes	Yes
Age FE	Yes	Yes	Yes
State FE	No	No	Yes
Observations	5402	5743	7585
Adj. R^2	0.36	0.31	0.31

Notes: The table depicts the coefficients of event study regressions as specified in Equation 1. The dependent variable is unconditional working hours. In the first three columns the samples are restricted on subjects living in West Germany and observations before 2020, respectively. In the last column, additional control variables are added. Sample: observed at least twice before and twice after the birth of the first child. Standard errors are clustered on the individual level and reported in parentheses.
$* - p < 0.1, ** - p < 0.05, *** - p < 0.01$

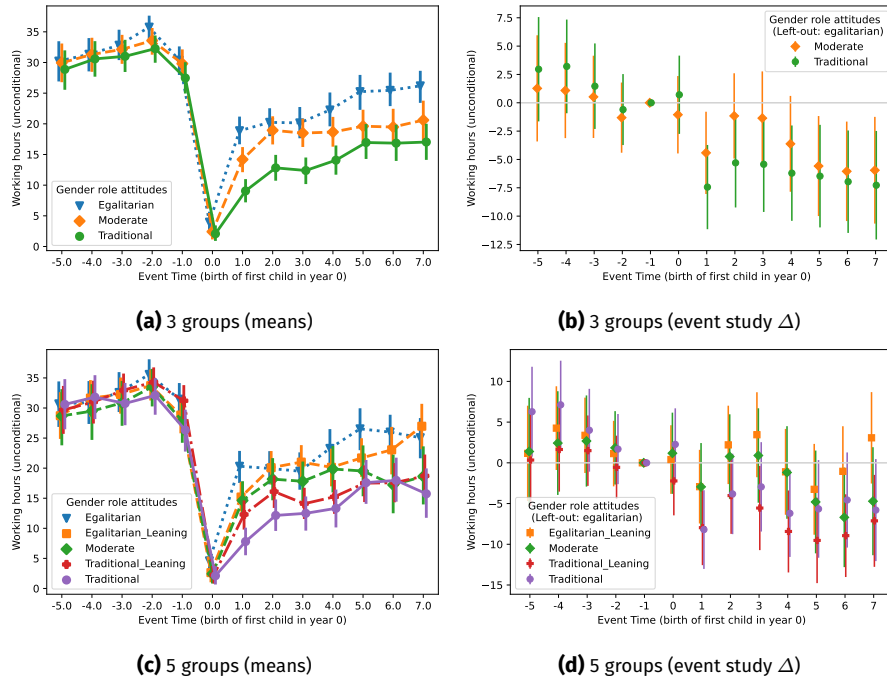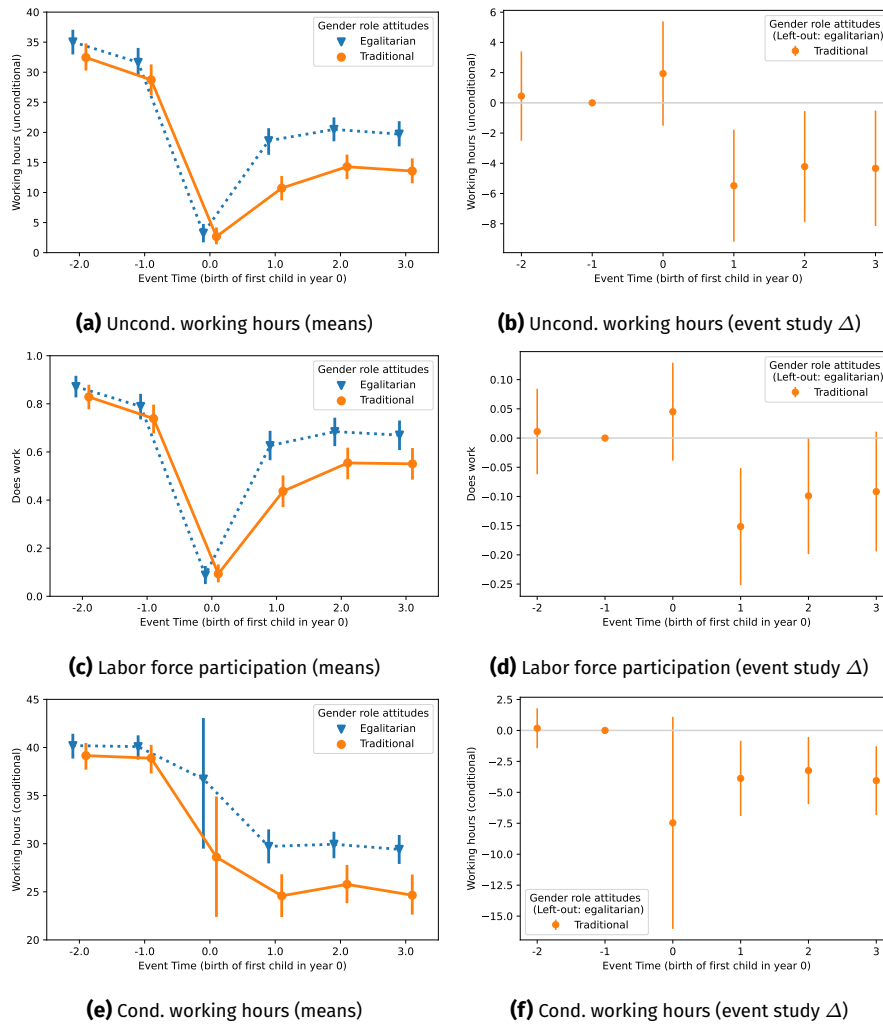**(a)** Egalitarian and traditional mothers

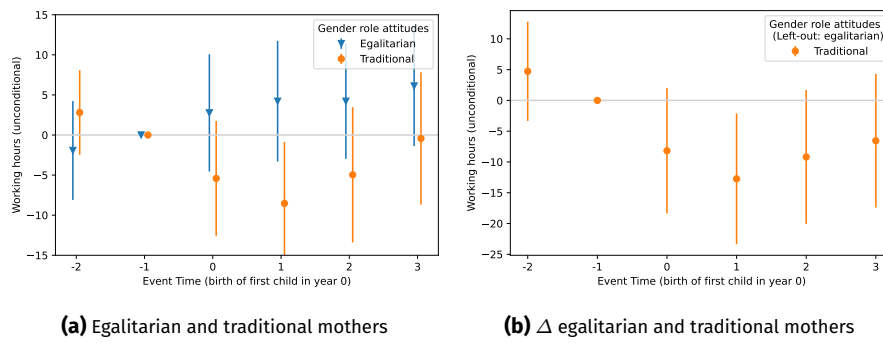**(b)** Δ egalitarian and traditional mothers

Figure A.6. Difference in female (unconditional) working hours by cash-for-care eligibility by gender role attitudes around birth of the first child

Notes: The figure replicates Figure 4 for a balanced panel. Sample: observed in all periods from two periods before to three periods after the birth of the first child.

Table A.5. Event study regressions of working hours by gender role attitudes and cash-for-care policy (robustness)

	Main specification	West Germany	No cash-for-care states	Full sample including controls
	(1)	(2)	(3)	(4)
Egalitarian × cash-for-care × Event time = -3	0.14	8.97*	−3.82	−2.12
	(3.78)	(4.84)	(4.67)	(3.85)
Egalitarian × cash-for-care × Event time = -2	−1.79	1.54	−2.05	−3.18
	(2.86)	(3.27)	(3.59)	(2.81)
Egalitarian × cash-for-care × Event time = 0	1.60	1.81	0.47	−0.20
	(3.25)	(4.06)	(4.28)	(3.34)
Egalitarian × cash-for-care × Event time = 1	4.41	7.71*	4.79	2.92
	(3.35)	(4.14)	(4.31)	(3.46)
Egalitarian × cash-for-care × Event time = 2	3.28	5.09	3.53	2.40
	(3.38)	(4.75)	(4.44)	(3.43)
Egalitarian × cash-for-care × Event time = 3	5.08	7.68	3.30	4.23
	(3.60)	(5.44)	(4.23)	(3.68)
Egalitarian × cash-for-care × Event time = 4	2.62	5.48	2.69	0.64
	(3.82)	(5.26)	(4.86)	(3.83)
Egalitarian × cash-for-care × Event time = 5	2.03	6.54	1.90	−0.10
	(3.99)	(5.52)	(5.05)	(4.02)
Traditional × cash-for-care × Event time = -3	1.74	−0.69	−2.82	2.78
	(3.18)	(3.22)	(3.73)	(3.11)
Traditional × cash-for-care × Event time = -2	2.73	0.96	−1.03	3.70
	(2.49)	(2.29)	(3.12)	(2.49)
Traditional × cash-for-care × Event time = 0	−4.90	−7.24**	−8.24**	−4.24
	(3.15)	(3.42)	(4.03)	(3.20)
Traditional × cash-for-care × Event time = 1	−7.84**	−9.96***	−12.38***	−8.33***
	(3.35)	(3.34)	(3.64)	(3.23)
Traditional × cash-for-care × Event time = 2	−4.58	−8.79**	−9.79**	−4.56
	(3.70)	(3.71)	(4.12)	(3.67)
Traditional × cash-for-care × Event time = 3	−1.78	−5.76	−7.53*	−1.63
	(3.71)	(3.94)	(4.41)	(3.69)
Traditional × cash-for-care × Event time = 4	−1.35	−4.99	−9.27**	−1.50
	(3.56)	(3.89)	(4.23)	(3.55)
Traditional × cash-for-care × Event time = 5	2.33	−0.20	−5.24	1.62
	(3.71)	(4.10)	(4.58)	(3.75)
Egalitarian × Event time = -3	1.76	−4.31	1.56	2.53
	(3.26)	(3.99)	(4.00)	(3.28)
Egalitarian × Event time = -2	4.26**	1.52	3.79	4.45**
	(2.05)	(2.44)	(2.49)	(2.14)
Egalitarian × Event time = 0	−27.39***	−28.56***	−26.11***	−26.74***
	(2.41)	(2.98)	(3.32)	(2.52)
Egalitarian × Event time = 1	−13.10***	−19.84***	−11.51***	−12.18***
	(2.60)	(2.89)	(3.53)	(2.69)
Egalitarian × Event time = 2	−11.62***	−18.01***	−12.10***	−11.49***
	(2.46)	(3.19)	(3.25)	(2.50)
Egalitarian × Event time = 3	−13.90***	−17.94***	−11.37***	−13.45***
	(2.76)	(3.76)	(3.36)	(2.80)
Egalitarian × Event time = 4	−10.84***	−16.67***	−10.39***	−9.84***
	(3.08)	(3.97)	(4.00)	(3.10)
Egalitarian × Event time = 5	−9.26***	−14.87***	−10.52***	−8.25***
	(3.02)	(3.78)	(3.80)	(3.07)
Traditional × Event time = -3	2.48	1.94	−0.55	1.49
	(2.48)	(2.64)	(3.00)	(2.47)
Traditional × Event time = -2	2.34	1.47	1.75	1.84
	(1.52)	(1.51)	(2.17)	(1.64)
Traditional × Event time = 0	−24.88***	−27.53***	−21.47***	−25.47***
	(2.31)	(2.73)	(2.89)	(2.40)
Traditional × Event time = 1	−16.98***	−21.87***	−14.70***	−17.21***
	(2.25)	(2.60)	(2.59)	(2.34)
Traditional × Event time = 2	−14.74***	−19.41***	−13.87***	−15.13***
	(2.42)	(2.81)	(2.78)	(2.51)
Traditional × Event time = 3	−15.33***	−20.14***	−11.89***	−15.83***
	(2.56)	(2.98)	(3.14)	(2.66)
Traditional × Event time = 4	−14.68***	−18.94***	−10.23***	−14.87***
	(2.34)	(2.80)	(2.96)	(2.43)
Traditional × Event time = 5	−15.62***	−19.72***	−10.22***	−16.21***
	(2.49)	(2.87)	(3.18)	(2.57)
Egalitarian × cash-for-care	−2.34	−4.38	−0.39	−0.83
	(2.62)	(3.53)	(3.28)	(2.64)
Traditional × cash-for-care	3.66	5.38*	8.57**	3.06
	(2.71)	(2.95)	(3.51)	(2.74)
Egalitarian	25.62***	29.28***	31.61***	26.99***
	(1.98)	(2.54)	(2.53)	(2.35)
Traditional	22.93***	25.64***	24.73***	26.10***
	(1.81)	(2.12)	(2.53)	(2.02)
Education: tertiary				0.57
				(1.14)
Any migration background				−3.12*
				(1.66)
Municipality ≥ 100k inhabitants				−1.11
				(1.29)
Any confession				−1.32
				(1.25)
Has a partner				−3.65**
				(1.54)
Age FE	Yes	Yes	Yes	Yes
State FE	No	No	No	Yes
Observations	2727	1651	1703	2626
Adj. R²	0.28	0.36	0.25	0.30

Notes: The table depicts the coefficients of event study regressions as specified in Equation 2. The treatment group consists of all children born in a two year window after the cut-off date and control group consists of all children born in a two year window before the cut-off date. The dependent variable is unconditional working hours. In the first column, our main specification as depicted in Figure 4 is shown. In columns 2 to 3 the samples are restricted on subjects living in West Germany and subjects not living in a state with a cash-for-care policy (Saxonia, Thuringia, or Bavaria), respectively. In the last column, additional control variables are added. Sample: observed at least twice before and twice after birth of the first child, not living in Baden-Württemberg. Standard errors are clustered on the individual level and reported in parentheses.
$* - p < 0.1, ** - p < 0.05, *** - p < 0.01$

B Labor supply decisions of fathers

In this section, we look at the labor supply decisions of fathers around birth of their first child. We first split the sample based on gender attitudes of their (female) partner, and then examine differences based on their own gender attitudes.

Figure B.1 replicates Figure 2 for labor supply of the fathers. The groups are build based on gender role attitudes of their (female) partners. Figure B.2 employs splits by their own gender role attitudes. In both cases, we do not detect a difference in the paternal labor supply adjustment after child birth by gender role attitudes.
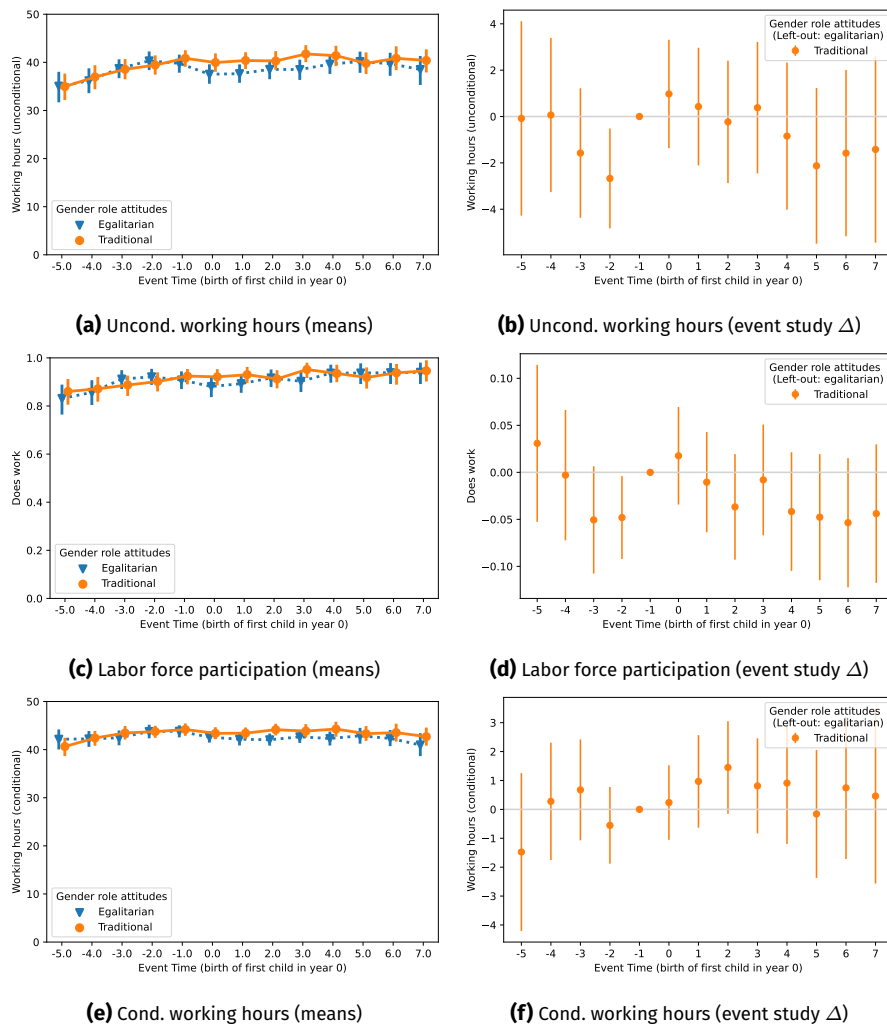

(a) Uncond. working hours (means)

(b) Uncond. working hours (event study Δ)

(c) Labor force participation (means)

(d) Labor force participation (event study Δ)

(e) Cond. working hours (means)

(f) Cond. working hours (event study Δ)

Figure B.1. Male labor supply around birth of the first child by gender role attitudes of their partner

Notes: This figure replicates Figure 2 for labor supply of the fathers. The groups are build based on gender role attitudes of their (female) partners. Sample: observed at least twice before and twice after the birth of the first child.
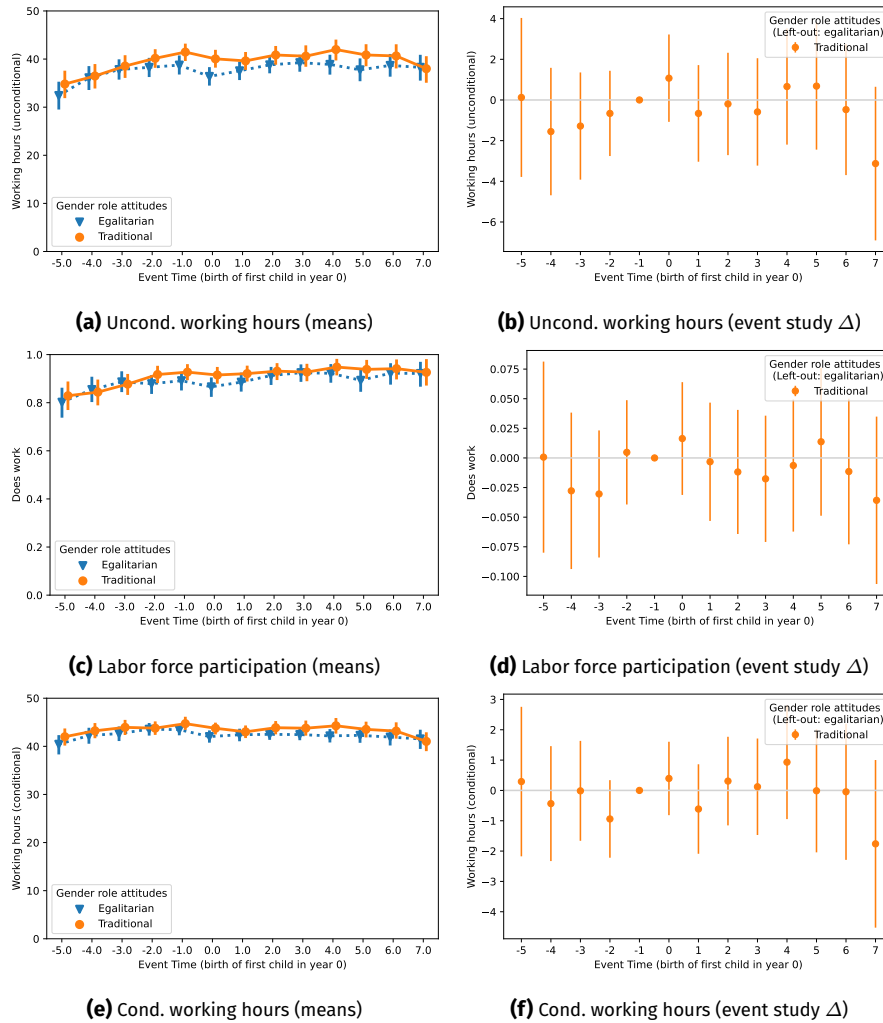
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(a) Uncond. working hours (means)

(b) Uncond. working hours (event study Δ)

(c) Labor force participation (means)

(d) Labor force participation (event study Δ)

(e) Cond. working hours (means)

(f) Cond. working hours (event study Δ)

Figure B.2. Male labor supply around birth of the first child by own gender role attitudes

Notes: This figure replicates Figure 2 for labor supply of the fathers. The groups are build based on their own gender role attitudes. Sample: observed at least twice before and twice after the birth of the first child.

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