

# Wind of Change? Cultural Determinants of Maternal Labor Supply

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# Wind of Change? Cultural Determinants of Maternal Labor Supply\*

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## Abstract

Does the culture in which a woman grows up influence her labor market decisions once she has had a child? And to what extent can exposure to a different cultural group in adulthood shape maternal labor supply? To address these questions, we exploit the setting of the German reunification. A state socialist country, East Germany strongly encouraged mothers to participate in the labor market full-time, whereas West Germany propagated a more traditional male breadwinner-model. After reunification, these two cultures were suddenly thrown together, with consequent increased social interactions between East and West Germans through migration and commuting. Zooming in on East and West Germans who migrated across the former inner-German border, we document a strong asymmetry in the persistence of the culture in which women were raised. Whereas East German female migrants return to work earlier and work longer hours than their West German colleagues even after long exposure to the more traditional West German culture, West German migrants adjust their post-birth labor supply behavior nearly entirely to that of their East German colleagues. West German return migrants continue to be influenced by the more gender egalitarian East German norm even after their return to the West, pointing towards the importance of learning from peers. Finally, taking advantage of differential inflows of East German migrants across West German workplaces in the aftermath of reunification, we show that even a partial exposure to East German colleagues induces “native” West German mothers to accelerate their return to work after childbirth, suggesting that migration might be a catalyst for cultural change.

**Keywords:** cultural transmission, social norms, maternal labor force participation, German reunification; JEL: J1, J2, Z1

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## 1. Introduction

Gender role attitudes and female labor supply vary substantially across countries. A recent literature has stressed that these differences arise from persistent and deeply rooted cultural traits that are transmitted from one generation to the next (Fernández, 2007; Fernández and Fogli, 2009; Alesina, Giuliano, and Nunn, 2013). Yet, there have also been episodes of drastic changes in gender norms and female labor supply, in particular that of mothers (see Giuliano, 2020; 2018; 2016 for an overview on the literature on gender norms). While the large majority of women in the US and other developed countries have worked before motherhood for several decades, the labor supply of mothers has greatly increased throughout the 1970s and 1980s, but plateaued (and even slightly decreased in some countries) for the past 10 to 30 years (see Kuziemko, Pan, Shen, and Washington, 2020).<sup>1</sup>

The evidence on both the continuity and the evolution of gender norms raises the question as to when culture persists and when it changes.<sup>2</sup> In this paper, we ask whether increased social interaction between different cultural groups induced by migration can lead to cultural diffusion, and whether migration can be a catalyst for a change in gender norms and in the labor market behavior of mothers. We first turn to the experience of migrants and assess how their behavior adjusts to a new cultural environment. Does, for example, a woman raised in a more gender egalitarian culture, but who migrates to a more traditional environment, still behave according to the culture she grew up in (“childhood culture”) or does she adapt to her new environment (“current culture”)? Conversely, what about a woman who migrates from a more traditional environment to one where women’s and mother’s labor supply is much higher? And can migrants from a more gender egalitarian culture induce change in the behavior of women raised and

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<sup>1</sup> While in the US female labor force participation have plateaued since the early 1990s (Goldin 2006), it has continued to increase after 1990 in many European countries (Blau and Kahn, 2013). This increase was, however, driven by part-time work many women switch to when their first child is born.

<sup>2</sup> Four broad lines of reasoning have been put forward so far to explain why cultural change occurs: instability in the external environment (e.g., Giuliano and Nunn, forthcoming), changes in economic conditions (e.g., Cardoso and Morin 2018; Xue 2020), large regime or policy changes (e.g., Campa and Serafinelli, 2019; Bau, forthcoming), and new information (e.g., Fernández, 2013; Bursztyrn, González, and Yanagizawa-Drott, 2020; Fernández, Parsa, and Viarengo, 2021).

working in the more traditional host country? By addressing these questions, we are the first to shed light on the conditions under which migrants adjust to the new culture of the host country or adhere to the culture they grew up in, but also how immigrants can themselves change the norms and behavior of natives.

We follow the empirical literature and define culture as systematic differences in both values or preferences and beliefs that vary across social or geographic groups (see, for instance, Fernández, 2011; Alesina and Giuliano, 2015). We refer to gender norms as the part of culture associated with the role of men and women in society, in particular what women are “supposed to do” when becoming a parent and what it means to be a “good mother” (see Fortin, 2005). According to the seminal work by Bisin and Verdier (2001; 2011), culture can be transmitted vertically, from one generation to the next; obliquely, from non-parental members of the parent’s generation such as teachers; or horizontally, through social interactions with peers such as colleagues.

To better understand cultural persistence and cultural change, we focus on the impact of culture on women’s labor supply decisions after they have had their first child. The transition around childbirth is especially interesting for two main reasons. First, the arrival of children is one of the primary reasons for persistent gender inequalities in the labor market (Angelov, Johansson, and Lindahl, 2016; Kleven, Landais, and Sjøgaard, 2019), which Bertrand (2020) describes as one of the key “pain points” preventing gender equality in the labor market. Increased costs of motherhood might also explain the stalling of female labor supply since the early 1990s (Kuziemko et al., 2020).

Second, gender norms regarding working mothers are arguably the strongest when children are very young, and women do not appear to anticipate the associated costs of motherhood (Kuziemko et al., 2020). We thus expect culture to affect female labor force participation decisions primarily after the arrival of the first child, during the first years of a child’s life. Exploring women’s labor market decisions around childbirth therefore allows to study *changes*

in a woman's labor supply before and after the "event" of childbirth, as well as to condition on a woman's pre-birth characteristics and work history (including her pre-birth employer), enabling us to estimate the impact of culture on female labor supply in a more credible way than much of the existing literature.

In order to isolate the effect of culture from the institutional and economic environment—the crucial challenge in this literature (Alesina and Giuliano, 2015)—we exploit Germany's separation and reunification. From 1945 to 1990, the country was divided into two parts. Socialist East Germany (GDR) strongly encouraged mothers to participate in the labor market, propagating a "dual-earner/state-carer model" where mothers were typically employed full-time facilitated by extensive public policy support, whereas capitalist West Germany (FRG) supported a more traditional male-breadwinner model (Rosenfeld, Trappe, and Gornick, 2004). Gender norms and female labor supply, particularly at early motherhood, diverged strongly between East and West during the four decades of separation (see Campa and Serafinelli, 2019). With the fall of the Iron Curtain and German reunification, these two cultures were suddenly thrown together, with East Germany adopting West Germany's political, economic, and legal institutions. A large number of East and West Germans migrated or commuted across the former inner German border, leading to increased social interactions in the workplace between women raised in very different cultures.

Our empirical analysis draws on high quality social security data permitting observation of the complete work histories of a 50 percent random sample of women born between 1946 and 1994. The large sample size allows us to focus on mothers who migrated from one part of Germany to the other. Detailed information on mothers' labor supply, education, age, occupation, industry and workplace prior to childbirth allows us to compare post-birth labor supply decisions of women from different childhood cultures who were on the same career trajectory and are employed in the same workplace before childbirth. Our data further allow us to observe sudden social contact after the fall of the Iron Curtain between West German "natives"

and East German (and hence more gender egalitarian) migrants at the workplace. Even though workplaces are one of the most important naturally occurring social networks, neither the literature on cultural persistence and cultural change nor the literature on gender gaps (with the exception of Cullen and Perez-Truglia (2020)) have investigated interactions at the workplace so far.

A comparison of the return-to-work behavior of East and West German first-time mothers who give birth in 2003, 13 years after reunification, shows substantial remaining differences in child penalties: East German mothers recover 70 percent of pre-birth earnings seven years after birth compared to only 45 percent for West Germans. These patterns are primarily driven by differences in early maternal employment at both the extensive and intensive margin. In contrast to West German mothers, a sizable share of East German mothers returns to work exactly 12 months after birth, when leave benefits and job protection would have expired under the past GDR regime, even though the current parental leave legislation provides them with limited financial incentives to do so.

We adopt four empirical strategies to disentangle the impact of culture on early maternal employment from other factors. The four strategies combined paint a very comprehensive and consistent picture of the persistence and diffusion of gender norms. In a first step, building on the border contrasts by Eugster, Lalive, Steinhauer, and Zweimüller (2011; 2017), Steinhauer (2018), and Campa and Serafinelli (2019), we compare post-birth labor market outcomes of East and West German mothers within five integrated cross-border local labor markets, thereby holding their labor market opportunities constant. While East-West post-birth employment gaps are smaller in the five integrated local labor markets than between more remote parts of Germany, gaps are still large. Four years after childbirth, 17 to 21 years after reunification, East German mothers are 11.5 percentage points more likely to be in regular employment (i.e., making more than 400 EUR a month) than West German mothers, compared to a 17-percentage point gap for Germany as a whole. Interestingly, East-West post-birth employment gaps have

narrowed throughout the 1990s and early 2000s within the integrated local labor markets, where there has been increasing social interaction between the two cultures through commuting. In contrast, these East-West gaps have remained stable in more remote regions with less scope for contact between East and West Germans.

In a second step, we zoom in on East and West German women who migrated to the other part of Germany and investigate whether they adjust to the new cultural environment or whether they behave according to their childhood culture. Building on the epidemiological approach (see e.g., Fernández (2011) for an overview), we contrast the post-birth labor supply behavior of East German cross-border migrants and West German “natives”—or West German cross-border migrants and East German “natives”—who were on the same career trajectory prior to childbirth within the same local labor market and even within the same workplace.<sup>3</sup> This approach isolates the persistent impact of childhood culture for women now immersed as a minority in a different majority culture.

We document a large asymmetry in the persistence of childhood culture. Whereas East German female migrants return earlier and work longer hours than their West German counterparts, even after long exposure to the more traditional West German culture — a gap in regular (full-time) employment of 7.9 (5.09) percentage points—, West German migrants adjust their post-birth labor supply behavior nearly entirely to that of their East German colleagues. We perform a series of robustness checks to rule out the possibility that this asymmetric adjustment pattern is driven by potential migrant selection. Conditioning on an extensive set of mothers’ pre-birth characteristics such as education, occupation and their pre-birth wage that have been shown to be important determinants of maternal labor supply, barely changes the East-West gaps, suggesting that pre-birth characteristics are similar between natives and migrants. Remarkably,

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<sup>3</sup> In a similar vein, Grunow and Müller (2012) descriptively compare the post-birth labor supply behavior of East and West Germans and women who migrated from East to West Germany. They document that East German migrants return to work faster than West German mothers, but not as fast as East Germans who stayed in East Germany.

within workplace East-West gaps are nearly identical to within local labor market gaps, highlighting that migrants do not systematically sort into family-friendly workplaces. Furthermore, East-West gaps are similar when comparing cross-border migrants to internal migrants, i.e., West and East Germans who migrated a similar distance but without crossing the former Inner German Border, indicating that the asymmetry in the East-West gaps do not merely reflect a general “migration” effect. Adopting the bounding approach proposed by Oster (2019), the asymmetric adjustment pattern continues to be present under extremely conservative and implausibly restrictive assumptions on the selection of migrants based on unobserved (by us) characteristics.

What can explain the asymmetric adjustment pattern we document? One possibility is that West German migrants feel social pressure from their peers or their bosses to return to work as quickly after childbirth as East German mothers. While East German migrants may also feel pressure to comply with the more traditional West German gender norm, doing so would be economically costly. For West German migrants, on the other hand, adjusting to the East German norm goes hand in hand with economic incentives. This argument is in line with the evidence by Giavazzi, Petkov, and Schiantarelli (2019), showing that the speed of assimilation in cultural attitudes for immigrants in the US appears to depend on the economic gains from assimilating to the prevailing norm. An alternative explanation centers around information transmission from nearby women (as in Fogli and Veldkamp, 2011) or from the older generations (as in Fernández, 2013) regarding how best to juggle family and a career and what the effects of maternal employment on their children and their own well-being are. According to this explanation, West German migrants who were raised in a culture where maternal employment was rare have more to learn from their East German colleagues than the other way around.

In order to differentiate between peer pressure and learning, we compare, in a third step, post-birth labor market outcomes of West Germans who spent at 1.5 two years in East Germany before returning to and giving birth in West Germany and West Germans who never left West



Germany. We document that West German return migrants continue to be influenced by the more gender egalitarian East German culture: Four years after childbirth, West German return migrants are 3.9 percentage points more likely to be in regular employment than observationally equivalent West German mothers in the same workplace who always remained in West Germany. The persistent impact of *past* exposure to the East German culture points toward the importance of learning from East German former peers or the East German environment more generally, rather than peer pressure to conform with East German gender norms.

In the fourth step of the paper, we investigate whether a more moderate exposure to the more gender egalitarian East German culture, rather than full immersion, can result in cultural diffusion. Exploiting the differential inflow of East Germans into West German workplaces shortly after reunification in a difference-in-differences approach, we assess whether the sudden arrival of (male and female) colleagues from the more gender egalitarian East German culture affected the labor supply behavior of West German “native” mothers socialized and still residing in the more traditional culture. Since East Germans are similar to natives along other cultural dimensions— an aspect that has been shown to be important for cultural transmission in the recent work by Giuliano and Tabellini (2020) — and are less likely to be perceived as foreign, we expect there to be potentially large scope for cultural transmission. We find that a 10-percentage point increase in the employment share of East Germans in the workplace increases the probability that a West German mother is employed by up to 2 percentage points in the short run (one year after childbirth), and by up to 1.6 percentage points in the medium run (four years after childbirth). The effect of East German peers on maternal labor supply is primarily driven by East German female colleagues and colleagues in the same occupation, who likely transmit first-hand knowledge of how to combine work and parenthood and of what it constitutes to be a good mother. A battery of robustness checks, including controlling for mothers’ pre-birth career trajectories and workplace characteristics, as well as placebo checks on men and older women, further corroborate our finding that East German colleagues speed up the return to work of West

German mothers. Finally, our estimates suggest that a substantial migration shock of at least 10 percentage points is needed to induce changes in the post-birth labor supply behavior of West German mothers. Overall, these findings are in line with the notion that employees who grew up in a more gender egalitarian culture horizontally transmit their culture to their more traditional female colleagues—but only if the share of colleagues with a more gender egalitarian background is sufficiently large.

Our paper relates to and connects several strands of the literature. We add to the literature on child penalties by studying the cultural determinants of early maternal labor supply, the key driver of the child penalty. According to our knowledge, existing evidence is so far limited to two studies. Kleven, Landais, Posch, Steinhauer, and Zweimüller (2019) document a strong correlation between the size of child penalties and gender norms across six countries; however, this correlation may at least partially reflect differences in institutions and policies across the six countries.<sup>4</sup> Steinhauer (2018) in turn provides evidence for sizable differences in the employment behavior of mothers in German- and French-majority speaking municipalities along the Franco-German language border within Switzerland. We add to this work by providing novel evidence on whether culture manifests itself in childhood or is malleable after exposure to a different culture in adulthood.

Our paper further relates to studies that build on comparing native and migrant women's labor supply to study the persistence of cultural traits in determining female labor supply. The literature has looked at comparisons of native and first generation, internal migrants (e.g., Charles, Guryan, and Pan, 2018; Gay, 2021) – where women face low migration barriers and hence selection issues are less severe – and of native and second generation, international migrant

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<sup>4</sup> Other studies document a strong correlation between gender norms and labor supply of women (but not specifically mothers) across OECD countries (Fortin, 2005) or within a country as well as across regions over time (Fortin, 2015; Giavazzi, Schiantarelli, and Serafinelli, 2013).

women (e.g., Fernández 2007; Giuliano, 2007; Fernández and Fogli, 2009; Blau et al., 2013) – where cultural differences are particularly strong. We look at East-West and West-East migrants within the same country who do not only speak the same language and are similar to natives along other cultural dimensions, but also face low migration barriers. Yet, they were socialized under starkly different gender norms due to the past division of Germany. Our paper is the first, to our knowledge, that explicitly assesses a potential asymmetry in the persistence of childhood or origin culture, by distinguishing between migration from a more gender egalitarian childhood culture to a more traditional current culture and vice versa.

In addition, we contribute another novel aspect to this literature by studying whether the migrants themselves can bring about cultural change in the receiving part of the country. Existing studies on the impact of immigration on the host country, in contrast, have focused on the economic impacts. One exception is the recent work by Miho, Jarotschkin, and Zhuravskaya (2020) who show that ethnic deportees under Stalin in the 1930s have shaped gender norms of the exposed local populations in the former USSR today. We, on the other hand, provide evidence that migrants from a more gender egalitarian environment affect the labor supply of native mothers in the short run, within five years of their arrival, likely reflecting the horizontal transmission of East German culture. In a second contemporaneous paper, Schmitz and Weinhardt (2019) focus, similar to us, on the short-term effects of East German migrants on the labor supply decisions of West German women. We go beyond this (and Miho, Jarotschkin, and Zhuravskaya 2020's) work not only by studying the important outcome of *changes* in women's labor supply at the onset of motherhood, when gender norms are particularly salient in a woman's life, but also by shedding light on the experiences of migrants. We thus paint a more comprehensive picture of the persistence and diffusion of culture.

Our paper further relates to the literature on peer effects in female labor supply, which documents the role of peers' parents during adolescence (Olivetti, Patacchini, and Zenou, 2020), that of neighbors (Maurin and Moschion, 2009), as well as that of peers within the family

(Nicoletti, Salvanes, and Tominey, 2018) in shaping maternal labor supply. We add to this literature by focusing on the importance of colleagues in the workplace—a potentially important network in conveying information of, for example, how to best juggle family and a career—and by proposing a novel identification strategy based on the sudden arrival of migrants from a more gender egalitarian environment into the host country.

We finally add to the literature that has used German separation and reunification to identify the legacy of socialism. While Alesina and Fuchs-Schündeln (2007) focus on preferences for redistribution, Campa and Serafinelli (2019) convincingly show that the imposition of state-socialism lead to differences in gender role attitudes in East and West Germany (see also Bauernschuster and Rainer, 2011; Beblo and Gorges, 2018; Lippmann, Georgieff, and Senik, 2020). Our study is novel in that we do not only study the persistence of the East German culture after reunification, but also how exposure to the East German culture—either through full immersion or through contacts with East German colleagues—has impacted the labor supply behavior of West German mothers.

## **2. The Division and Reunification of Germany**

At the end of World War II in 1945, Germany was separated, with negotiations between the Soviet Union and Western Allies determining its new borders. In 1949, the German Democratic Republic (GDR) and the Federal Republic of Germany (FRG) were officially established in the Soviet occupation zone and Allied occupation zone respectively. With the construction of the Berlin Wall in August 1961, migration between the two states nearly stopped and social interactions between East and West German citizens were severely restricted until the GDR's collapse in November 1989.

**Gender-Egalitarian Culture in the GDR.** As the equality of women was a proclaimed goal of state-socialist governments, such as the GDR, the East German government granted women

the constitutional right to work and to receive equal pay already in 1949. While the GDR developed into “one of the most rigid” state-socialist regimes (Alesina and Fuchs-Schündeln, 2007, 1510), scholars also argue that it “went furthest in balancing its policies towards women as producers and reproducers” (Einhorn 1993 cited in Trappe 1996, 355).

As early as the 1950s, the GDR introduced policies to promote women’s educational attainment and to increase female labor force participation in view of a need for labor against the background of increasingly tight labor markets in the post-war recovery period. By the end of this decade, the regime was propagating the obligation to work (Trappe, 1996). Ideologically, housewives were devalued, with non-working mothers described as “*Schmarotzer*” (*parasites*) (Kaminsky, 2016, 93).<sup>5</sup> Female labor force participation increased from 52.4 percent in 1950 to 81.8 percent in 1970 (Beblo and Görge, 2018), considerably higher than in Scandinavian countries, such as Sweden, at the time (Gustafsson and Jacobsson, 1985).

The country was one of the first to introduce contraception and legalize abortion, aimed at allowing women to time their fertility and invest in their careers. As fertility levels started to decline in the 1960s, the GDR began to focus on policies that would help women reconcile work and family. Throughout the 1970s and 1980s, it expanded public provision of childcare, offered one year of paid parental leave with full wage compensation and job protection (the “baby year”), and reduced working hours for mothers with small children (Trappe, 1996). While family policies in East Germany were implemented under state-socialism, they appear in fact remarkably similar to those implemented by democratically elected social-democratic governments in many Nordic countries such as Sweden from the 1960s onwards.<sup>6</sup> According to Rosenfeld, Trappe, and Gornick (2004) East Germany followed a “dual earner-state carer model” where mothers were typically employed full-time facilitated by extensive public policy support.

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<sup>5</sup> The GDR Criminal Code even classified the avoidance of work as anti-social behaviour, making it a criminal act punishable by prison for up to 5 years (Beblo and Görge, 2018, 22).

<sup>6</sup> Sweden introduced earnings-dependent maternity leave benefits for 6 months in 1963 (extended to a full year in 1980), largely expanded public childcare in the 70s and 80s (and throughout the 90s) and abolished joint taxation in 1971.

Qualified employment was a central component of women's (and mothers') self-perception in the GDR (Rosenfeld, Trappe, and Gornick, 2004), also evidenced by the higher share of East German women deeming career success as important in 1990 (Campa and Serafinelli, 2019). Despite near equal participation of men and women in the labor market, some gender inequalities in terms of earnings and occupational integration remained in the labor market (Rosenfeld, Trappe, and Gornick, 2004; Trappe and Rosenfeld, 2000; Rosenfeld and Trappe, 2002). Women were also the primary caregivers at home and the primary contributors to home production, creating a "double burden" for women.

**Gender-Traditional Culture in the FRG.** While East Germany encouraged mothers of small children to return to work through family policies and state propaganda, West Germany discouraged them by promoting a more traditional male-breadwinner model with a socially conservative welfare state (Trappe, 1996; Rosenfeld, Trappe, and Gornick, 2004).<sup>7</sup> While the GDR tried to increase labor market participation of married women and in particular mothers against the background of tight labor markets, West Germany (and other Western European countries such as the Netherlands) attracted foreign labor from the late 50s (*Gastarbeiter*). In the FRG, school schedules were short (typically ending around lunch time) and childcare centers were scarce, particularly for children younger than four, and mostly part-time. Paid parental leave was subsequently expanded throughout the late 1970s and 1980s from two months of benefits and job protection in 1979 to 18 months in 1989 (for further details, see Schönberg and Ludsteck (2014)). However, income-replacement was considerably less generous than in the GDR, amounting, on average, to about one third of the mother's pre-birth wage. A tax and benefit system marked by joint taxation and free insurance of non-employed spouses and children further discouraged dual-earner families. More traditional gender role attitudes were also apparent in

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<sup>7</sup> Up until 1958, the husband had full decisional power over his wife and children, and up until 1977, German civil law stated that a wife only had the right to be employed as far it was compatible with her marriage and family duties.

jargon used in West Germany such as “*Rabenmutter*” (literally, raven mother), a derogatory term used for working mothers, or in referring to daycare centers as “*Fremdbetreuung*,” which translates into “care by strangers.” Figure 1 illustrates how the different gender norms in East and West Germany were respectively depicted in advertisements for household products in the 1950s.

After more than four decades of diverging institutions and family policies, women’s labor force participation rates in these two countries greatly differed: In 1989, shortly before reunification, around 89 percent of women worked in the GDR, one of the highest rates in the world, against 56 percent in West Germany (Rosenfeld, Trappe, and Gornick, 2004). While nearly 75 percent of East German women worked a standard full-time week, only 30 percent of working-age women in the West were employed full-time (Trappe and Rosenfeld, 2000). Differences in labor supply were particularly pronounced for mothers.<sup>8</sup> In contrast to East Germany’s “dual earner-state carer model”, about half of married couples with children in West Germany adhered to a traditional “male breadwinner-female carer” model, while the other half followed the “dual earner-female part-time carer” model (the dominant model in, for example, the UK and the Netherlands), with wives predominantly working part-time (Rosenfeld, Trappe, and Gornick, 2004).

**German Reunification.** With the collapse of the Soviet Union and large-scale demonstrations against the East German regime, the Berlin Wall fell on November 9, 1989 and reunification occurred on October 3, 1990. Subsequent migration flows between East and West Germany were large: During the years 1991 to 2006, 2.45 million people migrated from the former GDR to the former FRG, while 1.45 million individuals moved in the opposite direction

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<sup>8</sup> Becker, Mergele, and Woessmann (2020) argue that these East-West differences in female labor force participation rates may not only reflect differences in the political regimes between East and West Germany, but also differences prior to the division or selective East-West migration before the building of the Berlin wall in 1961. This does not pose an issue for our study as we do not aim to identify the long-lasting effects of state-socialism.

(Fuchs-Schündeln and Schündeln, 2009). With reunification, the GDR became part of the FRG and adopted West Germany's political, economic, and legal institutions, including its tax and parental leave systems. In 1992, reunified Germany expanded its parental leave policy, with mothers now being entitled to 36 months of job protection and up to 24 months of means-tested paid parental leave benefits of up to 300 Euros per month (from 1993 onwards).<sup>9</sup> The long and extended leave period thus clearly reflects the more traditional gender norms of West Germany, rather than the more egalitarian gender norms of East Germany.<sup>10</sup>

In 1996, the country introduced a law that entitled *every* child to a heavily subsidized half-day childcare placement from their third birthday to school entry (e.g., Cornelissen, Dustmann, Raute, and Schönberg, 2018). By the early 2000s, the policy had removed any constraints in childcare availability for 3-to-6-year-olds that may have previously existed in West Germany. While childcare supply in the East was historically high, it was cut back drastically over the years 1991-1998 due to both economic pressure and in response to a drop in fertility rates. Yet in 2007, the time around which women in our sample gave birth, the percentage of children under the age of three attending daycare was still much higher in former East Germany (37.4) than former West Germany (8.1). Attendance rates of children aged three to six were, however, roughly similar (93.6 versus 87.8 percent; Statistische Ämter des Bundes und der Länder, 2008).

Today, reunified Germany continues to be characterized by strong differences in gender attitudes between the two parts of the country. According to the 2008 European Value Study (EVS, 2011), 57 percent of respondents in West Germany agree with the statement that “A pre-school child suffers if his or her mother works” (Figure 2). While this share is high by international standards, it is well below that of Italy (70%), the most gender-traditional country

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<sup>9</sup> Mothers could choose between maternity benefits of 300 Euros paid over a duration of 24 months or maternity benefits of 450 Euros paid over a duration of 12 months. Of the mothers eligible for leave payments, around 15% of mothers (predominantly East German) chose the shorter option in 2006.

<sup>10</sup> A parental leave reform in 2007 entitled mothers to up to 12 months of much more generous parental leave benefits tied to their pre-birth wages, moving Germany's parental leave system closer to that of the former GDR (see for instance, Raute (2019)). In the empirical analysis, we focus on mothers who gave birth before the reform came into effect.



according to this measure. Yet, only 31 percent of those in East Germany agree with the statement, a share comparable to Western European countries such as Great Britain and France, but still higher than in Scandinavian countries such as Sweden (15%) and Denmark (6%). Hence, nearly two decades after reunification, East and West Germans still have very different attitudes relative to the roles of mothers. Grewenig, Lergetporer, and Werner (2020) document that even in 2020, East German adolescent girls (aged between 14 and 17 years) have different attitudes regarding working after childbirth than their West German counterparts.

### 3. Data Description and Sample Selection

Our data are drawn from social security records provided by the Institute for Employment Research (IAB) in Nuremberg (the so-called Integrierte Erwerbsbiographien (IEB) in the version of 2012<sup>11</sup>) and are available from 1975 onward for West Germany and from 1992 onward for East Germany. We have access to data until 2010.<sup>12</sup> The data source comprises the complete work histories, including length of leave due to childbirth, for every woman and man covered by the social security system, with the exception of civil servants, the self-employed, and military personnel.

From this data source, we select a unique random sample of 50 percent of all women with German citizenship who were born between 1946 and 1994 in order to construct the career histories of first-time mothers who were between the ages 18 and 40 at the birth of their first child and who took maternity leave between 1986 and 2006. In addition, we use the full population data (from the so-called Beschäftigtenhistorik (BeH) in its version from 2016

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<sup>11</sup> The data are social data with administrative origin which are processed and kept by IAB according to Social Code III. There are certain legal restrictions due to the protection of data privacy. The data contain sensitive information and therefore are subject to the confidentiality regulations of the German Social Code (Book I, Section 35, Paragraph 1). The data are held by the Institute for Employment Research (IAB), Regensburger Str. 104, D-90478 Nürnberg, email: [iab@iab.de](mailto:iab@iab.de), phone: +49 911 1790. If you wish to access this data for replication purposes please get in contact with the author.

<sup>12</sup> A change in the reporting system in 2011 led to a structural break and consequent missing data for a number of key variables (e.g., full-time work) in the data which are crucial for studying maternal labor supply. Extending the analysis beyond 2010 is therefore difficult.

provided by the IAB) to calculate, based on spells that refer to June 30 in a given year, the extent of a woman's East German colleagues in her pre-birth workplace, as well as other workplace-level variables such as average wage or number of employees.

Our data offer a number of key advantages. First, the large sample size allows to both investigate changes in mothers' labor market outcomes around the birth of a first child (a key driver of the gender gap), while simultaneously focusing on mothers within the same cross-border local labor market, or those who migrated from one part of Germany to the other. Such a detailed analysis would simply not be possible using the much smaller German Socio-Economic Panel (SOEP) or the cross-sectional German Microcensus. A second advantage is the precise measurement of the mother's labor force status, part-time work, occupation, education, and (daily) wages (measured in 2010 EUR prices) before and after childbirth, allowing us to pinpoint the exact month the mother returns to work after childbirth. Such detailed information further allows us to compare post-birth labor supply decisions of women with differential exposure to the "East German" culture, but who were on the same career trajectory prior to childbirth.

Identifiers for workplaces allow us to not only compare the pre- and post-birth outcomes of mothers from East and West Germany employed in the same workplace, but also to construct West German mothers' exposure to East German colleagues at the time of birth. We are thus able to exploit social interactions within the workplace where there is ample opportunity for exchange between coworkers in naturally occurring networks.

Our data, however, also have some shortcomings. First, as the data do not contain direct information on children, we focus on first-time mothers who go on maternity leave. Mothers in Germany are prohibited from working in the first eight weeks after childbirth (*Mutterschutz*) and must therefore take maternity leave. Moreover, pregnant women enjoy employment protection, making it difficult for employers to fire them. While women could drop out of the labor force voluntarily without going on leave, they would forego job protection and maternity benefit entitlements when doing so. In consequence, nearly all women who are employed prior to giving

birth indeed take maternity leave. At the same time, most first-time mothers are employed in the year prior to giving birth, with small differences between East and West Germany.<sup>13</sup> The focus on first-time leave-taking rather than first-time births is therefore unlikely to have a large effect on our findings.

A second shortcoming of our data is that place of birth is not recorded. We therefore primarily classify mothers as of West or East German origin based on their first place of work.<sup>14</sup> This is a very good proxy for the German context, where the large majority of women began their working life with a firm-based apprenticeship training (74 percent of mothers) close to their hometown.<sup>15</sup> Such an approximation may nevertheless erroneously classify some East Germans as West Germans if they migrated to West Germany prior to 1992 (the year social security records become available for East Germany). In order to avoid such misclassification, we develop an imputation method based on their age and educational attainment when they are first observed in the West German social security data (between 1989 and 1992); see the Appendix for details. Our results are also robust to alternative imputation rules designed for this purpose.

Our empirical analysis focuses primarily on mothers' labor market attachment after childbirth. We distinguish between three different employment statuses: overall employment which also includes so-called "marginal employment" (i.e., below an income level of 400 EUR per month between 2003 until 2013); regular employment, defined as full- or part-time work

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<sup>13</sup> Own calculations based on data from the German Socio-Economic Panel suggest that more than 80 percent of all first-time mothers between 1990 and 2010 were working in the year prior to giving birth in both East and West Germany. Unfortunately, the social security records do not explicitly distinguish between maternity leave and other leaves of absence, such as sickness. Schönberg (2009) shows, however, that after imposing appropriate restrictions, at least 90 percent of authorized absences in the data are for maternity reasons (see also Müller and Strauch (2017)). We follow suit and impose these same sample restrictions (Schönberg, 2009).

<sup>14</sup> While the municipality of work is recorded in the IEB for all years, the municipality of residence is included from 1999 onward. We therefore use place of work and not place of residence to distinguish between West and East Germans. Heise and Porzio (2021) show, using data from the German Socio-Economic Panel, that the region of a worker's first employment corresponds to their birth region in 88-92 percent of cases for East Germans and 99 percent of cases for West Germans.

<sup>15</sup> In 2016, only 13.9 percent of youth applied for apprenticeship training further than 50 km away from their primary residence (Bundesinstitut für Berufsbildung, 2018). Drawing on a 2013 survey on business and economics studies from six universities in northern and central Germany, Weisser (2019) shows that students on average attended university within 71 km of their homes and that a quarter stay within a radius of 25 km. Along similar lines, using data from the SOEP, Busch and Weigert (2010, 568) document that even ten years after graduation, more than 70 percent of university graduates still live in the state where they completed their studies.

excluding marginal employment; and full-time work characterized as working at least 35 hours per week.<sup>16</sup> Indicator variables for whether the mother continues to work for the same pre-birth employer or occupation (used in Section 7) complete our career-related outcome variables. The latter outcomes are defined for all mothers independent of whether they returned to work; non-working mothers are coded as not working for the same pre-birth employer or occupation, respectively. We do not consider outcomes that condition on post-birth employment as such conditional East-West gaps would be difficult to interpret due to the sizable East-West differences in the propensity to work after childbirth.

In Sections 4 to 6, we focus on first-time mothers who gave birth between 2003 and 2006, 13 to 16 years after German reunification. These women were born on average in 1975 (with a standard deviation of 5.6 years) and thus spent their childhoods under two very different regimes. However, they then made important education, training and labor market decisions after reunification under a common politico-economic system.

## **4. East-West Gaps: Germany as a Whole vs Integrated Cross-Border Local Labor Markets**

### **4.1 Aggregate East-West Gaps**

To provide a first descriptive overview of our data, Part A of Figure 3 contrasts the return-to-work behavior (defined as the first time that a mother works at least 8 hours per week for a consecutive period of two months) of East and West German mothers who gave birth in 2003, 13 years after German reunification. The share of West German mothers who return to work increases fairly smoothly after childbirth up until a larger spike around 36 months after childbirth, when the job protection period ends. The return behavior for East German women mirrors that of West Germans up until 12 months after birth, but then diverges. Most strikingly,

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<sup>16</sup> Marginal employment only gained popularity after substantial reforms in 1999, and then particularly in 2003. This status is recorded in our data from 1999 onwards.

a sizable share of East German mothers returns to work exactly 12 months after birth, or the end of the job protection and benefit period granted *in the former GDR*. Thus, 13 years after reunification, a substantial share of East German mothers still behave in accordance with the social and institutional norms of the former GDR, even though the current parental leave system provides them with limited financial incentives to do so.<sup>17</sup> By the time the child is seven years old and has entered primary school, East German mothers are nearly 20 percentage points more likely to have returned to work than West German mothers.

Part B of Figure 3 shows the evolution of earnings of West and East German mothers around childbirth relative to those one month prior to parental leave. We compute the “child penalty” as the difference between the mother’s earnings in a given month after childbirth (where earnings are set to 0 if the mother is not working) and those right before childbirth and divide by her pre-birth earnings. While child penalties are sizable for both West and East German mothers in the medium-run, East German mothers recover around 70 percent of their pre-birth earnings by the time the child is seven — similar in magnitude to mothers in the US and Sweden (Kleven et al., 2019). West German mothers, in contrast, recover only around 45 percent of their pre-birth earnings seven years after childbirth. Our own calculations suggest that in both East and West Germany, child penalties are primarily driven by mothers reducing their labor supply, both at the extensive margin—a reduction in the propensity to work—and at the intensive margin—a shift from full-time to part-time work—rather than a reduction in wages. Indeed, for this reason we focus on mothers’ post-birth labor market attachment as a key outcome variable.

In column (1) of Table 1, we report the raw East-West gap for additional post-birth employment and career outcomes for Germany as a whole (excluding the five cross-border local labor markets analyzed below) when the child is one and four years old, focusing on first-time mothers who gave birth between 2003 and 2006. Gaps are sizeable for all outcomes. For

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<sup>17</sup> Furthermore, East German mothers appear to respond more strongly to parental leave benefits than do West German mothers, as about 10 percent of mothers return to work precisely 24 months after giving birth, or when the current regular parental leave benefit period ends.

example, East German mothers are 14.7 percentage points more likely to be regularly employed (excluding marginal employment with very low weekly working hours) and 12.1 percentage points more likely to be employed full-time four years after birth than West German mothers.

These gaps may in part reflect differences between East and West German mothers prior to birth such as their education, a strong predictor for maternal labor supply (Kuziemko et al., 2020; Blau and Kahn, 2007, for labor supply of married women more generally). Wages, occupations, full-time status and age at birth are additional important determinants of maternal labor supply.<sup>18</sup> In Appendix Table A1, we compare West and East Germans in terms of pre-birth characteristics (columns (1) and (2)). With the exception of the pre-birth wage—which is considerably lower for East than West German mothers reflecting the lower wage level in East Germany more generally—differences in education, age at birth and full-time status between East and West German mothers tend to be small. It is therefore not surprising that conditioning on the mother’s age, education, occupation and full-time status at birth (which we refer to as “control set I”) has only a relatively small impact on East-West gaps in post-birth employment and career outcomes (see column (2) of Table 1). Thus, East-West gaps are not predominantly driven by differences in socio-economic characteristics and labor supply behavior between East and West German women prior to birth.

We note that differences between East and West German mothers prior to childbirth could in principle be consequences of the cultural divergence between East and West Germany. East German women may invest more in education and choose more demanding occupations prior to giving birth because they expect to return to the labor market quickly afterwards. The relatively small differences between East and West German women prior to childbirth depicted in Appendix Table A1 suggest that differential human capital investments of East and West German

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<sup>18</sup> The own-wage labor supply elasticity appears to be larger for women than for men, suggesting that a higher potential wage has a strong positive effect on women’s employment probability (e.g., Blau and Kahn, 2007). Maternal employment (both at the extensive and intensive margin) is positively related to a woman’s pre-birth earnings (e.g. Kluge and Schmitz, 2018). Wage penalties due to motherhood differ across occupations (e.g., Angelov, Johansson, and Lindahl, 2016; Bütikofer, Jensen, and Salvanes, 2018).

women prior to childbirth, driven by differences in expectations how much to work after childbirth, are unlikely to play a major role. In line with this conclusion, existing evidence suggests that women underestimate the large future employment effects of children when making human capital decisions (Kuziemko et al., 2020), and that children primarily affect women’s careers after birth (Adda, Dustmann, and Stevens, 2017; Angelov, Johansson, and Lindahl, 2016; Kleven, Landais, and Sjøgaard, 2019).<sup>19</sup> Given such evidence, we condition on a woman’s pre-birth characteristics in our baseline specifications in the remainder of the paper, a choice that has little impact on estimated East-West gaps.

## **4.2 East-West Gaps Within Cross-Border Local Labor Markets**

Even though East-West gaps in post-birth employment and career outcomes are not driven by differences in pre-birth characteristics, they may reflect differences in local labor market conditions such as the higher unemployment rate in East Germany (18.7 percent compared to 9.9 percent in West Germany in 2005) or differences in childcare availability, rather than cultural distinctions between East and West Germany. In a next step, we aim to minimize differences in local labor market opportunities between East and West German mothers. Building on Eugster, Lalive, Steinhauer, and Zweimüller (2011; 2017), Steinhauer (2018), and Campa and Serafinelli (2019), we compare mothers within the five integrated cross-border local labor markets or commuting zones, depicted in Appendix Figure A1 and defined as districts connected through high commuter flows (Kosfeld and Werner, 2012).<sup>20</sup> By the time first-time mothers in 2003-2006 make their post-birth career choices, economic integration was more advanced within these local labor markets compared to areas further away from the border, although some differences

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<sup>19</sup> Adda, Dustmann, and Stevens (2017) estimate that while anticipated fertility does affect choice of occupation at a young age — women would be 5 percent more likely to work in abstract task occupations — the contribution of occupational choice to the overall career costs of children appears relatively small (around 4.5 percent).

<sup>20</sup> Restricting the sample to integrated cross-border local labor markets or commuting zones is a tighter design than the spatial regression discontinuity applied in Eugster, Lalive, Steinhauer, and Zweimüller (2011; 2017), Steinhauer (2018), and Campa and Serafinelli (2019). Within a local labor market, commuting from one point to another within the zone takes a maximum of 45 to 60 minutes, depending on the local labor market (Kosfeld and Werner 2012, 51).

remain. For example, while the East-West difference in the daily pre-birth wage is nearly 20 Euros in Germany as a whole (see columns (1) and (2) of Appendix Table A1), it reduces to less than 10 Euros in the integrated cross-border local labor market (see columns (3) and (4)). Differences between East and West Germans in age, education and full-time status at birth tend to be small also within the cross-border local labor markets, as it is the case for Germany as a whole. Hence, controlling for an extensive set of pre-birth variables will have little impact on estimated East-West gaps also in the cross-border local labor markets (compare also columns (3) to (5) in Table 1).

A second difference between these integrated local labor markets and regions further away from the border, in addition to similar access to local labor market opportunities, is considerably more social interaction with the other culture at the workplace through commuting in the integrated local labor markets. Indeed, whereas in the cross-border local labor markets 15 percent of the colleagues of West German mothers are East German, exposure to East German colleagues in more remote West German areas is just 5 percent (see columns (1) and (3) of Panel C of Appendix Table A1).

We estimate regressions of the following type separately at different distances from childbirth (indexed by the superscript  $k$ ), pooling first-time mothers who gave birth and took maternity leave between 2003 and 2006:

$$Y_{ilt}^k = \beta^k East_i + \theta_{it}^k + x'_{it}\gamma^k + v_{ilt}^k \quad (1)$$

where the subscript  $i$  indexes the mother and the subscripts  $l$  and  $t$  index the local labor market where, and year when, she gave birth.  $Y_{ilt}^k$  denotes the outcome of interest, for instance the probability that the mother is employed 1 or 4 years after childbirth;  $East_i$  is an indicator equal to 1 if a woman is East German;  $\theta_{it}$  are year of childbirth-local labor market fixed effects;  $x'_{ilt}$  denote a mother's pre-birth characteristics; and  $v_{ilt}^k$  is an error term. We consider two sets of pre-birth control variables. "Control set I" includes the mother's age, education, occupation, wage, and full-time status at birth; "control set II" additionally includes mothers' work history variables



three years prior to childbirth, where we distinguish between full-time work and regular employment. We cluster standard errors at the municipality of work at birth.

The parameter of interest,  $\beta^k$ , captures differences in post-birth career outcomes between women differently socialized in East and West Germany, but who gave birth in the same economically integrated local labor market in the same year and experienced the same career trajectories prior to giving birth. In addition to the cultural environment East and West Germans were exposed to as children and teenagers, the coefficient  $\beta^k$  also picks up differences in the current cultural environment. Even though social interactions between East and West Germans are more common within the integrated cross-border local labor markets, important differences in exposure to East German colleagues remain: For the typical West German mother in a cross-border local labor market, 15 percent of her colleagues are from East Germany, compared to 77 percent for the typical East German mother. While we acknowledge that the estimated East-West gaps may partially reflect differences in childcare availability when the child is very young—which by themselves could be a result of cultural differences—we note that childcare is widely available across the entire local labor market once the child is four years old.<sup>21</sup>

Table 1 illustrates that East-West gaps are smaller within the same cross-border integrated local labor markets than in more remote regions, likely due to greater social interactions between East and West Germans and larger economic integration in these areas. For example, focusing on estimates in columns (2) and (4) that condition on an extensive set of characteristics at birth (“control set I”), East German mothers in cross-border local labor markets are 11.5 percentage points more likely to be regularly employed four years after childbirth than West German mothers, a sizeable difference of 28% if evaluated against the baseline employment probability of West German mothers of 40.1%. Yet, this is much lower than the 17-percentage-points difference in more remote regions. The East-West employment gap including marginal

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<sup>21</sup> We further note that (West German) mothers in need of childcare could move to neighboring (East German) municipalities where childcare is more easily available without having to separate from their employer.

employment four years after childbirth is somewhat smaller in magnitude, 8.03 percentage points or 15%, indicating that West German mothers prefer marginal employment relationships with very short hours. The East-West employment gap in full-time employment four years after childbirth is of similar absolute magnitude as the gap in overall employment, 8.78 percentage points or 38%, illustrating that East German mothers favor full-time work.

The East-West employment gaps are already apparent by the child's first birthday, when the job protection and maternity benefit period would have ended in the former GDR (Panel B). While smaller in absolute magnitude than the effects four years after childbirth, they are of similar magnitude if evaluated against the baseline employment probability of West German mothers.

**East-West Employment Gap by Time up to and since Childbirth.** We investigate the evolution of the East-West gap in mothers' regular employment (excluding marginal employment) around childbirth in greater detail in Figure 4. Specifically, we plot coefficients of the  $East_i$  dummy in equation (1) estimated separately for each month starting 36 months prior, and up to 84 months (7 years) after childbirth, controlling for mothers' pre-birth characteristics at the time of birth (control set I, as in column (4) of Table 1).<sup>22</sup> The East-West gap emerges after the child's first birthday, when a large share of East German mothers returns to the labor market, conforming to the (no longer existent) parental leave legislation of the former GDR. This divide increases in size up until three years after birth when the job protection period ends and a substantial share of West German mothers return to the labor market and declines thereafter. Yet even seven years after birth, East German mothers are still about 6.6 percentage points more likely to have returned to the labor market than their West German counterparts.

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<sup>22</sup> We restrict the sample to women who took leave in 2003 in order to depict differences in return behavior up to 84 months after giving birth in analogy to descriptive Figure 3.

**East-West Employment Gaps over Time.** In Part A of Figure 5, we examine how the East-West gaps four years after childbirth in full-time employment have evolved over time within the integrated cross-border local labor markets. Relative to the low baseline probability of full-time employment of West German mothers, East-West gaps are particularly pronounced (38% vs 15% for overall employment) for this outcome. Specifically, we plot coefficients of the  $East_i$  dummy in equation (1) estimated separately for mothers who give birth in years 1994 to 2006, controlling for mothers' pre-birth characteristics at the time of birth (control set I). The figure clearly shows that the East-West full-time employment gaps have narrowed over time, from close to 18 percentage points for mothers who give birth in 1994, 3 years after reunification, to less than 10 percentage points for mothers who give birth in 2006, 16 years after reunification. This contrasts with the evolution of the East-West gaps in full-time employment over time for Germany as a whole (excluding the integrated cross-border local labor markets), which has fluctuated around 15 percentage points over the period (Part B of Figure 5). Thus, while sizable gaps remain between East and West German women even within the same integrated cross-border labor markets nearly two decades after reunification, increasing interaction between them may have narrowed these differences over time.

## **5. How Persistent is Childhood Culture? Evidence from Migrants**

But who adjusts to whom? Is one childhood culture more persistent—or more prone to change—than the other when women move to a different cultural environment? To provide a better understanding of the scope for cultural persistence versus cultural change, we next focus on East and West Germans who moved across the former border to a culture different from that of their childhoods and who are a clear minority in the local labor markets and workplaces they moved to. Do these women adjust to the new culture (cultural adjustment) or do they maintain the values and beliefs of their childhood environment (cultural persistence)? And is adaptation

to a new culture possibly asymmetric, depending on whether a woman moves to a more gender egalitarian or a more gender traditional culture?

## 5.1 Empirical Specification

To address these questions, we build on the epidemiological approach (e.g., Fernández, 2007; Giuliano, 2007; Fernández and Fogli, 2009) and compare the post-birth career choices of East and West German “migrant” and “native” mothers who give birth in the same West (or East) German local labor market or who are even employed in the same workplace at birth.<sup>23</sup> We estimate regressions of the following type separately for different points in time after childbirth (indexed by the superscript  $k$ ), for first-time mothers who gave birth between 2003 and 2006:

$$Y_{ilft}^k = \beta^k East_i + \theta_{it}^k + \delta_f^k + x'_{ilt} \gamma^k + v_{ilft}^k \quad (2)$$

where the subscript  $i$  indexes the mother and the subscripts  $l, f$ , and  $t$  index the local labor market (141 local labor markets in total) and workplace where, and the year when, she gave birth.  $East_i$  is an indicator equal to 1 if the mother originates from East Germany,  $\theta_{it}^k$  are year of childbirth-local labor market fixed effects,  $\delta_f^k$  are fixed effects that refer to the mother’s pre-birth employer, and  $x'_{ilt}$  denote a mother’s pre-birth characteristics (as in control sets I and II). To capture potentially asymmetric adjustments to a more gender traditional versus more egalitarian culture, we estimate equation (2) on two samples: East German migrants and West German natives in the West German labor market, and West German migrants and East German natives in the East German labor market. We cluster standard errors at the level of the local labor market at childbirth.

The parameter of interest,  $\beta^k$ , primarily captures the persistent impact of childhood culture on mothers’ post-birth career choices.<sup>24</sup> Conditioning on local labor market effects at time of

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<sup>23</sup> In order to focus on women who were fully exposed to the other culture through migration, we exclude the comparably small number of cross-border commuters from the estimation sample.

<sup>24</sup> East (West) German migrants may themselves induce West (East) German mothers to increase (reduce) their labor supply after childbirth, which would lead us to underestimate the impact of childhood culture on maternal employment. Our findings in Section 7 show that for the typical West German mother, exposure to East German

birth eliminates differences in labor market opportunities and access to childcare between migrants and natives. By comparing migrant and native mothers who gave birth in the same workplace, we also hold constant their work colleagues at the time of birth. Conditioning on workplace fixed effects further removes potential differences in the workplace environment between East and West Germans, which have been shown to be important predictors of maternal labor supply even in countries with generous state-provided maternity leave policies (Kleven, Landais, and Sogaard, 2019 and Hotz, Johansson, and Karimi, 2017). Finally, conditioning on an extensive set of characteristics at the time of birth (control set I) and in the three years prior to birth (control set II) ensures that we compare East and West German mothers on the same career trajectories prior to birth.

A potential concern is that migrant and “native” mothers not only differ with respect to the culture they grew up in, but also in ways not captured by our extensive set of control variables. Our additional robustness checks discussed in detail below highlight that it is extremely unlikely that our estimated East-West gaps solely reflect selection of migrants rather than differences in childhood culture.

## 5.2 East German Migrants in West Germany

**Baseline Estimates.** We first consider East German migrants in the West German labor market. In this sample, the coefficient  $\beta^k$  captures the persistent effects of having grown up in a more gender egalitarian culture as a child and teenager on behavior as a first-time mother when immersed in a more gender traditional current culture. The findings in Table 2 point toward substantial East-West gaps in employment outcomes both four (Panel A) and one (Panel B) year after childbirth. For example, in our preferred specification which conditions on local labor market by year of birth fixed effects, fixed workplace effects that refer to the pre-birth employer,

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migrants was too small to trigger measurable increases in their own labor supply. The bias from spillovers from the minority to the majority culture in this full immersion setting is therefore likely to be small.

pre-birth characteristics, and work trajectories (control set II) in column (4), the East-West gaps four years after birth in regular and overall employment (excluding and including marginal employment) and full-time employment are 7.9, 6.22, and 5.09 percentage points respectively. The East-West gap in regular employment four years after childbirth of 7.9 percentage points is comparable to findings for the US on the effect of having had a working mother during high school (Olivetti, Patacchini, and Zenou, 2020) or the difference in employment between college-educated and non-college-educated young mothers (Kuziemko et al., 2020).<sup>25</sup>

It should be noted that controlling for women's pre-birth characteristics (control set I) and labor market trajectories (control set II) only slightly reduces (e.g., by 14% for regular employment) the raw East-West gaps, suggesting that differential labor market investments prior to childbirth cannot account for these observed gaps (compare columns (1), (2), and (3)). Conditioning on pre-birth employer fixed effects in column (4), thus contrasting East and West German women who give birth within the same workplace, likewise has only a small impact on the estimated East-West gaps even though adding workplace fixed effects substantially improves the explanatory power of the regression models (the R-squared increases from about 0.04 to 0.29). Hence, East Germans do not systematically sort into West German family-friendly workplaces where women are generally more likely to remain employed after birth. Moreover, East-West gaps are of similar magnitude when we compare East German migrants who worked in West Germany for at least six years before giving birth and have thus been exposed to the more traditional culture in adulthood for a longer period of time with West German mothers with at least six years of work experience prior to childbirth (column (5)).

In line with the findings in Table 1 and Figure 4 for the cross-border approach, the East-West gap is already evident one year after birth, when the job protection and maternity benefit period would have ended in the former GDR (Panel B).

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<sup>25</sup> Papers using the epidemiological approach typically examine the effects on working hours (e.g. Fernández, 2007; Fernández and Fogli, 2009). These papers therefore capture both the extensive and intensive margin of labor supply and are difficult to compare with our estimates.

**Selection of East German migrants.** A remaining concern is that the East-West gaps presented in Table 2 not only reflect differences in childhood culture, but also differences in unobserved characteristics between East German migrants and West German stayers, or the selection of East German migrants relative to East German stayers. As Appendix Table A2 shows, East German migrants are slightly older at birth and positively selected in terms of their education, pre-birth wage, and pre-birth full-time work status, both relative to West German stayers and East German stayers. The differences are, however, small and, as columns (1) to (3) of Table 2 show, conditioning on an extensive set of control variables right at birth (control set I) as well as in the three years prior to birth (control set II) barely reduces the estimated East-West gaps.

Even though our pre-birth control variables should capture the most important determinants of maternal labor supply, there may be other unobserved (in our data) confounders that affect maternal employment and that differ between East and West Germans.

First, partners of East German migrant mothers may earn less than partners of West German mothers, which could push East German migrants to work more after childbirth. We investigate this possibility using data from the German Socio-Economic Panel SOEP (2018)<sup>26</sup>, focusing on women with a child below the age of six interviewed between 1990 and 2010. While net earnings of partners of East German migrant mothers are indeed slightly lower than those of partners of West German mothers (6.9 percent or about 140 Euros per month, see Panel A of Appendix Table A3), this difference is unlikely to affect the estimated East-West gaps as the correlation between spousal income and maternal labor supply is weak.<sup>27</sup>

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<sup>26</sup> See Goebel et al. (2019) for a detailed description of the SOEP data.

<sup>27</sup> Our own calculations based on the SOEP for the years 1990 to 2010 show that an increase in spousal gross income of 1000 EUR is associated with a decrease in maternal employment of first-time mothers in the first four years of childbirth of only about 1 percentage point. This fairly low responsiveness of maternal employment to spousal income is in line with findings for the US by Blau and Kahn (2007), who document that cross wage elasticities of married women declined substantially between 1980-2000 to levels of around -.11 to -.13 in 2000.

Second, East German migrants are less likely to have grandparents and family nearby to help out with childcare—which should reduce their maternal labor supply of East German migrants relative to West German stayers. Thus, unlike spousal income, this confounder would lead us to underestimate the role of childhood culture when comparing maternal labor supply of East German migrants and West German stayers.

Third, East German migrants may move to West Germany because of improved career opportunities and may thus be more career oriented than the typical East German mother and thus would have a high propensity to work after childbirth even if they had stayed in East Germany. This confounder implies, like East-West differences in spousal income, that the estimated East-West gaps in Table 2 overstate the role of childhood culture. We once again investigate this possibility using data from the German Socio-Economic Panel (SOEP), focusing on women aged 20-45 interviewed between 1990-2016 on career related attitudes (see Panel B in Appendix Table A3). We regress binary attitudes on indicator variables for whether a woman always remained in East Germany and whether a West (East) German woman moved to East (West) Germany within the 5 following years—that is, before they moved to the other part of Germany. West German “stayers” form the omitted baseline group.<sup>28</sup> While East German stayers are more likely to report that job success and to fulfill one’s potential (and, perhaps more surprisingly, family) are important than West German stayers—reflecting cultural differences and differences in self-perception between East and West German mothers, which are in fact crucial differences we want to capture and should not control for—East German migrants do not appear to be strongly selected relative to East German stayers.

**Bounding East-West gaps.** Next, we follow the approach by Oster (2019) (who builds on the ideas discussed in Altonji, Elder, and Taber (2005)) to gauge to what extent unobserved

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<sup>28</sup> We control for women’s socio-demographic characteristics (woman’s age, education and whether she has children). Gender role attitudes are only available for one survey year and we are thus unable to perform a similar analysis testing for pre-move differences in gender role attitudes.



confounding factors could reduce or increase the estimated East-West gaps, assuming extreme differences between East German migrants and West German stayers in unobserved characteristics that we cannot account for. The approach is first based on a comparison of East-West gaps unconditional ( $\hat{\beta}$ ) and conditional ( $\tilde{\beta}$ ) on observed characteristics—10.1 and 7.92 percentage points for regular employment four years after childbirth (columns (1) and (4) in Table 2, displayed again for convenience in columns (1) and (2) in Panel A of Table 3). Oster (2019) suggests a simplified formula to compute approximate bounds  $\beta^*$  around the conditional East-West gap  $\tilde{\beta}$  as follows:

$$\beta^* \approx \tilde{\beta} - d(\hat{\beta} - \tilde{\beta}) \frac{R^{max} - \tilde{R}}{\tilde{R} - \hat{R}}$$

where  $\hat{R}$  and  $\tilde{R}$  denote the  $R^2$  from the unconditional and conditional regression (0.009 vs 0.289 for regular employment four years after childbirth, reported in Panel A of Table 2), and  $R^{max}$  is set by the researcher and determines to what extent observed and unobserved factors combined can explain the overall variation in post-birth employment choices of mothers.

The parameter  $d$  governs the degree of proportionality of selection on observables to selection on unobservables and are typically set to 1 and -1, implying that selection on unobservables is as strong as selection on observables and operates in the same or opposite direction as selection on observables, leading to an over- and underestimation, respectively, of the true effect in this specific context. Note that a choice of  $d = 1$  is a very conservative assumption given our extensive set of control variables and given that some unobserved confounders such as access to nearby family work in the opposite direction as selection on observables.

Oster (2019) recommends a value of  $R^{max} = 1.3\tilde{R}$  (arguing that with a higher  $R^{max}$ , bounds would lie outside the 99.5% confidence interval in more than 10% of cases in a set of well-published Randomized Control Studies). Assuming  $R^{max} = 1.3\tilde{R}$ , we obtain a lower and upper bound for the East-West gap in regular employment four years after childbirth of 7.2 and 8.6

percentage points (column (3) and (4) of Table 3) —very similar to the conditional East-West gap of 7.9 percentage points reported in column (4) of Panel A in Table 2. We obtain lower and upper bounds of 5.7 and 10.1 percentage points when we assume (as in Nunn and Wantchekon, 2011 and Bellows and Miguel, 2009)  $R^{max} = \tilde{R} + (\tilde{R} - \hat{R})$ , implying that the unobservables explain as much variation in the outcome variable as the observables. This is, once again, an extremely conservative assumption in our context, given our extensive set of pre-birth control variables.<sup>29</sup> Yet, even under this very conservative assumption, growing up in the more gender egalitarian East German culture would increase the post-birth employment probability by 5.7 percentage points when mothers are fully immersed in the more traditional West German culture at birth.

**Additional robustness checks.** We report additional robustness checks in Table 4. In column (2) and (3), we first contrast East German migrants with West Germans who migrated at least the average distance as the aforementioned East German migrants (about 280 km), but did so internally within West Germany, to account for the possibility that migrant mothers generally work more after childbirth. East-West gaps in Table 4 even increase in magnitude relative to our baseline estimates in column (4) of Table 2 (presented for convenience also in column (1) of Table 4)—possibly because internal West German migrants do not have, like East Germans, family nearby. Next, we restrict the sample to West German workplaces operating in the five integrated cross-border local labor markets. East Germans in these workplaces are primarily commuters and thus face substantially lower moving costs than cross-border migrants, thus limiting the potential concern of differential selection.<sup>30</sup> Yet, estimates in column (4) of Table 4 are, if anything, slightly larger in size to our baseline estimates reported in column (1).

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<sup>29</sup> In fact, this implies an  $R^{max}$  close to  $2\tilde{R}$ . As shown by Oster (2019), the resulting bounds would lie outside the 99.5% confidence interval for 18% of well-published randomized control studies.

<sup>30</sup> To obtain a sufficiently large sample size, we include East and West Germans who gave birth between 1997 and 2006 (as opposed to between 2003 and 2006, in our baseline specification).

To summarize, the findings in Tables 2 to 4 suggest that growing up in a more gender egalitarian culture has a persistent effect on women’s post-birth career choices, even when they have been fully immersed in a more traditional majority culture for a significant period of time. This persistence appears particularly remarkable as East German women are now in an environment where childcare places for children below the age of three are considerably scarcer than in their childhood culture. We note that the higher propensity to work after childbirth of East Germans may in part be driven by their partner choice (see also Fernández, Fogli, and Olivetti, 2004; Fernández and Fogli, 2009; Blau, 2015): As Panel A of Appendix Table A3 shows, East German migrant mothers are considerably more likely to have an East German partner—who also grew up in the more gender egalitarian environment—than West German stayers (44 percent vs. 2 percent).<sup>31</sup>

### 5.3 West German Migrants in East Germany

**Baseline Estimates.** We now turn to West Germans who moved to East Germany and assess whether they continued to behave according to the more traditional culture they experienced as children and teenagers, despite now being fully immersed in the more gender egalitarian East German culture. We report our results in Table 5, which has the same structure as the corresponding Table 2 for East Germans in West Germany.

Compared to the sizable East-West gaps in maternal labor supply within West German workplaces, the East-West gaps in East German workplaces are considerably smaller in magnitude (with the exception of regular employment one year after childbirth) and nearly fully disappear once we focus on West German migrants who had lived in East Germany for at least six years before giving birth in column (5). Thus, in contrast to East German mothers in the West German labor market, West German mothers, who were brought up in a more traditional culture

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<sup>31</sup> Differences in partner choices between East German migrants and West German stayers are likely to be directly influenced by the cultural environment which mothers were exposed to as children and teenagers and therefore would present “bad control variables” in regression equation (2).

but now encounter a more gender egalitarian one as young adults, seem to adapt their behavior accordingly, in particular so after prolonged exposure to East German culture. Our findings therefore point to an asymmetric adjustment pattern: whereas East German migrants continue to adhere to the childhood culture they grew up in, West German migrants adjust to their current, more egalitarian cultural environment.

**Selection of West German migrants.** A potential concern is that the much smaller East-West gaps in the East compared to the West German labor market are driven by the selection of West German migrants relative to East and West stayers, rather than asymmetric adjustment to a new current culture. West German migrants appear to be slightly positively selected compared to East German stayers in terms of education, wages and full-time status (see Panel A of Appendix Table A2), but conditioning on an extensive set of control variables at birth (control set I) and in the three years prior to birth (control set II) barely changes the East-West gap (compare columns (1) to (4) in Table 5). Evidence based on the SOEP further highlights that spousal income of West German migrant mothers is considerably higher than spousal income of East German mothers (Panel A of Appendix Table A3)—which would predict a slower return to work of West German migrants. A second potential confounder—which would once again predict a lower propensity to work after childbirth for West German migrants—is access to family: West German migrants are less likely to have family nearby who may take on childcare responsibilities.

A remaining concern is that West German women who value their career and hence have a high propensity to work after childbirth may strategically migrate to East Germany, expecting that it is easier to combine family and work in a more gender egalitarian environment. Evidence based on the German Socio-Economic Panel casts doubt that this type of selection is of importance: West German migrants do not report, before they moved to East Germany, job success and fulfilling ones' potential (and family) to be more important than West German

stayers (Panel B of Table A3). The descriptive evidence discussed here thus suggests that, if selection on unobservables (in our data) is present at all, it is likely to operate in the opposite direction as selection on observables (i.e., the inclusion of unobserved confounders in the regression would reduce East-West gaps even more).

Under the extremely conservative assumption that selection on unobservables is as important and goes in the same direction as selection on observables (despite the descriptive evidence highlighted above) and that unobservables explain as much variation in the outcome variable as the observables ( $R^{max} = \tilde{R} + (\tilde{R} - \hat{R})$ ), we obtain, according to Oster (2019), an upper bound for the East-West gap of 2.9 percentage points for regular employment four years after childbirth (see Panel B of Table 3). Hence, even under implausibly restrictive assumptions about selection on unobservables, the East-West gap in regular employment remains considerably smaller in the East than the West German labor market, casting strong doubt that the selection of migrants alone drives our findings.

**Additional Robustness Checks.** Our findings are also robust to the same checks that we conducted for East Germans in the West German labor market. East-West gaps are small in magnitude and insignificant when we compare West German migrants to internal East German migrants who moved a similar distance within East Germany and gave birth in the same local labor market in the same year (column (2) of Table 6).<sup>32</sup> East-West gaps are likewise small and statistically insignificant when we compare East and West Germans within the same workplace located in the Eastern part of the integrated cross-border local labor markets (column (3) of Table 6). We conduct a final placebo check in column (4) of Table 6, focusing on “future” migrants who were socialized and give birth in West Germany, stay in West Germany for at least two years after giving birth but move to East Germany at some later point. If West German women

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<sup>32</sup> There are only 319 internal East German migrants, making it infeasible to compare West German migrants and East German internal migrants within the same workplace.

who migrate to East Germany are generally more career-oriented than West German women who migrate internally, we would expect “future” West-East migrants to return to work faster after birth than “future” internal migrants who give birth in the same year and same local labor market.<sup>33</sup> Employment gaps two years after childbirth (when future migrants to East Germany are still in West Germany) between the two groups are, however, close to zero, confirming that West German women who migrate to East Germany are not generally strongly selected, in line with our previous evidence.<sup>34</sup>

Taking stock, our findings in Tables 2 to 4 consistently and robustly reveal a pattern of asymmetric adjustment: whereas East German migrants continue to adhere to the childhood culture they grew up in, West German migrants adjust to their current, more egalitarian cultural environment. We note that this asymmetry is not operating through differences in partner choices (and hence differences in partner’s childhood culture) between East and West German migrants. In fact, the difference in the probability of having an East German partner is considerably higher between East German stayers and West German migrants than between East German migrants and West German stayers (73 vs 42 percentage points; see Panel A of Appendix Table A3). Thus, (endogenous) partner choice would have predicted a stronger adjustment of East German migrant mothers to the more traditional West German gender norm than of West German migrant mothers to the more gender egalitarian East German gender norm, contrary to what we find.

## **6. Current versus Past Exposure to a More Gender Egalitarian Culture – Evidence from West German Return Migrants**

What explains this asymmetric adjustment pattern? One possibility is peer or social pressure. West German migrants may feel pressure from their colleagues or their bosses to conform with the more gender egalitarian norm prevalent in East Germany and return to the labor market early

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<sup>33</sup> A within workplace comparison is infeasible due to small sample size (N=257), see the previous footnote.

<sup>34</sup> A similar robustness check is not possible for East Germans who migrate to West Germany, due to the very small number of women who migrate internally after they gave birth.

after childbirth. While East German migrants may also feel pressurized to comply with the more gender traditional West German norm, adjusting to the West German norm would be economically costly, resulting in lower labor earnings post birth. For West German migrants, in contrast, social pressure and economic incentives go hand in hand.<sup>35</sup>

Alternatively, the asymmetric adjustment pattern may be the result of learning from nearby employed women (Fogli and Veldkamp, 2011) as well as from the older generation (Fernández, 2013). Having been brought up in a culture where working mothers with young children were rare, West German mothers may be uncertain about the impacts of their labor supply choices on their own and their child's well-being. Exposure to East Germans—either through directly observing working mothers or through experiencing the East German context more generally—may mean West German women take on valuable information that leads them to lastingly update their beliefs about the effects of early maternal employment. East German women, on the other hand, grew up around working mothers—their own or those of their classmates and friends—and likely attended daycare from a young age. They may therefore be considerably less uncertain about the consequences of working when the child is young and thus have less to learn from their West German colleagues.<sup>36</sup>

If the asymmetric adjustment pattern is mainly driven by learning, we would expect West German migrant mothers who were fully immersed in the less gender traditional East German culture in the *past* but give birth and live once again in the more gender traditional West German culture to still adhere to the more gender egalitarian East German culture. If, in contrast, peer pressure and divergent economic incentives were solely driving the asymmetric adjustment

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<sup>35</sup> In line with this argument, Chabé-Ferret (2019) studies the interplay between culture and economic incentives in decision-making and documents that decisions with a higher cost of deviation from the economic optimum are less likely to be influenced by cultural norms. Similarly, Giavazzi, Petkov, and Schiantarelli (2019) show that convergence of cultural traits across immigrant generations is faster for those cultural traits that are likely to generate larger economic gains from assimilation.

<sup>36</sup> In a related explanation, immersion in a more gender egalitarian culture as young adults may, in contrast to immersion in a more traditional culture, induce a permanent change in women's work preferences or identity. Prummer and Siedlerek (2017) propose a model where current identity is a weighted average of the host society's culture, past own identity, and peers' past identity and can, in contrast to Akerlof and Kranton (2000), evolve dynamically.

pattern, West German return migrants should behave no different after childbirth from West Germans who never experienced the East German culture.

In a next step, we therefore compare post-birth labor market outcomes of West German return migrants (thus with exposure to East Germany in the past) to their West German colleagues who always remained in West Germany. We estimate the following specification separately for different points in time since childbirth (indexed by the superscript  $k$ ), pooled for mothers who gave birth in West Germany between 1997 and 2006:<sup>37</sup>

$$Y_{ift}^k = \beta^k \text{Return}_i + \theta_{it}^k + \delta_f^k + x'_{it} \gamma^k + v_{ift}^k \quad (3)$$

where  $\text{Return}_i$  is an indicator variable that takes the value 1 if a West German woman worked in East Germany for at least 1.5 years and then returned to West Germany.  $\theta_{it}^k$  are year of childbirth-local labor market fixed effects,  $\delta_f^k$  are fixed effects that refer to the mother's pre-birth employer, and  $x'_{it}$  denote a mother's pre-birth characteristics (control sets I and II). The parameter of interest  $\beta^k$  captures the effects of past full immersion in a more gender egalitarian culture in adulthood.

**Results.** The findings in Table 7 suggest that not only current, but also past exposure to a more gender egalitarian culture induces mothers to work more after childbirth. Gaps between West German return migrants and West German stayers in regular (excluding marginal) employment four years after childbirth are between 3.69 and 4.37 percentage points, depending on the specification. East-West gaps in full-time employment are of similar magnitude, while East-West gaps in total (including marginal) employment are smaller (and typically not statistically significant), suggesting that past exposure to the East German culture induces

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<sup>37</sup> We have expanded the birth window by 6 years (1997 to 2006 vs. 2003 to 2006) in order to increase the number of return migrant mothers in West German workplaces (N=1,962).



mothers to return to longer-hour, regular employment rather than opting for low-earning, marginal employment post childbirth. Conditioning on mothers' pre-birth characteristics or pre-birth labor market histories (columns (2) and (3)) or pre-birth employer fixed effects in column (4) has only a small impact on the point estimates although we lose some precision when the latter are included as control variables.

**Selection of West German Return Migrants.** The post-birth employment gaps between West German return migrants and West German stayers are unlikely to be driven by unobserved differences between the two groups. Under the extremely conservative assumptions that selection on unobservables is as important and goes in the opposite direction as selection on observables and that unobservables explain as much variation in the outcome variable as the observables ( $R^{max} = \tilde{R} + (\tilde{R} - \hat{R})$ ), we obtain a lower bound according to Oster (2019) for the gap in regular employment four years after childbirth between West German return migrants and West German stayers of 3.7 percentage points (see Panel C of Table 3)—which is very close to the baseline employment gap of 3.9 percentage points in column (4) of Table 7. Gaps further persist if we compare West German return migrants who were exposed to a more gender egalitarian culture in the past with West German return migrants who migrated internally within West Germany and hence had only limited social interactions with East Germans (column (5)).

Overall, these findings suggest that the adjustment of West German migrants to the more gender egalitarian East German culture (Tables 5 and 6) is not driven solely by peer pressure from East German colleagues or bosses to conform to such norms. Such adaptation may rather be the result of learning from colleagues as well as from the older generation, ultimately altering the behavior of West German mothers more permanently.

## **7. Horizontal Transmission within West German Workplaces – Evidence from the Arrival of East German Colleagues**

The previous analysis demonstrates that, when women are fully immersed in a more gender egalitarian culture in adulthood, they start to behave accordingly even when they return to a more traditional culture. Does the horizontal transmission of culture through colleagues—through for example information provision and belief updating—rely on being a minority in this different culture when incentives to comply are potentially the largest? Or is moderate exposure to a more gender egalitarian culture sufficient for cultural transmission? In this section, we estimate the extent to which the large immigration inflow of East Germans into West German workplaces shaped the return-to-work decisions of West German mothers to shed light on these questions.

### **7.1 Empirical Specification**

Prior to 1989, West Germans had very little contact with East German culture since migration from East to West had been virtually impossible since the construction of the Berlin Wall in 1961. After the fall of the Wall in November 1989, between 200,000 and 400,000 East Germans migrated to West Germany annually between 1989 and 1991 (Hunt, 2006). Thus, West German women were suddenly exposed to new colleagues who had grown up in a much more gender egalitarian culture. In what follows we exploit the differential inflow of East Germans across observationally equivalent West German workplaces in the same industry and local labor market in the immediate aftermath of the fall of the Iron Curtain in an effort to assess whether migration can induce cultural change. We compare West German mothers who give birth prior to the fall of the Berlin Wall, between 1986 and 1988, to observationally equivalent mothers who give birth after the main migration wave, between 1992 and 1996, across two types of workplaces: those that received a large inflow of East German colleagues (our “treatment” workplaces) versus those that experienced hardly any inflow (our “control” workplaces). We define treatment workplaces as those where the share of East Germans among the workforce was

at least 10 percent in each year over the post-period 1992 to 1996. Control workplaces, in contrast, are those where the share of East Germans among the workforce remains very low (below 0.5 percent) throughout the post-period, such that there is very little change in exposure to East Germans in the workplace.<sup>38</sup> It should be noted that our baseline measure of exposure to East German colleagues includes male and female East Germans of all ages, and not only East German mothers with young children.

We estimate the following OLS continuous difference-in-differences specification separately for different points in time since childbirth (indexed by the superscript  $k$ ), restricting the sample to smaller workplaces with at most 500 full-time equivalents:<sup>39</sup>

$$Y_{ifslt}^k = \beta^k post_t * Share_f + x'_{it}\gamma_1^k + x'_{ft}\gamma_2^k + \delta_f^k + \rho_{st}^k + \theta_{lt}^k + v_{ifslt}^k \quad (4)$$

where the subscript  $i$  indexes the mother, and the subscripts  $f$ ,  $l$ ,  $s$ , and  $t$  denote the workplace, local labor market, industry, and year where and when the mother gave birth.  $post_t$  is an indicator variable that is equal to 1 if the mother gave birth after the fall of the Iron Curtain (between 1992 and 1996) and  $Share_f$  is the employment share of East Germans in the workplace averaged over the post-period years. This way, we eliminate year-to-year variation in the employment share of East Germans within workplaces during the post-period, which may be correlated with the overall performance of the workplace.  $x'_{it}$  denote mothers' pre-birth characteristics and labor market trajectories prior to childbirth (control set II);  $x'_{ft}$  the characteristics of the workplace the mother was employed at when she gave birth (the workplace's size in full-time equivalents, the workplace's mean wage (excluding the wages of those mothers who gave birth in year  $t$ ), the share of full-time workers, foreign nationals, and

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<sup>38</sup> 5.25 percent of West German women who gave birth over this period work in a treated workplace, and 5.66 percent in control workplaces. The women in treated workplaces experienced a substantial change in their social network, with an average share of East German colleagues of 16.5 percent and a standard deviation of 6.5 percent.

<sup>39</sup> We further keep only those workplaces where at least one woman gave birth in the pre-period and at least one in the post-period.

female workers, and the workplace’s educational and age composition) measured at the time of childbirth;  $\delta_f^k$  are fixed effects that refer to the workplace where she was employed at when taking maternity leave;  $\rho_{st}^k$  denote industry (at time of birth)-by-year of birth fixed effects; and  $\theta_{it}^k$  denote local labor market (at time of birth)-by-year of birth fixed effects.

The parameter of interest  $\beta^k$  captures differences in maternal labor supply decisions of West German mothers in treatment and control workplaces after the arrival of East German colleagues, relative to the pre-unification period when West German mothers had no social interactions with East Germans.<sup>40</sup> It identifies the effects of partial exposure to a more gender egalitarian culture, through the arrival of East German colleagues, for mothers who were socialized and still reside in the more traditional West German culture. It therefore captures horizontal transmission of East German culture to West German “native” mothers. This effect could operate through various channels. West German mothers may learn from East German colleagues, inducing them to update their beliefs on what it constitutes to be a good mother. They may also receive helpful advice from East Germans how to best juggle family and career. Alternatively, East Germans may render the work environment more family friendly, which in turn could increase the probability that a new mother returns to her pre-birth employer when going back to work. In contrast, as our exposure measure includes both male and female colleagues of all ages—and hence only few (if any) East German mothers who give birth around the same time as West German mothers—a “rat race” with East German mothers or pressure from bosses to return to work as quickly as East German mothers at the same workplace are unlikely to be main drivers.

By using pre-determined characteristics of peers at work, our estimator is similar in spirit to estimating an “exogenous” peer effect (Manski, 1993) and thus differs from the previous literature (e.g., Olivetti, Patacchini, and Zenou, 2020 and Maurin and Moschion, 2009) that

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<sup>40</sup> Hence, since we compare labor supply decisions of West German mothers in treatment and control workplaces before and after the arrival of East Germans colleagues, the potential sorting of East Germans into workplaces where mothers generally return to work earlier does not pose a threat to identification.

estimated the impact of the labor supply of a mother's peers on her own labor supply (an "endogenous" peer effect).

This identification strategy rests on the assumption that, absent the inflow of East Germans into treated workplaces, mothers' post-birth career outcomes would have evolved similarly over time in treatment and control workplaces. It should be noted that regression equation (4) conditions on region-by-year of childbirth and industry-by-year of childbirth fixed effects and thereby allows for the possibility that East Germans self-select into growing local labor markets or industries where mothers may return to work earlier than in declining local labor markets or industries, irrespective of the arrival of East Germans. The inclusion of industry- and local labor market-by-year of birth fixed effects also absorbs economic effects of migration. For example, the inflow of East Germans might bring about a decline in wages and employment opportunities in the local labor market for West German natives, which could in turn affect women's post-birth career choices, irrespective of any diffusion of East German culture.<sup>41</sup> Our parameter of interest therefore likely reflects the diffusion of East German culture to West German mothers, rather than economic effects of migration.

A remaining concern is that even within the same local labor markets and industries, treatment workplaces may generally perform better than control workplaces. After all, they hired a fairly large number of East Germans predominantly during the main migration wave of 1989 to 1991 (years which we exclude in our analysis) and grew at a higher rate than control workplaces over this period, which in turn may affect mother's post-birth labor market decisions irrespective of horizontal transmission. We present a number of robustness checks against this concern below.

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<sup>41</sup> Rather than variation in the inflow of East Germans across workplaces within the local labor market, Schmitz and Weinhardt (2019) exploit variation in the inflow across local labor markets. In addition to cultural transmission, their approach may therefore pick up economic effects of immigration. The local labor market-by-year of birth fixed effects in our specification can also account for potential changes in provision of public goods and social services (e.g. childcare, schools) in response to the inflow of East Germans as observed by Schmitz and Weinhardt (2019) for a later time period than ours (2008 onward).

## 7.2 Results

**Baseline Results.** The findings in Table 8 suggest that a larger exposure to East German colleagues in the workplace induces West German mothers to return to work earlier after their child is born. Four years after birth (Panel A), the point estimates indicate that a 10 percentage point increase in the share of East German colleagues increases the probability that a West German mother is employed (excluding marginal employment) by between 1.1 and 1.6 percentage points, regardless of which specification is used.<sup>42</sup> In contrast, full-time employment of West German mothers is not affected by the share of East German colleagues, implying that in the longer term (four years after birth) increased exposure to East German colleagues primarily increases part-time employment of West German mothers. In the short term, one year after birth, a larger exposure to East German colleagues prompts West German mothers to work more not only part-time, but, but also full-time by about 2 and 1.1-1.5 percentage points, respectively, in line with the norm that prevailed in the GDR.

Point estimates barely change with the inclusion of individual pre-birth characteristics and work history variables prior childbirth (column (2)) highlighting that the characteristics of West German mothers did not differentially change in treatment relative to control workplaces after the arrival of East Germans in the West German labor market. Conditioning on a wide range of characteristics of the workplace where the mother was employed when she took leave that refer to the time of birth (column (3)) and the time when we measure outcomes (column (4)) also has little impact on our estimates, suggesting that workplace characteristics are not important confounders in regression equation (4).

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<sup>42</sup> We divide the employment share of East Germans by 10 (i.e., the share varies between 0 and 0.1) so that the reported coefficients refer to an increase in the employment share of East Germans by 10 percentage points. We do not report results on overall employment (including marginal employment) as the latter is recorded in our data from 1999 only. Prior to 1999 however, marginal employment contracts were fairly uncommon.

**Event Study.** The event study plot in Figure 5 provides additional graphical evidence that the sudden exposure to East German colleagues after the fall of the Iron Curtain accelerated West German mothers' return to work. The figure depicts the evolution of the difference in the probability of working one year after childbirth in treatment workplaces, which experienced an increase in the share of East Germans by 16.5 percentage points on average, and control workplaces, where the share of East Germans among the workforce remained below 0.5 percent. Differences in the probability of working are normalized to 0 in 1986. The underlying specification of the event-study plot is equivalent to the specification presented in column (1) of Table 8, which controls for local labor market-by-year of birth and industry-by-year of birth fixed effects and workplace fixed effects. While there is no diverging trend between treatment and control workplaces in maternal labor supply behavior in the pre-reunification period, a growing difference of around 2 to over 5 percentage points emerges after the sudden arrival of East Germans in the post-reunification period. The probability of working one year after childbirth was similar in treatment and control workplaces in the pre-period (32.4 and 33.5 percent respectively), which suggests that East German workers did not generally select into workplaces that enabled women to return to work earlier.

**Robustness Checks.** Our findings are robust to a battery of checks. For example, including linear workplace-specific time trends as additional controls in regression equation (4) barely changes our estimates, as one would expect from the event-study plot (compare columns (1) and (2) in Table 9). Using workplaces that grew at the same rate as our treatment workplaces during the main migration years 1988 to 1992 but did not hire East Germans as an alternative control group likewise yields similar estimates (column (3) in Table 9).<sup>43</sup> Reassuringly, employment outcomes of men and of older women beyond their childbearing years do not appear to be

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<sup>43</sup> We perform one-to-one matching between treatment and control workplaces based on relative (full-time equivalent) employment growth between 1988 and 1992.

affected by the arrival of East German colleagues (columns (4) and (5) in Table 9). Thus, the arrival of East German colleagues primarily affects post-birth employment outcomes of West German mothers, as we would expect if East German colleagues successfully transmit their more gender egalitarian culture to more traditional West German “natives” precisely at this crucial moment when cultural norms are so salient.

**Heterogeneous Spillover Effects.** Estimates in Panel B of Table 10 further reveal that female colleagues from East Germany, who likely transmit first-hand knowledge regarding returning to work after birth, have a stronger impact on the post-birth labor market outcomes of West German mothers than do East German male colleagues. In addition, East German colleagues within the same occupation, with whom the mother presumably interacts the most, have a stronger positive impact on a West German mother’s probability of working one year after childbirth than do colleagues in other occupations within the workplace (Panel C of Table 9).

Further, the findings in columns (2) and (3) as well as (5) and (6) in Table 10 show that East German colleagues, in particular female colleagues and those in the same occupation, increase the probability that a West German mother continues to work for her pre-birth employer and pre-birth occupation within the same workplace, both one and four years after birth. It should be noted that the coefficients for these workplace-specific employment variables are somewhat larger in magnitude than for overall employment (presented in columns (1) and (4)), implying that East German colleagues increase the likelihood that West German mothers return to the same employer (and occupation) after birth not just because they induce them to generally work more. These finding suggests that East German colleagues might make the workplace more attractive to return to for West German mothers, as opposed to making it more competitive where mothers feel pressured to return to work early.



**How Much Exposure to East German Culture is Needed?** Thus far, we have considered a relatively large shock: an increase in the employment share of East Germans by at least 10 percentage points, and 16.5 percent on average. Only 5.25 percent of mothers who gave birth between 1992 and 1996 are employed in such workplaces. Is such a large shock necessary to induce a change in the behavior of natives? Or might a smaller shock bring about a similar adjustment?

The evidence in Figure 7 suggests that substantial migration shocks larger than 10 percent are needed to generate changes in the behavior of native mothers. In this figure, we relax the definition of the treatment workplace and consider all workplaces where the share of East Germans among the workforce was at least 5 percent (rather than 10 percent, as in our baseline definition) in each year over the post-period 1992 to 1996.<sup>44</sup> We then estimate a more flexible version of equation (4) with five treatment indicators corresponding to the 25<sup>th</sup>, 50<sup>th</sup>, 75<sup>th</sup>, and 90<sup>th</sup> percentile of the share distribution: workplaces where the East German employment share is less than 7 percent (6.4% on average), between 7 and 9 percent (8% on average), between 9 and 12 percent (10% on average), between 12 and 17 percent (14% on average), and greater than 17 percent (22% on average). Otherwise, the specification corresponds to that in column (3) of Table 7. The figure is suggestive of a threshold effect at an East German employment share of about 10 percent. A more moderate exposure of less than 9 percent to East Germans within a workplace has no significant effect on the probability that a West German native mother is employed one year after childbirth. Figure 8 thus suggests that while migration can be a catalyst for cultural change, only large migration shocks of at least 10 percentage points bring about behavioral changes in mothers' labor supply.

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<sup>44</sup> Around 21 percent of mothers who gave birth between 1992 and 1996 are employed in workplaces that experienced a migration inflow of at least 5 percent.

## 8. Conclusions

In this paper, we investigate whether and to what extent the sudden exposure to a different culture induced by migration shapes mothers' labor supply decisions after childbirth. To this end, we use the setting of German reunification, which brought together two distinctly different cultures: the more gender egalitarian culture of East Germany and the more traditional one of West Germany.

We document four main findings. First, we find sizable remaining differences in the propensity to work between East and West German mothers not only in the aggregate, but also across the former border in economically integrated local labor markets. Employment gaps in the integrated local labor markets have however narrowed since the early 1990s as social interactions between East and West Germans increased.

Next, we focus on East and West German women who migrated to the other part of Germany and investigate whether they adjust to the new cultural environment or whether they behave according to their childhood culture. We document a large asymmetry in the persistence of childhood culture depending on the direction of the move. East German migrants continue to behave according to their more gender egalitarian childhood culture, even when they are a clear minority in a more traditional cultural environment. West German migrants instead experience a cultural shift when fully immersed in a more gender egalitarian culture in adulthood, returning to work earlier after childbirth and thus behaving more similarly to their East German colleagues.

Third, we show that West German return migrants—who were exposed to the more gender egalitarian culture in the past—continue to adhere to the more gender egalitarian East German norm and are more likely to be regularly employed and work longer hours after childbirth than West German mothers with no direct exposure to East Germany. This finding suggests that the adjustment of West German migrants to the more gender egalitarian East German culture is the result of learning about how to combine family and a career and belief updating on what it constitutes to be a good mother, rather than peer pressure.

Fourth, we show that full immersion in a more gender egalitarian culture in adulthood as a migrant is not needed for West German mothers to deviate from their more traditional childhood culture. Indeed, simple sudden exposure to East German colleagues—in particular East German women—who migrated to West Germany after the fall of the Iron Curtain induces West German women to speed up their return to work after childbirth, provided that the exposure to East Germans is large enough.

Our paper highlights that the East German socialist regime has left an important legacy. Not only has cultural change brought about by socialism had persistent effects on East German women even after the political integration of the East German regime into West Germany, but even more strikingly, the East German gender egalitarian culture has spread to the more traditional West where women have had the opportunity to interact. Our findings further demonstrate that the diffusion of gender norms and related labor supply decisions of mothers primarily goes in one direction only—from a less traditional to a more traditional culture—whilst more gender egalitarian norms are harder to undo. Learning about the impact of maternal labor supply on children and mothers' wellbeing seems to be a key driver of this asymmetry. Our findings additionally suggest that the workplace can serve as an important network within which cultural change can happen through social interactions of colleagues. Thus, one reason for the stalling labor supply of women and persistent motherhood penalties in gender traditional cultures might be the lack of direct contact to more gender egalitarian cultural values and beliefs.

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## Appendix: Imputation of East and West Germans

We develop an imputation technique for classifying a person as East or West German. We proceed in three steps. In the first step, we use the first place of work to indicate whether a person is East or West German. If the first spell of a person is an unemployment spell, we use the regional information of the job center (*Agenturbezirke*) in which the person is registered as the basis for the imputation. From these regional variables, we compute a binary variable classifying a person as East or West German.

When East German workplaces entered the pool of social security records after the fall of the Iron Curtain, we initially observe an unusually large share of missing places of work as East German workplaces were not yet fully integrated into the reporting system. Therefore, in a second step, we classify as East German all women who we observe as working for the first time during the transition period (1989-1991) and whose place of work is reported as missing.

From 1992 onwards, data for East Germany can be collected reliably (vom Berge, Burghardt, and Trenkle, 2013). By that time, many East Germans had migrated to West Germany for work (Hunt, 2006), such that their first place of work may be recorded as in West Germany. In order not to accidentally misclassify these early migrants as West German, we consider in a third step a worker as East German when she enters the social security data for the first time between 1989 and 1991 and is above a certain age, even if her first place of work is in West Germany. The age thresholds that we apply vary by education at labor market entry: 29 for individuals with a university-level education (*Universität* or *Fachhochschule*), 26 for those with an upper-track high school degree (*Abitur*) and vocational degree, 23 for all other individuals. Prior to 1989, before East Germans had the opportunity to migrate to West Germany, only very few West Germans entered the social security records at older ages, such that the probability of erroneously misclassifying a West German as an East German should be small. It should be noted that the third imputation step has a minimal impact on our estimates in Sections 4 and 5 where we focus on mothers who gave birth between 2003 and 2006, as the majority of these mothers entered the social security records in 1992 or later.

Figure 1. Mama vs Mutti – Advertising in the 1950s

Part A: West Germany in 1950



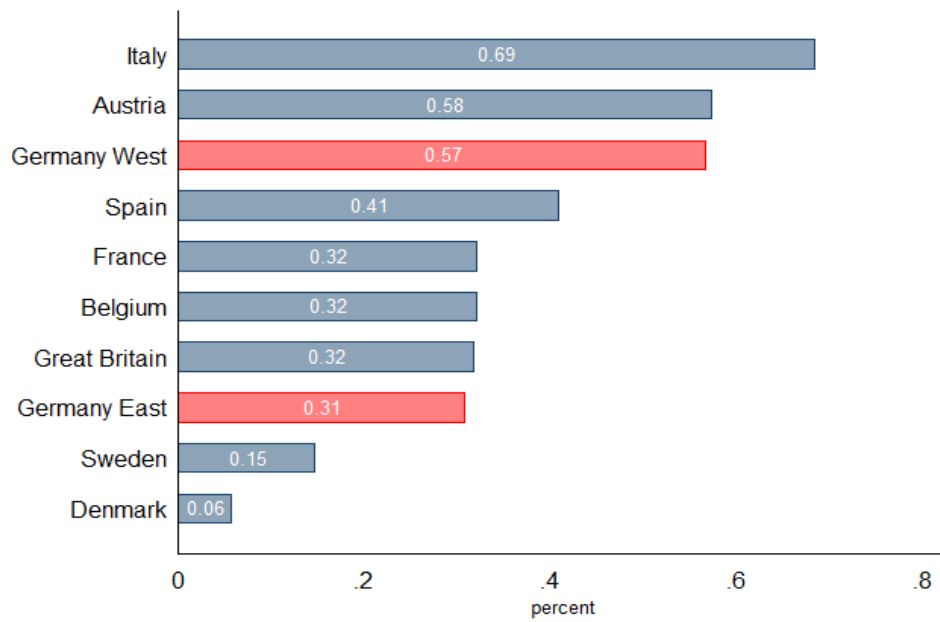
Part B: East Germany in 1955



Notes: The figure depicts an example from advertisements for household products in West (Part A) and East (Part B) Germany in the 1950s. The text in Part A from 1950 translates as "Baking is fun using BACKIN". The text in Part B from 1955 translates as "Mom is coming home in 10 minutes... Using ready-made dishes by KONSUM allows one to prepare a good meal in the shortest period of time". Note that "Mutti" was widely used in East Germany, while "Mama" is more common in West Germany.

Source: Part A: Oetker-Firmenarchiv S2/86. Part B: Stadtgeschichtliches Museum Leipzig PL 55/11.

**Figure 2. Cross-Country Differences in Gender Norms (European Values Study)**

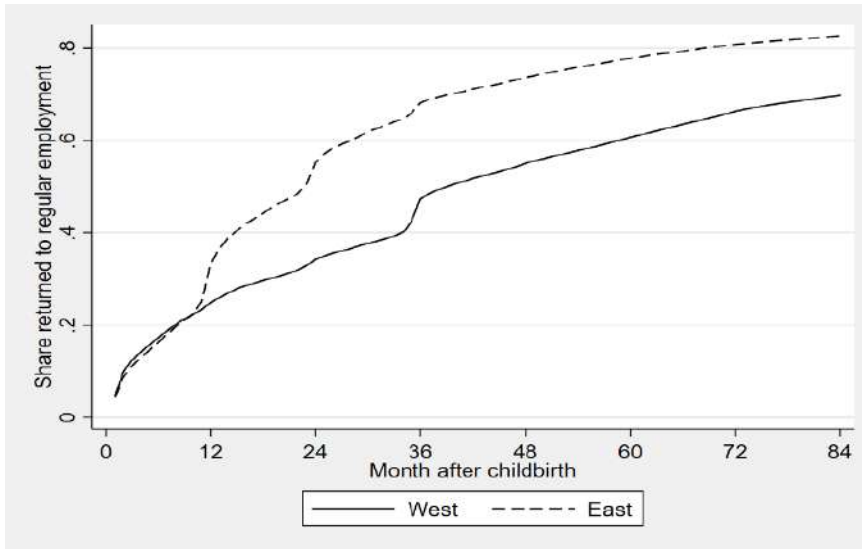


*Notes:* The figure shows the share of respondents agreeing to the EVS survey question d061 “A pre-school child suffers when his or her mother works” for survey year 2008 for selected countries. We recoded both original answers “agree” and “strongly agree” as “agree”.

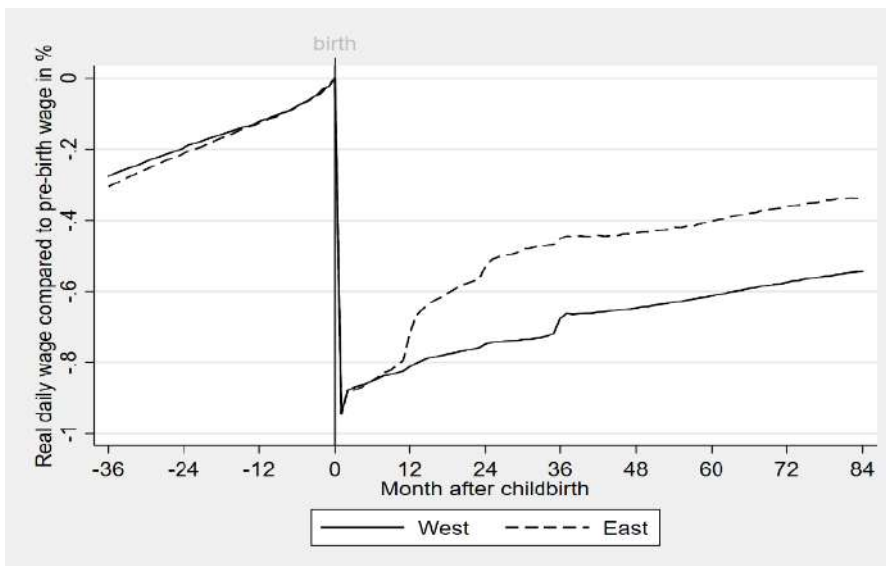
*Source:* European Values Study Longitudinal Data File 1981-2008 (EVS 2011).

**Figure 3. Return-to-Work Behavior and Child Penalties: East versus West German Mothers**

**Part A: Share of mothers who have returned to work after childbirth**



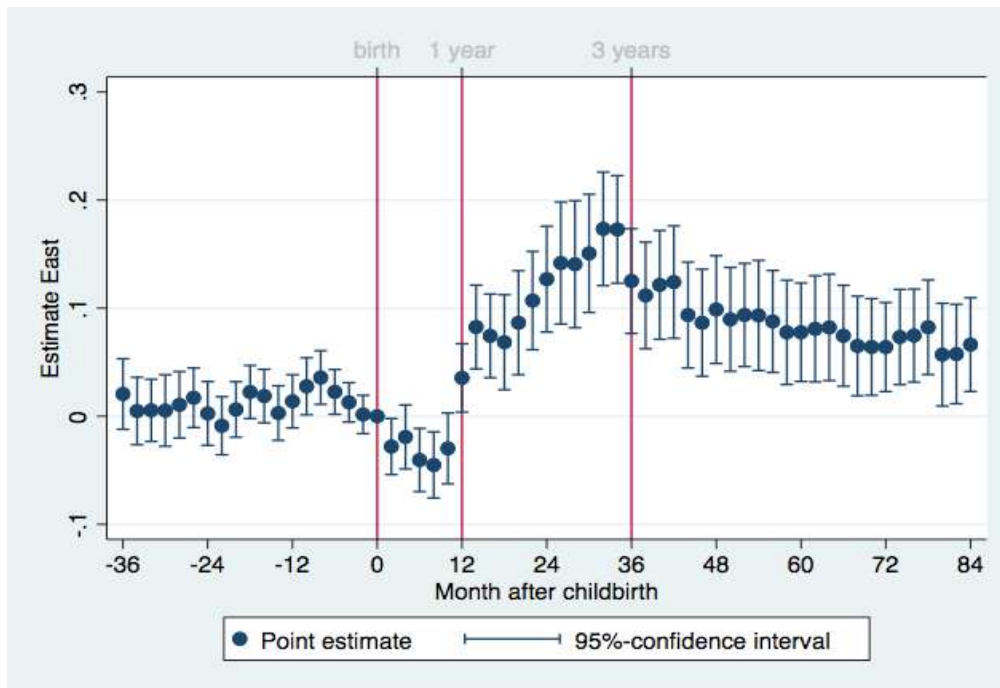
**Part B: Child penalties pre and post childbirth**



*Notes:* The figures show return-to-work behavior (Part A) and child penalties (Part B) after childbirth for East and West German first-time mothers who took maternity leave in 2003. Part A depicts the share of women who have returned to regular employment (excluding marginal employment) by month  $t$  up until 7 years after childbirth. Part B displays the child penalty, defined as daily earnings (set to zero if the mother is not employed) in a given month relative to her daily earnings one month before childbirth, 3 years before up until 7 years after childbirth.

*Source:* Social Security Records (IEB), first-time mothers who signed up for maternity leave in 2003.

**Figure 4. East-West Gaps in Maternal Employment by Time To and Since Childbirth:  
Integrated Cross-Border Labor Markets**

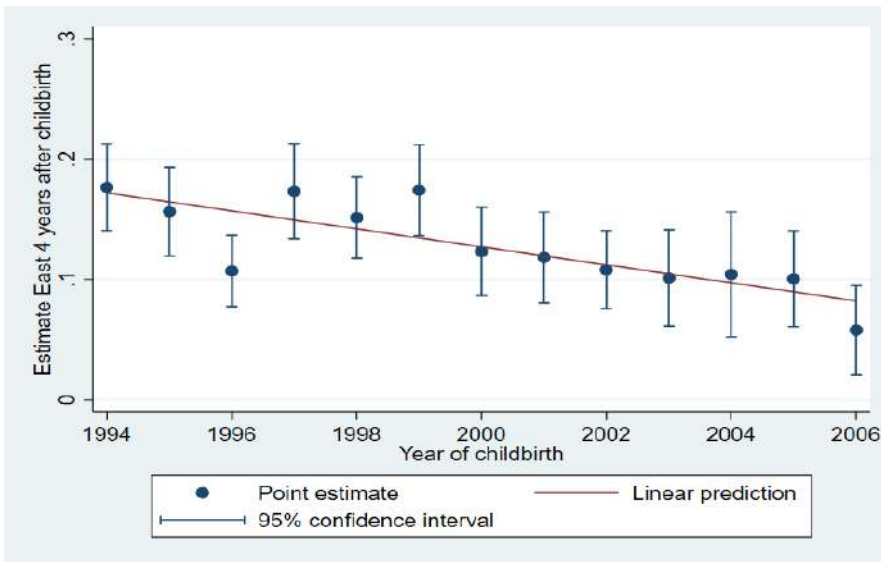


*Notes:* The figure shows the East-West gaps in regular employment (excluding marginal employment) around childbirth for first-time mothers who went on maternity in 2003 in one of the five integrated cross-border local labor markets. It plots the estimated coefficients and associated 95% confidence intervals of the East dummy variable in equation (1) estimated separately for each month starting 36 months prior to until 84 months after childbirth. We control for local labor market (at the time of birth) fixed effects and mothers' pre-birth characteristics at the time of birth (control set I [mother's age, education, occupation (3-digit), wage and full-time status at birth] as in column (4) of Table 1).

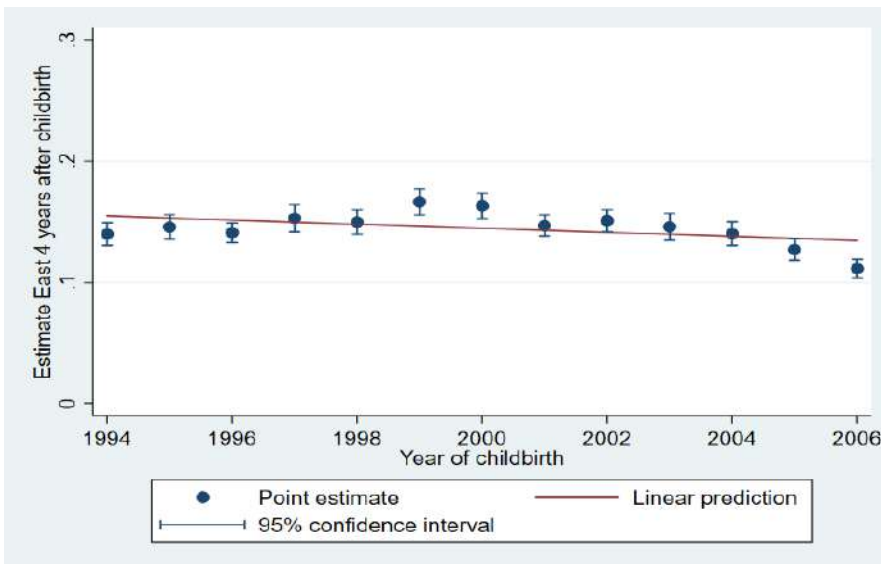
*Source:* Social Security Records (IEB), five integrated cross-border local labor markets, first-time mothers who signed up for maternity leave in 2003.

**Figure 5. East-West Gaps in Full-Time Employment 4 Years after Childbirth over Time**

**Part A: Cross-border commuting zones**



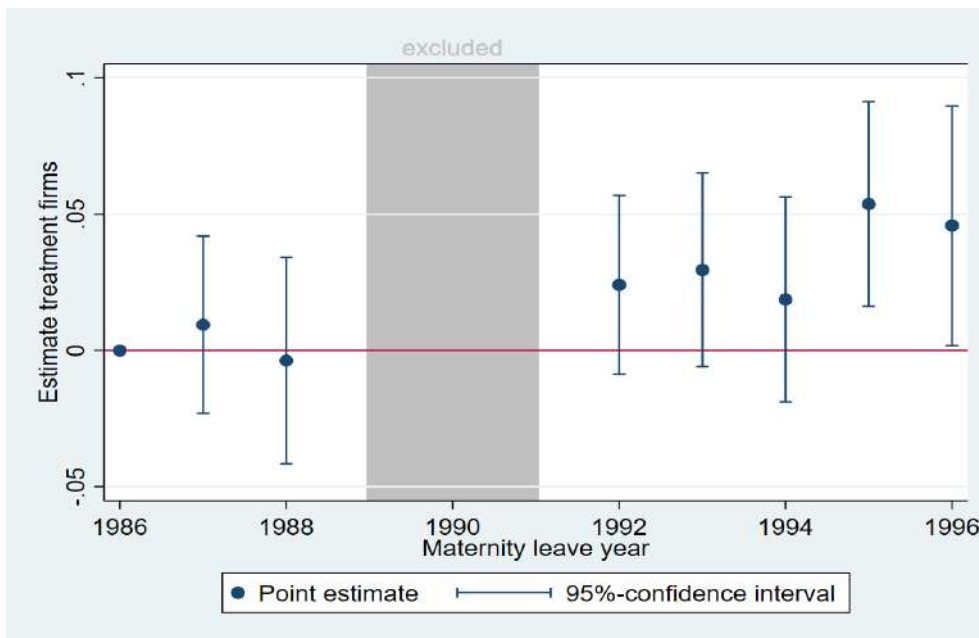
**Part B: All of Germany without cross-border commuting zones**



*Notes:* The figures show the East-West gaps in full-time employment four years after childbirth over time for first-time mothers who take maternity leave in the five integrated cross-border local labor markets (Part A) and in Germany as a whole (excluding the five integrated cross-border local labor markets; Part B). The underlying yearly regressions control for mothers’ pre-birth characteristics at the time of birth (control set I [mother’s age, education, occupation (3-digit), wage and full-time status at birth] as in column (4) of Table 1). Regressions from Part A additionally control for integrated cross-border local labor market fixed effects (at birth).

*Source:* Social Security Records (IEB), first-time mothers who signed up for maternity leave in 1994-2006 in one of the five integrated cross-border local labor markets (Part A) and the remaining parts of Germany (Part B).

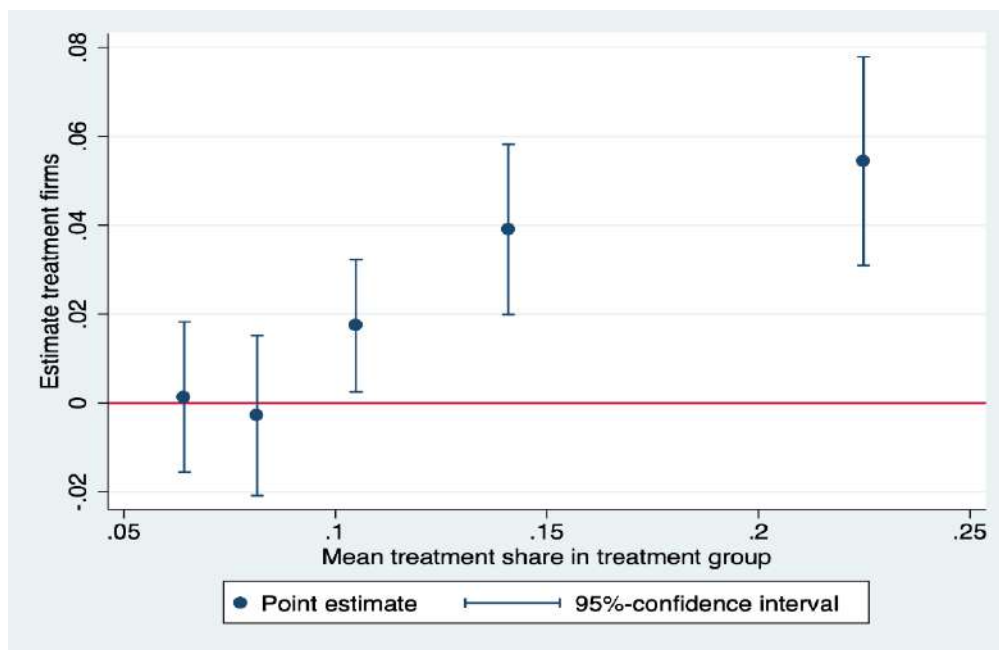
**Figure 6. The Effect of East German Colleagues on Regular Employment of West German Mothers One Year After Childbirth (Event Study)**



*Notes:* The figure shows differences in employment probabilities (excluding marginal employment) one year after childbirth between first-time mothers in control and treatment workplaces over the pre-period (1986-1988) and post-period (1992-1996) years. Treatment workplaces are defined as workplaces with a share of at least 10% of East Germans among colleagues in all years of the post period. Control workplaces are workplaces with a share of East Germans of at most 0.5% in any year in the post and the transition period (1989-1991). Regressions control for workplace fixed effects as well as local labor market by year of birth fixed effects and industry by year of birth fixed effects, as in column (1) in Table 7. Differences between treatment and control workplaces are normalized to 0 for the last year of the pre-policy period (1986). 95%-confidence intervals are based on standard errors clustered at the local labor market level of the place of work when taking maternity leave.

*Source :* Social Security Records (IEB), West German first-time mothers who signed up for maternity leave in West Germany in 1986-1988 and 1992-1996 in treatment and control workplaces.

**Figure 7. The Effect of East German Colleagues on Regular Employment of West German Mothers One Year After Childbirth by Treatment Intensity**



*Notes:* The figure shows the coefficient estimates from a more flexible version of regression equation (4) that distinguishes between five treatment intensities: a share of East Germans among colleagues of 5-7%, 7-9%, 9-12%, 12-17% and above 17%, respectively. We relax the definition of treatment workplaces to workplaces with a share of East Germans among colleagues of at least 5% in any of the post-period years. We report the respective mean of the share of East Germans in each of the five treatment intervals on the x-axis. We control for local labor market by year of birth fixed effects, industry by year of birth fixed effects, mothers' pre-birth characteristics and work history variables prior to birth (control set II [mother's age, education, occupation (3-digit), wage and full-time status at birth; three indicator variables each for full-time employment and regular employment in three years prior to childbirth], and workplace characteristics at the time of birth, computed excluding the mother herself [log number of employees (full-time equivalents), log mean wages of full-time employees, the share of foreign nationals, the share full-time employees, the shares of high-skilled and low-skilled employees, the share of women, and shares for age groups 20-29, 30-39, 40-49, 50-59]. 95%-confidence intervals are based on standard errors clustered on the local labor market level of the place of work when taking maternity leave.

*Source :* Social Security Records (IEB), West German first-time mothers who signed up for maternity leave in West Germany in 1986-1988 and 1992-1996 in newly defined treatment and control workplaces.



**Table 1. Differences in Post-Birth Employment Outcomes between East and West German Mothers:  
Overall Germany vs Integrated Cross-Border Local Labor Markets**

|   | Part A:                   |                              | Part B:                          |                              |                               |
|---|---------------------------|------------------------------|----------------------------------|------------------------------|-------------------------------|
|   | overall Germany           |                              | cross-border local labor markets |                              |                               |
|   | no individual<br>controls | individual<br>controls set I | no individual<br>controls        | individual<br>controls set I | individual<br>controls set II |
|   | (1)                       | (2)                          | (3)                              | (4)                          | (5)                           |
| <b>Panel A: 4 years after childbirth</b>              |                           |                              |                                  |                              |                               |
| regularly employed<br>(excluding marginal employment) | 0.147***<br>(0.00376)     | 0.170***<br>(0.00387)        | 0.0899***<br>(0.0133)            | 0.115***<br>(0.0147)         | 0.116***<br>(0.0147)          |
| <i>baseline level West</i>                            | [0.401]                   |                              |                                  |                              |                               |
| employed<br>(including marginal employment)           | 0.0964***<br>(0.00296)    | 0.108***<br>(0.00282)        | 0.0590***<br>(0.0126)            | 0.0803***<br>(0.0140)        | 0.0805***<br>(0.0139)         |
| <i>baseline level West</i>                            | [0.535]                   |                              |                                  |                              |                               |
| full-time employed                                    | 0.121***<br>(0.00311)     | 0.131***<br>(0.00333)        | 0.0841***<br>(0.0110)            | 0.0879***<br>(0.0116)        | 0.0908***<br>(0.0119)         |
| <i>baseline level West</i>                            | [0.199]                   |                              |                                  |                              |                               |
| <b>Panel B: 1 year after childbirth</b>               |                           |                              |                                  |                              |                               |
| regularly employed<br>(excluding marginal employment) | 0.106***<br>(0.00596)     | 0.127***<br>(0.00635)        | 0.0457***<br>(0.0119)            | 0.0577***<br>(0.0137)        | 0.0573***<br>(0.0139)         |
| <i>baseline level West</i>                            | [0.230]                   |                              |                                  |                              |                               |
| employed<br>(including marginal employment)           | 0.0556***<br>(0.00458)    | 0.0684***<br>(0.00508)       | 0.0173<br>(0.0118)               | 0.0303*<br>(0.0130)          | 0.0303*<br>(0.0131)           |
| <i>baseline level West</i>                            | [0.357]                   |                              |                                  |                              |                               |
| full-time employed                                    | 0.0885***<br>(0.00456)    | 0.0995***<br>(0.00505)       | 0.0481***<br>(0.00851)           | 0.0526***<br>(0.00951)       | 0.0538***<br>(0.00988)        |
| <i>baseline level West</i>                            | [0.130]                   |                              |                                  |                              |                               |
| Only cross-border LLMA                                | no                        | no                           | yes                              | yes                          | yes                           |
| Local labor market*year of birth FE                   | no                        | no                           | yes                              | yes                          | yes                           |
| Mothers' characteristics at birth                     | no                        | yes                          | no                               | yes                          | yes                           |
| Pre-birth employment history                          | no                        | no                           | no                               | no                           | yes                           |
| N East German   | 85.862                    | 83.204                       | 4.257                            | 4.135                        | 4.135                         |
| N West German   | 332.911                   | 321.211                      | 5.967                            | 5.793                        | 5.793                         |

*Notes:* The table reports coefficient estimates of the East dummy in equation (1), estimated for Germany as a whole (excluding the five cross-border local labor markets) in columns (1) and (2) and restricted to the five cross-border local labor markets in columns (3) to (6). In columns (1) and (3), we only control for local labor market by year of birth fixed effects. In columns (2) and (4), we add mothers' characteristics at the time of birth (control set I [mother's age, education, occupation (3-digit), wage and full-time status at birth]). Regressions in column (5) additionally include mothers' work history variables in the three years prior to birth (control set II [three indicator variables each for full-time employment and regular employment in three years prior to childbirth]). We additionally report baseline means for West German mothers in the entire West German labor market for each of our outcomes in column (1). Standard errors clustered on the local labor market level of the place of work when taking maternity leave are reported in parentheses. \* statistically significant at the 0.10 level, \*\* at the 0.05 level, \*\*\* at the 0.01 level.

*Source:* Social Security Records (IEB), first-time mothers who signed up for maternity leave in 2003-2006 in Germany as a whole (excluding the five integrated cross-border local labor markets, Part A) and in the five integrated cross-border local labor markets (Part B).

**Table 2. Differences in Post-Birth Employment Outcomes between East and West German Mothers in West Germany**

|  | same local labor<br>market | same local labor<br>market, control<br>set I | same local labor<br>market, control<br>set II | same workplace,<br>control set II | same workplace,<br>control set II, long-<br>term migrants |
|--|----------------------------|--|---|-----------------------------------|---|
|  | (1)                        | (2)  | (3)   | (4)                               | (5)   |
| <b>Panel A: 4 years after childbirth</b> |                            |  |   |                                   |   |
| regularly employed                       | 0.101***                   | 0.0857***                                    | 0.0849***                                     | 0.0792***                         | 0.0776***   |
| (excluding marginal employment)          | (0.00671)                  | (0.00717)                                    | (0.00700)                                     | (0.00821)                         | (0.0120)  |
| employed                                 | 0.0795***                  | 0.0600***                                    | 0.0587***                                     | 0.0622***                         | 0.0671***   |
| (including marginal employment)          | (0.00679)                  | (0.00692)                                    | (0.00650)                                     | (0.00656)                         | (0.0117)  |
| full-time employed                       | 0.0589***                  | 0.0570***                                    | 0.0568***                                     | 0.0509***                         | 0.0615***   |
|  | (0.00442)                  | (0.00430)                                    | (0.00435)                                     | (0.00645)                         | (0.00949)   |
| R-squared (regular employment)           | 0.009                      | 0.042  | 0.043   | 0.289                             | 0.304   |
| <b>Panel B: 1 year after childbirth</b>  |                            |  |   |                                   |   |
| regularly employed                       | 0.0482***                  | 0.0376***                                    | 0.0384***                                     | 0.0366***                         | 0.0500***   |
| (excluding marginal employment)          | (0.00503)                  | (0.00576)                                    | (0.00594)                                     | (0.00706)                         | (0.00976)   |
| employed                                 | 0.0350***                  | 0.0226***                                    | 0.0229***                                     | 0.0241**                          | 0.0443***   |
| (including marginal employment)          | (0.00599)                  | (0.00614)                                    | (0.00615)                                     | (0.00843)                         | (0.0111)  |
| full-time employed                       | 0.0389***                  | 0.0303***                                    | 0.0306***                                     | 0.0264***                         | 0.0360***   |
|  | (0.00496)                  | (0.00521)                                    | (0.00531)                                     | (0.00721)                         | (0.0106)  |
| R-squared (regular employment)           | 0.008                      | 0.039  | 0.041   | 0.277                             | 0.303   |
| local labor market*year of birth FE      | yes                        | yes  | yes   | yes                               | yes   |
| Firm FE                                  | no                         | no   | no  | yes                               | yes   |
| Mothers' characteristics at birth        | no                         | yes  | yes   | yes                               | yes   |
| Pre-birth employment history             | no                         | no   | yes   | yes                               | yes   |
| N East German migrants                   | 14.959                     | 14.789                                       | 14.789  | 9.352                             | 3.076   |
| N West German natives                    | 322.803                    | 311.717                                      | 311.717                                       | 194.269                           | 108.364   |

*Notes:* The table reports coefficient estimates of the East dummy in regression equation (2), estimated on a sample of East German first-time mothers who migrated from East to West Germany prior to giving birth and West German “stayers”. In column (1), we control only for local labor market by year of birth fixed effects. In column (2), we add mothers' characteristics at the time of birth (control set I [mother's age, education, occupation (3-digit), wage and full-time status at birth]). In column (3), we additionally include mothers' employment history variables in the three years prior to birth as control variables (control set II [control set I plus three indicator variables each for full-time employment and regular employment in three years prior to childbirth]). In column (4), we add workplace (at the time of birth) fixed effects. In column (5), we restrict the sample to East German migrants who have been in West Germany for at least 6 years prior to giving birth and West German stayers with at least six years of labor market experience prior to giving birth. The R squared refers to regular employment (excluding marginal employment) four years after childbirth. Standard errors clustered on the local labor market level of the place of work when taking maternity leave are reported in parentheses. \* statistically significant at the 0.10 level, \*\* at the 0.05 level, \*\*\* at the 0.01 level.

*Source:* Social Security Records (IEB), first-time mothers who signed up for maternity leave in 2003-2006 in West Germany, excluding cross-border commuters.

**Table 3. Coefficient Bounds under Unobservable Selection of Migrants**

| Outcome: Regularly employed 4 years after childbirth |           |                  |                  |                                   |                 |   |                 |
|--|-----------|------------------|------------------|-----------------------------------|-----------------|---|-----------------|
| Assumption on maximum R <sup>2</sup>                 |           |                  |                  |                                   |                 |   |                 |
|  |           |                  |                  | $R_{max} = \min\{1.3\bar{R}, 1\}$ |                 | $R_{max} = \bar{R} + (\bar{R} - \dot{R})$ |                 |
|  |           | Restricted model | Controlled model | Bound for $d=1$                   | Bound for $d=1$ | Bound for $d=1$                           | Bound for $d=1$ |
|  |           | (1)              | (2)              | (3)                               | (4)             | (5)                                       | (6)             |
| Panel A: East in West                                |           | 0.101***         | 0.0792***        | 0.072                             | 0.086           | 0.057                                     | 0.101           |
|  | 95% CI    | (0.088, 0.114)   | (0.063, 0.095)   |                                   |                 |   |                 |
|  | R squared | [0.009]          | [0.289]          |                                   |                 |   |                 |
| Panel B: West in East                                |           | -0.00446         | 0.0122           | 0.017                             | 0.007           | 0.029                                     | -0.004          |
|  | 95% CI    | (-0.020, 0.011)  | (-0.011, 0.035)  |                                   |                 |   |                 |
|  | R squared | [0.011]          | [0.379]          |                                   |                 |   |                 |
| Panel C: Return migrants                             |           | 0.0369***        | 0.0387*          | 0.039                             | 0.038           | 0.040                                     | 0.037           |
|  | 95% CI    | (0.018, 0.056)   | (0.005, 0.072)   |                                   |                 |   |                 |
|  | R squared | [0.011]          | [0.245]          |                                   |                 |   |                 |

*Notes:* Columns (1) and (2) show the coefficient estimates and 95% confidence intervals of the East dummy in regression equation (2) (Panels A and B) and the return dummy in regression equation (3) (Panel C), in addition to the associated R squared of the respective regressions. The dependent variable is regular employment four years after childbirth. Estimates in column (1) only control for local labor market by year of birth fixed effects, as in columns (1) in Table 2, 5 and 7, respectively. Estimates in column (2) control for workplace (at the time of birth) fixed effects, mothers' characteristics at the time of birth and employment history variables in the three years prior to birth (control set II [mother's age, education, occupation (3-digit), wage and full-time status at birth; three indicator variables each for full-time employment and regular employment in three years prior to childbirth]), as in columns (4) in Table 2, 5 and 7, respectively. Columns (3) and (4) report the lower and upper bounds of the East-West (return migrant-stayer) gaps when the maximum R squared that could be obtained by including unobserved characteristics is  $R_{max}=1.3\bar{R}$  as proposed by Oster (2019), for positive (column (3)) and negative (column (4)) selection of migrants. Columns (5) and (6) show the respective bounds assuming that unobserved characteristics can explain as much variation in the outcome as the observed characteristics ( $R_{max}=\bar{R}+(\bar{R}-\dot{R})$ ). 95% confidence intervals are computed based on standard errors clustered on the local labor market level of the place of work when taking maternity leave.

**Table 4. Differences in Post-Birth Employment Outcomes between East and West German Mothers in West Germany: Robustness Checks**

|   | baseline<br>(column (4)<br>from Table 2) | relative to West<br>German migrants,<br>same local labor<br>market | relative to West<br>German<br>migrants, same<br>workplace | only cross<br>border local<br>labor market |
|---|--|--|---|--|
|   | (1)                                      | (2)  | (3)   | (4)  |
| <b>Panel A: 4 years after childbirth</b>              |  |  |   |  |
| regularly employed<br>(excluding marginal employment) | 0.0792***<br>(0.00821)                   | 0.121***<br>(0.00986)  | 0.152***<br>(0.0156)                                      | 0.104***<br>(0.0149)                       |
| employed<br>(including marginal employment)           | 0.0622***<br>(0.00656)                   | 0.110***<br>(0.00811)  | 0.140***<br>(0.0163)                                      | 0.0679***<br>(0.0150)                      |
| full-time employed                                    | 0.0509***<br>(0.00645)                   | 0.0635***<br>(0.00730)   | 0.0801***<br>(0.0150)                                     | 0.0949***<br>(0.0123)                      |
| <b>Panel B: 1 year after childbirth</b>               |  |  |   |  |
| regularly employed<br>(excluding marginal employment) | 0.0366***<br>(0.00706)                   | 0.0522***<br>(0.00795)   | 0.0761**<br>(0.0236)                                      | 0.0469***<br>(0.0126)                      |
| employed<br>(including marginal employment)           | 0.0241**<br>(0.00843)                    | 0.0503***<br>(0.00960)   | 0.0652*<br>(0.0251)                                       | 0.0371**<br>(0.0141)                       |
| full-time employed                                    | 0.0264***<br>(0.00721)                   | 0.0333***<br>(0.00641)   | 0.0468*<br>(0.0210)                                       | 0.0515***<br>(0.00972)                     |
| Restriction to cross-border local labor markets       | no                                       | no   | no  | yes  |
| local labor market*year of birth FE                   | yes                                      | yes  | yes   | yes  |
| Firm FE   | yes                                      | no   | yes   | yes  |
| Mothers' characteristics at birth                     | yes                                      | yes  | yes   | yes  |
| Pre-birth employment history                          | yes                                      | yes  | yes   | yes  |
| N East German   | 9.352                                    | 13.822   | 4.263   | 1.806                                      |
| N West Germans  | 194.269                                  | 10.164   | 3.745   | 12.463                                     |

*Notes:* The table reports coefficient estimates of the East dummy in regression equation (2), estimated on various samples of first-time mothers who give birth in West Germany. Column (1) reports baseline estimates that compare East Germans who migrated to West Germany prior to giving birth with West German “stayers” and control for local labor market by year of birth fixed effects, workplace fixed effects, mothers’ control variables at the time of birth and mothers’ employment history variables in the three years prior to birth (control set II) as in column (4) of Table 2. In columns (2) and (3), we compare East Germans in West Germany to internal West German migrants who have moved at least the mean distance of the East Germans in the sample (ca. 280 km), and control for local labor market by year of birth fixed effects, mothers’ characteristics at the time of birth and employment histories in the three years prior to birth (control set II) in column (2) and additionally workplace fixed effects in column (3). In column (4), we compare East and West Germans in workplaces in the West German part of the integrated cross-border local labor markets, and control for the same variables as in column (3). Standard errors clustered on the local labor market level of the place of work when taking maternity leave are reported in parentheses. \* statistically significant at the 0.10 level, \*\* at the 0.05 level, \*\*\* at the 0.01 level.

*Source:* Social Security Records (IEB), first-time mothers who signed up for maternity leave in West Germany in 2003-2006 (columns (1)-(3)), and in the West German parts of cross-border local labor markets in 1997-2006 (column (4)).

**Table 5. Differences in Post-Birth Employment Outcomes between East and West German Mothers in East Germany**

|  | same local labor market | same local labor market, control set I | same local labor market, control set II | same workplace, control set II | same workplace, control set II, long-term migrants |
|--|-------------------------|--|---|--------------------------------|--|
|  | (1)                     | (2)                                    | (3)                                     | (4)                            | (5)  |
| <b>Panel A: 4 years after childbirth</b> |                         |  |   |                                |  |
| regularly employed                       | -0.00446                | 0.0146*                                | 0.0172**                                | 0.0122                         | -0.0123  |
| (excluding marginal employment)          | (0.00802)               | (0.00652)                              | (0.00607)                               | (0.0116)                       | (0.0254)   |
| employed                                 | 0.00615                 | 0.0210**                               | 0.0232**                                | 0.0249                         | 0.000743   |
| (including marginal employment)          | (0.00910)               | (0.00761)                              | (0.00723)                               | (0.0123)                       | (0.0217)   |
| full-time employed                       | -0.0228***              | -0.00401                               | -0.0000473                              | 0.00113                        | -0.0224  |
|  | (0.00607)               | (0.00472)                              | (0.00469)                               | (0.0115)                       | (0.0187)   |
| R-squared (regular employment)           | 0.011                   | 0.084                                  | 0.114                                   | 0.379                          | 0.385  |
| <b>Panel B: 1 year after childbirth</b>  |                         |  |   |                                |  |
| regularly employed                       | 0.000922                | 0.0167*                                | 0.0185*                                 | 0.0332*                        | 0.0412   |
| (excluding marginal employment)          | (0.00771)               | (0.00727)                              | (0.00730)                               | (0.0142)                       | (0.0256)   |
| employed                                 | -0.0106                 | 0.00785                                | 0.00961                                 | 0.0278*                        | 0.0602*  |
| (including marginal employment)          | (0.00742)               | (0.00687)                              | (0.00666)                               | (0.0137)                       | (0.0274)   |
| full-time employed                       | -0.0171*                | -0.000545                              | 0.00254                                 | 0.00809                        | 0.0145   |
|  | (0.00742)               | (0.00713)                              | (0.00723)                               | (0.0136)                       | (0.0298)   |
| R-squared (regular employment)           | 0.027                   | 0.097                                  | 0.107                                   | 0.370                          | 0.418  |
| Local labor market*year of birth FE      | yes                     | yes                                    | yes                                     | yes                            | yes  |
| Firm FE                                  | no                      | no                                     | no                                      | yes                            | yes  |
| Mothers' characteristics at birth        | no                      | yes                                    | yes                                     | yes                            | yes  |
| Pre-birth employment history             | no                      | no                                     | yes                                     | yes                            | yes  |
| N East German natives                    | 66.195                  | 63.894                                 | 63.894                                  | 38.859                         | 17.450   |
| N West German migrants                   | 4.211                   | 4.135                                  | 4.135                                   | 2.332                          | 593  |

*Notes* : The table reports coefficient estimates of the East dummy in regression equation (2), estimated on a sample of first-time West German mothers who migrated to East Germany prior to giving birth and East German “stayers”. In column (1), we control only for local labor market by year of birth fixed effects. In column (2), we add mothers’ characteristics at the time of birth (control set I [mother’s age, education, occupation (3-digit), wage and full-time status at birth]). In column (3), we additionally include mothers’ employment history variables in the three years prior to birth as control variables (control set II [control set I plus three indicator variables each for full-time employment and regular employment in three years prior to childbirth]). In column (4), we add workplace (at the time of birth) fixed effects. In column (5), we restrict the sample to West German migrants who have been in East Germany for at least 6 years prior to giving birth and East German stayers with at least six years of labor market experience prior to giving birth. The R-squared refers to regular employment (excluding marginal employment) four years after childbirth. Standard errors clustered on the local labor market level of the place of work when taking maternity leave are reported in parentheses. \* statistically significant at the 0.10 level, \*\* at the 0.05 level, \*\*\* at the 0.01 level.

*Source* : Social Security Records (IEB), first-time mothers who signed up for maternity leave in 2003-2006 in East Germany, excluding cross-border commuters.

**Table 6. Differences in Post-Birth Employment Outcomes between East and West German Mothers in East Germany: Robustness Checks**

|  | baseline (column<br>(4) from Table 5) | relative to East<br>German migrants,<br>same local labor<br>market | only cross-border<br>local labor<br>market | Placebo: West Germans<br>moving to East after<br>birth vs. West German<br>internal migrants |
|--|---------------------------------------|--|--|---|
|  | (1)                                   | (2)  | (3)  | (4)   |
| <b>Panel A: 4 years after childbirth (2 years in column (4))</b> |                                       |  |  |   |
| regularly employed   | 0.0122                                | 0.00137  | 0.0229                                     | 0.0169  |
| (excluding marginal employment)                                  | (0.0116)                              | (0.0219)   | (0.0236)                                   | (0.0229)  |
| employed   | 0.0249                                | 0.0303   | 0.0130                                     | 0.0159  |
| (including marginal employment)                                  | (0.0123)                              | (0.0291)   | (0.0233)                                   | (0.0253)  |
| full-time employed   | 0.00113                               | -0.0394  | 0.0182                                     | -0.0005   |
|  | (0.0115)                              | (0.0316)   | (0.0227)                                   | (0.0170)  |
| <b>Panel B: 1 year after childbirth</b>                          |                                       |  |  |   |
| regularly employed   | 0.0332*                               | -0.0124  | -0.00350                                   | -0.000446   |
| (excluding marginal employment)                                  | (0.0142)                              | (0.0255)   | (0.0228)                                   | (0.0148)  |
| employed   | 0.0278*                               | -0.0176  | -0.00683                                   | -0.0166   |
| (including marginal employment)                                  | (0.0137)                              | (0.0241)   | (0.0241)                                   | (0.0222)  |
| full-time employed   | 0.00809                               | -0.0348  | -0.00572                                   | -0.00594  |
|  | (0.0136)                              | (0.0195)   | (0.0196)                                   | (0.0120)  |
| Restriction to cross-border local labor markets                  | no                                    | no   | yes  | no  |
| Local labor market*year of birth FE                              | yes                                   | yes  | yes  | yes   |
| Firm FE  | yes                                   | no   | yes  | no  |
| Mothers' characteristics at birth                                | yes                                   | yes  | yes  | yes   |
| Pre-birth employment history                                     | yes                                   | yes  | yes  | yes   |
| N East Germans   | 38.850                                | 319  | 6.644                                      |   |
| N West Germans   | 2.332                                 | 5.210  | 604  | 2.605   |

*Notes:* The table reports coefficient estimates of the East dummy in regression equation (2), estimated on various samples of first-time mothers who give birth in East Germany (except column (4)). Column (1) reports baseline estimates that compare West Germans who migrated to East Germany prior to giving birth with East German “stayers” and control for local labor market by year of birth fixed effects, workplace fixed effects, mothers’ characteristics at the time of birth and mothers’ employment history variables in the three years prior to birth (control sets I and II) as in column (4) of Table 5. In column (2), we compare West Germans in East Germany to internal East German migrants who have moved at least the mean distance of the West Germans in the sample (ca. 270 km), controlling for local labor market by year of birth fixed effects, mothers’ characteristics at the time of birth and employment histories in the three years prior to birth (control set II). In column (3), we compare East and West Germans in the East German parts of the integrated cross-border local labor markets, controlling for the same variables as in column (2) as well as workplace fixed effects. In column (4), we conduct a placebo test where we compare employment outcomes 1 and 2 years after birth of West Germans who move to East Germany 2 to 10 years after birth and have never worked in East Germany before giving birth (N=796) and West Germans who migrate internally (at least 300 km within West Germany 2 to 10 years after birth (N=1809)). We control for local labor market by year of birth fixed effects, mothers’ characteristics at birth and mothers’ mothers’ employment history variables in the three years prior to birth (control sets I and II). Standard errors clustered on the local labor market level of the place of work when taking maternity leave are reported in parentheses. \*statistically significant at the 0.10 level, \*\* at the 0.05 level, \*\*\* at the 0.01 level.

*Source:* Social Security Records (IEB), first-time mothers who signed up for maternity leave in East Germany in 2003-2006 (columns (1)-(2)) and in East German parts of the cross-border local labor markets in 1997-2006 (column (3)). In column (4), we restrict the analysis to first-time mothers who sign up for maternity leave in 2000 in West Germany and migrate across the border to East Germany or internally within West Germany 2-10 years after birth.

**Table 7. The Role of Past Exposure to a More Gender Egalitarian Culture – Differences in Post-Birth Employment Outcomes between West German Return Migrants and West German Stayers**

|   | same local<br>labor market | same local<br>labor market,<br>control set I | same local<br>labor market,<br>control set II | same<br>workplace,<br>control set II | relative to return<br>migrants within<br>West Germany |
|---|----------------------------|--|---|--------------------------------------|---|
|   | (1)                        | (2)  | (3)   | (4)                                  | (5)   |
| <b>Panel A: 4 years after childbirth</b>              |                            |  |   |                                      |   |
| regularly employed<br>(excluding marginal employment) | 0.0369***<br>(0.00967)     | 0.0426***<br>(0.00926)                       | 0.0433***<br>(0.00924)                        | 0.0387*<br>(0.0171)                  | 0.0437**<br>(0.0147)                                  |
| employed<br>(including marginal employment)           | 0.00650<br>(0.0106)        | 0.0125<br>(0.00983)                          | 0.0132<br>(0.00976)                           | 0.0296<br>(0.0170)                   | 0.0116<br>(0.0142)                                    |
| full-time employed                                    | 0.0567***<br>(0.00905)     | 0.0482***<br>(0.00937)                       | 0.0481***<br>(0.00938)                        | 0.0319<br>(0.0163)                   | 0.0485***<br>(0.0118)                                 |
| R-squared (regular employment)                        | 0.011                      | 0.037  | 0.038   | 0.245                                | 0.195   |
| <b>Panel B: 1 year after childbirth</b>               |                            |  |   |                                      |   |
| regularly employed<br>(excluding marginal employment) | 0.0395***<br>(0.0109)      | 0.0309**<br>(0.0101)                         | 0.0303**<br>(0.00994)                         | 0.0245<br>(0.0173)                   | 0.0224<br>(0.0123)                                    |
| full-time employed                                    | 0.0426***<br>(0.00893)     | 0.0309***<br>(0.00862)                       | 0.0303***<br>(0.00856)                        | 0.00899<br>(0.0140)                  | 0.0236<br>(0.0124)                                    |
| R-squared (regular employment)                        | 0.008                      | 0.032  | 0.034   | 0.234                                | 0.185   |
| Local labor market*by year of birth FE                | yes                        | yes  | yes   | yes                                  | yes   |
| Firm FE   | no                         | no   | no  | yes                                  | no  |
| Mothers' characteristics at birth                     | no                         | yes  | yes   | yes                                  | yes   |
| Pre-birth employment history                          | no                         | no   | yes   | yes                                  | yes   |
| N West German return migrants                         | 1.962                      | 1.948  | 1.948   | 1.368                                |   |
| N West German "natives"                               | 834.204                    | 825.771                                      | 825.771                                       | 598.032                              | 5.420   |

*Notes:* The table reports coefficient estimates of the Return dummy in regression equation (3) that compares post-birth employment outcomes between first-time West German mothers who give birth in West Germany but had lived in East Germany for at least 1.5 years in the past (return migrants) and West German “stayers”. In column (1), we control only for local labor market by year of birth fixed effects. In column (2), we additionally include mothers’ characteristics at the time of birth (control set I (mother’s age, education, occupation (3-digit), wage and full-time status at birth)). In column (3), we additionally include mothers’ employment history variables in the three years prior to birth as control variables (control set II (three indicator variables each for full-time employment and regular employment in three years prior to childbirth)). In column (4), we add workplace (at the time of birth) fixed effects. In column (5), we compare cross-border return migrants (N=1874) to internal return migrants who have worked far away (>=300 km) from their first place of work within West Germany for at least 1.5 years and work close to their first place of work when taking maternity leave (< 50 km) (N=3,546). Standard errors clustered on the local labor market level of the place of work when taking maternity leave are reported in parentheses. \* statistically significant at the 0.10 level, \*\* at the 0.05 level, \*\*\* at the 0.01 level.

*Source:* Social Security Records (IEB), West German first-time mothers who signed up for maternity leave in West Germany in 1997-2006. Marginally employed relationships are included from 1999 onwards, so mothers taking maternity leave in 1997 cannot be observed as marginally employed one year after childbirth. We therefore do not report gaps in employment (including marginal employment) 1 year after childbirth.

**Table 8. The Effects of East German Colleagues on Post-Birth Employment Outcomes of West German “Stayers”**

|  | local labor market and industry by year of birth FE<br>(1) | individual controls set II<br>(2) | workplace controls (at birth)<br>(3) | workplace controls (at birth and 1 or 4 years after birth)<br>(4) |
|--|--|-----------------------------------|--------------------------------------|---|
| <b>Panel A: 4 years after childbirth</b>                           |  |                                   |                                      |   |
| regularly employed (excluding marginal employment)                 | 0.0130**<br>(0.00438)                                      | 0.0123**<br>(0.00445)             | 0.0110*<br>(0.00508)                 | 0.0160**<br>(0.00575)   |
| full-time employed   | 0.00149<br>(0.00381)                                       | 0.00211<br>(0.00361)              | 0.00222<br>(0.00433)                 | 0.00750<br>(0.00486)  |
| R-squared (regular employment)                                     | 0.304  | 0.316                             | 0.314                                | 0.311   |
| <b>Panel B: 1 year after childbirth</b>                            |  |                                   |                                      |   |
| regularly employed (excluding marginal employment)                 | 0.0177***<br>(0.00497)                                     | 0.0189***<br>(0.00510)            | 0.0211***<br>(0.00551)               | 0.0196***<br>(0.00542)  |
| full-time employed   | 0.0117**<br>(0.00392)                                      | 0.0124**<br>(0.00389)             | 0.0155***<br>(0.00413)               | 0.0150***<br>(0.00423)  |
| R-squared (regular employment)                                     | 0.333  | 0.340                             | 0.339                                | 0.338   |
| Local labor market*year of birth FE                                | yes  | yes                               | yes                                  | yes   |
| Industry*year of birth FE  | yes  | yes                               | yes                                  | yes   |
| Mothers' characteristics at birth                                  | no   | yes                               | yes                                  | yes   |
| Pre-birth employment history                                       | no   | yes                               | yes                                  | yes   |
| Firm characteristics at birth                                      | no   | no                                | yes                                  | yes   |
| Firm characteristics 4 (Panel A) and 1 (Panel B) years after birth | no   | no                                | no                                   | yes   |
| N  | 74.239   | 73.352                            | 71.430                               | 65.357  |

*Notes:* The table reports continuous difference-in-differences (DiD) estimates ( $\beta_1^k$ ) from regression equation (4), which measures the effects of a 10 percentage point increase in the share of East Germans among colleagues on post-birth employment outcomes of West German stayers. The regression is estimated on a sample of first-time West German mothers in treatment and control workplaces who sign up for maternity leave in West Germany in 1986-1988 (pre-period) and 1992-1996 (post-period). Treatment workplaces are defined as workplaces with an East German share of at least 10% in all years of the post-period. Control workplaces are workplaces with an East German share of at most 0.5% in any of the years in the post-period. We restrict the sample to workplaces with at least 2 and less than 500 employees (full-time equivalents) in each year. The share of East Germans is averaged over the five years of the post-period. In column (1), we control for workplace (at the time of birth) fixed effects, local labor market (at the time of birth) by year of birth fixed effects, and industry (at the time of birth, 3-digit) by year of birth fixed effects. In column (2), we additionally condition on mothers' characteristics at birth and mothers' employment history variables in the three years prior to birth as control variables (control set II [mother's age, education, occupation (3-digit), wage and full-time status at birth; three indicator variables each for full-time employment and regular employment in three years prior to childbirth]). In column (3), we add workplace characteristics at the time of birth, computed excluding the mother herself (log number of employees (full-time equivalents), log mean wages of full-time employees, the share of foreign nationals, the share full-time employees, the shares of high-skilled and low-skilled employees, the share of women, and shares for age groups 20-29, 30-39, 40-49, 50-59). In column (4), we further add these characteristics of the pre-birth workplace 1 (Panel B) or 4 (Panel A) years after birth. Standard errors clustered on the labor market level of the place of work when taking maternity leave are reported in parentheses. \* statistically significant at the 0.10 level, \*\* at the 0.05 level, \*\*\* at the 0.01 level.

*Source:* Social Security Records (IEB), West German first-time mothers who signed up for maternity leave in West Germany in 1986-1988 and 1992-1996 in treatment and control workplaces.



**Table 9. The Effects of East German Colleagues on Post-Birth Employment Outcomes of West German “Stayers” (Robustness Checks)**

|   | baseline (column<br>(3) for Table 8) | linear firm-<br>specific trends | alternative<br>control group | Placebo check:<br>Older Women<br>(age 45-60) | Placebo check:<br>Men  |
|---|--------------------------------------|---------------------------------|------------------------------|--|------------------------|
|   | (1)                                  | (2)                             | (3)                          | (4)  | (5)                    |
| <b>Panel A: 4 years after childbirth</b>              |                                      |                                 |                              |  |                        |
| regularly employed<br>(excluding marginal employment) | 0.0110*<br>(0.00508)                 | 0.0110*<br>(0.00509)            | 0.0133**<br>(0.00658)        | -0,0002<br>(0.00506)                         | 0.00236<br>(0.00462)   |
| full-time employed                                    | 0.00222<br>(0.00433)                 | 0.00215<br>(0.00434)            | 0.00725<br>(0.00556)         | -0.0028<br>(0.00453)                         | 0.000894<br>(0.00407)  |
| <b>Panel B: 1 year after childbirth</b>               |                                      |                                 |                              |  |                        |
| regularly employed<br>(excluding marginal employment) | 0.0211***<br>(0.00551)               | 0.0210***<br>(0.00553)          | 0.0248***<br>(0.00615)       | 0.0008<br>(0.00451)                          | 0.00352<br>(0.00278)   |
| full-time employed                                    | 0.0155***<br>(0.00413)               | 0.0155***<br>(0.00415)          | 0.0205***<br>(0.00462)       | 0.0034<br>(0.00345)                          | 0.00708**<br>(0.00244) |
| N   | 71.430                               | 71.430                          | 44.365                       | 125.471                                      | 183.412                |

*Notes:* The table reports the continuous difference-in-differences (DiD) estimate ( $\beta_{1k}$ ) from regression equation (4), which measures the effects of a 10 percentage point increase in the share of East Germans among colleagues on post-birth employment outcomes of West German stayers. The regression is estimated on a sample of first-time West German mothers in treatment and control workplaces who sign up for maternity leave in West Germany in 1986-1988 (pre-period) and 1992-1996 (post-period). Treatment workplaces are defined as workplaces with an East German share of at least 10% in all years of the post-period. Control workplaces are workplaces with an East German share of at most 0.5% in any of the years in the post-period. We restrict the sample to workplaces with at least 2 and less than 500 employees (full-time equivalents) in each year. The share of East Germans is averaged over all years of the post-period. Column (1) shows our baseline estimates that control for workplace (at the time of birth) fixed effects, local labor market by year of birth fixed effects, industry by year of birth fixed effects, mothers’ characteristics at birth and mothers’ employment history in the three years prior to birth (control set II) and workplace characteristics at birth, as in column (3) of Table 8. In column (2), we add workplace (at the time of birth)-specific linear trends to the continuous DID specification. In column (3), we construct an alternative control group where we match to each treatment workplace a control workplace that experienced the same employment growth (in full-time equivalents) between 1988 and 1992. In columns (4) and (5), we report placebo estimates for older women (age 45-60) and men aged 18-40 respectively, controlling for the same set of variables as in column (1). Standard errors clustered on the local labor market level of the place of work when taking maternity leave are reported in parentheses. \* statistically significant at the 0.1 level, \*\* at the 0.05 level, \*\*\* at the 0.01 level.

*Source:* Social Security Records (IEB). Columns (1) to (3): West German first-time mothers who signed up for maternity leave in West Germany in 1986-1988 and 1992-1996 in treatment and control firms. Columns (4) and (5): all female employees aged 45-60 and all male employees aged 18-40 in treatment and control firms, who were randomly assigned a fake year when they signed up for “maternity leave”.

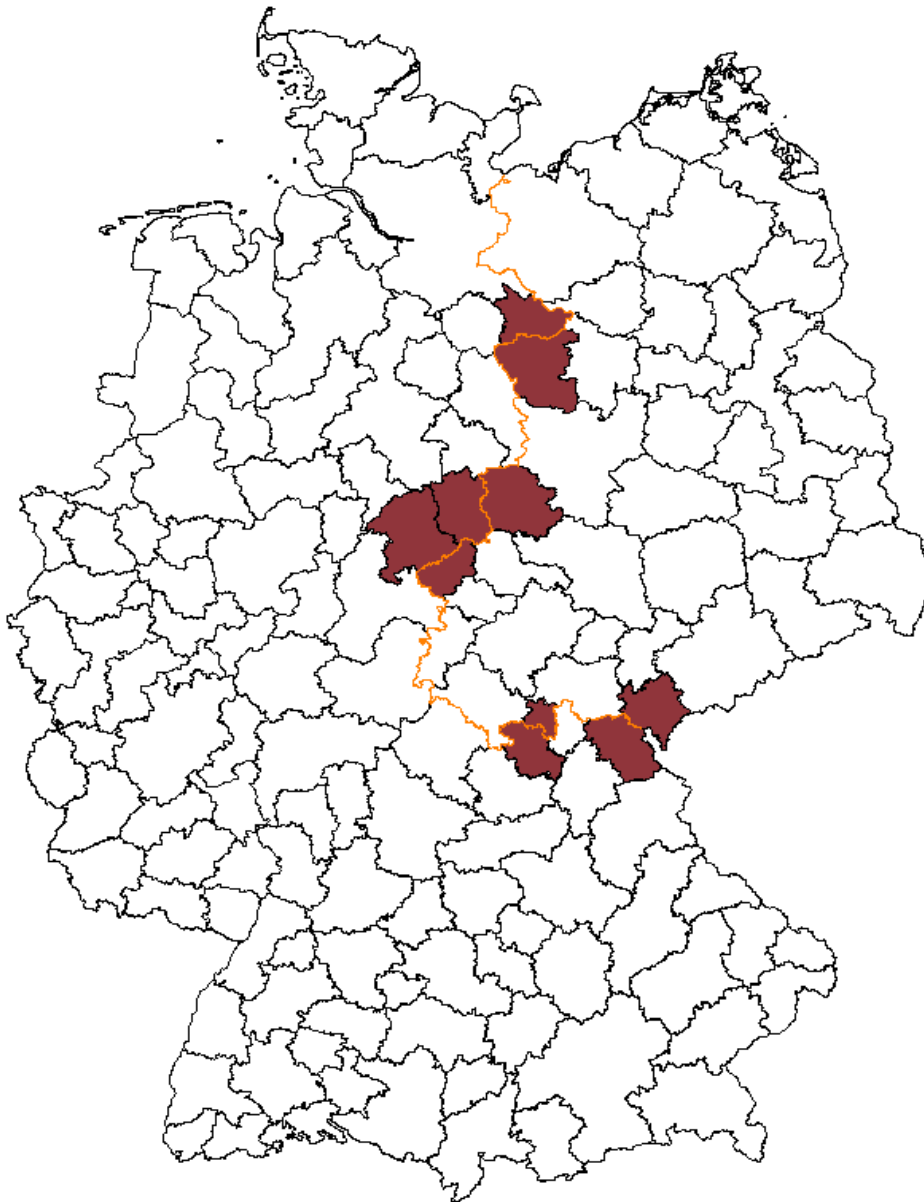
**Table 10. The Effects of East German Colleagues on Post-Birth Employment Outcomes of West German “Stayers”: Heterogeneous Effects**

|  | regularly<br>employed 1 year<br>after childbirth<br>(1) | in same workplace<br>1 year after<br>childbirth<br>(2) | in same<br>occupation and<br>firm 1 year after<br>childbirth<br>(3) | regularly<br>employed 4<br>years after<br>childbirth<br>(4) | in same workplace<br>4 years after<br>childbirth<br>(5) | in the same<br>occupation and<br>firm 4 years after<br>childbirth<br>(6) |
|--|---|--|---|---|---|--|
| <b>Panel A: continuous difference-in-differences estimate</b>              |   |  |   |   |   |  |
| total share  | 0.0211***<br>(0.00551)                                  | 0.0270***<br>(0.00389)                                 | 0.0276***<br>(0.00368)  | 0.0110*<br>(0.00508)  | 0.0202***<br>(0.00416)                                  | 0.0201***<br>(0.00400)   |
| <b>Panel B: East German male vs female colleagues</b>                      |   |  |   |   |   |  |
| share female colleagues  | 0.0225***<br>(0.00604)                                  | 0.0284***<br>(0.00440)                                 | 0.0286***<br>(0.00426)  | 0.0158**<br>(0.00536)                                       | 0.0241***<br>(0.00435)                                  | 0.0230***<br>(0.00429)   |
| share male colleagues  | 0.0151<br>(0.0126)                                      | 0.0211*<br>(0.0104)                                    | 0.0235*<br>(0.00981)  | -0.00943<br>(0.0141)  | 0.00403<br>(0.00769)                                    | 0.00776<br>(0.00700)   |
| <b>Panel C: East German colleagues in the same vs different occupation</b> |   |  |   |   |   |  |
| share in same occupation   | 0.0111**<br>(0.00353)                                   | 0.0151***<br>(0.00235)                                 | 0.0152***<br>(0.00223)  | 0.00497<br>(0.00369)  | 0.0109***<br>(0.00262)                                  | 0.0103***<br>(0.00245)   |
| share in different occupations   | 0.00467<br>(0.00353)                                    | 0.00238<br>(0.00301)                                   | 0.00300<br>(0.00296)  | 0.000753<br>(0.00365)                                       | 0.00548<br>(0.00292)                                    | 0.00500<br>(0.00297)   |

*Notes:* The table reports the continuous difference-in-differences (DiD) estimates ( $\beta_{-1}^k$ ) from regression equation (4), which measures the effects of a 10 percentage point increase in the share of East Germans among colleagues on post-birth outcomes of West German stayers. The regression is estimated on a sample of first-time West German mothers in treatment and control workplaces who sign up for maternity leave in West Germany in 1986-1988 (pre-period) and 1992-1996 (post-period). Treatment workplaces are defined as workplaces with a share of East Germans colleagues of at least 10% in all years of the post-period. Control workplaces are workplaces with an East German share of at most 0.5% in any of the years in the post-period. We restrict the sample to workplaces with at least 2 and less than 500 employees (full-time equivalents) in each year. In Panel A, we report baseline estimates that condition on workplace (at the time of birth) fixed effects, local labor market by year of birth fixed effects, industry by year of birth fixed effects, mothers’ characteristics at birth and mothers’ employment history in the three years prior to birth (control set II) and workplace characteristics at birth, as in column (3) of Table 8. In Panels B and C, we control for the same set of variables but split up the share of East German colleagues into the share of female versus male East German colleagues (Panel B) and East German colleagues in the same versus different (3-digit) occupation. Standard errors clustered on the labor market level of the place of work when taking maternity leave are reported in parentheses. \* statistically significant at the 0.10 level, \*\* at the 0.05 level, \*\*\* at the 0.01 level.

*Source:* Social Security Records (IEB), West German first-time mothers who signed up for maternity leave in West Germany in 1986-1988 and 1992-1996 in treatment and control workplaces.

**Appendix Figure A1. Cross-Border Local Labor Markets**



*Notes:* The map depicts the 141 local labor markets defined by 2009 commuter flows. The orange line depicts the former inner-German border, and the labor market areas highlighted in dark are the 5-integrated cross-border local labor markets: Göttingen. Goslar. Lüchow-Dannenberg. Coburg. and Hof.

*Source:* Definition of local labor markets follows Kosfeld and Werner (2012). Shapefile obtained from the Federal Government for Cartography and Geodesy (Bundesamt für Kartographie and Geodäsie).

**Appendix Table A1. East and West Germans in German labor market vs. cross-border commuting zones:**

|   | Entire German labor market |         | Cross-border commuting zones only |        |       |
|---|----------------------------|---------|-----------------------------------|--------|-------|
|   | West                       | East    | West                              | East   |       |
| <b>Panel A: Mothers' Characteristics at Childbirth</b>                |                            |         |                                   |        |       |
| age at birth  | 28.593                     | 28.796  | 28.144                            | 28.864 |       |
| low education   | 0.157                      | 0.106   | 0.132                             | 0.100  |       |
| medium education  | 0.728                      | 0.799   | 0.791                             | 0.820  |       |
| high education  | 0.115                      | 0.095   | 0.077                             | 0.080  |       |
| pre-birth real daily earnings   | 68.055                     | 53.057  | 59.592                            | 49.636 |       |
| full-time employed  | 0.803                      | 0.767   | 0.789                             | 0.782  |       |
| share East German colleagues  | 0.058                      | 0.752   | 0.153                             | 0.773  |       |
| <b>Panel B: Mothers' Employment Outcomes 4 Years After Childbirth</b> |                            |         |                                   |        |       |
| employed (including marginal employment)                              | 0.357                      | 0.415   | 0.350                             | 0.385  |       |
| regularly employed  | 0.231                      | 0.339   | 0.231                             | 0.298  |       |
| employed full-time  | 0.132                      | 0.222   | 0.127                             | 0.193  |       |
| <b>Panel C: Share East Germans in workplace</b>                       |                            |         |                                   |        |       |
| Share East German colleagues  | 0.047                      | 0.858   | 0.153                             | 0.773  |       |
|   | N                          | 332.913 | 85.862                            | 5.967  | 4.257 |

*Notes:* The table reports sample means of characteristics at birth (Panel A), employment outcomes four years after birth (Panel B) and shares of East German colleagues (Panel C) of first-time mothers who signed up for maternity leave in 2003-2006, by their origin. We distinguish between women who work in the five cross-border integrated labour markets and those who work in all other regions before birth.

*Source:* Social Security Records (IEB), first-time mothers who signed up for maternity leave in 2003-2006.

**Appendix Table A2. East and West German Migrants and Stayers: Descriptive Statistics**

|   | West in West | West in East | East in East | East in West |
|---|--------------|--------------|--------------|--------------|
| <b>Panel A: Mothers' Characteristics at Childbirth</b>                |              |              |              |              |
| age at birth  | 28.617       | 28.063       | 28.604       | 29.994       |
| low education   | 0.157        | 0.082        | 0.108        | 0.084        |
| medium education  | 0.730        | 0.794        | 0.802        | 0.811        |
| high education  | 0.113        | 0.124        | 0.090        | 0.105        |
| pre-birth real daily earnings   | 68.151       | 51.315       | 48.599       | 69.685       |
| full-time employed  | 0.802        | 0.793        | 0.753        | 0.812        |
| <b>Panel B: Mothers' Employment Outcomes 4 Years After Childbirth</b> |              |              |              |              |
| employed (including marginal employment)                              | 0.535        | 0.635        | 0.640        | 0.616        |
| regularly employed  | 0.401        | 0.568        | 0.562        | 0.509        |
| employed full-time  | 0.199        | 0.361        | 0.336        | 0.261        |
| <b>Panel C: Share East Germans in workplace</b>                       |              |              |              |              |
| Share East German colleagues  | 0,047        | 0,858        | 0,925        | 0,105        |
| N   | 327.780      | 4.597        | 69.495       | 15.337       |

*Notes* : Panels A, B and C report sample means of characteristics at birth (Panel A), employment outcomes four years after birth (Panel B) and shares of East German colleagues (Panel C) of first-time mothers who signed up for maternity leave in 2003-2006, by their origin and migration status. We distinguish between women who work in their origin part of Germany when signing up for maternity leave (West in West and East in East) and women who work in the other part of Germany (West in East and East in West).

*Source*: Social Security Records (IEB), first-time mothers who signed up for maternity leave in 2003-2006.

**Appendix Table A3. East and West German Migrants and Stayers: Descriptive Statistics using German Socio-Economic Panel (GSOEP)**

|  | West in West       | West in East | East in East | East in West |
|--|--------------------|--------------|--------------|--------------|
| <b>Panel A: Characteristics of spouses (GSOEP)</b>   |                    |              |              |              |
| has partner  | 0,916              | 0,881        | 0,870        | 0,890        |
| partner is of East German origin   | 0,02               | 0,25         | 0,98         | 0,44         |
| spousal gross labor income   | 3065,65            | 4515,20      | 1933,40      | 2760,90      |
| spousal net labor income   | 2026,79            | 2773,76      | 1323,24      | 1887,09      |
| N  | 8358               | 118          | 3026         | 648          |
| <b>Panel B: Regression coefficients testing for between group differences for work- and family-related attitudes prior to move (GSOEP)</b> |                    |              |              |              |
| <b>Importance of Job success</b>   | <i>West German</i> | 0.033        | 0.135***     | 0.173***     |
|  | <i>stayers are</i> | (0.057)      | (0.006)      | (0.029)      |
| <b>Important to have children</b>  | <i>omitted</i>     | -0.000       | 0.026***     | 0.011        |
|  | <i>category</i>    | (0.060)      | (0.004)      | (0.035)      |
| <b>Important to fulfill one's potential</b>  |                    | -0.025       | 0.064***     | 0.105***     |
|  |                    | (0.059)      | (0.006)      | (0.033)      |
| N  | 17606              | 45           | 5473         | 92           |

*Notes:* In Panel A, we use data from the German Socio-Economic Panel on women with a child aged 0 to 5 to compute sample means of the share of women with a spouse (husband and partner), the share of partners who originate from East Germany, as well as spousal gross and net monthly labor income. In Panel B, we show estimates from regressing binary attitudes on indicator variables for whether a woman always remained in East Germany and whether a West (East) German woman moved to East (West) Germany within the 5 following years (i.e., before they moved to the other part of Germany). Women who always remained in West Germany form the omitted base category. The sample includes all women between 20 and 45. We further control for women's socio-demographic characteristics (woman's age, education and whether she has children).

*Source:* Panel A: German Socio Economic Panel (GSOEP), women whose first child is age 0-5 in 1990-2010 (N=12,150 overall). Panel B: German Socio Economic Panel (GSOEP), women aged 20-45 in 1990-2016 (N= 23,216 overall). Attitude variables are available in 1990, 1992, 1995, 2004, 2008, 2010, 2012, 2016.

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