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Women and the labour market in East and West Germany: The role of socialist legacy and pre-socialist tradition

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**Women and the labour market in East and West Germany:
The role of socialist legacy and pre-socialist tradition**

Abstract

There is a successful and growing number of studies published in top-economics journals that exploit the division and re-unification of Germany as a natural experiment for analysing the effects of political regimes on economic behaviour. One strand of the literature shows that socialism shaped also the attitude toward working women. Against the background, of higher pre-war female labour supply in East Germany, this paper shows an almost negligible long-term socialist treatment effect on female labour force participation. A cautious interpretation of this finding is that any socialist legacy effect on attitudes is not visible in actual behaviour. Another novel finding is that social acceptance of working women today is affected by pre-war differences in female labour supply. This finding corresponds to a mark-up of married East German women in work in pre-War Germany. The paper exemplifies that considering the pre-separation history of Germany is pivotal to enhance the credibility of the flourishing research on the natural experiment of German separation and re-unification.

JEL classifications: J16; J22; J23; N34; P25; P30; R23

Keywords: Female labour force participation; Gender; Attitudes toward work; Regional labour markets

1 Introduction

There is a growing body of empirical literature exploiting the “natural experiment” of German division and re-unification to identify the causal effect of political regimes on attitudes and economic behaviour (e.g., Alesina and Fuchs-Schuendeln, 2007; Brosig-Koch et al., 2011; Rainer and Siedler, 2009; Heineck and Suessemuth, 2013; Slavtchev and Wyrwich, 2017). In a nutshell, the eastern part of Germany came under socialist rule after 1945, whereas, West Germany developed towards an established market economy. After German re-unification, the institutional framework of West Germany was introduced in the new eastern part of the country. Despite this radical exogenous shift in the formal institutional framework, there are persistent differences in attitudes and economic behaviour among East Germans that the papers above attribute to long-run effects of socialist legacy.

There is also a strand of recent papers in this German “natural-experiment”-literature dealing with the long-run effects of the political regime on female labour supply and attitudes towards working women (e.g., Bauernschuster and Rainer, 2012; Beblo and Goerges, 2018; Campa and Serafinelli, 2018). This issue is also discussed in the general public since labour force participation of women is much higher in the eastern part of the country even 25 years after re-unification. It appears obvious to relate this pattern to a legacy of socialist labour market policies in the GDR which heavily promoted labour force participation of women (e.g., Rosenfeld et al., 2004; Bertelsmann, 2015).

The starting point for the critical assessment carried out in the present paper is the empirical pattern that female labour force participation in East German regions was already higher before German separation and the introduction of socialist labour market policies. Pre-separation and post-unification data allow for an assessment of the socialist treatment effect on the prevalence of women in the labour market. To this end, the present study makes use of a difference-in-difference (DiD) analysis on the level of East and West German regions with the eastern areas comprising the treatment group. West German regions represent the control group. The primary outcome variable in the analysis is the female labour force participation (FLFP) which is the proportion of women in working age who participate in the labour market.

In line with other previous reports (Holst and Wieber, 2014; Bertelsmann, 2015), it can be confirmed that FLFP is higher across East German regions even 25 years after German reunification. However, the econometric results suggest that the border between East and West Germany just happened to correspond to pre-war differences in FLFP, such that there are (almost) no long-run differences-in-differences (DiD) in FLFP that are driven by the socialist treatment of East German regions. There are DiD-effects for some East German regions. This pattern suggests that socialist labour market policies “required” certain regional conditions to leave a long-run imprint on FLFP.

Further analyses of survey data reveal that pre-socialist shares of women in the labour market are positively related to statements regarding the social acceptance of married women (with kids) in work. This pattern suggests that positive attitudes toward working women have historical roots pre-dating socialism. This corresponds to descriptive findings showing that the share of married women in East Germany was already higher before 1945 in areas that were exposed to socialism later on.

The findings of this study are of general significance. First of all, the results challenge the “conventional wisdom” in the German public that the higher share of women among the labour force in East Germany, relative to West Germany, is *predominantly* a phenomenon originating in labour market policies in the socialist GDR (e.g., Bertelsmann, 2015). The results suggest that socialism has been falling on fruitful ground with respect to labour market opportunities for women. A cautious interpretation of the findings is that any socialist treatment effects on attitudes are not visible in actual behaviour. Furthermore, the results reveal a high persistence of spatial differences in labour market participation of women that are outlasting radical institutional shocks. The persistence is remarkable against the background of the general increase in female participation rates since the early 20th century. Finally, the results also have general implications for the large and flourishing literature in economics that exploits German division and re-unification as a quasi-natural experiment for causal inference. Studies in this area should take a lot of care on assessing East-West differences pre-dating German division.

The remainder of the paper is as follows: Chapter 2 provides some historical background regarding women in the labour market in East and West Germany. Chapter 3 deals with data and empirical methods. Results are presented in chapter 4 while the final chapter 5 offers conclusions and avenues for further research.

2 Historical Background: Women and the labour market in East and West Germany

One of the most visible differences in the German labour market is the significantly higher labour force participation of women in the post-socialist eastern part of the country (Holst and Wieber, 2014). This gap is attributed to the legacy of socialist labour market policies in the former GDR (e.g., Maier, 1993; Rosenfeld et al., 2004; Bauernschuster and Rainer, 2012). High shares of working women have been common in socialist economies (e.g., Berliner, 1989; Brainerd, 2000; Jurajda, 2003). In the GDR, for example, the relative share of women among the labour force in 1989, just before the fall of the Berlin Wall, was 48 percent as compared to 38 percent in the western Federal Republic of Germany (FRG). The motives of the socialist government to promote the employment of women were twofold. On the one hand, labour market participation was a constitutional right, and several policies were designed to facilitate the participation of women in the labour market (e.g., Duggan, 1995; Cooke, 2006). On the other hand, the GDR suffered from capital shortages that were compensated by labour-intensive production techniques. Furthermore, due to low wages, double incomes were often an economic necessity (Braun et al., 1994). Against this background, it should be also noted that earlier research using the ALLBUS by Braun et al. (1994) reveals that higher social acceptance of working women in East Germany was rather determined by economic hardships over the course of transition than by changed gender roles (see also, Maier, 1993).

Figure 1 shows that the gap in labour force participation of women in working age was around 30 percentage points in 1989.¹ The East-West gap in participation rates was declining in the 1990s. The drop in labour force participation among women in East Germany in this decade suggests that the level of female labour supply in the GDR might have been artificially high. Furthermore, the first years after transition were marked by economic dislocation (e.g., Burda and Hunt, 2001) which could also explain the shrinking incidence of East German women in the labour market. Apart from that, the labour market institutions of West Germany were introduced in the eastern part of the country after re-unification. These institutions have been tuned to the male bread winner (one earner) model and discouraged labour force participation of women and maternal em-

¹ The average share of women in the labour force was around 48.8 percent. This share was between 48 to 52 percent across GDR counties in 1989 (Rudolph, 1990).

ployment in particular (e.g., Maier, 1993; Rosenfeld et al., 2004). Despite these developments, Adler and Brayfield (1997) report a greater social acceptance of working women in East Germany in the 1990s.

Figure 1 also shows that there is a remaining East-West gap that persisted in the 2000s. Evidence from surveys and the German micro-census suggest that the remaining gap also has to do with a higher labour force participation of (married) women with younger children in East Germany (Engstler and Menning, 2003; Holst and Wieber 2014). There are two prominent socialist legacy effects that are regarded as decisive for explaining this pattern. The first one is the better availability of child care facilities in East Germany which is mainly an indirect legacy effect of socialist labour market policies (Rosenfeld et al., 2004; Goldstein and Kreyenfeld, 2011).² Apart from that, there is a strand of literature demonstrating that socialist labour market policies promoted an attitude in favour of working women, in particular (married) women with kids (e.g., Bauernschuster and Rainer, 2012; Beblo and Goerges, 2018; Campa and Serafinelli, 2018) which, in turn, could partly explain differences in actual FLFP.

<< Figure 1 about here >>

Figure 1 also shows that there was already an East-West gap in 1939 that was almost similar in size like in 2015. The gap in the relative share of women in the labour market was apparently even larger in 1939 as compared to 2015 (Figure 2). This raises the question inasmuch the remaining gap in the level of FLFP between East and West Germany are really driven by legacy effects of socialism like a positive attitude toward labour force participation of (married) women with kids or better child care availability. Raising this question does not mean that this study wants to deny the (long-term) effect of socialism on attitudes toward working women that was partly confirmed in the previous literature. The intellectual vigour of demonstrating this effect is fully acknowledged but this study is simply more interested in the question whether the socialist treatment effect on attitudes is also visible in actual behaviour when compared to behaviour prevalent before the treatment. Moreover, this study is interested in long-term effects of so-

² It should be noted that the capacity of child care facilities in West Germany was significantly expanded in the 1990s and 2000s as well.

cialist legacy since the prevalence of such effects in the first years after four decades of socialist treatment is almost tautological.

The present paper measures the socialist treatment effect on FLFP by using a Difference-in-Difference (DiD) analysis. Like in previous studies, this paper exploits that German division and re-unification can be regarded as a “natural experiment” where a political regime promoting the share of women in non-domestic employment is introduced in one region but not in the other one. Then these policies are abandoned by an exogenous introduction of the political regime and formal institutions of the “non-treated” region.

3 Empirical Analysis

3.1 Data

The regional data on female labour supply rely on censuses pre-dating German division and on information from post-unification statistics. The pre-separation census data were conducted in 1925 and 1939. The latter census was taken on 17th of May, a few months before World War II. Socialist policies in East Germany were promptly introduced after the Soviet occupation at the end of War in 1945. The socialist GDR was founded in 1949. In the same year the FRG became independent from occupation by the Western Allies of World War II. The 1939 census is the closest possible peacetime year for analysing labour market structures before German division. Considering the census of 1925 allows assessing the development of FLFP in East and West German regions before separation. In both years the entire German population was surveyed.

The censuses as of 1925 and as of 1939 contain county-level information on the number of economically active people by gender, industries, and social status (*kleinere Verwaltungsbezirke*) (Statistik des Deutschen Reichs, 1927, 1943). It is possible to distinguish the economically active population in non-domestic employment (self-employed and dependent employees) and domestic work (helping family members). The census as of 1925 has the advantage that it has information on female labour supply before the introduction of policies of the Nazi government in the 1930s that were aimed at reducing the number of working women (Mason, 1976). The data as of 1939 is more advantageous for the construction of the outcome variables of interest (see section 3.3).

The census data also comprises people who have been unemployed at census day in 1925 and 1939, but this group is not disentangled from people in employment. Registered unemployment and state-provided unemployment aid did not yet exist in 1925. In general, unemployment has been relatively low in the mid-1920s.³ In 1939 a distinction between employed and unemployed people would have been possible but was not made because the overall level of unemployment was very low in this year (Fritz, 2001).⁴ If people did not withdraw from the labour market entirely but were without a job on census day in 1925 or 1939, the census takers assigned them to the industry where they worked before losing their job. The lack of a distinction between employees and the unemployed is no issue since including unemployed women is required to capture “revealed preferences” for taking up employment anyway. This also rules out that any potential spatial differences in labour market prospects in 1925 and 1939 biases the measure on the local share of women that are willing to participate in the labour market.

The post-unification statistics utilized in this study are primarily taken from the years 1996, 2000, 2005, 2010 and 2015. The first year was chosen because there is no reliable information on employment and unemployment across East German regions for the first post-unification years from 1990 to 1995. Furthermore, female labour supply in the early 1990s might have been affected by “transition noise.” It is also not that illustrative to compare female labour supply in East and West Germany in 1989 just before the Berlin Wall fell since (labour) supply and demand in the GDR was heavily controlled and “enforced” by the socialist central planners. Apart from that, this paper is interested in the legacy effects of socialist labour market policies on female labour supply. In this regard, the year of 1996 reveals potential short-run effects of socialism while the year 2015 is particularly informative about long-run effects.

The employment data for the post-unification years are taken from the labour market statistics of the Federal Employment Agency. The statistics include information on every dependent employee that is obliged to pay social insurances on the level of counties (*Kreise*). This data was combined with regional unemployment data as provided by the same institution.

³ For details regarding unemployment insurance in Weimar Germany, see Corbett (1991; chapter 3). The unemployment rate for Germany as a whole in 1925 was estimated to be around 2.8 percent which is very low compared to the one in the late 1920s and early 1930s (Corbett, 1991; Dimsdale et al., 2006).

⁴ According to Fritz (2001), the level of unemployment decreased from 4.8 million in 1933 to 119,000 in 1939.

3.2 Measurement

The main outcome variable of interest in the empirical analysis is female labour force participation (FLFP). It is measured by dividing the number of economically active women in non-domestic employment or in unemployment by the female population between the age of 20 and 64 years. In post-unification Germany, adolescents can enter the labour market at the age of 15 years but the labour market participation of women below the age of 20 years is relatively low.⁵ Furthermore, the labour market entry age for pupils visiting a high school at an advanced level (*gymnasium*) varied in East (18 years) and West Germany (19 years) in most post-unification years due to different education systems across German states. To ease the comparability of the data, it is referred to the population aged between 20 and 64 years. There have been varying retirement age thresholds over time. So, between the 1950s and 2010, the retirement age for women was 60 years in East and West Germany. The results section reports robustness checks using FLFP measures with different working age definitions.

For 1925, there is only information on the population of women above the age of 20 years but not for those above the age of 64 years. For this year, the same population share as of 1939 is assumed. The data on population in 1939 is taken from the population census (Statistik des Deutschen Reichs, 1941). Post-unification data on population was obtained from the Federal Statistical Office.

Combining the pre-separation and post-unification data also comes along with the challenge of developing a consistent definition of all economically active people minus helping family members (domestic workers). As already mentioned, unemployed people have not been distinguished from the employed workforce in the pre-separation data. This is not a critical issue for measuring labour force participation.

The information on employment and unemployment should be available on the residence level. The pre-separation data follow this principle. The same holds for the

⁵ Data on employment by age is available from 1999 onwards. In 1999, the number of employees aged between 20 and 24 years old was 2.29 times higher than the number for those aged between 15 and 20 years old (2010: 3.34 times). The difference in employment is by far lower when comparing other pairs of age groups with each other (for details, see <https://statistik.arbeitsagentur.de/>).

post-unification years.⁶ An issue with the data for 1996 is that it does not include marginally employed individuals (*geringfügig Beschäftigte*). This problem is not present for later employment data because marginally employed people entered the German Social Insurance Statistics in 1999. A comparison of the workforce figures of 1996 and 2000 suggests that the missing information in the former year is not problematic.

Another issue that deserves some explanations is the treatment of self-employment and public servants (*Beamte*) in the data. The post-unification data only includes the number of the unemployed and dependent employees. The latter group is due to pay Social Insurance contributions, in contrast to the self-employed and public servants. There is no dataset on gender-specific self-employment and the number of public servants between 1996 and 2015 across counties.

The pre-separation data include information on the number of self-employed people and public servants only for the year 1939. In 1925, public servants were not separated from other white-collar employees. This contrasts to all other years. Furthermore, in 1925 dependent employees in leading management positions (e.g., plant managers) were assigned to the group of “self-employed” while they are counted as dependent employees in 1939 and the post-unification data. Thus, for 1925 public servants cannot be excluded from the FLFP measure while the group of “self-employed” can be excluded but comprises people in management positions.

In the analysis, the group of self-employed is excluded for 1925 and 1939. They are not included in the post-unification data anyway. To rule out that the inconsistency related to the assignment of white-collar employees in leading management positions in 1925 drives the result, models not considering this year are presented as well. For public servants, the situation is a bit more complex. They cannot be excluded for 1925 and doing so for 1939 might be an ambivalent decision because jobs that have been done by public servants in the past might be carried out by employees of private firms today due

⁶ For 1996, there is total but no reliable gender-specific employment data at the residence level. There is only gender-specific employment data at the workplace level from the Establishment History Panel (EHP) (Schmucker et al., 2016). For obtaining gender-specific employment data at the residence level, the EHP data is multiplied by a ratio relating total employment at the residence level to total employment at the workplace level. Comparing the obtained numbers for 1996 to those of the year 2000, for which employment data at the residence level is available for the first time, shows that the adjustment of the 1996 data leads to reasonable numbers.

to privatization activities over the course of the 20th century. Therefore, models with and without public servants in measures for 1939 are presented.⁷

In a robustness check, regional post-unification data on the number of public servants by gender is drawn from the micro-census (Mikrozensus, 2015). The data is publicly available at the level of German states. For men and women each, the state-specific share of public servants in the total non-domestic workforce is used to obtain county-specific numbers on all non-domestically working dependent employees.⁸

Another robustness check deals with the issue that the ethnic composition of the workforce has changed since pre-separation times. So, in additional analyses, only information on people with German citizenship is included in the calculation of the FLFP measure for post-unification years. There is no data by ethnicity for 1925 and 1939. Therefore, the original data are used in this assessment. It is assumed that the number of foreign workers has been relatively low in these times as compared to today.

In all analyses, adjustment procedures had to be applied to work with consistent spatial units. To this end, it was necessary to overlay a digitized map of the counties in 1925 and 1939 with one including the boundaries of the current counties using Geographical Information Systems software (ArcGIS). The historical counties are split into parts along the border lines of the current counties. The raw data of 1925 and 1939 are then multiplied by the resulting share of the split areas (in terms of the historical county size) and assigned to the current regions.

A crucial assumption of the above approach is that economic activity is homogeneously distributed within a county. The procedure is problematic if economic activity in counties is highly concentrated. Since agglomerated places form own so-called city-counties (*kreisfreie Staedte*), this problem is rather negligible. However, an issue that needs to be dealt with is when cities were established as separate administrative units after 1925 and 1939 respectively. Such a separation took place when cities were grow-

⁷ Public servants represented 5.1% of the workforce (incl. self-employed) in West Germany in 1939 compared to 4.2% in East Germany. The figures for 2010 are 6.4% and 4.6% respectively. Interestingly 22.2% of all working women in West Germany were public servants in 1939 compared to 16.0% in East Germany. In 2010 only 5.4% and 3.5% of all working women were public servants in West and East Germany respectively. The change in the composition speaks for considering models with and without public servants in the labour supply measures. It should be noted that public servants comprise only 35 percent of all public employees around the year 2010. Post-unification information on public servants is taken from the Mikrozensus (2015).

⁸ The calculation is based on the following formula: County-specific no. of non-domestic dependent employees + No. of public servants = county-specific no. of non-domestic dependent employees / (1 - state-specific share of public servants). County-specific micro census information is available at research data centres of the Statistical Offices of the German Laender.

ing. The issue with this separation is that there is no data on female labour supply for these cities but only for the originating rural county (*Landkreis*) including this city for years preceding the split-up from the rural county. For such cases, the above assignment procedure does not work properly. So, if the separation took place after 1925 and 1939 respectively, the city-county is merged with the originating county. So, the historical regions map into 380 contemporary counties (West: N=298; East: N=72) in the main analysis.⁹

3.3 Method

The assessment of socialist treatment effects on the incidence of women in the labour market is based on a difference-in-difference (DiD) approach of the following equation:

$$(1) \quad FLFP_{rt} = \alpha + \beta East_r + \gamma Year_t + \delta_{1925}(East * Year)_{r1925} + \sum_{t=1996}^{2015} \delta_t (East * Year)_{rt} + X_{rt}' \xi + \theta_r + \varepsilon_{rt}$$

In equation (1) $FLFP_{rt}$ reflects female labour force participation in region r in year t which refer either to the pre-separation period (1925 and 1939) and the post-unification period (1996 to 2015). $East$ is a dummy variable indicating whether a region is located in East Germany. $Year$ represents dummy variables. For the post-unification years, $Year * East$ captures the treatment effects with δ_t as the DiD-estimators of interest. In some of the regression models $FLFP_{rt}$ is log-transformed to evaluate the treatment effect on the relative change in female labour supply.

One concern regarding this empirical design is that causal inference relies on the assumption that the number of treated and non-treated groups is large. Conley and Taber (2011) argue that the standard assumptions underlying the estimates for confidence intervals are not appropriate if there are only one treatment and one control region. One way to address this issue is dividing East and West Germany into smaller treated and

⁹ It was not possible to utilize the data for the six counties of the state of Saarland since there is no information for the year 1925. The area was administered by the League of Nations around this time and was not part of the German Empire. Therefore, the population census was not conducted there. Since the data for the city of Berlin cannot reasonably be assigned to East or West, the analysis does not include Berlin. For assigning historical counties to current counties, shape files as provided by the Max-Planck-Institute for Demographic Research were used. I am highly indebted to Sebastian Rauch for preparing the data. The procedure for adjusting the census data to spatially consistent areas can be illustrated by an example. If 35% of the historical county H is today partially located in the current counties C1, whereas, the remaining 65% are part of the current county C2, the raw census numbers of H are multiplied by the respective numbers and assigned to either C1 or C2. As mentioned in the text, for city counties established after 1925 and 1939 respectively this assignment procedure does not work properly. In this case, city counties were merged with the originating counties.

non-treated regions. One can think of 21 treated East German and 73 non-treated West German control planning regions comprising a varying number of counties. Planning regions are comparable to labour market areas in the US. Causal inference can then be based on a DiD-approach that includes time-invariant planning region fixed effects (θ_r).

When there are no control variables, the estimate for the DiD-coefficient is the same like without planning region fixed effects although the confidence intervals and standard errors differ. Findings that are based on a further method developed by Conley and Taber (2011) are presented as well. To this end, 21 out of all 94 planning regions have to be randomly drawn and assigned as treatment region. Causal inference is based on comparing the estimated DiD-coefficients of repeated regressions with randomly simulated treatments with the coefficient of the regression including the actual treatment.¹⁰ This approach does not change coefficient estimates but confidence intervals.

In equation (1) pre-separation data as of 1939 represent the measurement closest to German separation in 1945. The data of 1925 can be used to check whether treatment (East) and control (West) group followed the same time trend before the treatment. A formal test of this common trend assumption requires an interaction of the East dummy with a year dummy for 1925. If such an interaction is not significant, this is evidence of a common pre-treatment trend (e.g., Autor, 2003). The interaction $Year*East$ with the estimator δ_{1925} represents this formal test. Finally, X_{it}' represents a vector of control variables (see 3.4 for details). The chapter on results reports regressions with standard errors clustered by planning region-by-time, which permits heteroskedasticity and allows the error terms ε_{it} of districts within the same planning region and year to be arbitrarily correlated with each other.

A fruitful extension of the above DiD-framework would be an analysis of potential legacy effects of the socialist treatment for various labour market segments. As previously mentioned, aggregate statistics and survey evidence suggest that the persistent East-West gap in female labour supply is driven by a higher participation rate of (mar-

¹⁰ In the main models of the present paper, the DiD-coefficients of N=500 simulations is subtracted from the actual treatment coefficient. The empirical distribution yielded by this exercise is used for forming the lower and upper bounds of the confidence interval. If the bounds include the value of zero due to large DiD-coefficients in the simulations, the null hypothesis that the actual treatment parameter is zero cannot be rejected. For further details see Conley and Taber (2011). The STATA code as provided by http://economics.uwo.ca/people/conley_docs/code_to_download.html was applied. Since the number of counties within the clustering variable (planning region x year) varies, the analysis follows the population weighted approach.

ried) women with younger kids in East Germany. Unfortunately, there is no county-level data on the number of this group of women in the labour market neither for the pre-separation period. The above DiD-framework can be nevertheless informative. So, if we assume that (1) the post-unification gap indeed represents differences in the share of participating married women with younger kids and (2) that this is a legacy effect of socialist labour market policies, then the DiD-estimators should capture this effect. If there are no significant treatment effects, then this can be cautiously interpreted as an indication that socialism did not affect the incidence of mothers in the labour market, for example, because the participation of this group has been already higher in eastern regions in pre-separation times. A DiD-framework for this labour market segment would be, of course, a cleaner test. However, in the absence of fine-grained regional data, Section 4.5 alternatively presents an extension of the analysis that utilizes individual-survey data for discussing the influence of socialism on social acceptance of employment of mothers and married women. Furthermore, historical data on the incidence of married women in work in larger East and West German areas in 1939 is presented in section 4.5 as well.

3.4 Control variables

The vector of control variables comprises measures for general regional characteristics and labour market conditions that might explain spatial differences in the level of female labour supply (Table A1a and A1b for summary statistics and details on data sources).¹¹ For post-unification years the controls also capture adjustments of economic and labour market structures in East Germany.

Population density is included to catch agglomeration effects. The role of industry structures is assessed by the employment share for manufacturing industries and mining. As previously mentioned, industrialization was relatively high in some East German regions before 1945 which might have been provided job opportunities for women (see section 2). The degree of industrialization was above the national average in many southern regions of East Germany. Historically the emergence of manufacturing industries was positively associated with job opportunities for women, at least in the 20th century (e.g., Costa, 2000; Goldin, 2006). Regions in the southern part of current East Ger-

¹¹ A correlation matrix can be obtained upon request.

many (the current states of Thuringia and Saxony) have been heavily industrialized (e.g., Tipton, 1976).

The prevalence of manufacturing industries may also be related to female labour supply in the post-unification period. In contrast, the employment share in mining is expected to be negatively related to female employment opportunities (e.g., Hall, 2013). The pre-separation data on industries stem from the occupation census while the post-unification statistics were taken from the German Social Insurance Statistics.

While historical industrialization could have been a main driver of high FLFP in the south of East Germany, the organization of farm labour in its northern part may have also contributed to a high share of women in work. Within Germany, there have been enormous regional differences regarding the average farm sizes. This has to do with natural conditions (quality of soil) and differences in the development of regional power structures (e.g., Tipton, 1974; Becker, 1998). In areas with many small independent farms, women worked (and were registered) as helping family members, whereas, in areas where large farms dominated, men along with women were likely to work for large landowners (*Gutsherren*) and were registered as workers accordingly. Large farms were common in the middle and eastern part of Germany, especially east of the river Elbe (*ostelbisch*) which comprises a large share of what is northern East Germany today.

Pre-separation data on farm sizes were taken from the establishment census in 1907. Data for post-unification years are based on the statistics on the structure of agricultural holdings published by the Federal Statistical Office.¹²

Regional differences in the population share of Protestants are also considered in the analysis to capture any potential effects of Protestant norms and attitudes regarding work ethic on non-domestic employment of women. The share of Protestants has been much higher historically in East German regions but is rather unlikely to be a driver of differences in female labour supply in East and West Germany (for a discussion, see Bauernschuster and Rainer, 2012). The pre-separation data stem from the general population census in 1925 while the post-unification data is based on a census conducted in the year 2011.¹³

¹² For the historical data, it is possible to construct alternative measure like the share of establishments and employment in different size classes as well. Data for 1925 could not be used due to data constraints. There was no such census in 1939.

¹³ The census 2011 is the only source including post-unification data on religion across counties.

4 Results

4.1 Descriptive overview

Table 1 shows mean comparison tests for FLFP in East and West Germany. In general, female labour supply increased over time in both parts of the country. The table also reveals that FLFP in East Germany was already higher in pre-separation times. FLFP across East German regions is also significantly higher in the post-unification period. The East-West gap in post-unification years becomes smaller over time. In 2015, the difference in terms of percentage points is only 1.6 higher than in 1939. The results are in line with figure 1 that was presented earlier.¹⁴ It should be noted that the average growth in FLFP between 1939 and 2015 is even significantly higher across West German regions.¹⁵

<<Table 1: Mean comparison tests>>

Campa and Serafinelli (2018) present statistics where the pre-War proportion of women in the labour market is lower in East Germany. However, these statistics include helping family member which was widespread in family-based small-scale West German agriculture (see section 3.4, for further details) and certainly explains this difference. Helping family members should not be considered as non-domestic employment which the present paper focuses on. Furthermore, the data are from 1925 and on the relative share of women in the labour market instead of FLFP. The data as of 1939 are better suited because there is an official information on the number of women in working age which allows calculating FLFP without additional assumptions (for details, see section

¹⁴ Table 1 also shows that the adjustment of the employment data as of 1996 that was necessary (see section 3.3) did lead to reasonable numbers when compared with the numbers for later years and the general underlying trend in the level of female labour supply. This provides confidence in using the data from 1996.

¹⁵ It should be noted that the difference in median values between East and West Germany is almost zero. Thus, some West German regions had a very high average growth in FLFP since 1939 increasing the average growth rate.

3.2).¹⁶ Beblo and Goerges (2018) also show statistics where the pre-separation East-West differences were rather insignificant but they refer to less fine-grained regional data. Be as it may, information on pre-separation FLFP allows calculating the difference-in-difference effect of socialism on actual labour market behaviour of women after German re-unification.

4.2 Baseline regressions

Table 2 and Table 3 show results of baseline DiD-regressions. The DiD-estimators indicate the treatment effects in percentage points of FLFP. Model I and II of the tables include data from 1939 and post-unification years. Model III and IV consider data for 1925. The year 1939 is the reference point for evaluating the treatment effects in all models. It should be noted that the dummy variable indicating East German regions cannot be interpreted when including planning region fixed effects because of perfect multicollinearity.

In model I and III of Table 2 no control variables are considered while in model II and IV the pre-separation regional conditions as of 1939 are introduced as time-invariant. These controls are interacted with year dummies to capture year-specific long-run effects of pre-separation conditions. This approach also allows determining the effect of regional conditions in 1939 on FLFP in this year.

In the models of Table 3 year-specific control variables for regional conditions are introduced. In model II and IV of Table 3 these regional conditions are additionally interacted with year dummies. Regional economic conditions like industry structures in post-unification years are almost certainly affected by legacy effects of socialist policies and the mode of economic transition (e.g., Burda and Hunt, 2001). Therefore, the results of these models may suffer from a bad control problem biasing the estimates. The intuition of these models is checking whether there is at least a pronounced long-term treatment effect when accepting such a bias.

¹⁶ Campa and Serafinelli (2018) employ a regression-discontinuity design with distance to the inner-German border as the assignment function to capture the treatment effect of socialism on attitudes. The RDD design is problematic because the border between East and West Germany was not randomly drawn but followed the historical borderlines of German states (Moseley, 1950). The respective German states are marked by century-long specific institutional and cultural developments before German unification in the late 19th century. Thus, it is very unlikely historically-grown cultural and institutional heterogeneity between East and West Germany evolves smoothly at the East-West border.

The DiD-estimators show that there are positive treatment effects for the post-unification years between 1996 and 2010. The effect is getting smaller over time. For the year 2010, there is also an insignificant effect in two of the four models that control for actual regional conditions while there is no statistically significant effect for 2015 at all.

The interaction between the East and year dummy for 1925 is insignificant. This means that East German regions did not have systematically different FLFP in 1925 as compared to 1939. One can conclude from this result that East and West Germany followed a common pre-separation trend. This is an important condition for the validity of the DiD-approach.

Table 2 also shows that population density is significantly positive related to FLFP in 1939. The same applies to the employment share of manufacturing while it is the opposite for the employment share in mining. The estimates for average farm size and the population share of Protestants are insignificant.

<< Table 2 about here >>

<< Table 3 about here >>

The overall East-West difference in FLFP in 2015 was about 8.4 percent (see Table 1). The treatment effect is never than 2.5 percent in the models of Table 2 and 3. Thus, under the assumption of parallel trends in FLFP if the socialist treatment was absent, only approximately 30 percent in the East-West differences in FLFP in 2015 can be attributed to socialist legacy effects. In 1996, more than two third of the East-West difference can be attributed to the treatment.

The general trend is confirmed when including further post-unification years to the model (Table A3) but also when running models where only one post-unification year is included (Table A4).¹⁷ Table A5 reports models where the female workforce is related to the population between 15 and 64 years old in the pre-separation years and the year 2015. For the other post-unification years, it is related to the population between 15 to 60 years old to adjust for the actual retirement age in these years. It is also

¹⁷ Table A3 also reveals that including planning region fixed effects reduces the standard errors of the DiD-estimators.

controlled for the population share aged between 15 and 20 years old to capture (1) regional differences in the share of this group with very low labour force participation rates and (2) post-unification East-West differences in the schooling system affecting labour market entry age. The results are in line with the baseline analysis.

For assessing whether the treatment effects measured in percentage points are meaningful in relative terms log-transformed FLFP rates can be used as the outcome variable. The models of Table 4 confirm that there is no significant positive long-term treatment effect on *relative* changes in FLFP. In some models, the socialist treatment effect is even negative for the year 2015. Thus, the positive effect found in some of the models of Table 2 and 3 is not meaningful in relative terms. There is only a clear-cut positive relative effect for the year 1996. Altogether, a cautious interpretation of the baseline analysis is that socialist legacy is at least not the main driver of East-West differences in FLFP in the longer run.

<< Table 4 about here >>

4.3 Further robustness checks

A first robustness check concerns the ethnic composition of the workforce in post-unification Germany. So, in additional models, the female labour supply measures for the post-unification period include only information on people with German citizenship. The results are shown in Table 5 which follows the structure of Table 2 to 4. The results of the robustness check suggest that there is only a short- and medium-run legacy effect of the socialist treatment on FLFP. The DiD-estimators for the years 2010 and 2015 are not significant. Adjusting the data for regional differences in the share of public servants, which are not captured in the main data on dependent employees (for further explanations, see section 3.2), reveals that there is also no treatment effect for the year 2005 when including control variables for current regional conditions (Table A6).

<< Table 5 about here >>

In another robustness check the share of women in the total labour force in non-domestic employment or unemployment (SWLF) is employed as the outcome variable. This variable is informative about the relative change in the incidence of women in the labour market beyond a general change in male and female labour force participation. Thus, the SWLF measure reveals whether socialist labour market policies left an imprint on the relative incidence of working women. Note that Figure 2, that was presented earlier, reveals that the East-West gap in the relative share of women in the labour market was even higher in 1939 as compared to 2015. Table 6 shows positive effects for the years 1996 and 2000. There are no treatment effects for later years. In some models, there is even a negative socialist treatment effect on SWLF.

<< Table 6 about here >>

A potential concern could be that East-West migration of women dilutes the results. So, job search related migration of East German women to West Germany could have narrowed the East-West gap. There is no data that distinguishes employment and unemployment by East/West German origin at the county level. At the same time, it is very unlikely that inner-German migration has a meaningful impact on the findings. First, most of the migration took place in the 1990s. Thus, if at all, the treatment effect as of 1996 and 2000 should be affected. Second, although approximately 2.5 million East Germans migrated to West Germany in the first 20 years after reunification, the relative inflow when compared to the 60 million West Germans is rather small (4.1 %) (Institute of Population Research, 2013).¹⁸ Thus, any migration bias in the analysis should be rather minor. As an indirect check for the influence of migration patterns, it is controlled for the total population share of women. The average population share of women aged between 20 and 64 years of the total population in 2015 is indeed higher by 1 percentage points in West Germany (East: 48.6 percent; West: 49.6 percent) which reflects this migration pattern. The difference is certainly not entirely driven by East-West migration. It rather represents an upper bound of potential East-West migration. Including the

¹⁸ Migration from West to East Germany was somewhat smaller in magnitude, and estimates from a representative sample of the German population suggest that 50 % of these West-East migrants were return migrants (originally born in East Germany). Adjusting the raw numbers suggests that the true inflow from West to East Germany relative to the East German population is also rather small at 5 % (Beck, 2004).

population share of women aged between 20 and 64 years old in the main FLFP models with current controls does not imply a significant long-run treatment effect (Table 7).

<< Table 7 about here >>

In a final robustness check, only women in employment (excl. unemployed women) are considered. There is no pre-separation distinction of employees. However, we know that unemployment in 1939 was virtually zero (Fritz, 2001). Considering the original numbers for 1939 and post-unification data on employment reveals a positive treatment effect for 1996 only. Accounting for ethnicity and spatial differences in the employment of public servants yields even negative treatment effects in models without controls for year-specific regional conditions. There are no effects when introducing these controls.

<< Table 8 about here >>

4.4 Effect heterogeneity

Table 9 shows confidence intervals in accordance to the Conley-Taber-method (2011) for the long-run treatment effect (2015) and the pre-separation trend (1925) for the models of Table 2 and 3. The interaction effect for 1925 is insignificant regardless of model and method. Apparently, in some models, the estimated Conley-Taber-intervals imply positive significant DiD-estimates for 2015 while they were insignificant when conventionally estimating confidence intervals. This pattern might be a result of effect heterogeneity. Assume that East German regions without meaningful treatment effects are not assigned to the treatment group anymore in the Conley-Taber simulations. If now those regions with pronounced effects still are assigned to the treatment group along with West German regions where FLFP increased strongly since 1939, then this might explain the deviation to inference based on the conventional method.

The issue of treatment effect heterogeneity deserves some further investigation. The effect of socialist labour market policies should be relatively homogeneous across eastern regions if uniform socialist labour market policies are decisive for current East-

West differences in female labour supply. Heterogeneity in effects suggests that the introduction of socialist labour market policies interacted with specific local conditions. Substantial variation in effects would be worrisome when there is a uniform regime affecting economic behaviour. This idea was put forward by Alesina and Fuchs-Schuendeln (2007).

Potential heterogeneity is exemplified by assessing the degree of industrialization which was a key driver of regional differences in pre-separation FLFP (see Table 2). Table 10 and 11 report results of separate regressions for different quartiles of the employment share in manufacturing industries in 1939. In regions with the lowest degree of industrialization, there is no treatment effect when controlling for initial conditions in 1939. There is no socialist treatment effect at all for regions that were heavily industrialized before German separation. However, in moderately industrialized areas below the median, there is an effect in all models while in moderately industrialized areas above the median controlling for initial conditions yields a significant effect only. The tables also show that there is no deviation in significance levels when applying the Conley-Taber-method. Thus, the example of industry structure demonstrates that treatment effect depends on conditions on the labour market in pre-separation times.¹⁹ Finally, Table A7 and A8 report results for models including year-specific regional conditions.

<<Table 10 about here>>

<<Table 11 about here>>

4.5 Social acceptance of women in work today: the role of pre-socialist tradition

Social acceptance of married women across German regions today can be investigated by exploiting the German General Social Survey (ALLBUS).²⁰ The ALLBUS is based on representative surveys of the German population conducted through personal interviews. A core set of questions is asked in every wave of the survey, with various sets of additional complementing questions in different years (for details, see Terwey and Baltzer, 2011). The survey is conducted biannually since 1980. Regional codes, indicat-

¹⁹ Heterogeneous effects are also apparent when running regressions for different quartiles of population density (not reported).

²⁰ It is not possible to run a DiD-approach with the survey data to detect the socialist treatment effect because there is no information on pre-socialist acceptance levels.

ing the place of residence of the respondents on the county level, are available for waves after 1994. In the waves of 1996, 2000, 2004, 2008, and 2012, respondents were asked to state their agreement with different patterns regarding the role of women in families and the workplace:

- 1) *It is better for all if the husband works and the wife stays at home taking care of the household and the children*
- 2) *It is more important for a woman to support her husband's career instead of making her career*
- 3) *A married woman should turn a job down if only a limited number of jobs are available and her husband can make a living for the family.*

The three questions deal with different aspects. While question 1) focuses more on general gender roles (child care and housework), 2) and 3) explicitly aim at attitudes regarding labour market behaviour of married women. In addition, question 3) captures attitudes regarding maternal employment.²¹

The answers given to these questions can be analysed by ordered logit regressions. The models in Table 13 include pre-socialist FLFP and, as a robustness check, SWLF measures.²² Historical FLFP represent the incidence of role models for future generations of women who update their prior beliefs about work based on observing other working women and the awareness of working women in past generations (see Fernandez, 2007; Fogli and Veldkamp, 2011; Farre and Vella, 2013). Since this process is working via social interaction, it is more or less local in nature (Fogli and Veldkamp, 2011). Therefore, the historical shares at the county level are merged to the dataset.

Next to historical FLFP measures, the regression models include survey year markers and exogenous individual controls namely age, gender, and parental characteristics.²³ The models include also planning region dummy variables that perfectly capture location in East and West Germany. So, any socialist treatment effect is almost perfectly captured in these regional controls. It is not perfect because the survey does not have

²¹ The conventional interpretation of “make a living for the family” involves the presence of kids. It has to be acknowledged that it cannot be ruled out that some respondents mentally referred to a married couple without kids.

²² The measures are as of 1925 and not 1939 due to constraints of data access. This has the advantage that the measures reflect female labour supply before policies of the Nazi government in the 1930s that were aimed at working women (Mason, 1976).

²³ The controls for parental characteristics include schooling of fathers and mothers as well as the occupational status of fathers.

information on where respondents lived in 1989. Therefore, the sample includes respondents that are assigned to East and West but originated from the other part of the country respectively.

The models show a positive relationship between pre-socialist SWLF and FLFP with disagreement with the statements 1) to 3) (Table 13). The results show that the historical legacy effect is not driven by characteristics of the labour market area the regions are located in. Altogether, one can conclude from the models that regional differences in female labour supply pre-dating socialism are positively related to statements regarding the social acceptance of married women (with kids) in work. These patterns suggest that positive attitudes toward working women have historical roots pre-dating socialism.²⁴

<<Table 12: Social acceptance of working women: survey evidence>>

<<Table 13 about here>>

One limitation of the analysis is that it is not possible to consider historical FLFP measures for married women or mothers at the county level. There is such data at the level of historical states and provinces. Table 13 shows the share of married women (1) among all married people in work and (2) among all working women across pre-war Germany in accordance to the census as of 1939.²⁵ For nearly all regions that became part of the GDR (East Germany), these shares have been higher than the West German average in 1939. The share of married women in the labour market in East Germany was nearly twice as large. The share of married women among all women participating in the labour market was about 14 percentage points higher in East Germany. Further columns of Table 12 show that the share of East German women in the labour force is higher in

²⁴ Moreover, current participation rates are not related to attitudes toward married women in work (not reported). This is in line with research cited in the main text of this section according to which working women can be regarded as a role model for future generations of women who update their prior beliefs about work based on observing other working women and the awareness of working women in past generations. Measures for historical participation presumably capture exclusively this effect while actual participation rates can be driven by factors like economic necessity that is not positively related to general social acceptance of working women.

²⁵ There is no regional data on the total number of married women and married women in work for today at the aggregate level. Surveys like the SOEP include such information but it is not representative at the regional level (very small case numbers).

different age groups. The difference is more pronounced in age groups above the age of 25 years most likely including a high share of married women. Thus, the descriptive findings indicate that the share of married women in East Germany was already higher before 1945 in areas that were exposed to socialism later on.²⁶

5 Conclusions

This paper assesses the role of socialist legacy on the higher incidence of women in the labour market in the eastern part of Germany. The analysis shows that post-socialist East Germany already had a higher share of (married) women in work before German separation. The assessment further reveals that there are only negligible long-run socialist legacy effects on female labour force participation. Models on the relative socialist treatment effects yield even negative DiD-estimators in some specifications. Furthermore, the presence of long-run effects for some regions depends on pre-separation industry structures. This heterogeneity of treatment effects suggests that the socialist treatment interacted with regional labour market conditions. It is also shown that pre-socialist differences in the prevalence of women in the labour market play an important role for social acceptance of working women. Overall, the empirical regularities highlighted in the present paper suggest that socialism felt on fruitful ground rather than *initially* created an environment of high acceptance of women in non-domestic employment. It seems that any socialist treatment effects on attitudes are not visible in actual FLFP.

The results of the present study do not imply that socialism did *not* shape economic behaviour in general. There might be a more pronounced socialist treatment effect on the actual participation in a certain type of employment (e.g., full-time work). Particular effects on full-time employment and particular groups of mothers are difficult to prove with the DiD-approach used in this study due to a lack of regional pre-separation data on working hours by gender. It should also be mentioned that differ-

²⁶ It is unlikely that East Germany had a higher incidence of married women. This pattern would be hardly in line with the findings on higher out-of-wedlock births in areas of pre-war East Germany (Kluesner and Goldstein, 2016). Unfortunately, there is no data on the incidence of mothers in the labour market in 1939 and some of the East-West gaps might be driven by differences in fertility implying a lower share of married women with kids in East Germany. However, the number of children per women aged between 20 and 40 years is 1.37 in West Germany and 1.30 in East Germany. For women aged between 20 and 45 years, it is 1.11 for West Germany and 1.04 for East Germany.

ences between East and West prior to separation may not pose such a huge problem for investigating primarily the transmission of gender norms from one generation to the next.

The findings of the present paper call for a careful assessment of pre-socialist economic structures to appropriately determine the effects of socialist legacy on labour force participation of women and economic behaviour in general. Similarly, research that exploits German division and re-unification for analysing the effect of political regimes on attitudes and economic behaviour should take care for assessing regional differences pre-dating German division in 1945. This paper stands in line with another recent study by Kluesener and Goldstein (2016) who demonstrate that the significantly higher prevalence of non-marital fertility in East Germany, which in the public debate is often attributed to the legacy of liberal social policies in socialism, pre-dates German division and was also apparent in the late 19th century. This article and the present paper are an encouraging call for considering the pre-separation history of Germany for increasing the credibility of empirical research exploiting German separation and re-unification for drawing causal inference.

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Tables

Table 1: Female labour force participation (FLFP) across East and West German regions: Mean comparison tests ^a

	West (N=298)	East (N=72)	Diff	Sig ^d
<i>Panel A: Pre-separation period</i>				
FLFP 1925	0.285	0.362	0.077	***
FLFP 1939 b	0.292	0.359	0.067	***
FLFP 1939 c	0.286	0.354	0.068	***
<i>Panel B: Post-unification period</i>				
FLFP 1996	0.492	0.677	0.185	***
FLFP 2000	0.521	0.683	0.162	***
FLFP 2005	0.546	0.665	0.118	***
FLFP 2010	0.567	0.667	0.100	***
FLFP 2015	0.620	0.704	0.084	***
<i>Panel C: Post-unification period/Pre-separation period</i>				
FLFP 2015/ FLFP 1939 (c)	2.341	2.071	-0.270	***

Notes:

a) FLFP: Female labour force participation. Berlin is excluded since only parts of the city came under socialist rule. The Saarland is excluded because there are no data available for the year 1925. For the year 1925 white-collar employees in leading positions are counted as self-employed and therefore not included in the FLFP measure.

b) Public servants are included in the FLFP measure for 1925 and 1939. In the data for 1925 they cannot be excluded. They are not included in the post-unification FLFP measures in all models because there is no official information on the number of public servants across regions.

c) This measure excludes public servants in 1939. See notes "b."

d) *** statistically significant at 1 percent level.

Table 2: FLFP across East and West German regions: Baseline regressions I ^a

	I	II	III ^b	IV ^b
East (Dummy, Yes=1)	Y	Y	Y	Y
Post Treat Year _t (Dummies, Yes=1)	Y	Y	Y	Y
Year ₁₉₂₅ (Dummy, Yes=1)	-	-	Y	Y
East X Year ₁₉₂₅	-	-	0.009 (0.017)	0.014 (0.016)
East X Year ₁₉₉₆	0.117*** (0.013)	0.115*** (0.012)	0.118*** (0.013)	0.116*** (0.011)
East X Year ₂₀₀₀	0.094*** (0.013)	0.095*** (0.011)	0.094*** (0.012)	0.095*** (0.011)
East X Year ₂₀₀₅	0.050*** (0.013)	0.054*** (0.011)	0.051*** (0.012)	0.054*** (0.011)
East X Year ₂₀₁₀	0.032** (0.013)	0.036*** (0.011)	0.033*** (0.012)	0.037*** (0.011)
East X Year ₂₀₁₅	0.016 (0.013)	0.023** (0.011)	0.017 (0.012)	0.023** (0.011)
Average Farm Size ₁₉₃₉	N	0.171 (0.139)	N	0.167 (0.119)
Population share of Protestants ₁₉₃₉	N	0.003 (0.013)	N	-0.002 (0.012)
Population Density ₁₉₃₉	N	0.039*** (0.004)	N	0.041*** (0.004)
Employment share manufacturing ₁₉₃₉	N	0.139*** (0.034)	N	0.146*** (0.034)
Employment share mining ₁₉₃₉	N	-0.469*** (0.057)	N	-0.484*** (0.055)
Controls ₁₉₃₉ X Year _t	N	Y	N	Y
Planning Region FE	Y	Y	Y	Y
N	2,220	2,220	2,590	2,590
R ²	0.917	0.939	0.910	0.937

a Berlin is excluded since the datasets at hand do not allow for disentangling information for the Eastern and the Western part of the city. The State of Saarland is excluded because there are no data for 1925. Robust standard errors are shown in parentheses. The clustering is on the Planning region*Year-level (Number of planning regions: N=94). *** sig at 1% level; ** sig at 5% level; * sig at 10% level. The constants are not shown for brevity. The year 1939 is the reference point for the evaluation of the treatment effects and the interaction between the dummies for East Germany and the year 1925. The East dummy is perfectly multicollinear with the planning region fixed effects and cannot be interpreted.

b In model III and IV public servants are included in the FLFP measure for 1925 and 1939. In the data for 1925 they cannot be excluded. To keep the pre-separation data consistent in models where data from 1925 and 1939 is used, public servants are considered in the pre-separation FLFP measures. They are not included in the post-unification FLFP measures in all models because there is no official information on the number of public servants across regions.

Table 3: FLFP in East and West Germany: Regressions with year-specific (post-unification) controls ^a

	I	II	III ^b	IV ^b
East (Dummy, Yes=1)	Y	Y	Y	Y
Post Treat Year _t (Dummies, Yes=1)	Y	Y	Y	Y
Year ₁₉₂₅ (Dummy, Yes=1)	-	-	Y	Y
East X Year ₁₉₂₅	-	-	0.009 (0.014)	0.013 (0.016)
East X Year ₁₉₉₆	0.124*** (0.018)	0.127*** (0.019)	0.117*** (0.015)	0.126*** (0.021)
East X Year ₂₀₀₀	0.097*** (0.017)	0.104*** (0.016)	0.087*** (0.014)	0.102*** (0.017)
East X Year ₂₀₀₅	0.051*** (0.017)	0.052*** (0.016)	0.040*** (0.014)	0.049*** (0.016)
East X Year ₂₀₁₀	0.026 (0.019)	0.046*** (0.017)	0.013 (0.015)	0.043*** (0.017)
East X Year ₂₀₁₅	0.009 (0.018)	0.028* (0.017)	-0.005 (0.015)	0.025 (0.017)
Controls _t	Y	Y	Y	Y
Controls _t X Year _t Dummies	-	Y	-	Y
Planning Region FE	Y	Y	Y	Y
N	2,220	2,220	2,590	2,590
R ²	0.923	0.939	0.922	0.937

a, b see notes "a, b" Table 2.

Table 4: FLFP (log) across East and West German regions ^a

	I	II	III ^b	IV ^b	V	VI	VII ^b	VIII ^b
	No year-specific (post-unification) controls				Year-specific (post-unification) controls			
East (Dummy, Yes=1)	Y	Y	Y	Y	Y	Y	Y	Y
Post Treat Year _t (Dummies, Yes=1)	Y	Y	Y	Y	Y	Y	Y	Y
Year ₁₉₂₅ (Dummy, Yes=1)	-	-	Y	Y	-	-	Y	Y
East X Year ₁₉₂₅	-	-	0.035	0.025	-	-	0.032	0.025
	-	-	(0.048)	(0.044)	-	-	(0.046)	(0.044)
East X Year ₁₉₉₆	0.090**	0.157***	0.096***	0.161***	0.159***	0.204***	0.169***	0.223***
	(0.038)	(0.035)	(0.035)	(0.033)	(0.048)	(0.045)	(0.042)	(0.046)
East X Year ₂₀₀₀	0.039	0.112***	0.046	0.115***	0.101**	0.156***	0.103**	0.173***
	(0.037)	(0.035)	(0.034)	(0.032)	(0.048)	(0.043)	(0.041)	(0.044)
East X Year ₂₀₀₅	-0.035	0.043	-0.029	0.047	0.025	0.064	0.023	0.073*
	(0.038)	(0.035)	(0.034)	(0.032)	(0.047)	(0.042)	(0.040)	(0.043)
East X Year ₂₀₁₀	-0.069*	0.010	-0.063*	0.013	-0.010	0.033	-0.015	0.040
	(0.037)	(0.035)	(0.034)	(0.032)	(0.046)	(0.041)	(0.040)	(0.042)
East X Year ₂₀₁₅	-0.105***	-0.023	-0.099***	-0.019	-0.048	-0.010	-0.054	-0.003
	(0.037)	(0.035)	(0.034)	(0.032)	(0.046)	(0.042)	(0.040)	(0.042)
Controls ₁₉₃₉	N	Y	N	Y	-	-	-	-
Controls ₁₉₃₉ X Year _t	N	Y	N	Y	-	-	-	-
Controls _t	-	-	-	-	Y	Y	Y	Y
Controls _t X Year _t	-	-	-	-	N	Y	N	Y
Planning Region FE	Y	Y	Y	Y	Y	Y	Y	Y
N	2,220	2,220	2,590	2,590	2,220	2,220	2,590	2,590
R ²	0.869	0.910	0.850	0.898	0.875	0.910	0.863	0.897

a, b see notes "a, b" Table 2. All continuous variables are log-transformed.

Table 5: FLFP across East and West German regions:
Accounting for ethnic composition of female population ^{a, c}

	I	II	III ^b	IV ^b	V	VI	VII ^b	VIII ^b
East (Dummy, Yes=1)	Y	Y	Y	Y	Y	Y	Y	Y
Post Treat Year _t (Dummies, Yes=1)	Y	Y	Y	Y	Y	Y	Y	Y
Year ₁₉₂₅ (Dummy, Yes=1)	-	-	Y	Y	-	-	Y	Y
East X Year ₁₉₂₅	-	-	0.00944 (0.0156)	0.0151 (0.0152)	-	-	0.0102 (0.0122)	0.0141 (0.0146)
East X Year ₂₀₀₀	0.0829*** (0.0124)	0.0840*** (0.0113)	0.0836*** (0.0116)	0.0842*** (0.0109)	0.0854*** (0.0162)	0.0906*** (0.0170)	0.0760*** (0.0138)	0.0897*** (0.0180)
East X Year ₂₀₀₅	0.0380*** (0.0125)	0.0418*** (0.0113)	0.0387*** (0.0116)	0.0421*** (0.0107)	0.0374** (0.0162)	0.0373** (0.0163)	0.0274** (0.0136)	0.0355** (0.0164)
East X Year ₂₀₁₀	0.0168 (0.0124)	0.0210* (0.0113)	0.0175 (0.0113)	0.0212** (0.0105)	0.00764 (0.0172)	0.0286* (0.0170)	-0.00424 (0.0144)	0.0265 (0.0174)
East X Year ₂₀₁₅	0.00523 (0.0122)	0.0120 (0.0112)	0.00597 (0.0110)	0.0122 (0.0105)	-0.00546 (0.0170)	0.0143 (0.0167)	-0.0176 (0.0141)	0.0119 (0.0171)
Controls Year ₁₉₃₉	N	Y	N	Y	-	-	-	-
Controls Year ₁₉₃₉ X Post-Treat Year _t	N	Y	N	Y	-	-	-	-
Controls Year ₁₉₃₉ X Year ₁₉₂₅	-	-	Y	Y	-	-	-	-
Controls _t	-	-	-	-	Y	Y	Y	Y
Controls _t X Post-Treat Year _t	-	-	-	-	N	Y	N	Y
Controls _t X Year ₁₉₂₅	-	-	-	-	-	-	N	Y
Planning Region FE	Y	Y	Y	Y	Y	Y	Y	Y
N	1,850	1,850	2,220	2,220	1,850	1,850	2,220	2,220
R ²	0.929	0.949	0.922	0.946	0.940	0.949	0.938	0.946

a, b see notes "a, b" of Table 2.

c The states of Bremen, Saxony-Anhalt and Mecklenburg-Western Pomerania did not publish data on employees without German citizenships in 1996. Therefore, observations from counties of these states cannot be considered in the analysis. The year 1996 is not included in the analysis to work with the same set of regions in all analyses.

Table 6: Share of women in labour force (SWLF) across East and West German regions ^a

	I	II	III ^b	IV ^b	V	VI	VII ^b	VIII ^b
East (Dummy, Yes=1)	Y	Y	Y	Y	Y	Y	Y	Y
Post Treat Year _t (Dummies, Yes=1)	Y	Y	Y	Y	Y	Y	Y	Y
Year ₁₉₂₅ (Dummy, Yes=1)	-	-	Y	Y	-	-	Y	Y
East X Year ₁₉₂₅	-	-	-0.00296 (0.0104)	0.00402 (0.0109)	-	-	-0.00171 (0.00955)	0.00357 (0.0104)
East X Year ₁₉₉₆	0.0398*** (0.00911)	0.0293*** (0.00973)	0.0401*** (0.00820)	0.0301*** (0.00830)	0.00388 (0.0138)	0.0134 (0.0135)	-0.00621 (0.0116)	0.00760 (0.0132)
East X Year ₂₀₀₀	0.0289*** (0.00884)	0.0193** (0.00935)	0.0292*** (0.00790)	0.0200** (0.00783)	-0.00217 (0.0136)	0.00713 (0.0121)	-0.0130 (0.0112)	0.00155 (0.0113)
East X Year ₂₀₀₅	0.0153* (0.00889)	0.00645 (0.00939)	0.0157** (0.00798)	0.00723 (0.00788)	-0.0116 (0.0136)	-0.00279 (0.0116)	-0.0230** (0.0112)	-0.00846 (0.0105)
East X Year ₂₀₁₀	0.00831 (0.00898)	0.000267 (0.00949)	0.00867 (0.00812)	0.00104 (0.00803)	-0.0203 (0.0144)	-0.00888 (0.0119)	-0.0327*** (0.0120)	-0.0146 (0.0112)
East X Year ₂₀₁₅	0.00430 (0.00897)	-0.00250 (0.00953)	0.00467 (0.00812)	-0.00173 (0.00810)	-0.0223 (0.0144)	-0.0119 (0.0117)	-0.0350*** (0.0119)	-0.0174 (0.0108)
Controls Year ₁₉₃₉	N	Y	N	Y	-	-	-	-
Controls Year ₁₉₃₉ X Post-Treat Year _t	N	Y	N	Y	-	-	-	-
Controls Year ₁₉₃₉ X Year ₁₉₂₅	-	-	Y	Y	-	-	-	-
Controls _t	-	-	-	-	Y	Y	Y	Y
Controls _t X Post-Treat Year _t	-	-	-	-	N	Y	N	Y
Controls _t X Year ₁₉₂₅	-	-	-	-	-	-	N	Y
Planning Region FE	Y	Y	Y	Y	Y	Y	Y	Y
N	2,220	2,220	2,590	2,590	2,220	2,220	2,590	2,590
R ²	0.818	0.877	0.868	0.909	0.867	0.894	0.903	0.919

a, b see notes "a, b" of Table 2.

Table 7: FLFP across East and West German regions: Accounting for migration patterns ^a

	I	II	III ^b	IV ^b
East (Dummy, Yes=1)	Y	Y	Y	Y
Post Treat Year _t (Dummies, Yes=1)	Y	Y	Y	Y
Year ₁₉₂₅ (Dummy, Yes=1)	-	-	Y	Y
East X Year ₁₉₂₅	-	-	0.00625 (0.0135)	0.0110 (0.0156)
East X Year ₁₉₉₆	0.125*** (0.0170)	0.129*** (0.0195)	0.118*** (0.0145)	0.130*** (0.0205)
East X Year ₂₀₀₀	0.0990*** (0.0163)	0.105*** (0.0163)	0.0898*** (0.0136)	0.104*** (0.0169)
East X Year ₂₀₀₅	0.0556*** (0.0162)	0.0457*** (0.0162)	0.0452*** (0.0135)	0.0435*** (0.0158)
East X Year ₂₀₁₀	0.0325* (0.0172)	0.0405** (0.0169)	0.0194 (0.0144)	0.0382** (0.0168)
East X Year ₂₀₁₅	0.0136 (0.0171)	0.0259 (0.0168)	0.0000386 (0.0142)	0.0240 (0.0169)
Controls _t	Y	Y	Y	Y
Controls _t X Post-Treat Year _t	N	Y	N	Y
Controls _t X Year ₁₉₂₅	-	-	N	Y
Planning Region FE	Y	Y	Y	Y
N	2,220	2,220	2,590	2,590
R ²	0.924	0.940	0.922	0.938

a, b see notes "a, b" of Table 2. The total population share of women aged 20 to 64 years old is additionally considered as a control variable to capture migration patterns.

Table 8: Employment of women across East and West German regions ^a

	I	II	III	IV	V ^c	VI ^c	VII ^c	VIII ^c
East (Dummy, Yes=1)	Y	Y	Y	Y	Y	Y	Y	Y
Post Treat Year _t (Dummies, Yes=1)	Y	Y	Y	Y	Y	Y	Y	Y
East X Year ₁₉₉₆	0.0248* (0.0132)	0.0303** (0.0119)	0.0512*** (0.0192)	0.0488** (0.0199)	- -	- -	- -	- -
East X Year ₂₀₀₀	-0.00794 (0.0129)	-0.00114 (0.0115)	0.0146 (0.0188)	0.0210 (0.0180)	-0.0262** (0.0131)	-0.0216* (0.0121)	-0.00769 (0.0185)	-0.00270 (0.0195)
East X Year ₂₀₀₅	-0.0311** (0.0130)	-0.0194* (0.0116)	-0.0108 (0.0189)	-0.0105 (0.0172)	-0.0495*** (0.0134)	-0.0399*** (0.0123)	-0.0342* (0.0187)	-0.0344* (0.0193)
East X Year ₂₀₁₀	-0.00794 (0.0129)	0.00345 (0.0115)	0.00907 (0.0200)	0.0150 (0.0175)	-0.0361*** (0.0132)	-0.0265** (0.0122)	-0.0267 (0.0198)	-0.0168 (0.0194)
East X Year ₂₀₁₅	-0.00583 (0.0127)	0.00628 (0.0115)	0.0100 (0.0198)	0.0204 (0.0177)	-0.0339*** (0.0129)	-0.0236* (0.0121)	-0.0261 (0.0194)	-0.0141 (0.0189)
Controls Year ₁₉₃₉	N	Y	-	-	N	Y	-	-
Controls Year ₁₉₃₉ X Post-Treat Year _t	N	Y	-	-	N	Y	-	-
Controls _t	-	-	Y	Y	-	-	Y	Y
Controls _t X Post-Treat Year _t	-	-	N	Y	-	-	N	Y
Planning Region FE	Y	Y	Y	Y	Y	Y	Y	Y
N	2,220	2,220	2,220	2,220	1,850	1,850	1,850	1,850
R ²	0.859	0.898	0.865	0.899	0.909	0.934	0.917	0.932

a see notes "a" of Table 2. The year 1925 is not considered because employment cannot be disentangled while unemployment in 1939 was close to zero (Fritz, 2001).

c see notes "c" of Table 5

Table 9: Conley-Taber inference vs. Conventionally-based inference

Column:	I	II	III	IV
<i>Panel A: Conley-Taber inference: East X Year 2015</i>				
Table 2	***/(n.s.)	***/(***)	***/(n.s.)	***/(***)
Table 3	**/(n.s.)	***/(*)	n.s./(n.s.)	***/(n.s.)
<i>Panel B: Conley-Taber inference: East X Year 1925</i>				
Table 2	n.s./(n.s.)	n.s./(n.s.)	n.s./(n.s.)	n.s./(n.s.)
Table 3	n.s./(n.s.)	n.s./(n.s.)	n.s./(n.s.)	n.s./(n.s.)

Notes: "Conley-Taber inference" reports whether the confidence intervals at the 10%(*); 5%(**); and 1%(***) level obtained by the method introduced by Conley & Taber (2011) do not include the value of zero ("n.s." means "not significant" and refers to intervals where the value of zero is included at the 90% level). The results are based on 500 replications. Inference for other years and models shown in other tables can be obtained upon request.

Table 10: FLFP in rural and highly industrialized East and West German regions ^a

	I	II	III ^b	IV ^b	V	VI	VII ^b	VIII ^b
	Industrialization<p25				Industrialization>p75			
East (Dummy, Yes=1)	Y	Y	Y	Y	Y	Y	Y	Y
Post Treat Year _t (Dummies, Yes=1)	Y	Y	Y	Y	Y	Y	Y	Y
Year ₁₉₂₅ (Dummy, Yes=1)	-	-	Y	Y	-	-	Y	Y
East X Year ₁₉₂₅	-	-	-0.00653	-0.00636	-	-	0.0113	0.00789
			(0.0169)	(0.0183)			(0.0356)	(0.0287)
East X Year ₁₉₉₆	0.168***	0.138***	0.169***	0.137***	0.0885***	0.0793***	0.0894***	0.0798***
	(0.0157)	(0.0183)	(0.0138)	(0.0175)	(0.0251)	(0.0219)	(0.0226)	(0.0200)
East X Year ₂₀₀₀	0.135***	0.113***	0.136***	0.113***	0.0703***	0.0587***	0.0711***	0.0592***
	(0.0141)	(0.0145)	(0.0130)	(0.0136)	(0.0242)	(0.0200)	(0.0216)	(0.0185)
East X Year ₂₀₀₅	0.0913***	0.0702***	0.0917***	0.0700***	0.0270	0.0174	0.0279	0.0179
	(0.0153)	(0.0162)	(0.0145)	(0.0157)	(0.0240)	(0.0197)	(0.0210)	(0.0178)
East X Year ₂₀₁₀	0.0653***	0.0375**	0.0657***	0.0373***	0.0133	0.00419	0.0142	0.00467
	(0.0149)	(0.0148)	(0.0142)	(0.0140)	(0.0239)	(0.0199)	(0.0208)	(0.0181)
East X Year ₂₀₁₅	0.0348**	0.00139	0.0352**	0.00124	0.00579	-0.000131	0.00666	0.000352
	(0.0149)	(0.0147)	(0.0142)	(0.0138)	(0.0239)	(0.0202)	(0.0208)	(0.0182)
Controls Year ₁₉₃₉	N	Y	N	Y	N	Y	N	Y
Controls Year ₁₉₃₉ X Post-Treat Year _t	N	Y	N	Y	N	Y	N	Y
Controls Year ₁₉₃₉ X Year ₁₉₂₅	-	-	Y	Y	-	-	Y	Y
Controls _t	-	-	-	-	-	-	-	-
Controls _t X Post-Treat Year _t	-	-	-	-	-	-	-	-
Controls _t X Year ₁₉₂₅	-	-	-	-	-	-	-	-
Planning Region FE	Y	Y	Y	Y	Y	Y	Y	Y
Conley-Taber inference East X Year 1925	-	-	n.s.	n.s.	-	-	n.s.	n.s.
Conley-Taber inference East X Year 2015	***	n.s.	***	n.s.	n.s.	n.s.	n.s.	n.s.
N	552	552	644	644	558	558	651	651
R ²	0.929	0.954	0.929	0.952	0.899	0.938	0.877	0.935

a, b see notes "a, b" of Table 2. See also notes of Table 9.

Table 11: FLFP in moderately industrialized East and West German regions ^a

	I	II	III ^b	IV ^b	V	VI	VII ^b	VIII ^b
	p25<Industrialization<p50				p50<Industrialization<p75			
East (Dummy, Yes=1)	Y	Y	Y	Y	Y	Y	Y	Y
Post Treat Year (Dummies, Yes=1)	Y	Y	Y	Y	Y	Y	Y	Y
Year ₁₉₂₅ (Dummy, Yes=1)	-	-	Y	Y	-	-	Y	Y
East X Year ₁₉₂₅	-	-	0.0294	0.0124	-	-	0.0102	0.0217
	-	-	(0.0204)	(0.0219)	-	-	(0.0225)	(0.0231)
East X Year ₁₉₉₆	0.143***	0.149***	0.144***	0.149***	0.106***	0.121***	0.106***	0.121***
	(0.0163)	(0.0199)	(0.0169)	(0.0196)	(0.0188)	(0.0199)	(0.0180)	(0.0195)
East X Year ₂₀₀₀	0.120***	0.123***	0.121***	0.123***	0.0802***	0.0988***	0.0805***	0.0988***
	(0.0152)	(0.0183)	(0.0160)	(0.0183)	(0.0171)	(0.0183)	(0.0162)	(0.0178)
East X Year ₂₀₀₅	0.0787***	0.0849***	0.0797***	0.0853***	0.0365**	0.0609***	0.0368**	0.0609***
	(0.0154)	(0.0181)	(0.0159)	(0.0177)	(0.0172)	(0.0183)	(0.0163)	(0.0179)
East X Year ₂₀₁₀	0.0556***	0.0581***	0.0566***	0.0585***	0.0247	0.0553***	0.0250	0.0554***
	(0.0160)	(0.0184)	(0.0160)	(0.0178)	(0.0169)	(0.0185)	(0.0152)	(0.0178)
East X Year ₂₀₁₅	0.0363**	0.0377**	0.0372**	0.0381**	0.0138	0.0512***	0.0141	0.0513***
	(0.0157)	(0.0179)	(0.0157)	(0.0175)	(0.0170)	(0.0183)	(0.0153)	(0.0175)
Controls Year ₁₉₃₉	N	Y	N	Y	N	Y	N	Y
Controls Year ₁₉₃₉ X Post-Treat Year _t	N	Y	N	Y	N	Y	N	Y
Controls Year ₁₉₃₉ X Year ₁₉₂₅	-	-	Y	Y	-	-	Y	Y
Controls _t	-	-	-	-	-	-	-	-
Controls _t X Post-Treat Year _t	-	-	-	-	-	-	-	-
Controls _t X Year ₁₉₂₅	-	-	-	-	-	-	-	-
Planning Region FE	Y	Y	Y	Y	Y	Y	Y	Y
Conley-Taber inference East X Year 1925	-	-	n.s.	n.s.	-	-	n.s.	n.s.
Conley-Taber inference East X Year 2015	***	***	***	***	*	***	n.s.	***
N	558	558	651	651	552	552	644	644
R ²	0.947	0.965	0.944	0.964	0.934	0.956	0.927	0.957

a, b see notes "a, b" of Table 2. See also notes of Table 9.

Table 12: The employment of married women across space in 1939 (pre-separation)

	Married female employees over all married employees	Married female employees over all female employees	Share of females among employees aged between 15 and 65 years	Share of females among employees aged between 15 and 25 years	Share of females among employees aged between 25 and 45 years	Share of females among employees aged between 45 and 65 years
<i>East German areas</i>						
Anhalt	0.145	0.293	0.272	0.460	0.194	0.191
Prussia (Mark Brandenburg)	0.201	0.344	0.319	0.481	0.261	0.237
Mecklenburg	0.095	0.167	0.276	0.473	0.182	0.174
Prussia (Prov. Saxony)	0.163	0.296	0.303	0.486	0.232	0.203
Saxony	0.243	0.339	0.390	0.546	0.344	0.300
Thuringen	0.200	0.329	0.312	0.485	0.276	0.240
<i>West German areas</i>						
Baden	0.172	0.226	0.355	0.505	0.304	0.245
Bayern links d.Rh.	0.118	0.222	0.279	0.461	0.209	0.151
Bayern rechts d.Rh.	0.175	0.210	0.362	0.497	0.308	0.278
Braunschweig	0.173	0.307	0.295	0.456	0.225	0.238
Bremen	0.118	0.199	0.285	0.463	0.230	0.173
Hannover	0.112	0.184	0.287	0.472	0.205	0.171
Hansestadt Hamburg	0.135	0.211	0.325	0.518	0.291	0.215
Hessen	0.091	0.168	0.281	0.487	0.200	0.141
Hessen-Nassau	0.084	0.142	0.290	0.478	0.220	0.168
Oldenburg	0.056	0.094	0.261	0.448	0.162	0.142
Rheinprovinz	0.083	0.145	0.286	0.500	0.212	0.145
Schleswig-Holstein	0.115	0.188	0.294	0.491	0.209	0.177
Westfalen incl. Lippe	0.069	0.128	0.262	0.472	0.175	0.118
Württemberg	0.192	0.239	0.361	0.503	0.310	0.251
<i>East German areas</i>	0.202	0.321	0.338	0.506	0.282	0.252
<i>West German areas</i>	0.118	0.183	0.307	0.489	0.239	0.187

Notes: The table shows only information for historical areas that map into current West and East German states.

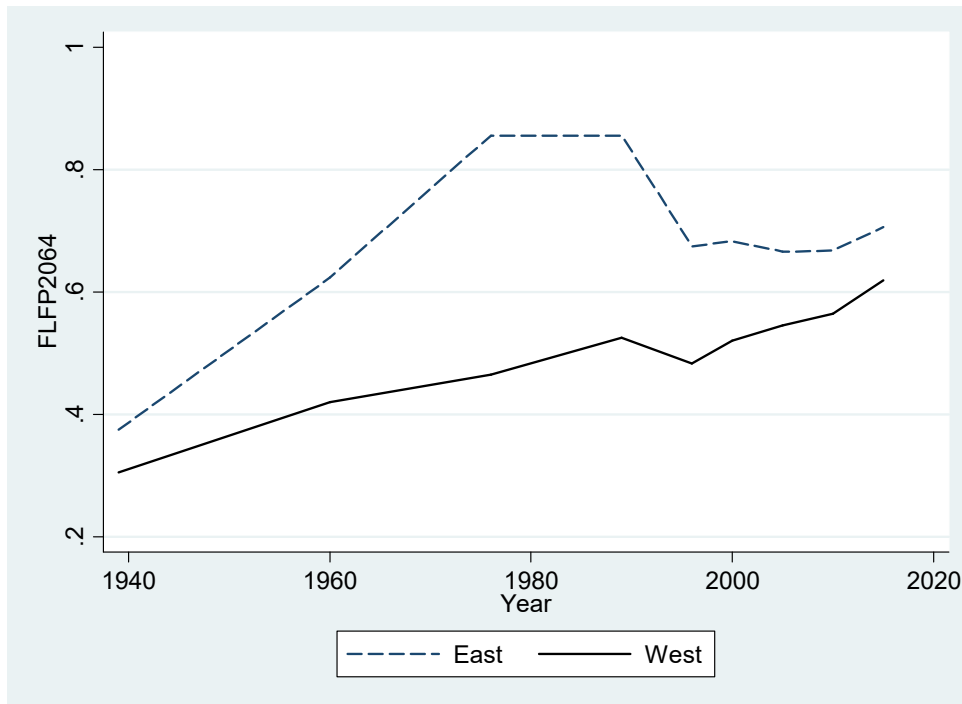
Table 13: Disagreement with statements regarding working women:
ALLBUS survey

	I	II	III
<i>Dep Var. No of question</i>	1)	2)	3)
<i>Panel A</i>			
Pre-separation FLFP	1.331*** (0.426)	1.344*** (0.438)	1.453*** (0.434)
Controls	Y	Y	Y
Survey Year Dummies	Y	Y	Y
Planning Region FE	Y	Y	Y
N	10,738	10,590	10,640
<i>Panel B</i>			
Pre-separation SWLF	1.987*** (0.712)	2.319*** (0.733)	2.510*** (0.717)
Controls	Y	Y	Y
Survey Year Dummies	Y	Y	Y
Planning Region FE	Y	Y	Y
N	10,738	10,590	10,640

Notes: The table shows ordered log-odds (logit) regression coefficients. Robust standard errors in parentheses/ *** p<0.01, ** p<0.05, * p<0.1. Survey year dummies and planning region FE are not reported for brevity. The sample is restricted to respondents aged between 18 and 65 years. It was not checked for German nationality due to data constraints. This should play a minor role since the overall share of respondents without German citizenship is only about 3.5% in the ALLBUS sample. The values for the Pseudo-R² vary between 5 and 10 percent in the models. The FLFP and SWLF measures refer to the year 1925 due to constraints of data access. They follow the definition as applied in the analyses in section 4.2-4.4.

Figures

Figure 1: Female labour force participation (FLFP) in East and West Germany (1939-2015)²⁷



²⁷ Apart from the data as of 1939, 1996, 2000, 2005, 2010 and 2015, the graph contains information from the period of German separation namely 1960, 1976, and 1989. The respective years are chosen to keep data as consistent as possible. The data on employment for West Germany for 1976 and 1989 come from the Establishment History Panel (EHP) which was also partially considered for 1996 (see section 3.2) and refers to employees who pay Social Insurance contributions. West German separation data on this group of employees as of 1960 are obtained from the Statistical Yearbooks of the FRG. Statistical Yearbooks of the GDR were used to obtain separation time employment data for East Germany. The Yearbooks for FRG and GDR were also the source for the respective population figures (20-64 y.o.) and were accessed via the digital journal archive <https://www.digizeitschriften.de/>.

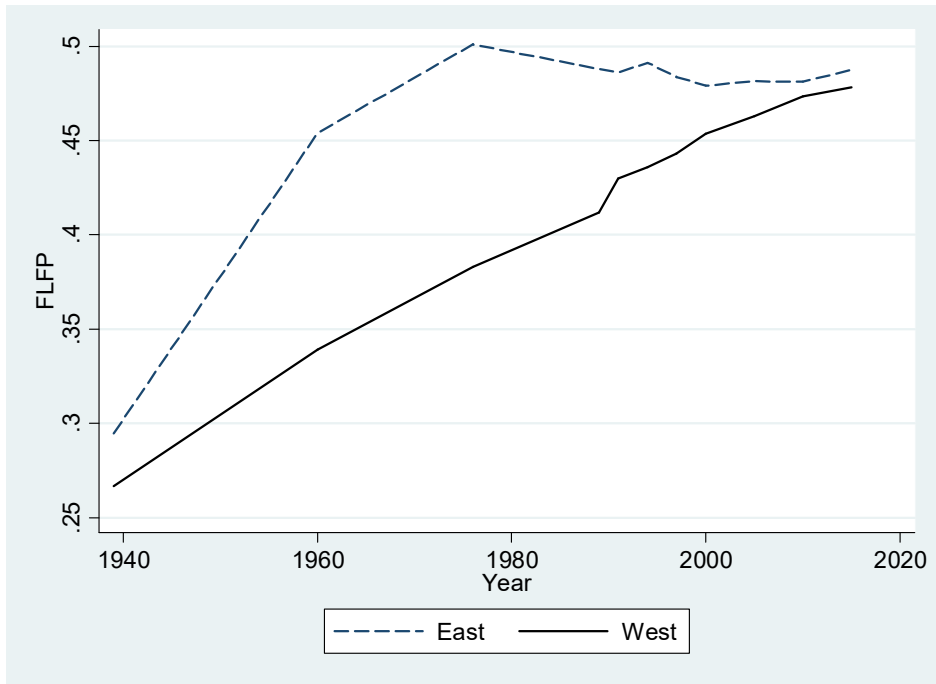


Figure 2: Share of women in labour force (SWLF) in East and West Germany (1939-2015)

Appendix

Table A1a: Summary Statistics of main variables ^a

	Mean	Median	S.D.	Min	Max
<i>FLFP</i>					
FLFP 1925 ^b	0.300	0.293	0.088	0.105	0.598
FLFP 1939 ^b	0.305	0.300	0.084	0.133	0.570
FLFP 1939 ^c	0.300	0.295	0.084	0.129	0.566
FLFP 1996	0.528	0.509	0.085	0.315	0.746
FLFP 2000	0.553	0.533	0.071	0.419	0.721
FLFP 2005	0.569	0.555	0.057	0.452	0.716
FLFP 2010	0.586	0.577	0.050	0.441	0.710
FLFP 2015	0.637	0.632	0.045	0.488	0.750
<i>Pre-separation regional conditions</i>					
Population Density 1939	5.11	4.799	1.053	3.502	8.12
Employment share in manufacturing 1939	0.515	0.512	0.128	0.203	0.817
Employment share in mining 1939	0.017	0.002	0.047	0	0.418
Average farm size 1939	0.058	0.053	0.046	0.004	0.57
Population share of Protestants 1939	0.563	0.636	0.359	0.005	0.989
<i>Post-unification regional conditions</i>					
Population Density	5.559	5.245	1.053	3.598	8.434
Employment share in manufacturing	0.249	0.237	0.103	0.021	0.682
Employment share in mining	0.005	0.002	0.013	0	0.162
Average farm size	0.641	0.352	0.707	0.067	3.497
Population share of Protestants	0.296	0.258	0.167	0.04	0.716

Notes:

a) FLFP: Female labour force participation; Berlin is excluded since only parts of the city came under socialist rule. The Saarland is excluded because there are no data available for the year 1925.

b) Public servants are included in this FLFP measure. In the data for 1925 they cannot be excluded. They are not included in the post-unification FLFP measures in all models because there is no official information on the number of public servants across regions.

c) This measure excludes public servants in 1939. See notes "b"

Table A1b: Definition of main variables and data sources

<i>Variable</i>	<i>Definition</i>	<i>Source</i>
FLFP	Number of female dependent employees over the female population aged between 20 and 64 years. ^{a b}	Pre-separation data: Occupation and Population Census Vol. 401; 403-405; 552; 557 (Statistik des Deutschen Reichs, 1927; 1941; 1943)/ Post-unification data: Federal Employment Agency; GENESIS database of Federal German Statistical Office.
SWLF	Number of female dependent employees over total number of employees ^b	Pre-separation data: Population Census Vol. 401; 552 (Statistik des Deutschen Reichs, 1927; 1941)/ Post-unification data: GENESIS database of Federal German Statistical Office.
Population Density	Number of people per skm ²	Pre-separation data: Population Census Vol. 401; 552 (Statistik des Deutschen Reichs, 1927; 1941)/ Post-unification data: GENESIS database of Federal German Statistical Office.
Employment share in manufacturing	Number of employees in this industry over all employees	Pre-separation data: Occupation and Population Census Vol. 403-405; 557 (Statistik des Deutschen Reichs, 1927; 1943)/ Post-unification data: Federal Employment Agency (Establishment History Panel, Schmucker et al., 2016) and GENESIS database of the Federal German Statistical Office.
Employment share in mining		
Average farm size	Number of farms over total size of farmland (in hectare)	Pre-separation data: Census of agricultural holdings as of 1907 (Statistik des Deutschen Reichs, 1909/12, Vol. 209/12)/ Post-unification data: Census of agricultural land holdings as of 2000, 2005, and 2010 from GENESIS database of Federal German Statistical Office. For the year 1996, data from 2000 is imputed. For the year 2015, data from 2010 is imputed because there are no statistics for these years.
Population share of Protestants	Number of Protestant adherents over total population	Pre-separation data: Population Census Vol. 401 (Statistik des Deutschen Reichs, 1927)/ Post-unification data: census (2011) from GENESIS database of Federal German Statistical Office. The census data are employed for all post-unification years.

a) There is no data on the population aged 25-64 y.o. for 1925 (only for population aged 15-24 y.o.). The regional population share for 25-64 y.o. as of 1939 is multiplied with the total population in 1925 to obtain a number for the population share aged 25-64 y.o. in 1925.

Table A3: FLFP across East and West German regions:
Extended number of post-unification years ^a

	I	II
East (Dummy, Yes=1)	Y	Y
Post Treat Year _t (Dummies, Yes=1)	Y	Y
East X Year ₁₉₉₆	0.117*** (0.0142)	0.117*** (0.0159)
East X Year ₂₀₀₀	0.0937*** (0.0138)	0.0937*** (0.0157)
East X Year ₂₀₀₅	0.0503*** (0.0138)	0.0503*** (0.0159)
East X Year ₂₀₀₈	0.0451*** (0.0138)	0.0451*** (0.0158)
East X Year ₂₀₁₀	0.0322** (0.0137)	0.0322** (0.0158)
East X Year ₂₀₁₁	0.0242* (0.0137)	0.0242 (0.0158)
East X Year ₂₀₁₂	0.0218 (0.0136)	0.0218 (0.0158)
East X Year ₂₀₁₃	0.0201 (0.0136)	0.0201 (0.0157)
East X Year ₂₀₁₄	0.0188 (0.0136)	0.0188 (0.0157)
East X Year ₂₀₁₅	0.0159 (0.0136)	0.0159 (0.0157)
Controls Year ₁₉₃₉	N	N
Controls Year ₁₉₃₉ X Post-Treat Year _t	N	N
Planning Region FE	Y	N
N	4,070	4,070
R ²	0.914	0.861

a see notes "a" Table 2

Table A4: FLFP across East and West German regions:
Separate consideration of post-unification years ^a

	I	II	III	IV	V
	1996	2000	2005	2010	2015
East (Dummy, Yes=1)	Y	Y	Y	Y	Y
Post Treat Year _t (Dummies, Yes=1)	Y	Y	Y	Y	Y
Planning Region FE	Y	Y	Y	Y	Y
<i>Panel A: Controls₁₉₃₉ X Post Treat Year_t (Dummies, Yes=1)</i>					
East X Post Treat Year _t	0.107*** (0.0111)	0.0857*** (0.0106)	0.0455*** (0.0106)	0.0272*** (0.0104)	0.0129 (0.00973)
R ²	0.873	0.896	0.897	0.908	0.931
<i>Panel B: Controls</i>					
East X Post Treat Year _t	0.0961*** (0.0235)	0.0723*** (0.0190)	0.0186 (0.0184)	0.0123 (0.0197)	-0.00530 (0.0193)
Controls	Y	Y	Y	Y	Y
R ²	0.886	0.920	0.919	0.923	0.943

a see notes "a" of Table 2. The models include the year 1939 and the respective post-unification year (N=740). Models without control variables would yield the same result as in the models that jointly include post-unification years

Table A5: FLFP (15-64 & 15-60 y.o.) across East and West German regions ^a

	I	II	III ^b	IV ^b
East (Dummy, Yes=1)	Y	Y	Y	Y
Post Treat Year _t (Dummies, Yes=1)	Y	Y	Y	Y
East X Year ₁₉₂₅	-	-	0.00544 (0.0116)	0.0111 (0.0134)
East X Year ₁₉₉₆	0.144*** (0.0158)	0.115*** (0.0174)	0.111*** (0.0134)	0.0920*** (0.0183)
East X Year ₂₀₀₀	0.120*** (0.0153)	0.116*** (0.0154)	0.0835*** (0.0129)	0.0832*** (0.0161)
East X Year ₂₀₀₅	0.0770*** (0.0150)	0.0679*** (0.0140)	0.0412*** (0.0125)	0.0378*** (0.0135)
East X Year ₂₀₁₀	0.0377** (0.0160)	0.0659*** (0.0168)	0.0200 (0.0134)	0.0526*** (0.0161)
East X Year ₂₀₁₅	0.0129 (0.0159)	0.0389** (0.0161)	0.00499 (0.0131)	0.0289* (0.0160)
Controls _t	Y	Y	Y	Y
Controls _t X Post-Treat Year _t	N	Y	N	Y
Controls _t X Year ₁₉₂₅	-	-	N	Y
Planning Region FE	Y	Y	Y	Y
N	2,220	2,220	2,590	2,590
R ²	0.945	0.955	0.941	0.952

a see notes "a" of Table 2. The models include an additional control for the population share of people aged between 15 and 20 years old.

b see notes "b" of Table 2

Table A6: FLFP across East and West German regions: Accounting for ethnic composition of female workforce population and regional (state-wide) differences in the employment share of public servants

	I	II	III ^b	IV ^b	V	VI	VII ^b	VIII ^b
East (Dummy, Yes=1)	Y	Y	Y	Y	Y	Y	Y	Y
Post Treat Year _t (Dummies, Yes=1)	Y	Y	Y	Y	Y	Y	Y	Y
Year ₁₉₂₅ (Dummy, Yes=1)	-	-	Y	Y	-	-	Y	Y
East X Year ₁₉₂₅	-	-	0.00944 (0.0162)	0.0153 (0.0155)	-	-	0.0102 (0.0128)	0.0143 (0.0150)
East X Year ₂₀₀₀	0.0718*** (0.0130)	0.0712*** (0.0118)	0.0718*** (0.0121)	0.0712*** (0.0113)	0.0697*** (0.0170)	0.0770*** (0.0175)	0.0599*** (0.0144)	0.0756*** (0.0182)
East X Year ₂₀₀₅	0.0313** (0.0132)	0.0335*** (0.0118)	0.0313** (0.0123)	0.0335*** (0.0113)	0.0262 (0.0171)	0.0281 (0.0174)	0.0158 (0.0144)	0.0259 (0.0176)
East X Year ₂₀₁₀	0.00884 (0.0132)	0.0120 (0.0119)	0.00884 (0.0120)	0.0120 (0.0111)	-0.00534 (0.0182)	0.0189 (0.0182)	-0.0176 (0.0153)	0.0162 (0.0186)
East X Year ₂₀₁₅	-0.00239 (0.0130)	0.00330 (0.0118)	-0.00239 (0.0118)	0.00330 (0.0111)	-0.0181 (0.0180)	0.00363 (0.0180)	-0.0305** (0.0151)	0.000735 (0.0186)
Controls Year ₁₉₃₉	N	Y	N	Y	-	-	-	-
Controls Year ₁₉₃₉ X Post-Treat Year _t	N	Y	N	Y	-	-	-	-
Controls Year ₁₉₃₉ X Year ₁₉₂₅	-	-	Y	Y	-	-	-	-
Controls _t	-	-	-	-	Y	Y	Y	Y
Controls _t X Post-Treat Year _t	-	-	-	-	N	Y	N	Y
Controls _t X Year ₁₉₂₅	-	-	-	-	-	-	N	Y
Planning Region FE	Y	Y	Y	Y	Y	Y	Y	Y
N	1,850	1,850	2,220	2,220	1,850	1,850	2,220	2,220
R ²	0.934	0.953	0.931	0.953	0.944	0.952	0.945	0.952

a see notes "a,b" of Table 2

c see notes "c" of Table 5

Table A7: FLFP across rural and highly industrialized East and West German regions: Accounting for current regional conditions ^a

	I	II	III ^b	IV ^b	V	VI	VII ^b	VIII ^b
	Industrialization < p25				Industrialization > p75			
East (Dummy, Yes=1)	Y	Y	Y	Y	Y	Y	Y	Y
Post Treat Year (Dummies, Yes=1)	Y	Y	Y	Y	Y	Y	Y	Y
Year ₁₉₂₅ (Dummy, Yes=1)	-	-	Y	Y	-	-	Y	Y
East X Year ₁₉₂₅	-	-	-0.00653	-0.00636	-	-	0.0113	0.00789
			(0.0169)	(0.0183)			(0.0356)	(0.0287)
East X Year ₁₉₉₆	0.168***	0.138***	0.169***	0.137***	0.0885***	0.0793***	0.0894***	0.0798***
	(0.0157)	(0.0183)	(0.0138)	(0.0175)	(0.0251)	(0.0219)	(0.0226)	(0.0200)
East X Year ₂₀₀₀	0.135***	0.113***	0.136***	0.113***	0.0703***	0.0587***	0.0711***	0.0592***
	(0.0141)	(0.0145)	(0.0130)	(0.0136)	(0.0242)	(0.0200)	(0.0216)	(0.0185)
East X Year ₂₀₀₅	0.0913***	0.0702***	0.0917***	0.0700***	0.0270	0.0174	0.0279	0.0179
	(0.0153)	(0.0162)	(0.0145)	(0.0157)	(0.0240)	(0.0197)	(0.0210)	(0.0178)
East X Year ₂₀₁₀	0.0653***	0.0375**	0.0657***	0.0373***	0.0133	0.00419	0.0142	0.00467
	(0.0149)	(0.0148)	(0.0142)	(0.0140)	(0.0239)	(0.0199)	(0.0208)	(0.0181)
East X Year ₂₀₁₅	0.0348**	0.00139	0.0352**	0.00124	0.00579	-0.000131	0.00666	0.000352
	(0.0149)	(0.0147)	(0.0142)	(0.0138)	(0.0239)	(0.0202)	(0.0208)	(0.0182)
Controls Year ₁₉₃₉	N	Y	N	Y	N	Y	N	Y
Controls Year ₁₉₃₉ X Post-Treat Year _t	N	Y	N	Y	N	Y	N	Y
Controls Year ₁₉₃₉ X Year ₁₉₂₅	-	-	Y	Y	-	-	Y	Y
Planning Region FE	Y	Y	Y	Y	Y	Y	Y	Y
Conley-Taber inference East X Year ₁₉₂₅	-	-	n.s.	n.s.	-	-	n.s.	n.s.
Conley-Taber inference East X Year ₂₀₁₅	***	n.s.	***	n.s.	n.s.	n.s.	n.s.	n.s.
N	552	552	644	644	558	558	651	651
R ²	0.929	0.954	0.929	0.952	0.899	0.938	0.877	0.935

a see notes "a, b" of Table 2. See also notes of Table 9.

Table A8: FLFP across moderately industrialized East and West German regions: Accounting for current regional conditions ^a

	I	II	III ^b	IV ^b	V	VI	VII ^b	VIII ^b
	p25<Industrialization<p50				p50<Industrialization<p75			
East (Dummy, Yes=1)	Y	Y	Y	Y	Y	Y	Y	Y
Post Treat Year _t (Dummies, Yes=1)	Y	Y	Y	Y	Y	Y	Y	Y
Year ₁₉₂₅ (Dummy, Yes=1)	-	-	Y	Y	-	-	Y	Y
East X Year ₁₉₂₅	-	-	0.0294 (0.0204)	0.0124 (0.0219)	-	-	0.0102 (0.0225)	0.0217 (0.0231)
East X Year ₁₉₉₆	0.143*** (0.0163)	0.149*** (0.0199)	0.144*** (0.0169)	0.149*** (0.0196)	0.106*** (0.0188)	0.121*** (0.0199)	0.106*** (0.0180)	0.121*** (0.0195)
East X Year ₂₀₀₀	0.120*** (0.0152)	0.123*** (0.0183)	0.121*** (0.0160)	0.123*** (0.0183)	0.0802*** (0.0171)	0.0988*** (0.0183)	0.0805*** (0.0162)	0.0988*** (0.0178)
East X Year ₂₀₀₅	0.0787*** (0.0154)	0.0849*** (0.0181)	0.0797*** (0.0159)	0.0853*** (0.0177)	0.0365** (0.0172)	0.0609*** (0.0183)	0.0368** (0.0163)	0.0609*** (0.0179)
East X Year ₂₀₁₀	0.0556*** (0.0160)	0.0581*** (0.0184)	0.0566*** (0.0160)	0.0585*** (0.0178)	0.0247 (0.0169)	0.0553*** (0.0185)	0.0250 (0.0152)	0.0554*** (0.0178)
East X Year ₂₀₁₅	0.0363** (0.0157)	0.0377** (0.0179)	0.0372** (0.0157)	0.0381** (0.0175)	0.0138 (0.0170)	0.0512*** (0.0183)	0.0141 (0.0153)	0.0513*** (0.0175)
Controls Year ₁₉₃₉	N	Y	N	Y	N	Y	N	Y
Controls Year ₁₉₃₉ X Post-Treat Year _t	N	Y	N	Y	N	Y	N	Y
Controls Year ₁₉₃₉ X Year ₁₉₂₅	-	-	Y	Y	-	-	Y	Y
Planning Region FE	Y	Y	Y	Y	Y	Y	Y	Y
Conley-Taber inference East X Year ₁₉₂₅	-	-	n.s.	n.s.	-	-	n.s.	n.s.
Conley-Taber inference East X Year ₂₀₁₅	***	***	***	***	*	***	n.s.	***
N	558	558	651	651	552	552	644	644
R ²	0.947	0.965	0.944	0.964	0.934	0.956	0.927	0.957

a, b see notes "a, b" of Table 2. See also notes of Table 9.