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## Culture, Children and Couple Gender Inequality

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# Culture, Children and Couple Gender Inequality\*

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25th February 2021

## Abstract

This paper examines how culture determines within-couple gender inequality. Exploiting the setting of Germany's division and reunification, I compare child penalties of couples socialised in a more gender-egalitarian culture to those in a gender-traditional culture. The long-run penalty on the female income share is 30.9% in West German couples, compared to 18.3% in East German couples. I additionally show that the arrival of children leads to a stronger increase in the share of housework performed by women in West Germany and that women are responsible for a larger share of child care as those from the East. A specialisation index indicates that children only lead to a permanent (re-)traditionalisation in West German couples. A battery of robustness checks confirms that differences between East and West socialised couples are not driven by current location, economic factors, day care availability or other smooth regional gradients. The main findings are complemented with an analysis of time-use diary data from the GDR and reunified Germany comparing parents with childless couples. Lastly, I show that attitudes towards maternal employment are more traditional in West Germany, but the arrival of children leads to some convergence.

*JEL: J16, J21, D1*

*Keywords: cultural norms, gender inequality, child penalty*

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# 1 Introduction

Women’s labour force participation has increased strongly across high-income countries in past decades and gender inequality has been reduced on many domains. Yet, despite this progress, women tend to work fewer hours than men, gender wage gaps remain substantial, in few couples does the woman outearn her partner, and, correspondingly, male breadwinner models remain the norm. As more women than men in wealthy countries hold college degrees (Kleven and Landais, 2017), classic human capital models fail to account for persisting gender inequalities. The literature has identified children as a main source of remaining gaps (Kleven et al., 2019b; Córtes and Pan, 2020), but uneven labour market responses to children—i.e. employment interruptions with limited recovery are commonly only observed for mothers—are not deterministic. Some institutional features, such as more generous parental leave allowances for mothers, favour longer leave taking by mothers and, more generally, main breadwinner models (e.g. joint tax filing). More recently, the role of culture or norms in determining maternal employment has received increased attention with a particular focus on intergenerational transmittance (e.g. Fernández, 2007; Fernández and Fogli, 2009). Giuliano (2021) provides an excellent overview of the literature on gender and culture.

In this paper I examine how culture determines within-couple gender inequality. I compare child penalties using event study estimates between couples socialised in a more gender-egalitarian culture to those in a gender-traditional culture, but living in the same country. For this, I exploit the unique setting of Germany’s division and reunification, where couples growing up in the German Democratic Republic (GDR) were exposed to more gender egalitarian policies and norms than those in the Federal Republic of Germany (FRG),<sup>1</sup> especially regarding maternal employment.

Several papers have argued that the childhood environment is a formative period for gender norms. In their groundbreaking work, Fernández et al. (2004) find that wives of men who grew up with their mothers working are more likely to be in the labour force themselves.<sup>2</sup> In a similar vein, Farré and Vella (2013) examine intergenerational correlations in gender attitudes and find that mothers’ attitudes strongly map into those of their children. Different socialisation experiences in East and West Germany may in consequence have long lasting effects on gender norms and, as a result, on child penalties.

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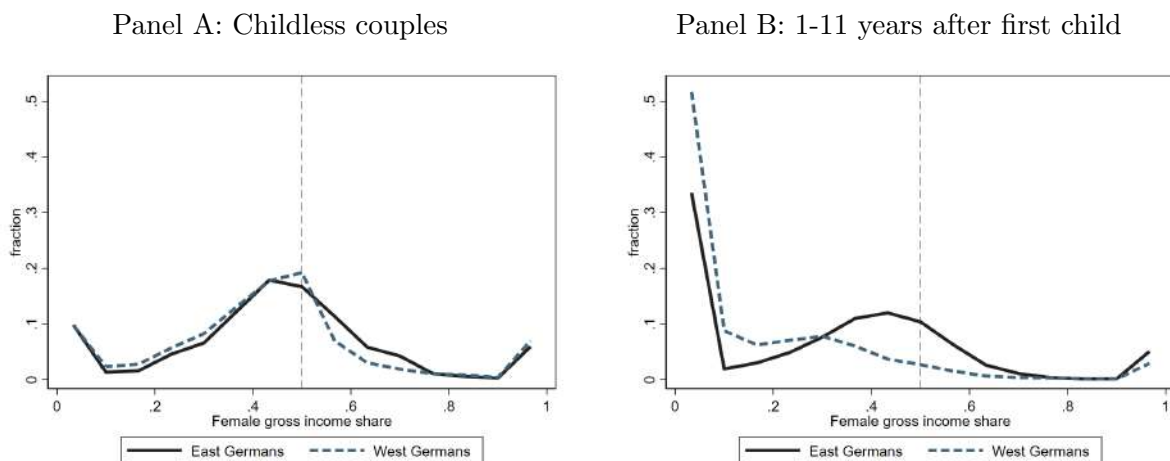
<sup>1</sup>For simplicity, throughout this paper I refer to GDR and FRG when talking about the regions before reunification, and to East Germany and West Germany post-reunification.

<sup>2</sup>Schmitz and Spiess (2020) identify the same mechanism in West Germany.

In the words of the seminal work on economics and identity by [Akerlof and Kranton \(2000\)](#), adherence to the social categories “men” and “women” is weaker in the East.

Figure 1 shows the distribution of female income shares in East and West German couples. For childless couples (panel A) the income distributions are almost identical with a modal share of just below half, i.e. while pre-birth gender differences exist they are quite small. Additionally, with 34% (East) and 29% (West), a non-negligible share of women have higher earnings than their partner. In contrast, East-West differences are striking for couples with young children (panel b); while the female income share has plummeted for both, the distribution for West German couples is substantially more right-skewed with a large share of mothers having exited the labour force or working few hours.<sup>3</sup> [Barth et al. \(2020\)](#) also show that differences in maternal full-time employment have decreased following reunification but no further convergence has occurred since the early 2000s.

Figure 1: Female income shares in East and West German couples



*Note:* Income share based on gross labour income of both partners. Distribution calculated in 15 bins of equal width. In panel a the age range of women is restricted to be between the 5th and 95th percentile of panel b (24 to 44). Sample covers 1990-2018. Source: SOEP v35

In this paper I investigate how the arrival of children affects *within-couple* gender inequality in East and West German couples. Using panel data, I first estimate event-studies and find that labour market inequality due to children is substantially stronger in West German couples with a negative long-run effect on the earnings share of 30.0%, 12.6 percentage points (ppt) larger than in East German couples. Adding to this, I find that inequality in unpaid domestic work, housework and childcare, similarly increases strongly upon the arrival of children, with effects again being more moderate in East Germany

<sup>3</sup>This is also reflected in the shares of couples with young children having a main female earner, which are 22% (East) and 8% (West).

couples. A summarising specialisation index suggests that a traditional re-orientation with regards to gender roles is almost twice as strong in West German couples. I complement the analysis by using time-use surveys from the GDR and reunified Germany to examine inequality by children in couples. In a final step, I analyse differences in attitudes towards maternal employment and how attitudes are affected by children.

A main contribution of this paper is that it takes an explicit couple-perspective on gender inequality and the effects of children on it. Notwithstanding that standard household labour supply models have moved from the *unitary* to the *collective* model,<sup>4</sup> implying the labour supply decisions of partners are a collective outcome, this perspective is still less common in empirical applications.

This approach has several advantages compared to the one that has traditionally been taken in the literature which has either compared mothers' earnings to those of childless women—the "family gap" (e.g. [Waldfogel, 1998](#); [Fernández-Kranz et al., 2013](#))— or that has examined mothers' child penalties in an event study setting (e.g. [Bertrand et al., 2010](#); [Kleven et al., 2019a,b](#); [Kuziemko et al., 2018](#)). As emphasised by [Angelov et al. \(2016\)](#), focusing on couples allows to control for characteristics, observed *and* unobserved, of the partner.<sup>5</sup> Important unobservable attributes may be gender attitudes or preferences for the timing of birth in the life cycle, features on which couples are likely to match. Additionally, when differences in child penalties between groups are of key interest, the couple-perspective automatically controls for potential contextual confounders. E.g., in the case of East vs. West Germany, whereas the institutional framework regarding parental leave or the tax system are identical,<sup>6</sup> labour market conditions and day care supply are factors with regional discrepancies and aspects that would impact child penalties. On the couple-level, these are automatically accounted for. Finally, because children have been found to be by far the biggest source of residual gender inequality in earnings in the 2010s (two-thirds in the US and 80% in Denmark, see [Córtes and Pan, 2020](#); [Kleven et al., 2019b](#), respectively), by looking at children and their effect on couple gender inequality, the lens is put on by far the most important aspect of overall gender inequality in the

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<sup>4</sup>The unitary model assumes that households maximise a joint utility function whereas the collective model allows for heterogeneous preferences of household members, where collective outcomes are the result of a bargaining process. See [Blundell et al. \(2005\)](#) for a collective labour supply model with children (or more general; expenditures on public goods).

<sup>5</sup>An obvious, observable characteristic is the relative education attainment in a couple. While [Angelov et al. \(2016\)](#) find for Sweden that the within-couple income gap disappears four years after birth when the mother has a substantial educational advantage, [Córtes and Pan \(2020\)](#) don't find evidence for strong heterogeneities by educational differences in the US.

<sup>6</sup>An exception is the upper earnings limit for statutory pension insurance, which as of 2004 (the median year of the analysis) at 5,150 Euros per month was 18% higher in West Germany.

labour market and direct inference can be drawn on gender gaps of parents ([Angelov et al., 2016](#)).

An additional aspect that makes the couple-perspective more relevant than it has been until recently is the emergence of "new fatherhood", meaning that fathers take on an increasingly active role in child rearing. Indeed, [Gimenez-Nadal and Sevilla \(2012\)](#) show that fathers' child care involvement (and other unpaid work such as housework) has increased substantially over the past decades across high-income countries—albeit to still much lower levels than that of mothers. While studies commonly find that fathers' labour market outcomes are not or only marginally affected by the arrival of children ([Bertrand et al., 2010](#); [Kleven et al., 2019b](#)), fathers may react in their involvement in child care and in other domains of non-market work such as household chores.

Clearly, this is not the first paper to take a couple-perspective. Most notably, in their seminal work, [Bertrand et al. \(2015\)](#) look at gender identity norms and relative income within married couples in the US, identifying strong aversion to a situation of the wife outearning her husband. Building on this [Lippmann et al. \(2020\)](#) compare East and West German couples and find that exposure to more gender equal institutions has indeed *undone gender norms*, as East German women can have higher earnings within a couple without increasing housework ("doing gender", see [West and Zimmerman, 1987](#)) or risking their marriage. In West German couples those consequences of traditional gender norms are still prevalent.<sup>7</sup> However, [Lippmann et al.](#) don't explicitly consider the role of children for gender inequality. Using high-quality administrative data, [Angelov et al. \(2016\)](#) look at within-couple earning and wage gaps for Swedish couples arising after having children. While their heterogeneity analysis focuses on the comparative advantage of households, I compare the effect of children by cultural background of the couple.

Another contribution is that this paper takes a holistic view of children and gender inequality. A large share of the literature has put a focus on labour market outcomes, i.e. participation at the intensive and extensive margin, and earnings or wage gaps. Similarly, the core of the paper relates to these aspects, but I also take a broader perspective on gender inequality. Specifically, this paper examines differences in time allocation in the household to non-market work (housework and childcare), and additionally I analyse to what extent the arrival of children induces a change in attitudes. This already being a contribution in itself, I additionally link these effects to couples' upbringing by comparing

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<sup>7</sup>[Sprengholz et al. \(2020\)](#) investigate a similar question with the same data, but are unable to confirm this finding.

those effects between couples socialised in the GDR or FRG.

As an additional contribution, I use time use data from the GDR, giving a rare insight into gender inequality in a state socialist regime. Combined with time use data from reunified Germany, I can compare the inequalities in the GDR with those in East and West Germany in a consistent framework.

A sizeable literature has examined long-run *effects*<sup>8</sup> of exposure to the two German regimes on a wide range of outcomes. Papers studying gender-related attitudes have consistently found more gender-egalitarian views in East Germany with limited signs of convergence; this holds for the role of mothers in the labour market and in the family (Bauernschuster and Rainer, 2012), gender-specific work preferences (Beblo and Gorges, 2018), importance of career success for women (Campa and Serafinelli, 2019), and attitudes about detrimental effects of maternal employment on children (Zoch, 2020).<sup>9</sup> In line with those attitudes, a more even distribution in households tasks (Cooke, 2007) and female income share (Lippmann et al., 2020; Sprengholz et al., 2020) has been documented. While the two aforementioned paper are closely related in terms of the research question to this work, the role of children is not explicitly considered<sup>10</sup> and, as was evident in Figure 1, East-West differences are predominantly due to differential responses to the arrival of children.

A recently emerging literature has compared impact of children on *mothers* in East and West Germany. Collischon et al. (2020) compare child penalties for employment, working hours and hourly wages. Boelmann et al. (2020) address a similar question, but they take several steps to control for confounding factors and explore further mechanisms; the authors first document persistent differences within cross-border labour markets, second they show, by looking at migrating mothers, that East Germans in the West keep their norms whereas West Germans in East Germany adjust to local gender norms, and, finally, they document that West German mothers with a high inflow of East Germans in their firm adjust their post-birth return behaviour in the direction of East Germans.<sup>11</sup>

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<sup>8</sup>Becker et al. (2020) have recently highlighted pre-existing differences between East and West Germany before the formal separation in 1949 as well as selective migration in the following years, due to which the unique setting cannot be treated as a clean *natural experiment* to study the long-run effects of communism / socialism (as many papers explicitly state). However, I don't claim to identify the effect of a political regime, but rather use the setting to compare child-induced gender inequality between regions with differing gender attitudes and histories of maternal employment.

<sup>9</sup>Other papers have, e.g., looked at differences in precautionary savings behaviour (Fuchs-Schündeln and Schündeln, 2005), preferences for redistribution (Alesina and Fuchs-Schündeln, 2007), or attitudes towards financial markets and investment behaviour (Laudenbach et al., 2020).

<sup>10</sup>Both papers only control for the presence of children with a binary indicator in their estimation.

<sup>11</sup>The same local learning mechanism has also been found by Schmitz and Weinhardt (2019) who take a macro-perspective by examining how West German women's labour force participation changes when

The paper proceeds as follows. The next section discusses the historical context of the German division and reunification, Section 3 describes the data and outlines the empirical approach. Results are presented in Section 4 followed by a battery of robustness checks in Section 5. I conclude in Section 6.

## 2 German division and reunification

After Nazi Germany surrendered in May 1945, it was divided into separate zones, each occupied by one of the victorious forces of the Grand Alliance (US, UK, Soviet Union) plus France. The division was ratified at the Yalta Conference in February 1945 and assigned the eastern states plus East Berlin to the Soviet occupation zone (Martínez et al., 2020). After increasing tensions in the post-war years, in May 1949 the Federal Republic of Germany (FRG) was formally established consisting of the three western zones, followed by the German Democratic Republic (GDR) in October 1949 consisting of the Soviet occupation zone. In the following years, millions migrated mostly from the GDR to the FRG, until this migration flow came to an abrupt halt with the construction of the Berlin Wall by the GDR administration in August 1961.

The two German states followed very different paths when it came to female employment and gender inequality (Trappe, 1996). The GDR—a socialist, de-facto one-party state—promoted a more gender egalitarian way, and both mothers and fathers in general worked full-time. This was actively stimulated by the GDR through the provision of a universal day care system and a general obligation for both men and women to be in employment (Beblo and Görge, 2018).<sup>12</sup> In contrast, the FRG was a market-based democracy with gender-conservative policies. Day care provision was limited, and the tax and transfer system encouraged a (male) breadwinner model. A series of parental leave expansions in the 1970s and 1980s temporarily prolonged maternal leave, but long-run effects were limited (Schönberg and Ludsteck, 2014). Both before and after those reforms, a large share of mothers did not return to the labour market and, if so, mostly part-time.

After increasing discontent in the GDR accompanied by mass demonstrations, the fall of the Berlin Wall in November 1989 finally led to reunification of the two German states in

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their counties have experienced a high inflow of East Germans in the years following reunification. The authors argue that this can best be explained by local cultural learning.

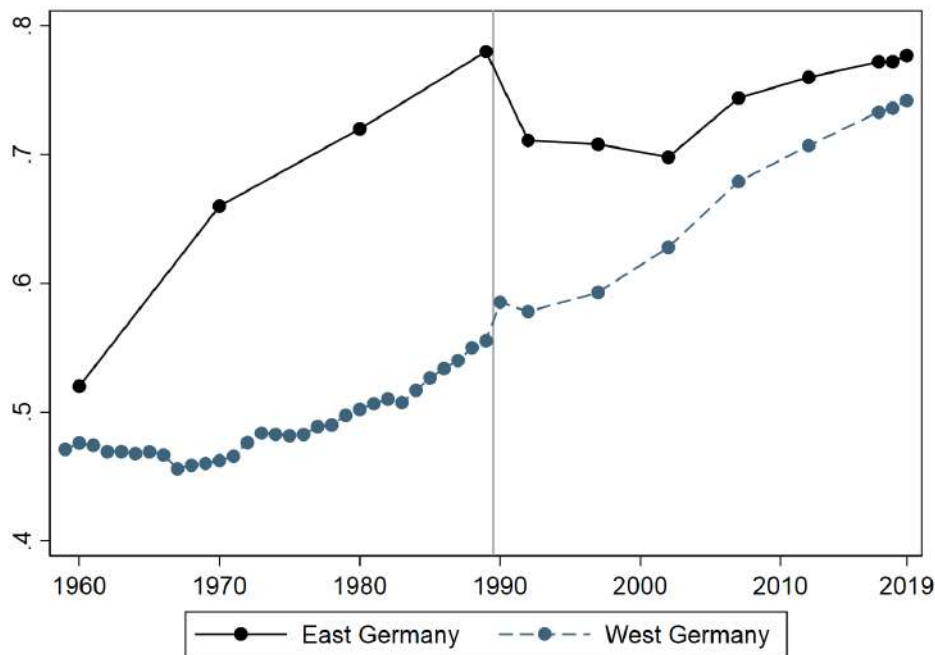
<sup>12</sup>In 1976 a baby year was introduced for higher order births in the GDR and this was extended to all births in 1986 (Heisig and Zierow, 2019). During the baby year mothers received generous wage replacement, but commonly returned to employment thereafter. Fathers were in principle also eligible but rarely used it.



October 1990. In the direct aftermath large East-West migration streams began. In 1989 and 1990 alone, more than 800,000 individuals migrated West. These were predominantly 18-30 years olds, i.e. individuals socialised in the GDR at the beginning of their labour market career and mostly without children (Fuchs-Schündeln and Schündeln, 2009).

In the reunification process the GDR was fully integrated into the FRG and adopted their policies, including the tax and transfer system, and parental leave legislation (since 1992 mothers had 36 months of employment protection and means-tested benefits of about 300 Euros for 24 months, Boelmann et al., 2020). Yet some differences in the institutional environment remained, such as the larger day care availability in East Germany, a higher share working in the public sector and an overall weaker labour market (Rosenfeld et al., 2004).

Figure 2: Female labour force participation



*Note:* Figure shows female labour force participation for East Germany (GDR before 1990) and West Germany over time. Sources: GDR statistical office, Destatis with Microcensus

Figure 2 shows female labour force participation rates for East and West Germany starting from 1959 to 2019. Differences were initially relative small, but the policies in the GDR led to a large increase in the following decades and reached 78% in 1989, among the highest rate in the world (Rosenfeld et al., 2004). On the other hand, participation in the FRG only increased slowly from the 1970s onward and before reunification female labour force participation was 22 ppt lower than in GDR. Despite an initial convergence

in the years after reunification, differences have persisted over the past two decades. In line with differences in female labour force participation, research has also shown that attitudes towards maternal employment immediately following reunification were substantially more gender-egalitarian in East Germany (see e.g. [Bauernschuster and Rainer, 2012](#)).

### 3 Data

The main empirical analysis relies on the German Socio-Economic Panel (SOEP), a longitudinal household survey by the German Institute for Economic Research (DIW Berlin, [Goebel et al., 2019](#)). The survey started in 1984 in the FRG and added GDR households in 1990 before reunification was completed. Currently, SOEP contains about 15,000 households and 35,000 individuals per year. A wide range of topics are covered in the study, including labour market outcomes, attitudes, time-use, relationship details and socio-economic background characteristics. Being a panel study on the household-level, the data contain information from all (adult) household members. Importantly for the analysis, the survey asks where respondents had lived in 1989 (GDR, FRG or abroad), i.e. before reunification. As mobility between the GDR and FRG was strongly restricted, this variable indicates where respondents' parents grew up and where they themselves were socialised.

#### 3.1 Sample criteria and outcomes

This paper takes a couple-perspective on gender inequality and thus relies on the household structure of the survey. Unlike [Lippmann et al. \(2020\)](#) who look at all couples, I mostly focus on (becoming) parents to examine the role of children impacting gender inequality differentially in East or West Germany. In contrast to studies using administrative data (e.g. [Angelov et al., 2016](#); [Kleven et al., 2019b](#)), imposing a balanced sample over a longer pre- and post-birth period would strongly reduce the sample. First, individuals from survey households may not always be covered from 3 years pre- to 6 years post-birth (the main sample window, whereby the upper limit is chosen to cover the usual age of school entry). Second, if for a couple full coverage is required, this implies that the couple must have formed a household before the window and not broken up until it ends,

which would make the sample more selective.<sup>13</sup>

As this paper investigates gender inequality, same-sex couples are not considered. Due to the large share of non-marital births in East Germany (58% in East Germany vs. 27% in West Germany in 2009, see Klüsener and Goldstein, 2016), both married and non-married couples are included (in contrast to the analyses of Lippmann et al., 2020; Sprengholz et al., 2020). A further requirement is that both partners have lived in the GDR or FRG in 1989. No further restriction is set on a migrant background. Due to the low share of mixed East-West couples (6.1%), the analysis focuses on single-origin couples. Overall I look at couples in working-age population (18-65), but the years surrounding the first-birth often imposes a stronger restriction on the age range. While some papers examining earnings distribution of couples restrict their analysis to dual-earners couples (e.g. Bertrand et al., 2015; Lippmann et al., 2020), I keep couple-observations where either partner has zero earnings, as especially mothers often (temporarily) drop out of the labour force in the years following birth and report zero earnings. To ensure comparability between households from the East and West, the sample is restricted to 1990 onward where both are covered. Table 1 provides an overview of the number of observations by restriction.

Table 1: Overview of analysis sample

<i>Sample</i>	East German couples		West German couples	
	Observations	Individuals	Observations	Individuals
All	75,533	7,780	227,111	24,225
Post 1990	75,553	7,780	186,540	20,758
Couple with child	60,667	5,712	148,051	15,585
Event-time -3 → +6 years to first birth	8,667	1,116	26,022	4,903

*Notes:* Table shows number of observations for different samples and number individuals in the samples. East and West Germans are defined by their 1989 location. Source: SOEP v35

The main labour market outcome is the female share of income within a couple. The income variable refers to gross labour income of the previous calendar month. As capital income is arguably to a lesser degree affected by gender norms in couples, this income component is not taken into account. As alternative measures of the income distribution in couples, results for *gaps* in income and a binary indicator for the couple following a main male breadwinner model (< 40% female income share) are presented in the appendix. To

<sup>13</sup>If one partner is in a *SOEP household* and forms a joint household with their partner, the partner joins the survey. If the household breaks up however, both partners stay in the panel.

capture not only the income distribution, but also the degree of participation in the labour market—an aspect of women’s empowerment in itself—, I also show results for the female share of weekly working hours in couples.

On the domestic level, I look at contributions to domestic work (child care and housework) in the household. Specifically, the questionnaire asks how many hours respondents spend on those tasks on average weekdays.<sup>14</sup> In appendix section C I compare this time use information with time-use diary data (see next sub-section) to validate the usage of this information in SOEP. Focusing not only on housework but also on child care is particularly important in this context, as child care obligations are often the main obstacle to both parents being (full-time) employed. The couple-perspective is a particular advantage for those outcomes, as due to a strongly differing supply and enrolment rates of day care in East and West Germany,<sup>15</sup> parents in East Germany have fewer hours of potential child care obligations.<sup>16</sup> Shares of child care within a couple take this into account. Following [Siminski and Yetsenga \(2020\)](#), I also use a proposed household specialisation index ( $SI_2$  in their paper) to summarise the division of market and domestic work within the household in one number.

$$SI = \frac{DW_F}{DW_F + DW_M} - \frac{MW_F}{MW_F + MW_M} \quad (1)$$

$DW$  and  $MW$  denote domestic and market work, respectively, and the subscripts indicate female and male contributions per unit. The index ranges from -1 (non-traditional specialisation) to 1 (traditional specialisation, i.e. the woman is solely responsible for domestic work and the man for market work<sup>17</sup>) with 0 implying equal contributions to both domains by the partners. The distribution of  $SI$  in East and West German couples is presented in [Figure A.1](#)

[Table 2](#) displays pre-birth characteristics of the sample. Recall that the analysis sample consists of more observations than denoted in the table as the table only shows characteristics of individuals covered in the year pre-birth.

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<sup>14</sup>For both housework and child care I set observations to missing if more than 20 hours per day are indicated. These are 0.02% of observations for housework and 4.3% of observations for child care (both refer to post-birth observations. The bulk of the latter are observations for which 24 hours of child care per day are indicated.)

<sup>15</sup>As of March 2020, 52.7% of under threes were enrolled in East Germany compared to 31% in West Germany. See: <https://www.destatis.de/DE/Themen/Gesellschaft-Umwelt/Soziales/Kindertagesbetreuung/Tabellen/betreunungsquote-2018.html>, last accessed 6th January 2021.

<sup>16</sup>Indeed, looking at children aged one to six, I find that West German parents spend on average 1.4 hours more on child care per weekday.

<sup>17</sup>Hereby I follow [Farré and Vella \(2013\)](#) in using the term *traditional* when referring to a situation when women are responsible for domestic work and men for market work.

Table 2: Pre-birth characteristics

	East German couples		West German couples	
	Women	Men	Women	Men
<i>Individual characteristics</i>				
Age in years	26.26 (3.86)	29.01 (4.57)	28.67 (4.24)	31.45 (4.81)
Current location in East Germany	0.81 (0.39)	0.81 (0.39)	0.00 (0.06)	0.00 (0.06)
Married	0.35 (0.48)	0.29 (0.46)	0.54 (0.50)	0.52 (0.50)
High education	0.35 (0.48)	0.29 (0.45)	0.41 (0.49)	0.44 (0.50)
Any employment	0.85 (0.36)	0.90 (0.31)	0.93 (0.25)	0.95 (0.23)
Full-time employment	0.73 (0.44)	0.85 (0.35)	0.79 (0.41)	0.89 (0.31)
Weekly working hours	35.25 (16.58)	40.48 (16.53)	36.45 (13.34)	41.36 (12.99)
Monthly gross wage	1,457.54 (982.15)	2,034.13 (1272.99)	2,095.37 (1120.74)	3,007.91 (1903.09)
Hourly wage	10.53 (4.82)	13.19 (5.64)	14.35 (5.54)	18.65 (10.12)
Hours of housework	1.56 (1.38)	0.84 (0.78)	1.59 (1.09)	0.84 (0.72)
<i>Couple characteristics</i>				
Female share of labour income	0.42 (0.25)	. (.)	0.43 (0.22)	. (.)
Female share of working hours	0.46 (0.24)	. (.)	0.48 (0.19)	. (.)
Specialisation index	0.18 (0.41)	. (.)	0.19 (0.36)	. (.)
Observations	596	564	1948	1843

*Notes:* Table shows pre-birth (1 to 3 years) characteristics separately for women and men of East and West German couples (by their 1989 location). High education denotes university entrance qualification (*Abitur*). Wages reported in 2010 Euro. Specialisation index defined as in equation 1. Source: SOEP v35

### 3.2 Additional sources

**Time-use surveys** I additionally use two time-use surveys from Germany. The first one is a time-use survey from the GDR conducted in 1985 and 1990 (before reunification) by the statistical office of the GDR. Tasks were recorded over 24 hours on a pre-determined day. Participating households were also part of a representative household finances study and the data is representative for worker and employee households (Fiebiger, 1991). Reliable micro data from the GDR is rare, so this data sources offers a unique opportunity to gain insights on time use and gender inequality in a state-socialist country where participation and working hours are relatively fixed. See also Berkes et al. (2021) for further

details on the data.

Second, I use three waves from the (post-reunification) German Time-Use Survey taken in 1991/92, 2001/02 and 2013/13. All adult household members record three-digit classified activities in ten (five in 1991/92) minutes slots over three (two in 1991/92) diary days (Maier, 2014). In appendix section C I compare average values obtained in the time-use survey and from SOEP using the same survey years. In the time-use survey I can distinguish between households' current location in East and West Germany, but no information is given on the place of birth or socialisation of individuals.<sup>18</sup>

In both time-use surveys the analysis focuses on different-sex couples of working age. As both data sets are cross-sectional, no information on future fertility can be used. Thus to approximate the impact of children, I use childless couples of a similar age range as a comparison group (see next section).

**pairfam** An analysis of attitudes is conducted with data from the German Family Panel *pairfam*. The longitudinal household survey with a focus on researching partnerships and family dynamics has been conducted annually since 2008 with 11 waves released to date.<sup>19</sup> Similar to SOEP, the same set of respondents are interviewed in every annual survey wave, due to which births are often observed in the data. Respondents are asked about a wide range of attitudes in every survey year, thus allowing to implement event study estimates to analyse whether the arrival of children is associated by a change in attitudes of individuals.

### 3.3 Empirical approach

To analyse the dynamic effect of having children I employ an event study specification following Kleven et al. (2019b):

$$y_{ist}^r = \sum_{j \neq -1} \alpha_j^r \cdot \mathbb{I}[j = t] + \sum_k \beta_k^r \cdot \mathbb{I}[k = age_{is}] + \sum_y \gamma_y^r \cdot [y = s] + \epsilon_{ist}^r \quad (2)$$

for outcome  $y$  of individual (couple)  $i$ , of region  $r \in \{East, West\}$ , in year  $s$ , and event time  $t$ . Standard errors are clustered at the individual level.  $t = 0$  denotes the year when a couple's first child is born. The event time coefficients  $\hat{\alpha}_t^r$  are normalised

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<sup>18</sup>Appendix Table B.4 shows that in the SOEP estimates based on socialisation or current location are indistinguishable.

<sup>19</sup>A documentation of the latest release is provided by Brüderl and et al. (2020) and a detailed description of the study is found in Huinink et al. (2011)

to the pre-birth year and indicate how the outcome variable dynamically evolves relative to the counterfactual of not having a (first) child. By including age and calendar time dummies, the  $\hat{\beta}$ s and  $\hat{\gamma}$ s non-parametrically net out life cycle trends and time trends such as a concave age-earnings profile due to return to experience or economic shocks in certain years.<sup>20</sup> Identification stems from variation in age at first birth and across time. Equation 2 is estimated separately for East and West German couples, to allow for differential life cycle or time effects.<sup>21</sup> An attractive feature of event study designs is that obtained coefficients can be presented neatly in event study graphs which also easily allow for an inspection of pre-trends.

Besides the event study specification, similar to [Kuziemko et al. \(2018\)](#) I also estimate a simpler difference-in-differences-type equation to obtain one coefficient for the average post-birth effect. Because information for the birth of month is not always available (only for 73% of births occurring after 1990), meaning that at  $t = 0$  some observations are pre- and other post-birth, I specify three discrete points in time; pre-birth, birth-year and post-birth. The equation is

$$y_{ist}^r = \zeta^r \cdot birth + \delta^r \cdot post + \sum_k \phi^r \cdot \mathbb{I}[k = age_{is}] + \sum_y \theta_y^r \cdot [y = s] + u_{ist}^r \quad (3)$$

The coefficient of interest,  $\delta$ , is reported in all event study graphs as well. While the event study estimate can tease out the detailed evolution of effects by year, an advantage of this estimation technique is that due to pooling of several years it requires fewer annual (event-time) observations and is thus more suitable for narrow subgroup analyses or for outcomes that are not included in every survey wave, e.g. attitudes. All estimates in this paper are based on calculations using provided survey weights.

The impact of children on a wide range of outcomes can most credibly be estimated in an event study framework. However, in some cases due to data limitations this is not possible; event study estimates crucially rely upon a panel structure to be able to control for pre-birth realisations of the outcome variables. To be able to assess time use in more detail, I additionally use the German Time-Use Survey, which is a repeated cross-sectional data. In contrast to simply documenting East-West differences as has been extensively done in the literature, the aspect of interest here is whether the arrival of children ex-

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<sup>20</sup>If life cycle and time effects were not taken into account, the event-coefficients would simply correspond to mean values for the event time relative to the pre-birth year as in [Figure A.2](#) in the appendix.

<sup>21</sup>Differences could for example arise if due to different socialisation it is rather the norm in one region to have children only after a few years of labour market experience.

acerbates such differences. The sociological literature has argued that parenthood can activate gender norms, a *sleepers effect* (Cunningham, 2001).

To approximate the impact of children in cross-sectional data I compare outcomes of couples with young children to childless couples of a similar age range. Specifically, I use a sample of couples aged in the 10th to 90th percentile of first-time parents. I estimate the equation

$$y_{ist}^r = \kappa \cdot child + \sum_k \omega^r \cdot \mathbb{I}[k = age_{is}] + \sum_y \lambda^r \cdot [y = s] + \nu_{ist}^r \quad (4)$$

where *child* is a binary indicator equal to one for couples having a child aged one to six years, and zero for childless couples. In cross-sectional data one cannot assess the validity of this control group, as of course only some of these couples will become parents and the problem of selection into parenthood arises. I use SOEP (panel-)data to check how well this approach fares compared to event study estimates. Table B.2 shows post-coefficients based on equation 3 and contrasts them with those obtained from equation 4 with the approximated control group. Coefficients are shown for four main outcomes (income, working hours, housework and child care) and separately for women, men and as shares on the couple-level. While not identical, the coefficients are generally very close and all statistically significant estimates (at the 5% level) point in the same direction. Despite those encouraging results, due to the imperfect control group those results ought to be taken with a pinch of salt; rather than showing the impact of children for couples with children (an average treatment effect on the treated, ATT), these are conditional differences of couples with and without children of similar age.

## 4 Results

### 4.1 Labour market and domestic outcomes - event study

**Labour market outcomes** Figure 3 shows the impact of children for the two main couple-level labour market outcomes across event-time by region. Coefficients are normalised to the pre-birth calendar year ( $t = -1$ ), range lines indicate 95% confidence intervals calculated with standard errors clustered at the individual level. Panel A shows the impact on female income share. In the year after birth ( $t = 1$ ) the shock to the female income share is similar in East and West German couples. Afterwards the share in East German couples recovers strongly, but almost stagnates in West German couples.

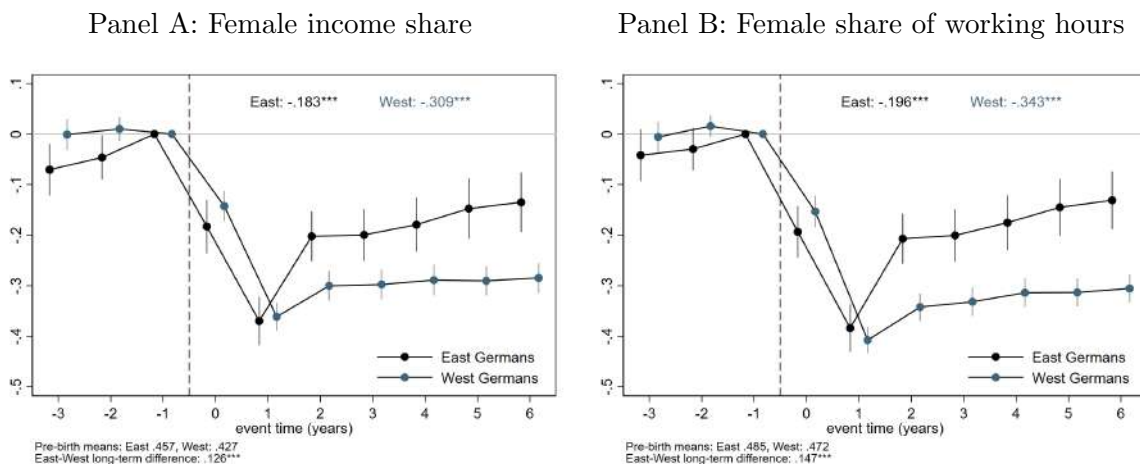


Averaged over the post-birth years, the impact in West German couples is 66% larger relative to East German couples, where the share is reduced by 18.3 percentage points (ppt). As can be seen in the pre-birth means, this is by no means a move to the same post-birth value in East and West Germany (say 25%) but a further divergence in the earnings share between East and West German couples.

A potential explanation for these differing child penalties could also be that bargaining power—through potential wages—of women in West German couples is notably weaker. However when restricting the analysis to couples with *higher* female pre-birth earnings, where additionally only 12.7% of women have lower educational attainment, the East-West long-term difference still amounts to -11.4 ppt. Additionally, differential future fertility could exacerbate differences if more West German couples have additional children. Yet looking only at one-child families, East-West differences still amount to -12.8 ppt, refuting this mechanism (both results not shown, but available from the author).

In Panel B of Figure 3 the share of working hours is displayed. The similarity of the impact on those two outcomes indicates that the effect on hourly wages differs little.<sup>22</sup> Table B.1 in the appendix shows overall couple-level sums for the main outcomes, from which the shares are calculated.

Figure 3: Impact of children on labour market gender inequality



Notes: Figure shows event study estimates for the respective outcomes. Coefficients are normalised to the pre-birth year ( $t = -1$ ). Means from this year are displayed in the figure notes. Long-term coefficients shown in the figure from estimates pooled over post-birth years ( $t = 1 - 6$ ). Income share refers to gross income. East and West Germans are defined by their 1989 location. Significance levels: \*  $< 0.1$  \*\*  $< 0.05$  \*\*\*  $< 0.01$ . Source: SOEP v35

While having a child is a permanent negative shock to gender equality in the labour

<sup>22</sup>In fact, the negative impact on (log) hourly wages is slightly more pronounced for East German mothers where there is less selection into post-birth employment than for West German mothers.

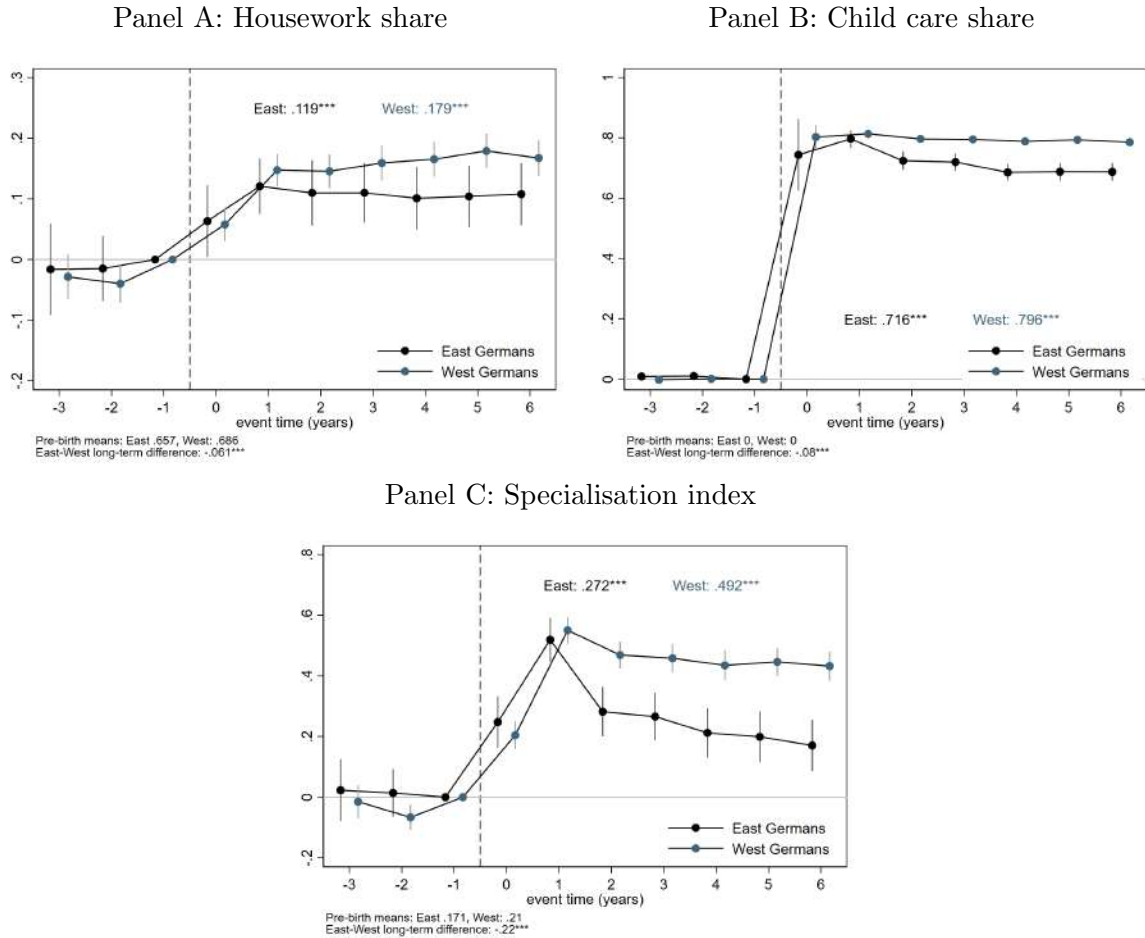
market for couples from both regions, it is so to a much larger degree in West German couples. Additional results are presented in the appendix. To include couples were both have zero earnings or hours (3-4% of observations) instead of *shares* I also show *gaps* for the outcomes (Figure A.3). As due to different labour market conditions the earnings level between East and West Germany differs strongly, shares are preferred over gaps for comparability. However, results are qualitatively the same. Panel C in Figure A.3 further shows the effect of a discrete binary categorisation of the couple having a main male breadwinner ( $> 60\%$  of earnings), which increases in West Germany by 53 ppt compared to 28.6 ppt in East Germany. Individual level event study estimates are presented in Figure A.4. Additionally, the figure also shows estimates over time for the share of mothers and fathers in parental leave. In line with existing evidence, fathers' labour market trajectories are unaffected by children.

**Domestic work** Next I turn my attention to non-labour market outcomes. Specifically, I look at contributions to domestic work, housework and child care. Although East German mothers' weekly working hours recover to some degree from two years after birth onward, it does not follow unambiguously that their relative contributions to domestic work decrease accordingly, i.e. mothers may be doing a *double shift*. Of course for child care the estimation cannot follow the same event study logic as child care investments only start when the child is born.<sup>23</sup> To be consistent the results for child care are still shown in the same way, but the normalisation to  $t = -1$  is irrelevant. To a lesser non-deterministic degree this also holds for housework, because the inputs required post-birth increase strongly and this holds even more when more time is spent at home. For working hours, in contrast, both pre- and post-birth the choice set is in the same fixed range, say 0-50 weekly hours. I also present estimates for the specialisation index by Siminski and Yetsenga (2020) described in subsection 3.1, which indicates to what degree couples divide market and domestic work on a continuous scale from a *non-traditional* ( $SI = -1$ ) to a *gender-traditional* specialisation ( $SI = 1$ ). The advantage of such an index is that it summarises distinct aspects of household specialisation in one number. Because it is calculated with shares, it is less prone to distortions due to overall level differences between regions (due to labour market conditions or day care availability).

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<sup>23</sup>The questionnaire asks for child care in general and not necessarily for child care of the respondent's children. Yet I observe that pre-birth the average daily time spent on child care is less than 6 minutes for women in the pre-birth year compared to 11 hours in first post-birth year. Due to this I am confident that child care time measures to large degree time with the own child and I set pre-birth child care time to zero.

Figure 4: Impact of children on domestic gender inequality



*Notes:* Figure shows event study estimates for the respective outcomes normalised to the pre-birth year ( $t = -1$ ). Housework and child care refer to shares on weekdays. See Figure 3 for other notes. Source: SOEP v35

Figure 4 presents the results for domestic outcomes. Two aspects stand out. First, the pre-birth means for housework (Panel A) indicate that, in contrast to earnings and work hours where prior to children the distribution was almost equal, gender inequality in this domestic domain was already prevalent without children as women were on average responsible for about two-thirds of housework. Post-birth, when the total amount of housework increases as well in couples (Table B.1), the female share increases by 12-18 ppt with—as for labour market outcomes—a stronger effect in West German couples.

Child care (Panel B), starting from a base of zero, is still a predominantly a female domain with an initial share of 80% in East and West Germany and only a decrease of just below 10 ppt in East German couples. The constant high share in West German couples is even more remarkable as the total amount of daily child care in couples decreases from almost 14 hours ( $t = 1$ ) to about 10 hours ( $t = 6$ ), meaning that the decreased total time is decreased proportionally by fathers as well who from the onset had much lower

involvement. The relative contributions to market and domestic work is summarised in the specialisation index in Panel C. While couples were somewhat but not heavily specialised pre-birth (0.171 in East and 0.21 in West German couples), the arrival of the first child leads to a spike in specialisation in couples with relative increases in the index of 178 and 245%. Remarkably, even 15 years later the impact of the first child in West German couples on the specialisation index is 0.38 (0.22 in East German couples).<sup>24</sup> This suggests that having a child leads to a *permanent* traditional (re-)orientation in couples.

As for the labour market outcomes, event study estimates in gaps (Figure A.5) and the individual-level contributions (Figure A.6) are displayed in the appendix. Because the overall levels of housework and child care change strongly over event time, an aspect that is less visible when focusing on shares, is that gaps show even stronger divergences within couples after the onset of a child. Additionally, East-West differences are also stronger with a continuously increasing housework gap in West couples. For child care, the differences in the impact on the gap 6 years after having a child is about three hours per day. At this age, in both West and East Germany almost all children attend day care.

Long-run estimates and standard errors of estimates for the main labour market and domestic outcomes are summarised in Table 3. Columns (5) and (6) show the difference in long-run estimates between East and West German couples obtained from a fully interacted model. The table also shows estimates from regressions with additional pre-determined characteristics (see table notes) to control for potentially confounding factors. With the exception of female share of housework,<sup>25</sup> coefficients are stable and support strong East-West differences in the long-term effects of children on within-couple gender inequality.

## 4.2 Time-use survey

A downside to the usage of survey data for analysing time use is the inherent lack of precision (SOEP only allows for answers in full *hours*), recall bias, the issue of social desirability, and measurement error. Data from time-use surveys, recorded in fine-grained diaries over survey days, resolve those issues and are generally considered to be more accurate, especially for activities other than paid work that are conducted in less regular

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<sup>24</sup>Available upon request.

<sup>25</sup>The reduction in the coefficient for West German couples stems to a large degree from including an indicator for couples being married. In married couples, gender inequality is already higher pre-birth and the arrival of children also leads to stronger increase in inequality. If instead of the female housework share the absolute gap in housework is considered, East-West differences remain large and statistically significant ( $p < 0.0001$ ).

Table 3: Long-run impacts of children

	(1)	(2)	(3)	(4)	(5)	(6)
	East German couples	West German couples	West German couples	West German couples	East-West difference	East-West difference
Female income share						
Long-term effect	-0.183*** (0.024)	-0.183*** (0.021)	-0.309*** (0.013)	-0.283*** (0.013)	0.126*** (0.027)	0.100*** (0.024)
Female share of working hours						
Long-term effect	-0.196*** (0.024)	-0.200*** (0.021)	-0.343*** (0.012)	-0.321*** (0.013)	0.147*** (0.027)	0.121*** (0.024)
Female housework share						
Long-term effect	0.119*** (0.020)	0.107*** (0.019)	0.179*** (0.011)	0.139*** (0.012)	-0.061*** (0.023)	-0.032 (0.023)
Female share of child care						
Long-term effect	0.716*** (0.010)	0.713*** (0.011)	0.796*** (0.004)	0.786*** (0.005)	-0.080*** (0.011)	-0.073*** (0.012)
Specialisation index						
Long-term effect	0.272*** (0.037)	0.266*** (0.033)	0.492*** (0.018)	0.436*** (0.020)	-0.220*** (0.042)	-0.170*** (0.038)
Age, survey year FEs	Y	Y	Y	Y	Y	Y
Additional controls		Y		Y		Y
N	3,962	3,939	11,817	11,628	15,779	15,567

*Notes:* Table shows long-run coefficients ( $t = 1 - 6$ ) of the arrival of children on within-couple gender inequality. Columns (1), (3) and (5) are estimates shown in Figures 3 and 4. Additional control variables added in other columns: high education, federal state dummies (16), migrant background, municipality size class dummies (7) and an indicator for married couples. Standard errors clustered at the couple-level in parentheses. Significance levels: \* < 0.1 \*\* < 0.05 \*\*\* < 0.01. Source: SOEP v35

intervals (Kitterød et al., 2005). Time-use researchers have found that despite differences in activities in diary versus survey data, the approaches tend to yield comparable patterns between groups and are therefore insightful (see, e.g., Baxter and Bittman, 1995; Marini and Shelton, 1993). Due to the lack of a panel structure in German time-use surveys, the *impact* of children cannot be estimated with this data, but it allows for a more detailed inspection of gender inequality in time use in couples with and without young children. These analyses are complementary to the event study estimates using SOEP in order to gain a broad understanding of within-couple gender inequality, particularly for non-market work.

Since reunification, three time-use surveys (1991/92, 2001/02, 2012/13) have been

conducted in Germany. Additionally, two time-use surveys from the last years of the GDR (1985 and 1990) offer a unique opportunity to study gender inequality in a socialist system, where, generally speaking, individuals were obliged to work and differences in working hours between men and women were much smaller. Despite some differences in the sampling design, the time-use surveys have been conducted in a comparable fashion in the GDR and in reunified Germany. This allows to compare outcomes from the GDR and to those from East and West Germany in a consistent framework, which was not feasible with the SOEP. To contrast couples with and without children, the sample is restricted to couples with either i) children under 6 or ii) couples with no children in the household but a female age distribution in the range of the 10th to 90th age percentile of those with children (see section 3.3).

In Figure 5 the couple-level distribution of the female share of (market) working hours, housework and child care, and the specialisation index are plotted separately for the GDR, East and West Germany. In Panel A the narrow distribution of working hours in the GDR is apparent;<sup>26</sup> of couples with both partners working, the female share lies in the range of 0.4 and 0.6 in 80% of couples. Additionally, with 5 ppt the difference between couples with and without children is quite low. After reunification in Germany the difference in the working hours distribution by children in East Germany is larger than in the GDR, but much smaller than in West Germany (11 vs. 23 ppt). Overall a wider distribution of the working hours share is evident in Germany, which is mostly due to a larger share of individuals not in employment.

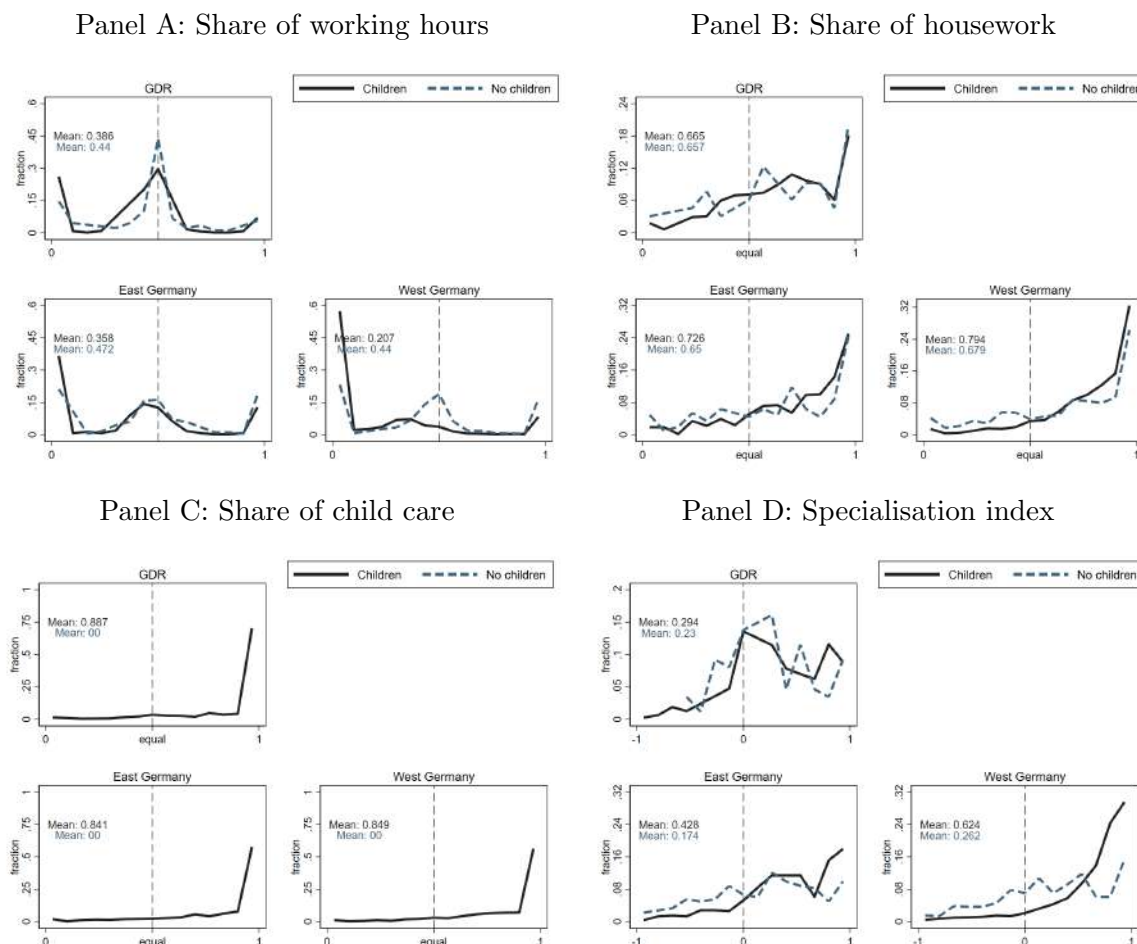
With market work being relatively evenly distributed in the GDR (and to a slightly lower degree later in East Germany), strong gender inequalities can be observed in domestic work as documented by Nickel (1992). About two-thirds of housework in the GDR is performed by women, but the average differs little by children. The household shares for childless couples after reunification are quite similar in both regions of Germany, but in line with the stronger decrease in working hours, children increase the female household share substantially and more so in West Germany.

Child care is predominantly the responsibility of mothers across space and time with shares of about 85%. Fathers being the main caretaker is still very much an exception. Gender egalitarian policies in the GDR focused on labour market aspects, but in terms of domestic work—and especially child care—the data does not suggest that this had

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<sup>26</sup>By law, a standard work week was 43.75 hours, and 40 hours for mothers with two children below the age of 16 (Rosenfeld et al., 2004).

Figure 5: Distribution of activities (female share) -  
Time-Use Survey



*Note:* Figures show within couple shares of respective activities per survey day. Sample is restricted to weekdays. Region refers to current location of couples. GDR data from 1985 and 1990, East and West German data from 1991/1992, 2001/02 and 2012/13. Children indicates a child under 6 years in the household, couples with no children are in the 5th-95th percentile age range of couples with children in the sample. Distribution calculated in 15 bins of equal width. Sources: Time-Use Study of the GDR and German Time-Use Survey

any spillovers on an overall more gender egalitarian distribution (Berkes et al., 2021). In line with the double-shift hypothesis, the share of leisure is lower with children with a similar reduction as in East and West Germany.<sup>27</sup>

The specialisation index summarises the gender-specific specialisation in households and illustrates once more, that the GDR is more gender egalitarian with children having a smaller impact on this, and West Germany being on the other end of the distribution. East Germany is less gender egalitarian in these regards than the GDR, but still substantially more than West Germany. In Appendix Table B.3 conditional differences controlling for survey wave and life-cycle effects are presented.

<sup>27</sup> Available upon request.

### 4.3 Attitudes

Differences in gender-related attitudes between East and West Germans have been well documented in the literature (e.g. [Bauernschuster and Rainer, 2012](#); [Zoch, 2020](#)) with East Germany persistently holding more egalitarian views. Building on this, I will examine in this subsection how attitudes specifically related to maternal employment differ and investigate whether the arrival of children has an impact on such attitudes. This section uses data from the German family panel *pairfam*. A revealing set of questions ask parents to what extent mothers of children of different age groups should ideally be working. An attractive feature of this is that it allows to analyse differences in attitudes towards both the extensive and intensive margin of maternal employment.

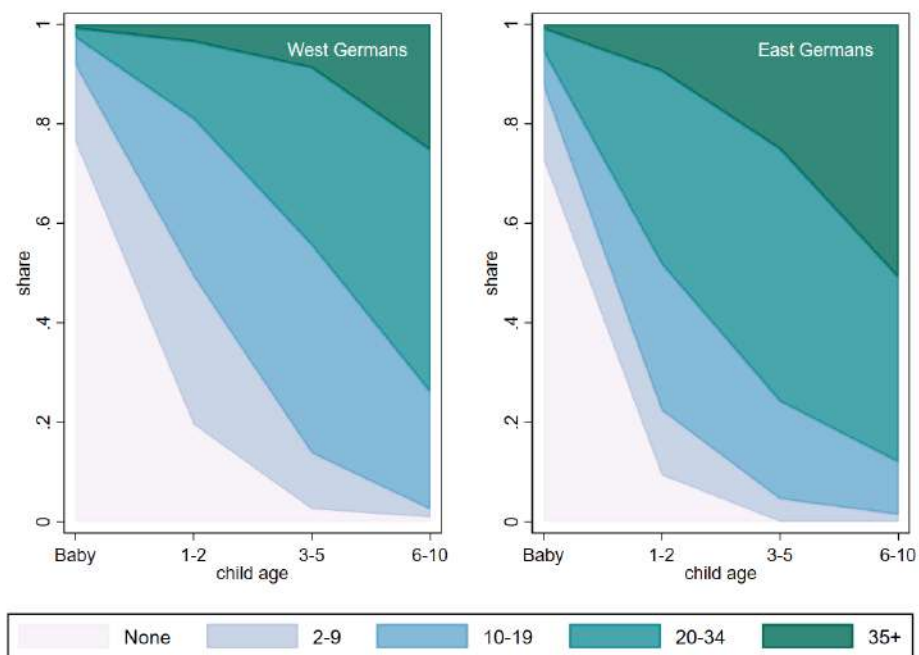
The distribution of ideal working hours by child age is presented in Figure 6, Panel A. In the first year of a child, both East and West Germans indicate that mothers should not be in employment or, if so, only be working few hours. This is consistent with very similar effect on labour market outcomes in the first year post-birth (Figure 3). However in kindergarten-age, attitudes towards maternal employment begin to diverge; a smaller share of West Germans indicate that mothers should not be working at all, but most respondents are only in favour of part-time work with moderate hours. In contrast, about half of East Germans suggest that mothers of children aged 1-2 should be working 20 hours or more per week (which only 19 percent of West Germans are in favour of). With increasing child age longer maternal working hours are deemed ideal in East and West, but it is worth pointing out that even in more gender-egalitarian East Germany less than half of respondents prefer full-time maternal working hours. If those attitudes are adhered to, a full catch-up of mothers with regard to labour market outcomes is incompatible. Panel B of Figure 6 summarises East-West differences in attitude towards working hours by child age, making apparent that differences are initially small and with increasing child age are first stronger at the extensive and later at the intensive margin.

While this novel evidence is intriguing as it helps to explain differential recovery in East and West Germany, it is unclear whether these differences were pre-existent and constant, or either exacerbated or diminished after the arrival of children. [Kuziemko et al. \(2018\)](#) have documented that mothers in the US underestimate the effect of having children on their future labour supply, a finding they denote as "the mommy effect". In line with this, attitudes towards maternal employment may change after the arrival of children. To investigate this I focus on two outcomes which are covered irrespective of respondents

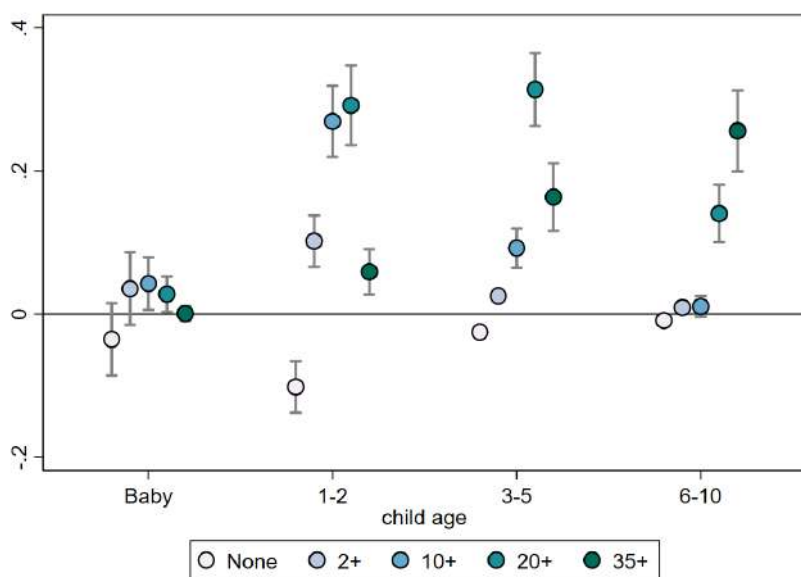


Figure 6: Maternal employment by child age

Panel A: Ideal weekly working hours for mothers



Panel B: East-West differences



*Note:* Panel A shows the distribution of indicated ideal working hours for mothers of children of different ages. West and East Germans are assigned according to their country of birth (GDR or FRG). Panel B shows coefficients and 95% CIs of East-West differences. The underlying questions are only asked to respondents with children. Source: pairfam wave 1-11

having children: *Women should be more concerned about family than about career* and *A child under age 6 will suffer from having a working mother*. Both variables are coded from 1 (disagree completely) to 5 (agree completely), thus higher values indicating more traditional values.

Table 4: East-West differences in attitudes and the impact of children

	Women should be more concerned about family than career (1-5)			Child under 6 will suffer with working mother (1-5)		
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Panel A: East-West differences</i>						
Mean of dep. variable	2.584	2.601	2.565	2.494	2.309	2.695
East dummy	-0.186*** (0.034)	-0.178*** (0.047)	-0.200*** (0.050)	-0.603*** (0.040)	-0.481*** (0.052)	-0.727*** (0.060)
Sample	Pooled	Women	Men	Pooled	Women	Men
Wave & age FEs	Y	Y	Y	Y	Y	Y
Observations	13,621	7,084	6,536	13,561	7,061	6,499
<i>Panel B: Impact of children on attitudes</i>						
Mean of dep. variable	2.695	2.501		2.483	2.023	
Long-term effect of children	0.155*** (0.057)	0.346*** (0.111)		-0.062 (0.067)	0.249** (0.115)	
Sample	Pooled	Pooled		Pooled	Pooled	
Region	West	East		West	East	
Age & wave FEs	Y	Y		Y	Y	
Observations	2,825	860		2,820	855	

*Note:* Panel A presents East-West differences in agreement to statements listed at the top of the table. All regressions include age and survey wave FEs. Panel B shows the impact of children on those attitudes, separately for West and East Germans. In Panel B the sample is restricted to three years pre- to six years post-birth of the first child. Long-term effect refers to the average post-birth effect. Source: pairfam wave 1-11

In an intermediate step, Panel A of Table 4 displays East-West differences. In line with the extant literature, East Germans are less likely to agree with those norms. Regarding women putting family over career, gender differences are small (columns 2 and 3). However, men are more likely to agree with the statement that young children suffer with a working mother, but the larger East dummy for the men-only sample indicates that gender differences in East Germany are generally smaller in this regard.

In a second step I take advantage of the panel structure and use an event study design as in the main analysis in subsection 4.1. Similarly, I use data from three years pre- to six years post-birth and report the average pooled post-birth coefficient. Panel B reports the coefficients from separate estimations on the East and West German sample. The coefficients in columns (1) and (2) show that in both East and West Germany the arrival of children is associated with more traditional attitudes regarding women's priorities over family and career and—perhaps surprisingly—the effect being larger in East Germany, where the index increases by 13 percent relative to the mean.<sup>28</sup> The estimates on whether

<sup>28</sup>In West Germany the effect is entirely driven by women, whereas coefficients are similar in size for men and women in East Germany.

a child suffers with a working mother show that children don't lead to more traditional attitudes in West Germany, while this is again the case in East Germany.

The examination of attitudes with respect to children and maternal employment in East and West Germany overall indicate that although attitudes are more egalitarian in East Germany (see Figure 6 and the mean values shown in Table 4), children lead to some convergence in those attitudes. However, remaining differences in gender- and children related attitudes continue to manifest themselves in child-induced labour market penalties that negatively affect relative labour market outcomes of mothers more strongly in West Germany.

## 5 Robustness

In this section, I run a battery of robustness checks to support the hypothesis that the results are driven by socialisation of couples. For this I will use SOEP, as the main analyses rely on this data set, and because its panel structure and richness in variables makes it most suitable to assess robustness. Stability of estimates for the main outcomes examined in Section 4.1 will be shown which then also gives support to validity of other estimates.

A main concern may be that results are not driven by the couple's origin, but by the current location where households reside.<sup>29</sup> I.e. current local norms (or institutions) are more relevant than norms exposed to during childhood or adolescence. This would imply that horizontal cultural transmission through peers is more important than vertical transmission through generations (Bisin and Verdier, 2001). The first two rows of Table B.4 display outcomes by current location in East and West Germany and results are almost indistinguishable to those presented in Table 3. The following rows show DD coefficients for *origin*  $\times$  *location* cross combinations.<sup>30</sup> Results for East and West German couples living in the region of origin are again very similar. For East Germans living in West Germany, i.e. couples who have moved, the effect on labour market outcomes are similar to East German stayers (similar results on the individual level have been found by Boelmann et al., 2020; Collischon et al., 2020). Impacts on domestic outcomes on the other hand are closer to West Germans, suggesting that local norms or institutions may still be relevant for this domain.

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<sup>29</sup>This would then directly devalidate the analysis based on time-use surveys as these only rely on household's current location.

<sup>30</sup>Too few West German couples live in East Germany to conduct statistical analysis with this sample.

Another prime candidate to be the driver of East-West differences is the different population share with a migrant background. This may be a relevant factor if individuals born abroad have different gender norms to the native-born population and thus respond differently to the arrival of children. In 15.2% of West German couples, but only 0.6% of East German couples are both partners born abroad. Results with the sample restriction of both partners born in Germany are displayed in Table B.5. Coefficients are statistically identical to the main results.

In the current analysis, mixed couples, i.e. those where either partner is born in East and West Germany, are excluded from the analysis. These are 6.1% of all couple-level observations. Like Lippmann et al. (2020), I find that descriptively these couples are between pure East and West German couples. If these couples are assigned to either East or West German couples, this has only minor influence on the estimates.

Figure A.7 subsequently excludes each of the 16 federal states to corroborate that effects are not driven by a specific state. Note that as this exercise is based on the current location of couples, we use these estimates as the reference point. These were shown to be very similar to those based on both partners' socialisation (see above). The East-West difference of the effect of children on the female income share lies between 0.102 and 0.131 ppt when federal states are excluded (the identified effect was 0.118) indicating stability to the exclusion of states.

Next, I split the 16 German federal states in all possible combinations to belong to either of the two 'treatment groups'. Then I estimate event study estimates for those two groups and calculate the difference in post-birth coefficients and contrast these to the actual East-West difference we observe. This placebo exercise gives an indication how likely these regionally differential responses to the arrival of children could have arisen if Germany had been divided in another way. Figure A.8 shows histograms of the coefficients for the main outcome 'female income share'. Panel A uses all federal states and Panel B West German states (872 possible combinations) only to see how often such differences would arise in this more homogeneous sample. Only one estimated difference is larger than the East-West difference.<sup>31</sup>

A reason why the child penalty for women is smaller in East Germany could also be that worse economic conditions in East Germany frankly demand both partners to return to employment quicker. In 2018, GDP per capita in East Germany was only 75% of the

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<sup>31</sup>This is the case if all other states are compared to the small state Saarland, which only account for 1.2% of West German observations.

West German level. If better economic conditions in some parts allow young families not to have both partners working (full-time), specialisation into market and domestic work may be easier feasible.<sup>32</sup> To test this hypothesis, I split West German counties into low and high income counties (by GDP per capita). To ensure that couples are always assigned to the same group, I use GDP data from the median year (2008) of the analysis. Lower income West German counties have only a 5% larger GDP per capita than the average East German county. Event study estimates by economic power are shown in Figure A.9. Both for female income share and share of working hours coefficients look similar with no meaningful differences.

In a similar spirit, day care availability could be a key driver of differences. Day care shortages are prevalent in Germany, especially for under threes (Jessen et al., 2020a), potentially posing a limited factor for employment. An issue with analysing this aspect is that differences between East and West Germany are so large—in 2018, the county with the lowest share enrolled in East Germany still exceeded the highest West German county—that West German counties can not be split to mimic East German counties in this regard. As day care for under three was barely existent in West Germany before the mid 2000s I only use births after 2004 and (median) split West counties by day care enrolment. Figure A.10 shows that, again, differences are quite small with long-run effects on the female income share of 24-27%. As average differences in enrolment between these counties are only 8%, I compare these numbers with East German births *before* 2006. The long-run penalty on the female income share is 19.7%. While this comparison is, admittedly, imperfect, it still suggests that while day care availability is likely to play a role, it is by far not the driving factor of East-West differences. It is also worth nothing in this context, that results from East Germans who had moved to West Germany, i.e. to a region with much lower day care provision had labour market child penalties much closer to East Germany ‘stayers’ than to their West German peers Table B.4.<sup>33</sup>

Recent research has highlighted pre-existing average differences between the East and West German population before the GDR and FRG were formally established in 1949 (Becker et al., 2020). If these are sufficiently large, differences in modern outcomes may be (predominantly) attributed to those pre-existing differences. Estimating a spatial RD in

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<sup>32</sup>A traditional specialisation would then make (economic) sense if men have notably higher pre-birth earnings.

<sup>33</sup>Research by Müller and Wrohlich (2020) on the effects of day care expansion for toddlers on maternal labour supply in Germany has found elasticities of about 0.2. Under current differences in day care provision (20 ppt), this implies that—assuming linearity—only about a third of the difference in employment (14 ppt) between East and West German mothers would be closed by this.

proximity to the border allows to smoothly control for such gradients, if those differences did not jump discontinuously at the later border. [Campa and Serafinelli \(2019\)](#) and [Lippmann et al. \(2020\)](#) follow similar strategies.

A rigorous implementation of a spatial RD proves difficult due to the large density of observations required in vicinity of the discontinuity. However, the estimation can follow the intuition of a spatial RD by estimating child penalties in 120km bins around either side of the border.<sup>34</sup> Figure [A.11](#) shows German counties on either side of the (former) inner border that are included in the estimation. Coefficients of the effect of children on the within-couple female income share are plotted in Figure [A.12](#). They give no indication that estimates converge in proximity to the border.

## 6 Conclusion

For 41 years Germany was divided into two states with vastly different policies with regard to maternal employment. In the GDR mothers returned to employment quickly, whereas in the FRG policies favoured a male breadwinner model. Since reunification in 1990, East and West Germans are exposed to the same policy environment, but differences in socialisation continue to play a role. This paper examines how child penalties differ between couples who grew up in either the GDR or FRG, but have children in reunified Germany.

The negative effect on the female income share in couples is significantly small in East German couples (12.6 ppt). Looking at contributions to non-market work, I additionally show that in West German couples arrival of children is associated with stronger increases in the female share. These findings are in line with more gender traditional attitudes towards maternal employment. The exclusion of numerous potential explanatory factors gives support to the interpretation that differences in norms are a key factor in explaining smaller negative effects of children on gender inequality in East German couples.

Despite important progress in reducing gender inequality over the past decades across high-income countries, differences in earnings persist and women continue to contribute larger shares to non-market work. Important contributions have found that a large share

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<sup>34</sup>The bins are chosen to cover the entirety of East Germany and for each bin to contain at least 1,000 observations (the restriction binds in less densely populated East Germany.) The county furthest away from the border is Spree-Neiße in Brandenburg with a distance of 228km. [Campa and Serafinelli \(2019\)](#) and [Lippmann et al. \(2020\)](#) are able to use finer bins of about 5 and 10km respectively. The reason is that these papers display *average values* based on the the entire working age population in their RD plots, whereas the focus here is on data-demanding event study *estimates* for a sample of couples in the years surrounding childbirth.

of remaining gender inequality is child-related (Kleven et al., 2019b). It is thus of crucial importance to better understand why individuals respond differently to the arrival of children. The case of East and West Germans couples suggests that norms due to different socialisation play an important role. Deeply held norms may be difficult to influence in the short-run, but family policies such as expansions of day care or parental leave policies, may both facilitate maternal employment and have an impact on norms in the long-run if trade-offs between family and career are reduced, thus providing a fruitful avenue to reduce child-related gender inequality.

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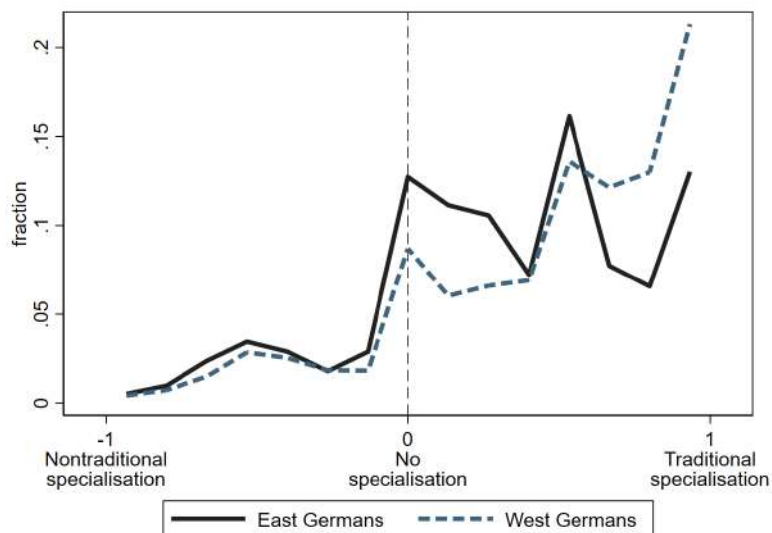
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# Appendix

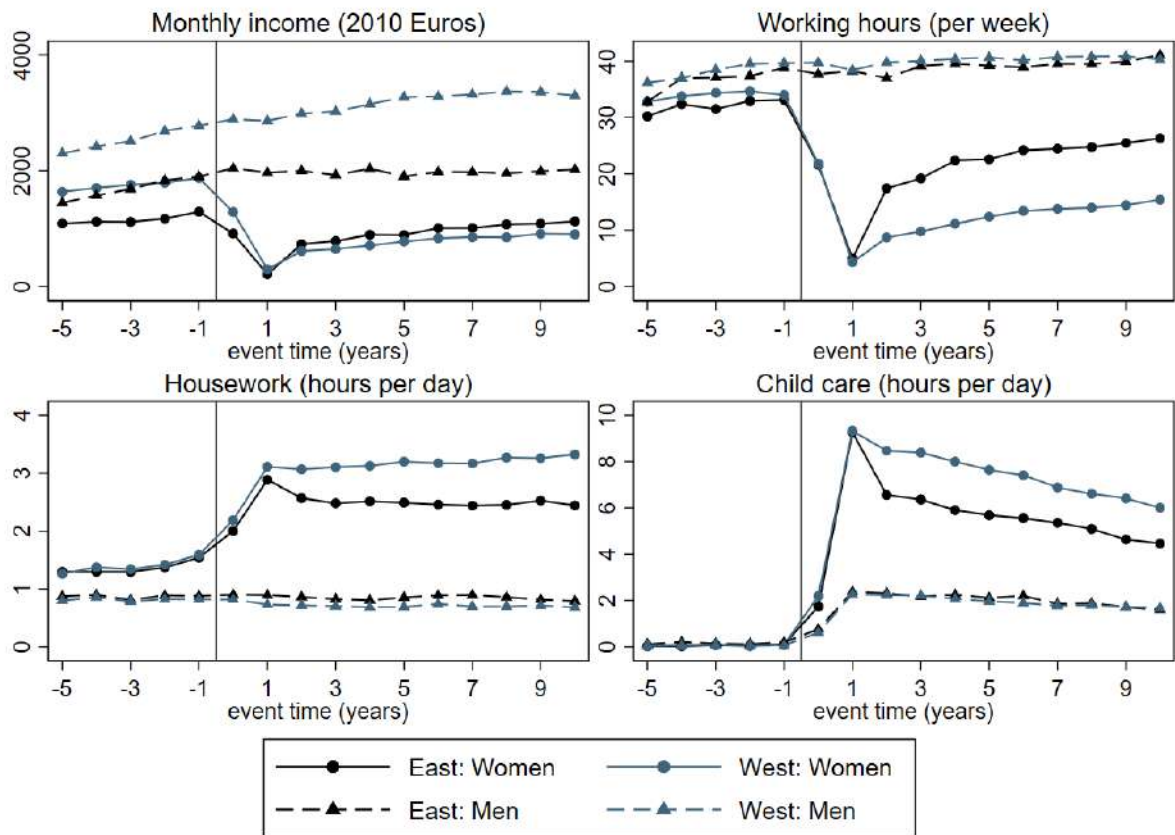
## A Figures

Figure A.1: Specialisation index



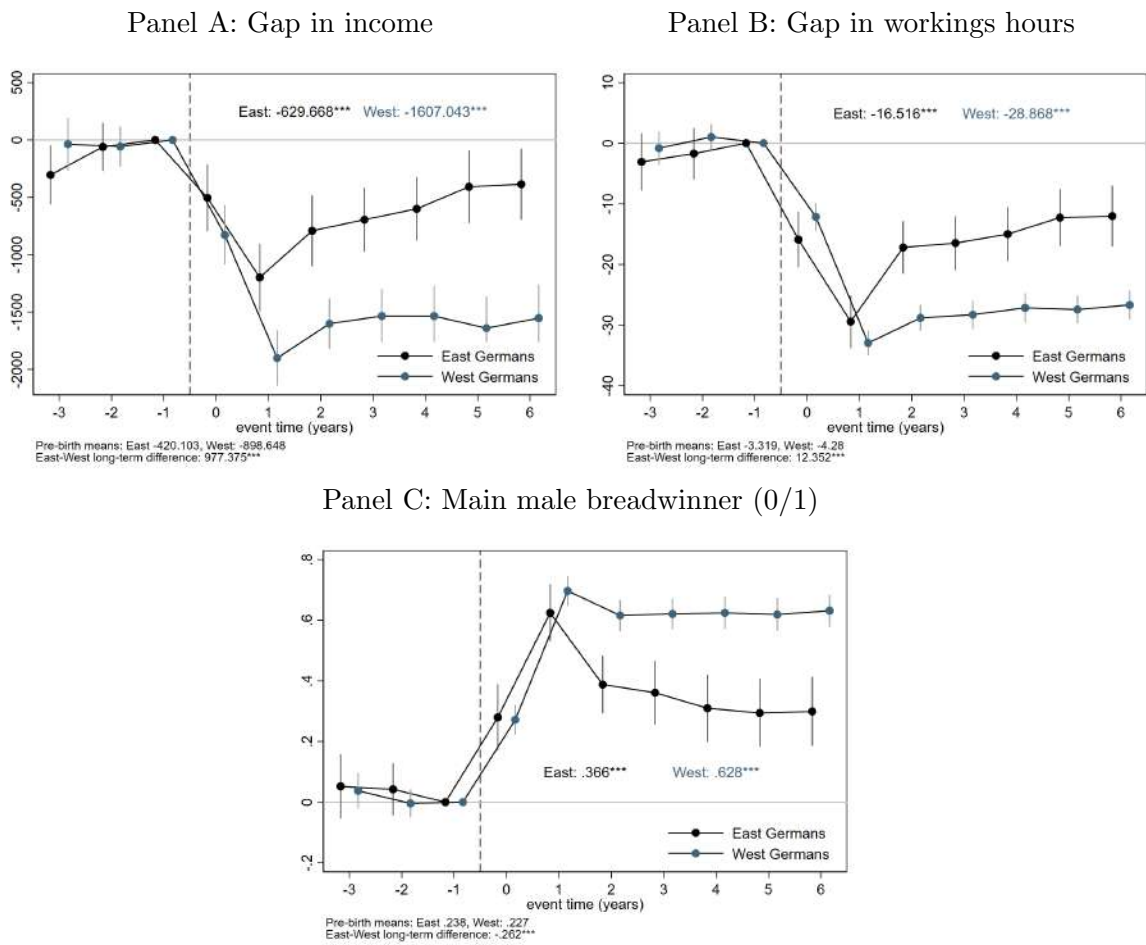
*Note:* Figure shows the distribution of a specialisation index proposed by [Siminski and Yetsenga \(2020\)](#). Traditional specialisation implies that the female partner is solely responsible for domestic work and the male partner for market work (vice versa for nontraditional specialisation). Distribution calculated in 15 bins of equal width. Source: SOEP v35

Figure A.2: Average values by event time



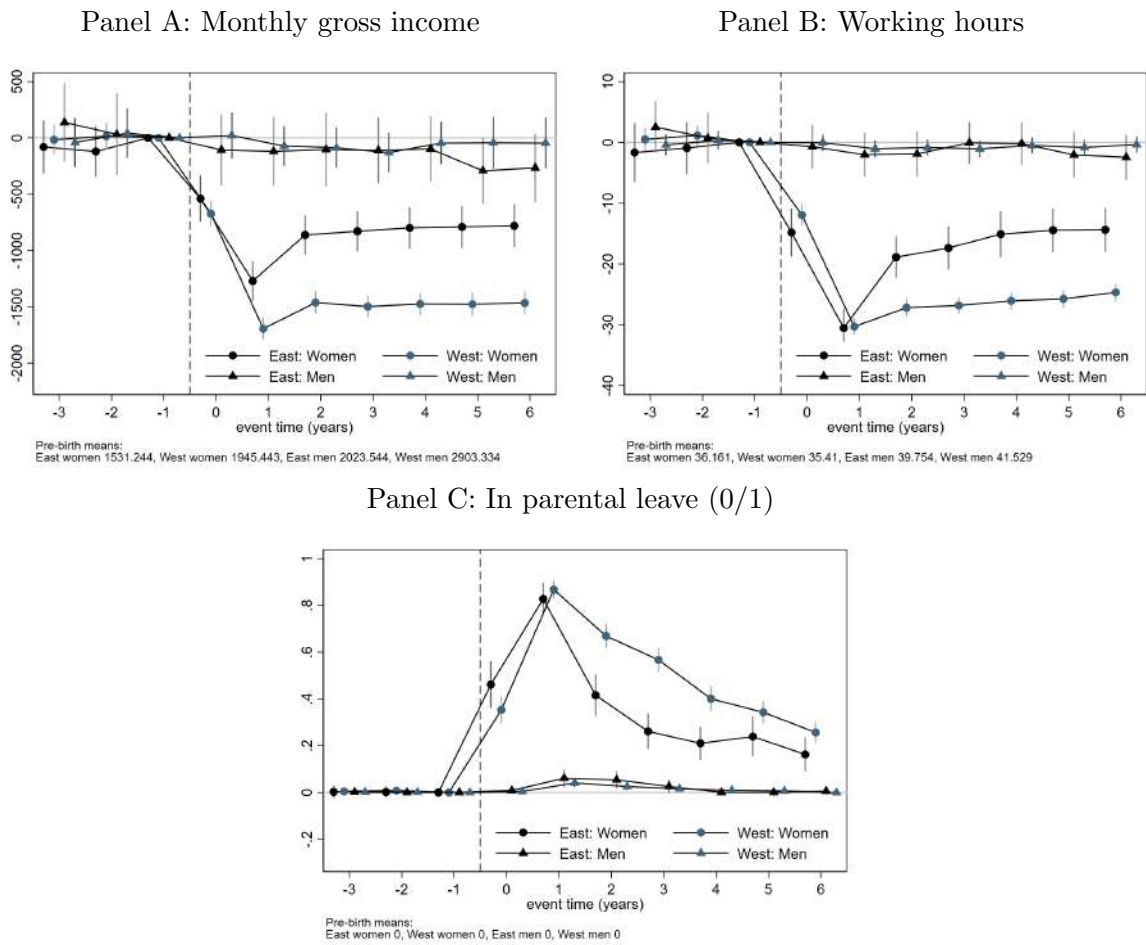
*Note:* Figure shows average values of the respective variables by event time relative to the birth of first child. Sample covers 1990-2018. Source: SOEP v35

Figure A.3: Impact of children on gender inequality in the labour market - gaps and discrete outcomes



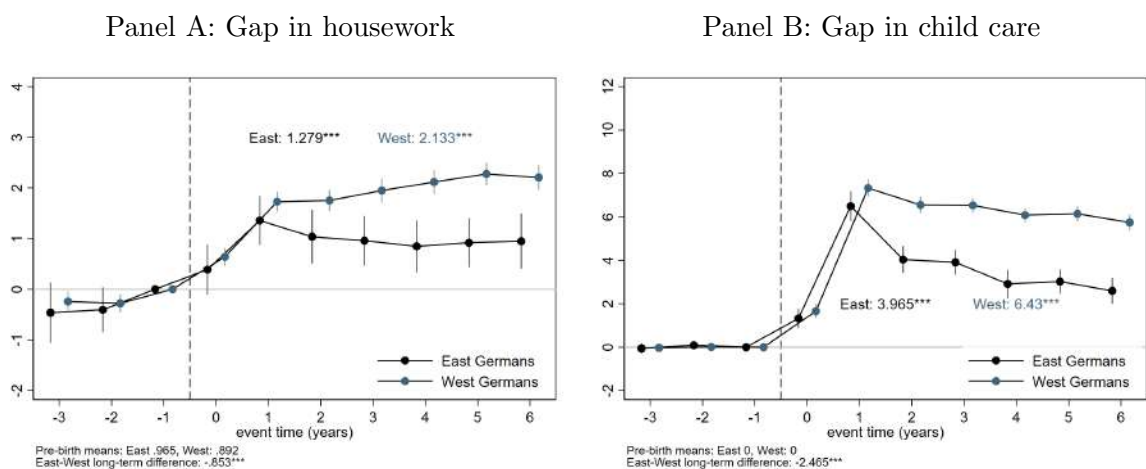
Notes: Panels A and B show gaps corresponding to shares shown in Figure 3. Main male breadwinner households are defined as such if the female income share is below 0.4. See Figure 3 for other notes. Source: SOEP v35

Figure A.4: Impact of children on gender inequality in the labour market - individual level



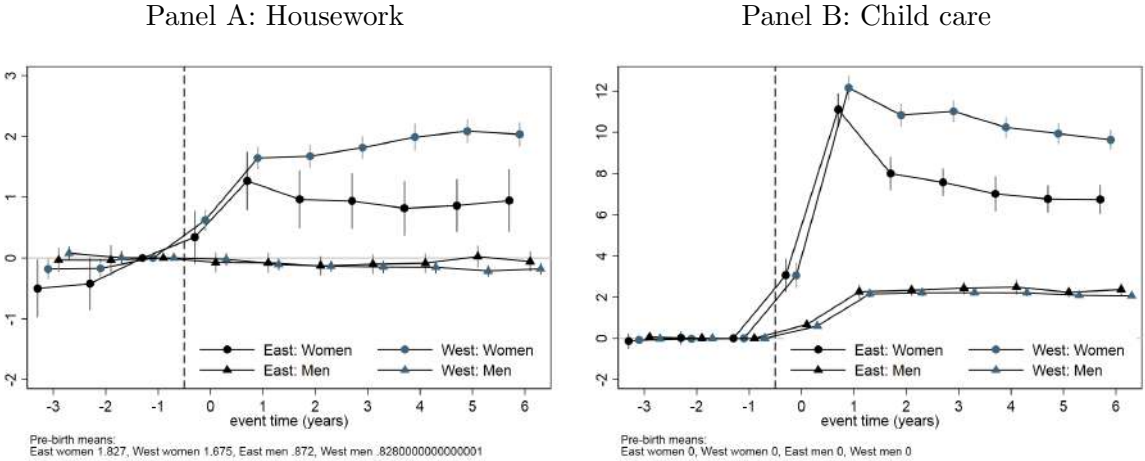
Notes: Panels A and B shows individual-level contributions to the shares depicted in Figure 3. Panel C shows the share that indicate currently being in parental leave. See Figure 3 for other notes. Source: SOEP v35

Figure A.5: Impact of children on domestic gender inequality - gaps



Notes: Figure shows gaps corresponding to shares presented in Figure 4. See Figure 3 for other notes. Source: SOEP v35

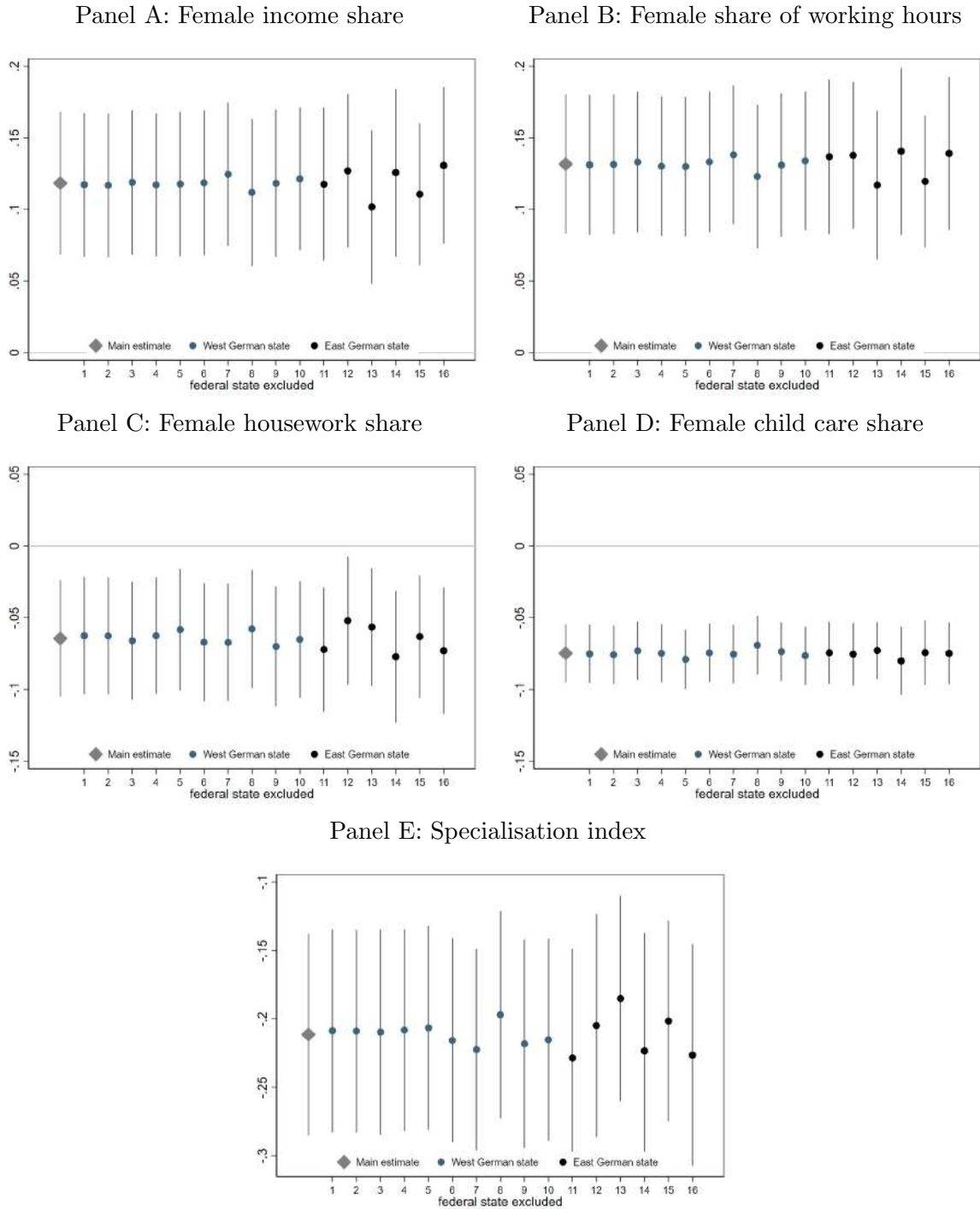
Figure A.6: Impact of children on gender inequality in the labour market - individual level



Notes: Panels A and B shows individual-level contributions to the shares depicted in Figure 4. See Figure 3 for other notes. Source: SOEP v35

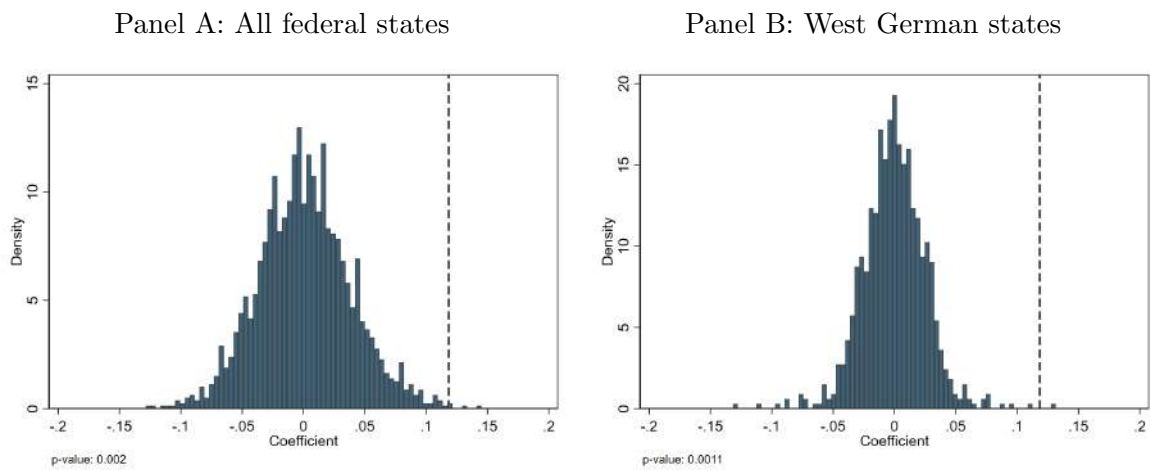


Figure A.7: East-West long-run difference with states excluded



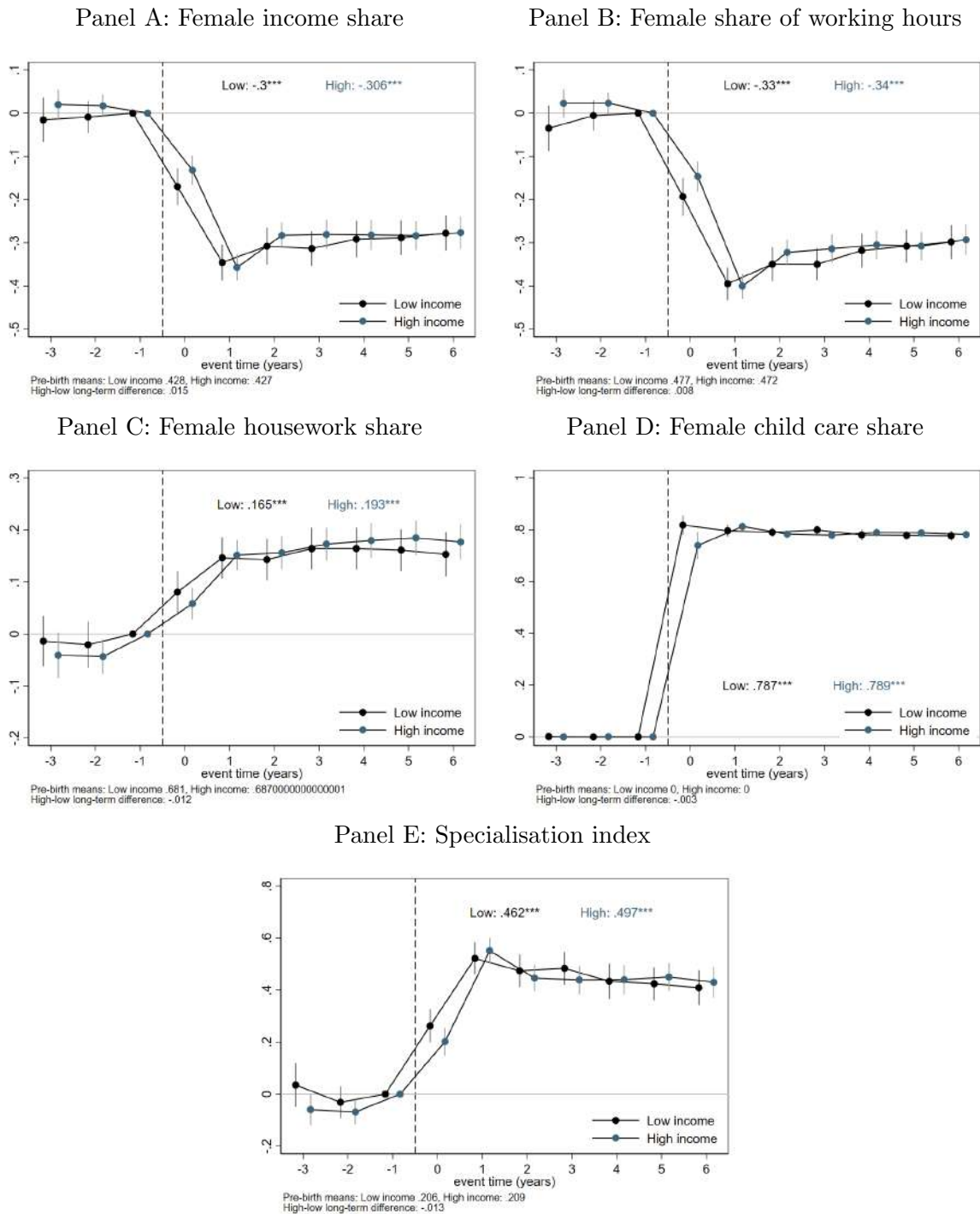
*Notes:* Figure shows East-West long-run differences of the arrival of children on within-couple gender inequality with states subsequently dropped in the estimation. The grey main estimates refer to estimates based on the current location of couples. List of states: 1 Schleswig-Holstein 2 Hamburg 3 Lower Saxony 4 Bremen 5 North Rhine-Westphalia 6 Hesse 7 Rhineland-Palatinate 8 Baden-Württemberg 9 Bavaria 10 Saarland 11 Berlin 12 Brandenburg 13 Mecklenburg-Vorpommern 14 Saxony 15 Saxony-Anhalt 16 Thuringia. Source: SOEP v35

Figure A.8: Placebo assignment - female income share



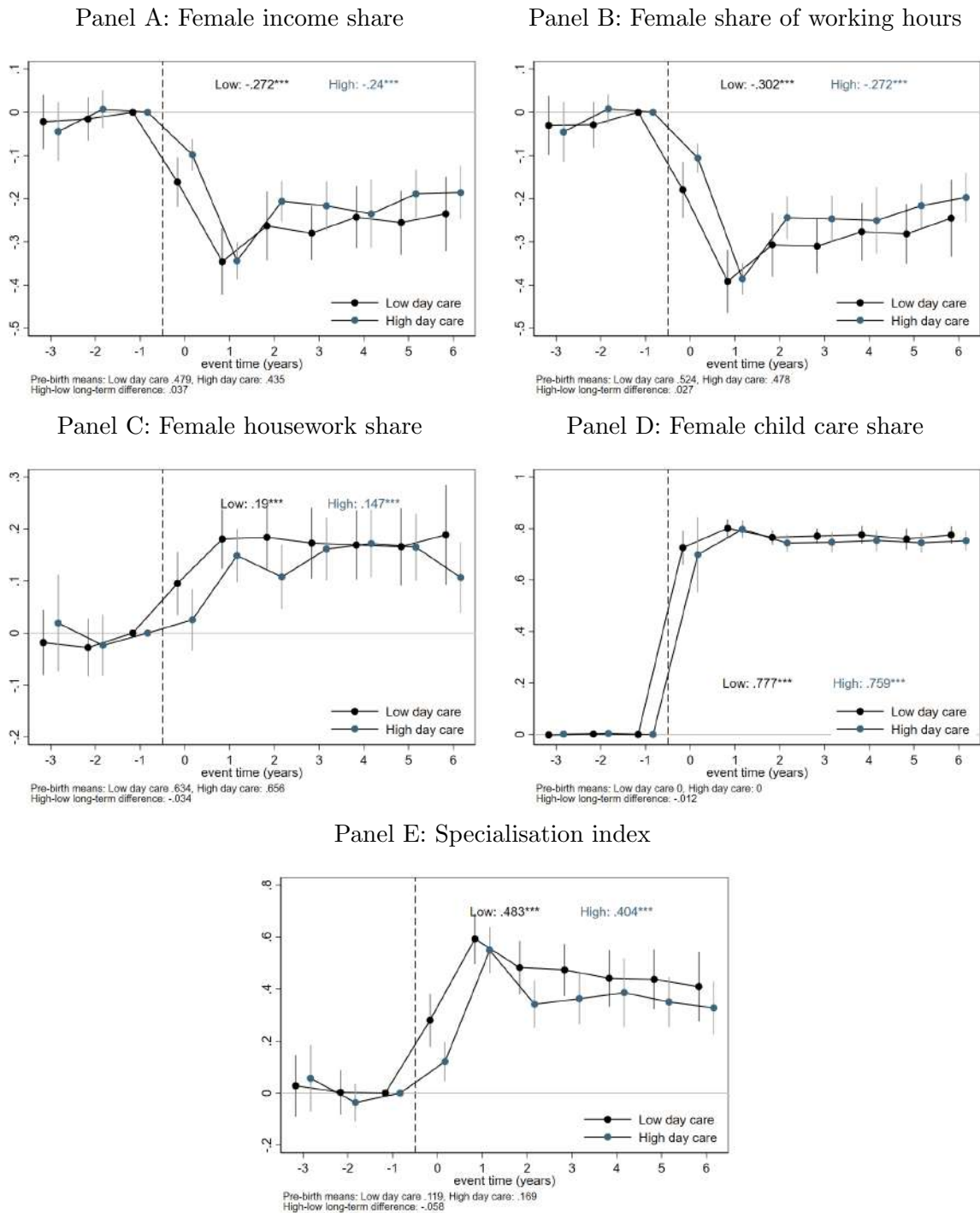
*Note:* Figure shows the distribution of estimates for long-run differences between two groups of federal states. The dashed lines denote the East-West difference based on the federal state of residence. In Panel A all federal states are used, whereby East and West Berlin are treated as separate entities. Panel B only uses West German states. Source: SOEP v35

Figure A.9: West German counties split by income per capita



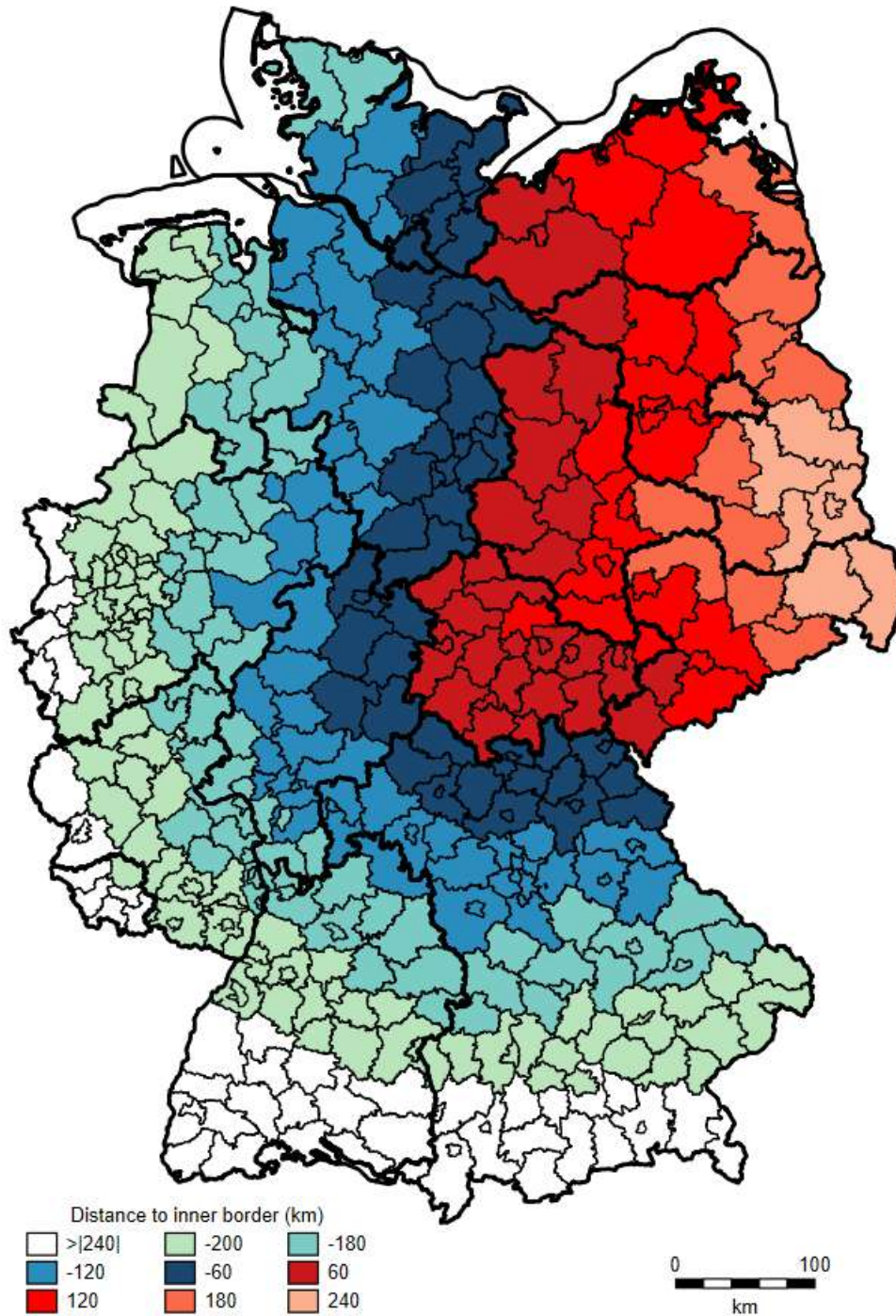
*Note:* Figure shows event study estimates corresponding to Figures 3 and 4. The sample is restricted to couples living in West Germany and the sample is split by GDP per capita as of 2008. See Figure 3 for other notes. Source: SOEP v35 and Destatis

Figure A.10: West German counties split by day care availability



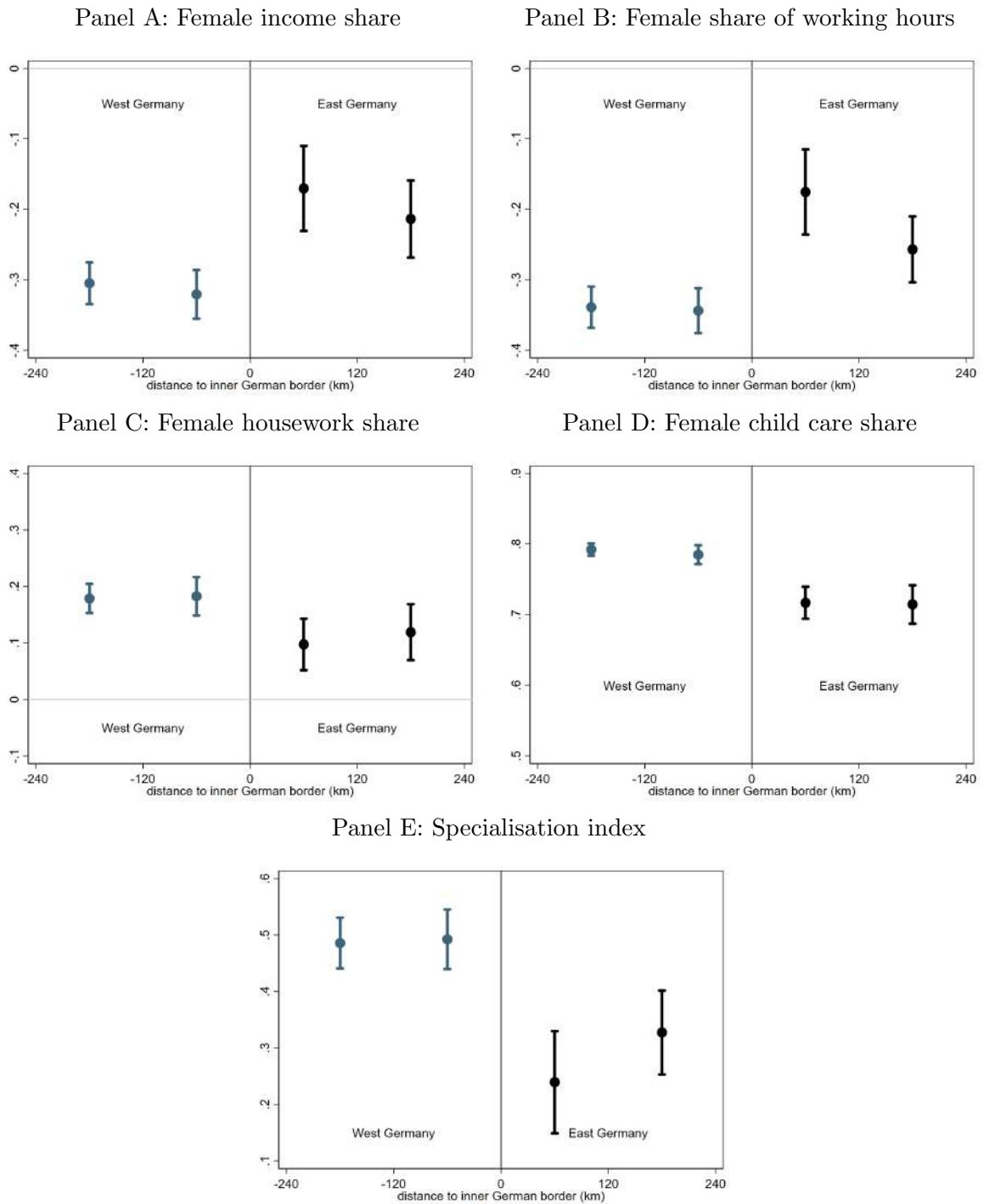
*Note:* Figure shows event study estimates corresponding to Figures 3 and 4. The sample is restricted to couples living in West Germany and the sample is split at the county-level the share of children under the age of three enrolled in day care. Estimates based on births occurring between 2004 and 2019. See Figure 3 for other notes. Source: SOEP v35 and Destatis

Figure A.11: German counties and distance to inner border



*Note:* Map shows contemporaneous German counties and their geodesic closest distance to the former inner German border. Distances are calculated from counties' centroids. Red shades indicate East German states, blue shades West German states. Shapefiles provided by the Federal Agency for Cartography and Geodesy

Figure A.12: Spatial RD



*Note:* Figure shows long-run estimates of the arrival of children on within-couple gender inequality by distance to the inner German border. Distances are based on the current county of residence and are calculated from counties' centroids to the closest border point. Estimates are calculated in 120km bins to the border. Source: SOEP v35

## B Tables

Table B.1: Couple-level sums for main outcomes

	Monthly income (2010 Euros)	Working hours per week	Housework on weekday	Child care on weekday
<i>Event time</i>				
-3	4,618.30 (2312.59)	75.67 (21.90)	2.44 (1.30)	0.00 (0.00)
-2	4,834.88 (2693.73)	77.89 (21.09)	2.36 (1.30)	0.00 (0.00)
-1	4,826.69 (2366.64)	77.20 (20.98)	2.55 (1.53)	0.00 (0.00)
0	4,289.91 (3064.23)	64.71 (25.49)	3.01 (1.83)	3.65 (7.27)
1	3,171.06 (2537.58)	44.94 (17.43)	3.88 (2.15)	13.86 (7.16)
2	3,565.41 (2292.92)	50.98 (19.34)	3.84 (2.31)	12.17 (6.92)
3	3,651.33 (2132.00)	52.31 (19.66)	3.89 (2.00)	12.00 (6.73)
4	3,827.36 (2482.07)	54.51 (19.33)	4.00 (2.55)	11.17 (6.89)
5	3,981.07 (2795.87)	55.44 (20.18)	3.92 (2.14)	10.47 (6.19)
6	4,063.12 (2699.63)	56.59 (20.34)	3.93 (2.14)	10.11 (6.27)
<i>N</i>	32566	31301	32435	33561

*Note:* Table shows the sum of the main outcomes for couples from which shares are calculated as dependent variables.  
Source: SOEP v35

Table B.2: Test of approximated control group

<i>Sample</i>	Monthly income		Working hours		Housework		Child care	
	True	Appr.	True	Appr.	True	Appr.	True	Appr.
East: Women	-853.181*** (80.888)	-668.597*** (66.892)	-18.618*** (1.619)	-16.099*** (1.405)	1.251*** (0.129)	1.093*** (0.137)	7.764*** (0.482)	7.350*** (0.422)
N	4,139	4,321	4,058	4,227	4,127	4,307	4,131	4,311
West: Women	-1673.216*** (57.180)	-1511.624*** (48.393)	-28.590*** (0.760)	-27.187*** (0.644)	1.953*** (0.068)	1.915*** (0.072)	10.700*** (0.216)	10.695*** (0.235)
N	12,475	13,681	12,250	13,426	12,430	13,632	12,452	13,656
East: Men	-204.488* (121.184)	-75.943 (98.875)	-2.323* (1.408)	-1.261 (1.649)	-0.054 (0.071)	-0.040 (0.071)	2.158*** (0.141)	2.201*** (0.157)
N	4,251	4,117	4,161	4,026	4,246	4,114	4,247	4,113
West: Men	-118.443 (82.183)	114.934 (75.590)	-0.942 (0.610)	-0.284 (0.724)	-0.175*** (0.035)	-0.178*** (0.043)	2.093*** (0.066)	2.054*** (0.093)
N	12,685	13,089	12,404	12,798	12,657	13,052	12,662	13,058
East: Share	-0.183*** (0.024)	-0.195*** (0.021)	-0.196*** (0.024)	-0.196*** (0.020)	0.119*** (0.020)	0.099*** (0.017)	0.731*** (0.009)	0.665*** (0.016)
N	3,782	3,935	3,604	3,743	3,962	4,137	4,310	3,978
West: Share	-0.309*** (0.013)	-0.316*** (0.011)	-0.343*** (0.012)	-0.345*** (0.010)	0.180*** (0.011)	0.183*** (0.010)	0.812*** (0.004)	0.797*** (0.007)
N	11,623	12,708	11,125	12,161	11,823	12,925	13,022	11,974

*Note:* Table displays coefficients of (true) effects of having children based on equation 3 which uses pre- and post-birth information. Approximated coefficients are based on regressions of couples having children aged one to six with childless couples of a similar age range (10th to 90th percentile of age distribution of couples with children). Source: SOEP v35



Table B.3: Impact of children - time use data

	Female share of			
	Market work	Housework	Child care	Specialisation
GDR	-0.057*	-0.005	0.875***	0.100*
	(0.030)	(0.036)	(0.013)	(0.055)
N	661	678	608	652
East Germany	-0.140***	0.074**	0.831***	0.321***
	(0.039)	(0.033)	(0.019)	(0.057)
N	707	792	783	714
West Germany	-0.224***	0.088***	0.839***	0.322***
	(0.017)	(0.014)	(0.008)	(0.026)
N	2,128	2,429	2,418	2,178

*Note:* Table displays conditional differences in time use of households with and without children. The sample of households with children have at least one child below the age of 6, and the sample of households without children are set to be in the 10th to 90th female age percentile of those with children. All estimates include survey wave, age and education FEs. Sources: Time-Use survey of the GDR and German Time-Use Study.

Table B.4: Robustness: Estimates based on current location

	Female share of				
	Income	Hours	Housework	Child care	Specialisation
East Germany	-0.182***	-0.202***	0.114***	0.727***	0.300***
	(0.023)	(0.022)	(0.018)	(0.009)	(0.033)
N	4,067	3,868	4,300	4,741	3,829
West Germany	-0.305***	-0.338***	0.180***	0.804***	0.508***
	(0.011)	(0.010)	(0.010)	(0.003)	(0.016)
N	15,859	15,249	16,247	17,207	14,979
East Germans in East Germany	-0.188***	-0.202***	0.111***	0.727***	0.296***
	(0.024)	(0.023)	(0.020)	(0.011)	(0.036)
N	3,413	3,246	3,589	3,390	3,220
East Germans in West Germany	-0.219***	-0.208***	0.198***	0.797***	0.407***
	(0.058)	(0.055)	(0.054)	(0.025)	(0.105)
N	370	359	374	357	353
West Germans in West Germany	-0.311***	-0.344***	0.179***	0.813***	0.514***
	(0.013)	(0.012)	(0.011)	(0.004)	(0.019)
N	11,525	11,037	11,723	11,083	10,935

*Note:* Table shows coefficients for the long-term effect of children as in Table 3. East and West German couples are defined by their 1989 location. East and West Germany related to the current location with a distinction made between East and West Berlin. The two upper rows are only based on current location, the bottom three rows distinguish between location and origin of couples. Source: SOEP v35

Table B.5: Robustness: Both partners born in Germany

	Female share of				
	Income	Hours	Housework	Child care	Specialisation
DD coefficient: East Germans	-0.183*** (0.023)	-0.197*** (0.024)	0.118*** (0.020)	0.716*** (0.010)	0.272*** (0.037)
N	3,766	3,590	3,946	3,539	3,396
DD coefficient: West Germans	-0.311*** (0.014)	-0.345*** (0.013)	0.179*** (0.012)	0.798*** (0.005)	0.496*** (0.020)
N	9,666	9,287	9,795	8,481	8,500

*Note:* Table shows coefficients for the long-term effect of children as in Table 3 with the estimation sample restricted to couples where both partners were born in Germany. Main estimates in contrast are based on the 1989 location with to further restriction on birth place. Source: SOEP v35

## C Comparison of time-use data from diary data and SOEP

Time-use diary data is generally considered to contain less measurement error than survey data based on retrospective questions when it comes to accurately depicting individuals' time spent on various activities [Marini and Shelton \(1993\)](#). Diary data is commonly recorded throughout the day (or after a day) in small time slots. The German Time-Use Survey asks participants to record their days in five- to ten-minute slots. In the SOEP questions are asked for a 'typical' weekday or weekend day and respondents may only indicate full hours, automatically leading to some activities being under- or overreported. The literature has found that especially unpaid work, which is usually carried out in irregular intervals, is difficult for respondents to accurately estimate ([Kitterød et al., 2005](#)). The precision of time-diary data comes at the expense of less background information available in such data on individuals, smaller sample sizes and the lack of a panel structure (in Germany, as in most other countries). Longitudinal data is essential for most analyses in this paper, e.g. clean event study estimates, making it desirable to be able to use information from the SOEP for some analyses.

In this appendix section I compare averages obtained from the SOEP and from the German Time-Use Survey, to verify the usage of survey data. In a first step some restrictions have to be imposed to make the samples more comparable. SOEP data is restricted to the same years as the three waves of the time-use survey (1991/92, 2001/02, 2012/13). In both data sets, only information from weekdays is used. Additionally I focus on the main group of interest; couples with exactly one child below the age of six.<sup>35</sup>

The time-use survey contains detailed 3-digit activities, e.g. the 3-digit category 'baking' belongs to the 2-digit category 'preparation of meals' of the 1-digit category 'housework'. In comparison the SOEP questionnaires ask for the time spent on housework (and shopping). Using the 1-digit category housework from the time-use data leads to large differences between the data sets with on average 50% more time spent on housework in the time-use survey. One reason for this is that SOEP also asks for time spent on repairs and gardening, which are two-digit categories belonging to housework in the time-use survey. To ensure better overlap between the housework information, a narrower definition of housework consisting of the 2-digit categories 'preparation of meals', 'maintenance and cleaning of the house or flat', 'fixing textiles' and 'shopping' is defined from the time-use survey.

Similarly, for child care, using the 1-digit category of the time-use survey initially leads to large differences with almost 200% more time spent on this in the SOEP. The retrospective questions in the SOEP generally allow for parallel activities and combining all the different activities elicited often adds up to more than 24 hours per day, whereas primary activities in the time-use survey are by definition mutually exclusive. Child care in the time-use survey consists of specific activities with the child, e.g. playing with or reading to the child. Besides the activities, the time-use survey also contains indicators on whether the child was present at any time ([Jessen et al., 2020b](#), use the terms 'parenting activities' and 'time with child' to differentiate between those). As parents of young children will still be interacting with the children and be somewhat constrained by their presence, it is not unreasonable to assume that a general question for 'time spent on child care' will be interpreted this way.

Table [C.6](#) shows a comparison of time spent on housework and child care using the definitions described above. Panel A shows averages from the SOEP, and Panel B from the

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<sup>35</sup>The reason for this restriction is that the time-use data only contains information on the age of the youngest child in the household. In the event study estimates in this paper, in contrast, the event-time relates to the birth of the first child (i.e. the oldest).

time-use survey. Both panels differentiate by survey wave, and displays results separately for women, men, the female share, and by location in East and West Germany. While the values are not perfectly in line, perhaps not too surprising given different sampling and retrospective questions vs. time diary, it is still apparent that results from the two data sets are generally comparable and differences between different groups (by region or survey year) also tend to point in the same direction. This reassures that time-use information from the SOEP can be used reliably in the analysis.

Table C.6: Time use comparison

	Housework			Child care		
	1991/1992	2001/2002	2012/2013	1991/1992	2001/2002	2012/2013
<i>Panel A:</i> SOEP						
East						
Women	2.81 (1.67)	2.49 (1.37)	1.77 (1.16)	5.72 (4.40)	6.97 (4.46)	6.86 (5.26)
Men	0.57 (0.82)	0.88 (0.91)	0.96 (0.79)	1.86 (1.86)	2.18 (1.67)	2.61 (2.21)
Female share	0.80 (0.20)	0.74 (0.22)	0.71 (0.23)	0.73 (0.22)	0.71 (0.19)	0.73 (0.19)
Observations	349	362	340	348	362	340
West						
Women	3.55 (1.98)	3.09 (1.84)	2.22 (1.46)	8.55 (4.98)	9.21 (5.63)	10.49 (7.52)
Men	0.48 (0.67)	0.67 (0.99)	0.80 (0.69)	1.80 (1.63)	2.11 (1.92)	2.76 (3.01)
Female share	0.87 (0.19)	0.84 (0.20)	0.72 (0.24)	0.80 (0.17)	0.79 (0.18)	0.75 (0.22)
Observations	918	1432	1253	920	1438	1253
<i>Panel B:</i> Time-Use Survey						
East						
Women	3.07 (1.88)	2.50 (1.98)	2.19 (1.64)	5.93 (3.60)	6.77 (4.05)	6.02 (3.28)
Men	1.07 (1.15)	0.90 (0.97)	0.92 (0.92)	2.95 (3.05)	3.41 (2.92)	3.06 (2.92)
Female share	0.74 (0.24)	0.66 (0.27)	0.69 (0.29)	0.79 (0.23)	0.80 (0.23)	0.77 (0.22)
Observations	872	100	212	872	100	212
West						
Women	4.34 (1.89)	3.06 (1.85)	2.63 (1.76)	8.88 (3.64)	7.13 (3.05)	6.74 (3.41)
Men	0.86 (1.13)	1.02 (1.21)	0.96 (1.13)	3.04 (2.59)	3.25 (2.92)	2.91 (2.47)
Female share	0.82 (0.19)	0.76 (0.23)	0.72 (0.27)	0.84 (0.18)	0.78 (0.21)	0.79 (0.23)
Observations	2362	408	630	2362	408	630