DISCUSSION PAPER SERIES

Women Make Houses, Women Make Homes

Mevlude Akbulut-Yuksel
Melanie Khamis
Mutlu Yuksel

DISCUSSION PAPER SERIES

Women Make Houses, Women Make Homes

Mevlude Akbulut-Yuksel
Dalhousie University and IZA

Melanie Khamis
Wesleyan University and IZA

Mutlu Yuksel
Dalhousie University and IZA

JUNE 2017

ABSTRACT

Women Make Houses, Women Make Homes*

This paper examines the persistent effects of historical labor market institutions and policies on women's long-term labor market outcomes. We quantify these enduring effects by exploring quasi-experimental variation in Germany's post-World War II mandatory reconstruction policy, which compelled women to work in the rubble removal and reconstruction process. Using difference-in-differences and instrumental variable approaches, we find that mandatory employment during the postwar era generated persistent adverse effects on women's long-term labor market outcomes. An increase in marriage and fertility rates in the postwar era and a physical and mental exhaustion associated with manual labor are some of the direct and indirect channels potentially explaining our results.

Corresponding author:
Melanie Khamis
Department of Economics
Wesleyan University
238 Church Street
Middletown, CT 06459
USA

E-mail: mkhamis@wesleyan.edu

I. Introduction

The end of World War II heralded in an unprecedented sustained increase in women's, especially married women's, involvement in the labor market across the globe (Goldin 2006; Fernández 2013). In the United States, for example, women's participation in the workforce increased from 34 percent in 1950 to 52 percent in 1980 (Acemoglu, Autor and Lyle 2004). While most Western industrialized countries followed this pattern, German women's labor force participation continued to remain at or near 37 percent through the end of the 1970s. Even today, only about 14 percent of German mothers with one child resume full-time work after maternity leave while the corresponding figure for mothers with two kids is 6 percent (New York Times, June 2011). To date, the existing empirical evidence offers little guidance in explaining the origins of the weak labor market attachment of German women. We assert that Germany's historical labor market institutions and policies are partly responsible for this phenomenon. This paper, therefore, sets out to investigate the role that these institutions and policies played in deterring German women from entering the workforce in the long-term.

Specifically, we examine the persistent labor market effects of a post-WWII mandatory reconstruction policy, which required German women to work on the rubble removal and reconstruction process. In 1946, the Allied Control Council, the military body in charge of governing postwar Germany, responded to widespread war damage and significant labor shortages by instituting Command Nr. 3 and Law Nr. 32. This law compelled women between the ages of 15 and 50 to register with a labor office and to assume the burden of removing rubble and reconstructing the country and participate in the labor market more widely.[1] These women were called "rubble women" since the removal of the debris, and the task of reconstruction had largely fallen to them.[2] In former West Germany,

---

[1] Individuals who failed to register would lose the right to receive food ration cards which were the only official source of nourishment at the time, and employers who did not comply risked imprisonment, fines and criminal prosecution (Meiners 2011).

[2] In our paper, we employ this term for the cohort of women that was affected by these specific labor

this mandatory employment law remained in place until 1955 and made the reconstruction efforts centrally organized and universally applicable across different occupation zones.

We exploit two main sources of variation to causally identify the enduring labor market effects of the postwar mandatory employment law. The first source of variation is the different levels of postwar female mobilization across German regions. We quantify the extent of female labor force mobilization in any given region by the degree of wartime destruction it experienced. This is motivated by the fact the postwar mandatory employment law compelled women from all social classes who resided in heavily destroyed regions to work for a longer period than did those women in areas with less destruction (Allied Control Authority Germany 1946). Our second source of variation is in the age range of women affected by the postwar mandatory employment law: only women aged 15–50 were mandated to work on the reconstruction and more widely in the labor market. In our analysis, we, therefore, use a generalized difference-in-differences approach, where the "treatment" variable consists of an interaction between the intensity of regional destruction and a dummy that corresponds to women being of working age during the postwar reconstruction period and controls for region fixed effects and birth year fixed effects. In our research design, region fixed effects control for permanent differences across regions and account for the possible existence of national and state-level postwar policies and programs. The use of birth year fixed effects enables us to control for overall changes that women who were born in the same year experienced, including their participation in the labor force over the course of their lives. Further, to test the robustness of our results, we use the length of exposure as an alternative measure and regions' distance to London, where the majority of the Allied Air Forces' (hereafter AAF) airfields were located as an instrument for regional wartime destruction and find statistically similar results.

policies.

3

Using both the difference-in-differences and instrumental variable approaches, we find that German women's participation in the rubble removal and reconstruction process reduced their overall labor force participation, full-time employment and weekly hours worked in the long run. However, we also find that because of postwar mandatory employment, women's presence in medium-skill and female-dominated occupations increased. Our results remain economically and statistically significant after we account for potential confounding factors that may have affected the rubble women and the control cohorts differently. These include war-induced shifts in the gender ratio, differential changes in postwar era industry composition and female labor in each industry, changes in household wealth during and after WWII, prewar regional characteristics, state-level postwar policies and shifts in the composition of the population caused by an influx of refugees or by internal and international migration. Similar to Dell (2010), our results, therefore, provide micro-level evidence on the persistence of institutions suggesting that the current labor market behavior can be traced back to historical labor market institutions and policies, even if the institutions themselves have disappeared. Thus, our findings complement the well-documented findings in the growth literature, which indicate that institutions generate persistent economic effects (Acemoglu, Johnson and Robinson 2001; 2002).

We then provide suggestive evidence on the potential direct and indirect channels through which postwar mandatory employment may have affected the rubble women's long-term labor market outcomes. We find that because the rubble women endured the physical and mental deterioration associated with performing difficult, labor intensive manual work, in addition to tending to their ordinary household chores, their work on the postwar reconstruction effort worsened their long-term health and may have led to weakened labor market attachment later on. Other potential indirect mechanisms that might partly explain our results are the increasing marriage and fertility rates in the postwar era and the restoration of traditional gender roles. Our analysis shows that rubble women in regions with

4

higher postwar reconstruction were more likely to be currently married or ever married in the long run, suggesting that the affected cohorts of women married and returned to home production after the postwar mandatory employment law was repealed. Additionally, we also find suggestive evidence of increasing postwar fertility rates in regions with higher postwar reconstruction rates both using the Microcensus and the regional historical data. These high marriage and fertility rates might have reduced the female labor force participation in heavily destroyed regions due to social norms as well as time demands associated with child bearing and raising.

This paper makes several contributions. First, our study contributes to the literature that explores the effects of WWII male mobilization on women's employment and wages. Acemoglu, Autor, and Lyle (2004) find that the mobilization of American men during WWII increased female labor force participation in 1950, and this lowered both female and male wages. Goldin (1991), on the other hand, finds that WWII modestly influenced women's employment in 1950; given that the majority of women who had entered the labor market during the war years had exited by 1950. Similarly, Goldin and Olivetti (2013) document that WWII-induced labor force mobilization only had a persistent positive effect on the labor supply of educated white American women in 1960s who were married in the war years and had no children.

These studies focus on the relatively short-term effects of WWII mobilization on women's employment and wages; however, the longer-term effects of postwar employment and especially postwar mandatory employment, which is the focus of this paper, may differ and persist well beyond the immediate postwar period. Moreover, in contrast to the US, the mobilization of women mandated by law in the postwar reconstruction period in Germany; therefore, the long-term labor market experiences of so-called rubble women could differ from the experiences of the American women. Our study also adds to the previous studies by exploring the potential direct and indirect channels through which postwar employment

5

may have affected women's long-term labor market outcomes. More specifically, we provide suggestive evidence on the role of postwar marriage, fertility, and long-term health of rubble women in explaining their weak labor market attachments later on. Finally, the previous studies primarily rely on difference-in-differences analysis. In our study, we further supplement a difference-in-differences analysis with an instrumental-variable strategy to test the robustness of our results.

This paper also sheds some light on the potential long-term impacts of work-contingent income support programs on female labor market outcomes. Over the past two decades, an increasing number of developed countries have been adopting large-scale work-contingent income support programs to increase the labor force participation among low-income households. Due to data limitations, however, there are only a handful of studies that provide causal evidence on the long-term impacts of these programs on women's labor market outcomes and welfare dependency (Card and Hyslop 2005). Our study contributes to the debate on the long-term effectiveness of work-contingent income support programs by providing a research design that evaluates the long-term labor market effects of a food-contingent mandatory employment law in postwar Germany.

This study is also related to a growing literature on the legacies of armed conflicts.[3] We add to this literature by quantifying the consequences of postwar mandatory employment on women's long-term labor market outcomes, including exploring how it influences their full-time and part-time employment, hours worked and occupational choices. Other papers in this literature study recent conflicts, where long-run outcomes are yet to be realized. Our work stands in contrast to these studies because we are analyzing the effects of the post-WWII era, and this allows us to identify longer-run outcomes.

The remainder of our paper is structured as follows. In Section 2, we briefly categorize the extent of WWII destruction and describe postwar mandatory employment law in Germany. In Section 3, we discuss our identification strategy.

---

[3]For detailed information on armed conflicts, see Blattman and Miguel (2010).

Section 4 describes our data. In Section 5, we present our main results, extensions, and checks for robustness. Section 6 concludes.

II. Background

During WWII, German cities experienced widespread bombardment by the AAF, and the raids left more than 14 million people homeless (Heineman 1996). Approximately 3.6 million civilians and 3.3 million soldiers died, and 11 million soldiers were captured as prisoners of war (Meiners 2011).[4] During area bombings, the AAF went on to attack almost every major and minor German city, though the number of bombs dropped and the intensity of destruction varied substantially across cities. (Appendix Figure 1 shows wartime destruction experienced in each region. The darker the region, the more wartime destruction it experienced.) The targeted cities were selected not only because they are especially important for the war effort, but also for their visibility from the air, depending, for example, on weather conditions or the prominence of prominent landmarks, such as cathedrals (Friedrich 2002). Furthermore, areas in northern and western parts of Germany were most easily reached from airfields in England and therefore suffered the greatest levels of destruction.[5] In the estimation strategy we describe below, we assume that the wartime destruction that a given region experienced is plausibly exogenous after we account for time-invariant regional characteristics.

Unlike American women, whose employment soared during WWII, German women did not enter the labor force in large numbers until after the end of the war. However, because much of Germany's male population was lost in the war, in 1946 the Allied Control Council announced Command Nr. 3 and later Law Nr. 32, calling for women to assume the burden of the reconstruction process and the removal of rubble. This mandatory employment law, in effect in West Germany until 1955, centrally organized reconstruction efforts and ensured that laws were

---

[4]The prisoners of war that were taken captive by the Allied Forces were released by 1948. Additionally, by the early 1950s, most prisoners of war in Soviet camps had also been released (Meiners 2011, p. 124).
[5]For detailed information on the AAF's WWII bombing campaign, see Akbulut-Yuksel (2014).

7

universally applied across different occupation zones. The law required all women between the ages of 15 and 50 and healthy men between the ages of 14 and 65 to register with labor offices for work allocation. If a person failed to register and did not obtain a certificate of registration, the penalty was to lose the right to receive food ration cards, the only official and consistent source of nourishment at the time. Work placements were made through the labor offices, which had the power to compel workers to participate in the reconstruction and rubble removal program. Employers who did not comply with the law faced imprisonment and criminal prosecution (Meiners 2011). Arnold (1999) provides a detailed account of rubble women and the reconstruction period. She reports that the burden of rubble removal and reconstruction fell primarily on women and that postwar mandatory employment continued until 1955.[6]

The scholarly debate about the role of the postwar mandatory employment law in shaping German women's labor market prospects persists to the present day (New York Times, June 2011). Some historians argue that the surge in female employment was transitory. They assert that women exited the labor force as men returned, restoring traditional gender roles (Heineman 1996; Donath 2008; Meiners 2011). These scholars further contend that because they were mentally and physically exhausted by the manual labor they had to perform, many women felt discouraged about continuing to work after the mandatory employment law was repealed (Meiners 2011). On the other hand, some scholars argue that women's participation in postwar reconstruction altered societal perceptions and preferences and led to a permanent transformation in women's labor market involvement (Unruh 1987; Jenk 1988; Hoehn 1997; Meiners 2011). Given these opposing

---

[6]The documentation of rubble removal was quite detailed for Berlin, including its progress and the people involved at various stages (Arnold 1999). Arnold (1999, p.123-124) argues that the burden of rubble removal was progressively more and more to the women of Berlin, while the few men who could work would have been selected for the rubble manager or construction manager positions. The percentage of female employed workers in the Berlin rubble removal business is estimated by Arnold (1999) to have been 70 percent for 1945-46. In 1947, about 67 percent of employed rubble workers were females. In 1948, about 47 percent of rubble workers were women (Arnold 1999, p. 48). The process of rubble removal in Berlin continued well into the 1950s. Arnold (1999, p.50) estimates that in 1953, 20 percent of the employed workers were females and for 1954 about 17 percent.

arguments, an empirical investigation, as our paper does, is required to assess the long-term effects of the postwar mandatory employment law on women's labor market outcomes.

III.   Identification Strategy

We use a generalized difference-in-differences strategy to estimate the effects of the postwar mandatory employment law on German women's long-term labor market outcomes. In this setting, the "treatment" variable refers to an interaction between the regional intensity of wartime destruction and a dummy that indicates that an individual was of working-age during the years in which the postwar mandatory employment law was in effect. We use the following baseline region and birth year fixed effects equation to estimate β:

$$(1) \quad Y_{irt} = \alpha + \beta(Destruction_r * RubbleWomen_{it}) + \delta_r + \gamma_t + \pi' \mathbf{X}_{irt} + \epsilon_{irt}$$

where Y_{irt} is the labor market outcome for female i, in region r, born in year t. $Destruction_r$ is the measure of war damage in the region r, which determined the mobilization of the women in that region during the postwar reconstruction period. $RubbleWomen_{it}$ is a dummy variable that takes a value of 1 if a female i was born between 1920 and 1934; the value is otherwise zero. δ_r refers to region-specific fixed effects, controlling for the permanent region-specific characteristics that may affect female labor market outcomes. γ_t corresponds to birth year fixed effects, and controls for national events that women born in the same year may have experienced, including differences in female labor force participation over the course of their lives. $\mathbf{X}_{irt}$ is a vector of individual and household characteristics, including education, marital status and number of children, spouse's education and wage and a rural dummy. ϵ_{irt} is a random, idiosyncratic error term. We cluster the standard errors by region to account for correlations in outcomes

9

between women residing in the same region over time.[7] β estimates the average treatment effect on treated. Treatment intensity is derived by women's years of birth, the years in which the policy was in place and the amount of rubble that needed to be removed from a particular area.

As mentioned in Section 2, the postwar mandatory employment law compelled women between the ages of 15 and 50 to work on postwar reconstruction. We use the 1978 Microcensus in our analysis, and by the time of the census, some of these affected women were past retirement age and therefore out of the labor force. We, therefore, choose to restrict our analysis of the affected cohorts to women who were between the ages of 44 and 58 in 1978, who were born between 1920 and 1934.[8] We exclude women who were between 16 and 20 years of age in 1955, when the postwar mandatory employment law was abolished, because they were only partially exposed to the law.[9] Furthermore, women born in the 1940s and 1950s were not directly affected by the postwar mandatory employment law, and thus women born between 1940 and 1954 constitute our control group. Women in our control group are those who were between 24 and 38 years of age in 1978 and therefore likely to be in the workforce because they would have mainly completed their education.

The validity of our analysis depends upon the parallel trend assumption which suggests that in the absence of postwar mandatory employment law, the difference between the labor market outcomes of the affected cohorts and the later birth cohorts would have been similar across regions with varying intensity of postwar

[7]Our results remain statistically similar when the standard errors are clustered by region and women's birth year.

[8]In our robustness check, we also account for the possibility of selective mortality and find no evidence for selective mortality. We report our results in Appendix Table 1. In addition, we estimate in the last two columns of Appendix Table 1 whether the retirement decision is affected by the regional postwar mobilization rates. We find that retirement decision is unrelated to the regional postwar mobilization rates.

[9]We present our results for the entire sample in Appendix Table 3, and this analysis includes 1935–1939 cohorts that we added to the affected group. Our point estimates tend to be smaller, which is not surprising, given that the affected group includes some cohorts that may have received partial treatment. Moreover, we include 1935–1939 cohorts to the affected group in Appendix Table 5 when we replace the rubble women dummy with the length of exposure to postwar employment law. Results remain quantitatively and statistically similar in this specification as well.

mobilization. This implies that the effects of postwar mobilization should be zero or negligible for the cohorts that entered the labor market in the late 1950s, after the reconstruction was completed (i.e., those born between 1940 and 1955).[10] To provide evidence on the cohort-specific effects of postwar mandatory employment law and formally test the parallel trend assumption, the identification strategy presented in Equation (1) can be generalized as follows:

$$(2) \quad Y_{irt} = \alpha + \sum_{c=1}^{10} (Destruction_r * Cohort_{ic})\beta_{1c} + \delta_r + \gamma_t + \pi'\mathbf{X}_{irt} + \epsilon_{irt}$$

where Y_{irt} is the labor market outcome for female i, in region r, born in year t. $Cohort_{ic}$ is a dummy variable that indicates whether female i was born in cohort c. We group birth cohorts in five-year increments, beginning with individuals born in 1905. We can interpret each coefficient β_{1c} as an estimate of the long-term labor market effects of postwar mobilization on a given cohort relative to the omitted cohort (i.e., women born between 1955 and 1960).

Figure 2 reports the results of our estimation of Equation (2) using OLS, where female labor force participation in 1978 is the outcome of interest. Each point in Figure 2 corresponds to the difference-in-differences estimate of the effect of the postwar mandatory employment law on a given cohort c. Figure 2 illustrates that while postwar mandatory employment substantially reduced the long-term employment probabilities of women born between 1920 and 1934, it had no effect on later cohorts' employment probabilities. The findings we present in Figure 2 therefore clearly document that only those women who were compelled to work in the postwar era were affected by postwar reconstruction policy. Figure 2 also shows that the affected women who were past the retirement age in 1978 (the 1905-1919 cohorts) exhibit no differences in their employment across regions suggesting

---

[10]If cohorts born in 1940–1954 were also affected by the spillover effects of postwar mandatory employment law, our results would be underestimated.

that women indeed complied with the official retirement age cut-off. If these earlier cohorts of women were active in the labor force in 1978, we would expect the mandatory employment law to affect their long-term employment as well. Finally, we find in Figure 2 that the potential intergenerational impacts of postwar employment law on female labor force participation do not vary in a meaningful way across regions with different levels of postwar mobilization rates. Taken together, results presented in Figure 2 support our aforementioned identifying parallel trend assumption and indicate that region-specific cohort trends do not confound our estimation results. Figure 3 explores female full-time employment and Figure 4 shows hours worked, and both display similar cohort-specific effects.

Finally, in addition to estimating Equation (2), we also use an alternative estimation strategy to assess the validity of our parallel trend assumption. We use the region's distance to London where the majority of the AAF's airfields were located as an instrument for regional wartime destruction. More specifically, in line with the difference-in-differences specification, we instrument the interaction of regional wartime destruction and being in the affected cohort with the interaction of region's distance to London and being in the affected cohort. Consistent with the historical sources, Figure 5 indeed shows that regions closer to London experienced more destruction as a result of AAF aerial raids bolstering our confidence in the validity of our instrument. We formally test and discuss whether our instrument also satisfies the exclusion restriction in detail the next section.

IV. Data and Descriptive Statistics

As a measure of postwar female mobilization, we utilize data from a post-WWII survey undertaken by the German Association of Cities (Kaestner 1949), which reported the amount of residential rubble in m^3 per capita accumulated in Germany by the end of WWII. Similar to Acemoglu, Autor, and Lyle (2004) and Goldin and Olivetti (2013) for the United States, there is no direct measure of female mobilization rates or of who was mobilized in each region. These authors

12

employ a proxy - the percentage of eligible males aged 18 - 44 who were mobilized in the women's states of residence or state of birth during WWII - to quantify rates of female labor force mobilization in each state. Similarly, we use the degree of destruction in each region to serve as a proxy for postwar women's employment. We can do so because the historical records indicate that in those regions that experienced greater wartime destruction, the law compelled rubble women to work for a longer period than did those women residing in less affected areas (Allied Control Authority 1946, Arnold 1999); therefore, regional levels of wartime destruction serve as a good proxy for postwar female mobilization rates.

We also utilize data from various years of German Municipality Statistical Yearbooks (1939, 1949, 1951, 1953, and 1963) to examine prewar regional conditions and to account for potential confounding factors that may have affected women's long-run labor market outcomes. We compile city-level data on the postwar female/male ratio and postwar female shares in the manufacturing, construction, service and public sectors, respectively. Additionally, we assemble city-level data on household losses of savings and wealth during WWII and the per capita war relief payments that the German government paid citizens after WWII. We also use the 1939 German Municipalities Statistical Yearbook to compile data on prewar city characteristics, including average income per capita, city area, and population. We obtain our regional level historical dataset by aggregating these city-level variables according to the 1978 German regional boundaries. This aggregation is possible because every city reported in the yearbooks belongs to only one present day region.

We use the confidential version of the 1978 German Microcensus for individual and household characteristics.[11] The 1978 German Microcensus includes one percent of the resident population of former West Germany and is a large, representative sample that contains comprehensive information about all household

---

[11]Research Data Center (RDC) of the Federal Statistical Office of Germany and the Statistical Offices of the Laender, Microcensus 1978, authors' calculations.

members. This Microcensus is the first census to report female education, detailed geographic identifiers and to indicate whether respondents were residing within the borders of former West Germany in 1939. We restrict our sample to German-born women who were living in West Germany in 1939. Our analysis excludes individuals who were students in 1978 so that we capture women who were active in the labor market.[12]

We estimate the long-term labor market effects of mandatory reconstruction policy at the smallest representative geographical units, "ROR" or "region," provided in the Microcensus. These units are called *Raumordnungsregionen (RORs)* and are determined by the Federal Office for Building and Regional Planning (*Bundesamt fuer Bauwesen und Raumordnung, BBR*). In 1978, West Germany had 38 different *Raumordnungsregionen.* (See Appendix Figure 1 for detailed information on RORs.) RORs are "spatial districts", which represent the center of the local labor market and encompass the aggregation of *Landkreise* and *kreisfreie Staedte* (administrative districts, which are analogous to counties in the US.) (Jaeger et al. 2010).[13] We merge the aforementioned aggregated ROR-level historical data with the 1978 Microcensus by women's RORs. This was dictated by the fact that none of the individual-level German datasets provides information for the city of birth or childhood city of residence for the women in the affected cohorts (as detailed in Pischke and von Wachter 2008).

It is well documented, however, that Germany had historically low levels of geographic mobility, about two-to-three percent among native Germans (Rainer and Siedler 2009; Pischke and von Wachter 2008; Hochstadt 1999).[14] This low rate reflects conditions after the end of WWII: families divided by war and evacuation

---

[12]Students represent a very small fraction of the entire sample; therefore our results remain unchanged when they are included in the analysis.

[13]A total number of observation, as well as the number and share of the affected and control cohorts, are very similar within and across regions. Therefore, it is unlikely that our results are driven by the imbalanced number of observations across regions.

[14]Hochstadt (1999) also states that shorter distance moves and migration within provinces followed the same pattern and that the postwar period was perhaps the longest span of stable migration rates in the past 200 years of German history. Until 1980, net population changes due to migration for all cities over 20,000 approached zero.

was attempting to reunite. With postal and telephone communication destroyed, the only way that family members could achieve reunification was by returning to their home cities (Geo Epoche Panorama 2014). Before the Red Cross established a central, searchable database in Munich, individuals sought out lost relatives by posting signs and messages on house walls, train stations, parishes and community centers in their home cities (Meiners 2011; Geo Epoche Panorama 2014). Furthermore, movement between occupation zones was restricted, and individuals were not allowed to travel beyond their local areas (Allied Control Authority 1946; Meiners 2011). Therefore, internal migration should yield at most minor consequences for our estimates. Nonetheless, as a robustness check, we use a nationally representative panel data set, the German Socio-Economic Panel (SOEP), to show that the intensity of postwar reconstruction in a given region has not affected rubble women's migration decisions.[15]

Table 1 demonstrates that the average West German lived in a region that had lots of destruction, wherein 37 percent of total housing units were destroyed. However, destruction intensity varied across regions, and individuals in areas with above-average destruction were exposed to nearly three times the rubble per capita than were people in areas with below-average destruction. Table 1 also shows that highly destroyed regions were larger in the area and had higher population density and greater average per capita income before the onset of WWII. Therefore, our difference-in-differences strategy utilizes within-region cross-cohort variation to identify the long-term effects of postwar mandatory employment on female labor market outcomes, and controls for differences between birth cohorts that were common across regions.[16]

---

[15]As summarized in Appendix Table 1, the difference-in-differences estimates for the probability of moving are close to zero and are statistically insignificant, suggesting that rubble women not differentially choose their final destinations according to the relative amounts of reconstruction in given regions. This, therefore, lends credence to our estimation results.

[16]There is a concern that the observed differences in levels of population density, region size and per capita income suggest possible differences in trends in women's labor market outcomes. We assess whether there are differential trends by presenting the empirical analysis from estimating Equation (2). Also, we introduce the estimation analysis using the instrumental variable in Section 5, which accounts for the potential cohort-specific postwar trends in female labor market outcomes across regions.

Table 2 shows the descriptive statistics of the outcomes and the main individual-level control variables we use in our estimation. The probability of employment is one of our main outcomes of interest. We additionally present our results using full-time employment, part-time employment and weekly hours worked. Moreover, we analyze women's occupational choices. We grouped 275 occupational categories by their skill level and gender composition.

V. Estimation Results

A. Female Employment and Hours Worked

Table 3 reports the results of our estimation of Equation (1), where the dependent variable is female labor force participation. We coded women as employed if they indicated that their main source of income was from employment. Each column is from a separate regression that controls for region and birth year fixed effects and incorporates a rural dummy. The difference-in-differences estimate, β, is reported in the first row. Column (1) has an estimated β of -0.0017, which suggests that working-age women in a region with average postwar reconstruction are two percentage points less likely to be employed in the long-run. This is the difference-in-differences coefficient β (-0.0017) multiplied by the average population-weighted rubble in m^3 per capita (12.18 m^3) presented in Table 1.[17] To gain a better understanding of the magnitude of β, we also compare the employment probability of rubble women who lived in Cologne (a heavily destroyed region with 25.45 m^3 rubble per capita) to that of rubble women who resided in Munich (a less destroyed region with 6.50 m^3 rubble per capita).[18] Using this comparison, column (1) suggests that because of postwar mandatory employment, rubble women in Cologne were three percentage points less likely to work in the

---

[17]We find similar results when the rubble women dummy is replaced with the number of years each cohort was impacted by the mandatory employment law. Results with length of exposure are presented in Table 8.

[18]These two RORs are very similar regarding their pre-war characteristics, but Cologne is closer to the bomber aerial fields in London and was therefore exposed to higher levels of destruction during WWII.

future than their counterparts in Munich. Given that the female labor force participation rate was 37 percent in 1978, this is a sizable effect.[19] In columns (2) and (3) in Table 3, we present analyses that incorporate individual and household characteristics, such as years of schooling, marital status, the number of children, and spouse's wage and years of education. The difference-in-differences estimates in columns (2) and (3) are quantitatively and statistically similar to the baseline specification, which supports the interpretation of the difference-in-differences estimates are due to postwar mandatory employment, as opposed to omitted variables.

A potential concern for the results presented in Table 3 is that the extent of wartime destruction may be related to postwar trends in female labor force participation or postwar industrial structure in each region. It is also possible that the required skill set changed by industries selecting into different regions after the war, only allowing younger women to invest into the new relevant skills. We address these potential concerns in Table 7 by controlling for the change in the female labor in each industry in each region. Our results remain statistically and quantitatively similar after accounting for postwar industry structure in each region. As an additional robustness check, we employ an instrumental variable strategy for regional wartime destruction in Table 4. The instrumental variable that we use for regional wartime destruction is the region's distance to London.

First, to assess whether our proposed instrumental variable satisfies the exclusion restrictions, we compare regions closer to and farther from London according to their prewar and postwar characteristics. In particular, we quantify whether industrial centers are clustered around regions closer to London, which would pose concerns for the exclusion restriction of our proposed instrument. As summarized in Appendix Table 2, we find no meaningful variation in prewar and postwar regional characteristics such as postwar industrial structure by the

---

[19]The the official unemployment rate, as quoted by the German Labor Agency, was 5.4 percent in 1978; thus, it is unlikely that there was a shortage regarding job opportunities for women in 1978.

17

distance to London, which suggests that regions closer to London are not statistically significantly different than those in the rest of Germany. Moreover, using the ROR-level maps on the distribution of rubble per capita, postwar manufacturing and service sector shares, we find no evidence to suggest that industrial centers are only located in regions closer to London as also shown in Appendix Table 2. Regional maps on the manufacturing and service sector shares indeed demonstrate that there is a significant dispersion of manufacturing and service sectors across Germany. Thus, taken together, all this evidence lends credence to the validity of our instrumental variable.

Table 4 reports instrumental variable estimates for female employment. We first visually illustrate the first-stage at the ROR level in Figure 5. Consistent with the historical sources, this figure indeed shows that regions closer to London experienced more destruction as a result of AAF aerial raids bolstering our confidence in the validity of our instrument. Similar to Figure 5, the first-stage estimates presented in the lower panel of Table 4 are also statistically significant at the 1 percent significance level, suggesting that regions closer to London did indeed experience more destruction because of AAF aerial raids. The results from estimating Equation (1) using two-stage least squares are given in upper panel of Table 4. The 2SLS estimate in column (1) indicates that, as a result of postwar mandatory employment, rubble women were, on average, four percentage points less likely to work in 1978. As in our difference-in-differences analysis, in Columns (2) and (3), we control for individual and household characteristics. The 2SLS coefficients in these columns show that, after controlling for individual and household characteristics, working-age women who were mandated to work during the reconstruction period were on average of seven percentage points less likely to be employed in 1978. The IV estimates are almost twice the size of the original difference-in-differences estimates. However, it should be noted that the standard errors for the 2SLS estimates are also twice the size of the standard errors of the difference-in-differences estimates. The 95 percent confidence intervals for the

difference-in-differences and IV estimates lie within each other; thus, they are not statistically different from each other.

Women are historically more likely to work in part-time jobs; therefore, it is probable that postwar mobilization had differential effects on female employment, depending on the types of employment which the women were engaged. In Table 5, we capture these differential dynamics of full-time and part-time employment. Table 5 also presents the results for weekly hours worked.[20] Column (1) in Table 5 suggests that, when compared to the control cohorts, rubble women were, on average, approximately two percentage points less likely to work full-time in the long-run. In column (2), our outcome of interest is part-time employment. In this analysis, we focus on only those women for whom we have weekly hours worked information. We coded these women as working part-time if they reported that they worked 20 or fewer hours per week. The results we report in column (2) indicate that postwar mandatory employment has no differential effects on the part-time employment of rubble women. Finally, in column (3), we quantify the effects of postwar mandatory employment on women's weekly hours worked. The evidence we present in column (3) suggests that women who were mobilized during the postwar reconstruction period were not only less likely to work full-time in the future, but also to work for fewer hours per week, even if they were active in the labor market. We demonstrate the results of our 2SLS analysis for the same labor market outcomes in columns (4)-(6) which yield statistically and quantitatively similar results to those of our difference-in-differences estimates.[21]

---

[20]The treatment and the control groups described earlier for the employment analysis also apply to these outcomes. Supporting our aforementioned parallel trend assumption, Figure 3 and Figure 4 suggest that only women who were mandated to work during the postwar era were affected by postwar reconstruction policy when the outcome of interest is full-time employment and weekly hours worked, respectively.

[21]We find that postwar mandatory employment had no long-term effects on women's monthly incomes; however, these analyses warrant caution because the German census reports the monthly income variable in wide brackets, thus making statistical inferences challenging.

As discussed in Section 2, the postwar mandatory employment law required "*rubble women*" to work in traditionally male-dominated industries, such as construction and manufacturing. Therefore, it is of interest to analyze whether the postwar influx of German women into male-dominated occupations persisted in the long-run. For this analysis, we first group occupational categories by their gender composition.[22] We define occupations as "female-dominated" if females represent more than half of all the employees working in the occupation. Next, we use information on all workers' average years of schooling in each 275 occupation categories to determine the skill level required for each occupation. We define an occupation as "low-skill" if the workers' average years of schooling are nine years or less. This is the lowest level of educational attainment in Germany. In "medium-skill" occupations, workers' average years of schooling are between 10 and 14 years, which corresponds to their completion of a technical high school or an academic-track high school. Finally, we define occupations as "high-skill" if workers have an average of 15 years or more of schooling, which indicates that employees have undertaken education at or beyond the college level.

Table 6 presents the estimation results for women's occupational choice. We find that the postwar mandatory employment law has increased women's presence in the female-dominated occupations and in occupations that required technical or academic high school degrees (i.e., medium skill). Together, findings reported in Table 6 suggest that some of the skilled rubble women remained in the labor force even after the postwar mandatory employment law was repealed. However, these women were selected, in large numbers, into a limited group of female-dominated medium-skill occupations, and they outnumbered men only in these specific occupations. Therefore, our analysis suggests that although employment of women in traditionally male-dominated occupations provided them an opportunity to

---

[22]Occupation categories in the Microcensus are very similar to the 3-digit categorization of occupations in the United States. There are 275 occupational categories listed in the data.

acquire new skills and knowledge, women's presence in these occupations did not persist in the long run.

In this section, we formally account for possible confounding factors, to ensure that our main results truly capture the effects of postwar mandatory employment. More specifically, we control for changes in the composition of the German population, shifts in household wealth, industry-specific changes in the female labor, prewar regional conditions, the degree of urbanization and state-specific postwar policies. We present our results in Table 7. These confounding factors might operate to either lessen or amplify the long-term labor market effects of the postwar mandatory employment law; therefore, it is difficult to a priori predict how the difference-in-differences estimates will change after controlling for these factors. The difference-in-differences estimates for the rubble in m^3 per capita shown in the first row of Table 7 remain economically and statistically significant in all columns, except hours worked, even after we account for the potential confounding factors we discuss below.

One of the potential concerns for the interpretation of our results is the change in the composition of the population. First potential source for this change is the significant war-induced gender imbalance. War combat claimed the lives of many working-age men or led to their imprisonment, and this affected the entire country. Some regions, however, may have experienced greater decreases in their male populations, which may have independently altered labor market dynamics as well as societal structure in the postwar years. In an attempt to control for potential differences in the postwar female/male ratio, our analysis includes an interaction between the regional female/male ratio in 1947 and an indicator for being in the affected group in our analysis.

Moreover, we posit that an influx of postwar refugees from the German Democratic Republic (GDR or East Germany)/Soviet Zone, and the international guest

21

workers, may have contributed Germany's population change. We utilize the German Microcensus, which reports information on individuals' refugee and migration status, to quantify the potential effects of the refugees and international migrants on women's labor market outcomes.[23] We used this information to calculate the average share of German refugees and international migrants separately in each region in 1978. We interact these regional measures of the population change with being in the affected cohort and add them as controls in Table 7.

Financial hardship due to the loss of household wealth and savings during WWII could be another confounding factor. Savings and wealth loss may have induced a higher number of women to seek employment to support their families as main breadwinners and/or added workers well beyond the postwar period. Generous war relief payments from the government, on the other hand, would have provided a safety net for the affected cohorts of women, helping them to support themselves. To account for changes in household wealth, we assemble regional-level data on average per capita household savings losses during WWII and average per capita war relief payments distributed during the postwar years. We use this information to control the interaction between our affected cohort and any savings losses and war relief payments that may have impacted them.

Additionally, it is possible that during and after the Reconstruction years, the industrial structure in each region may have shifted. Therefore, during this period, in some areas, traditionally female-dominated industries, such as the service and public sectors may have developed, while other regions may have experienced an upturn in the manufacturing and construction sectors. We employ our instrumental variable analyses to address this potential concern; however, as a robustness check, we also provide further evidence in Table 7 to assess whether changes in the industrial composition across regions explain our results. To capture potential industry-specific changes in the female labor in each region, we

---

[23]The German Displaced Persons Law, passed in 1953, defines refugees as individuals who migrated from the Soviet Zone/GDR (*Fluechtlingsausweis* C, refugee card C). This law also applied to persons born in refugee and displaced households after the displacement (Luettinger 1986, p.21-22).

calculate changes in the female share in the manufacturing, construction, service and public sectors between 1953 and 1963 in each region, respectively, and add them as controls.[24]

There may be potentially other postwar policies that differently impacted the affected and control cohorts in the larger and wealthier regions. Moreover, regions may also differ regarding the rural population they encompass, which may bias our results. We mitigate the extent of such potential biases by using a lower level of geographic aggregation, which allows us to explore within-state variations to estimate the long-term labor market effects of postwar mandatory employment law. However, to further support our identification strategy, we show that our results remain robust after we control for the interaction of rubble women dummy with prewar regional characteristics and the percentage of rural population in each region, respectively as well as state-specific cohort trends and present these results in Table 7.

We further test the robustness of our results by exploiting by the number of years women were subjected to the postwar mandatory employment law. In Table 8, we, therefore, replace the rubble women dummy with a continuous measure of exposure. We refer this new variable as "the length of exposure."[25] Column (1) shows that rubble women in Cologne who were affected by the mandatory employment law during the entire period have 3-percentage points lower likelihood of being currently employed than the same cohorts of women residing in Munich. The difference-in-differences estimates for other labor market outcomes are reported in columns (2)-(8). These analyses also yield quantitatively and statistically similar point estimates of postwar reconstruction compared to the point estimates presented in the previous tables. In Appendix Table 4, we further extend the affected cohorts to include women born between 1935 and 1939

---

[24]1953 and 1963 are the only years for which region-level data detailing the female share in each industry are available; therefore, we use these years in our analysis.

[25]This variable takes a value of 9 for women born between 1920 and 1931 since the mandatory employment law affected these women during the entire time it was implemented. It takes a value of 8 for women born in 1932, a value of 7 for women born in 1933, a value of 6 for women born in 1934, and finally a value of 0 for women born between 1940 and 1954.

who were partially affected by the postwar employment law.[26] Taken together, analyses presented in Table 8 and Appendix Table 4 suggest that our results also hold when the rubble women dummy is replaced with a continuous measure of the length of exposure and with the different categorization of the affected cohorts.

Finally, we formally test in the last two columns of Appendix Table 1 whether differential retirement behavior confounds our analysis. The official retirement age for women was 60 years of age in 1978. The fact that the oldest women in the affected cohort was born in 1920 and were 58 in 1978 largely mitigates the potential bias stemming from retirement. Nonetheless, we estimate Equation (1) with the probability of retirement as an outcome. For this analysis, we utilize the question in the Microcensus that asks individuals for their main sources of the means of living. If individuals respond to this question as pension or retirement benefit as the main source, we classify them as being retired. Using this information, we calculate that the share of women who retired early is around 4 percent in the entire sample. Moreover, we find in the last two columns of Appendix Table 1 that retirement decision seems to be unrelated to the regional postwar mobilization rates. In addition, we test whether there is a correlation between the share of retired women who are 54 and over at the time of the survey and rubble per capita experienced in a given region using the regional-level data. This analysis also shows that retirement decision for women who are 54 and above is unrelated to postwar mobilization rates in this region. Given all these evidence, it is unlikely that our results are an artifact of differential retirement behavior across areas with varying intensity of postwar mobilization rates.

[26]In this specification, the length of exposure variable takes a value of 5 for women born in 1935, a value of 4 for women born in 1936, a value of 3 for women born in 1937, a value of 2 for women born in 1938 and a value of 1 for women born in 1939. We continue to define the length exposure for the other birth cohorts as described above. This validity check yields statistically similar results to the baseline specification presented in the previous tables.

In this section, we provide some suggestive evidence on the potential direct and indirect channels that may have contributed to the German women's weak labor market attachments. A mental and physical deterioration arising from the manual work, an increase in marriage and fertility rates in the postwar era, and the restoration of traditional gender roles as the men returned are some of the potential direct and indirect mechanisms which can provide some insights in explaining our results. Results are summarized in Table 9.

As aforementioned, a potential explanation for our results is the physical and mental deterioration associated with the manual work rubble women had to perform during the reconstruction. As laid out in the health endowment model presented in Case and Deaton (2005), the nature of manual jobs places high demands on individuals' physical health, increases the risk of injury and might leave them susceptible to environmental hazards. Thus, individuals who work in manual jobs experience lower health statuses, and their health deteriorates more rapidly. Similar to Case and Deaton (2005), we examine the health effects of the mandatory employment law in column (1) using self-reported health satisfaction as an outcome. Self-reported health satisfaction is often considered a useful measure of morbidity and has significant explanatory power in predicting future mortality (Frijters, Haisken-DeNew, and Shields 2011). We utilize the German Socio-Economic Panel (SOEP) for this analysis because the German Microcensus does not provide information on individuals' health outcomes. The SOEP measures health satisfaction on a scale from zero to 10. Individuals are coded as satisfied with their current health if their responses are six and above. We apply the affected and the control groups and the estimation strategy described in Section 3 for this analysis as well. The results on health satisfaction in column (1) are negative and significant, suggesting that working on postwar reconstruction did worsen rubble women's long-term health and may have led to weak labor market attachment.

On the other hand, highly destroyed regions could also be industrial centers with poor air quality, which could result in the worse labor market and health outcomes among rubble women in these regions compared to younger cohorts. We address this potential concern on air quality by dropping regions in the Ruhr area from our analysis, which includes the cities of Dortmund, Essen, Duisburg and Bochum. These cities had a significant share of coal mining, coal power plants, steam engines, transportation trains and heavy industry such as Krupp steel, with its location in Essen and its steel production furnaces. In these industrial areas due to heavy industry and mining, air quality could have been potentially worse during the 1950s and 1960s and could have affected the health or labor market outcomes of the women residing in this area. We first estimate the health satisfaction results excluding women in the Ruhr Area in the second column of Table 9. Our results remain similar. In Appendix Table 5, we also report the estimation results for all labor market outcomes excluding women in the Ruhr Area. The difference-in-differences estimates retain their statistical and economic significance in this specification, as well. Thus, we conclude that our results are not driven by the differences in air quality across regions.

Other potential mechanisms that might be partly related to the postwar female mobilization are the increasing marriage and fertility rates in the postwar era. Hence, both marriage and fertility behaviors of the affected women are closely related to the postwar female/male ratio in their region; we control for the regional female/male ratio in 1947, the first year which female/male ratio was available, interacted with being in the affected cohort in our analysis.[27] In columns (3) and (4), we find suggestive evidence that rubble women in regions with higher postwar female mobilization rates were 2 percentage points more likely to be currently married or ever married in the long-run compared to control cohorts, suggesting

---

[27]As stated in Evans (2008, p.675) "On 26 September 1944, in a desperate attempt to deal with the shortage of military personnel, Hitler ordered the creation of the "People's Storm" (*Volkssturm*), in which all men between the ages of sixteen to sixty were required to take up arms, and to undergo training for a final stand." Therefore, historical records suggest that wartime male mobilization was not differential across regions. However, the survival rates of war combat could be differential across regions; thus, we control for the postwar female/male ratio in 1947 in our analysis.

that the affected cohorts of women married and returned to home production after the postwar mandatory employment law was repealed. Such differential effects on marriage could be partly explained by the large burden these women experienced during the postwar era. They worked in physically strenuous jobs and still consistently faced the difficulty of gathering the bare necessities for survival in war-torn Germany, which led to over 16-hour workdays on average (Kahn 1984). Moreover, postwar employment may have provided rubble women with greater opportunities to meet a potential spouse thereby increased their likelihood of getting married. It is also possible that men were more likely to return to industrial centers that were also bombed more so that women in highly destroyed areas had more opportunities to marry. We find that the higher regional female/male ratio is negatively associated with being currently or ever married among rubble women. Nonetheless, the difference-in-differences estimates shown in the first row of Table 9 remain economically and statistically significant even after controlling for imbalanced sex ratio, providing suggestive evidence that working in rubble removal might have also partly contributed to the increasing marriage rates in the postwar era.

Using the Microcensus and regional level historical data, we also find suggestive evidence of an increase in postwar fertility rates in regions with higher postwar reconstruction. Similar to marriage results, we also find that the shortage of men in a given region leads to lower post war fertility rates as well. Analysis with the Microcensus warrants caution since the Microcensus only provides information on the number of children still residing within the same household as their mothers. Thus, we report the regional level fertility analysis in column (5), based on data from the 1950 German Municipalities Statistical Yearbook. These high marriage and fertility rates might have reduced the female labor force participation more so in regions with higher postwar reconstruction due to social norms in the postwar era as well as time demands associated with child bearing and raising. Using the 1988 International Social Survey, Alwin, Braun, and Scott (1992) indeed

27

find that almost 80 percent of West Germans report that mothers should stay at home and raise their children if those children were under school age and even after the youngest child had begun school. Similar beliefs about gender roles seem to persist to the present day in Germany. It is reported that 70% of Western Germans aged 65 and above (the individuals who constitute rubble women) believe the primary roles of women to consist of homemaking and bearing and raising children (Economist 2008).

VI.   Conclusion

This paper examines the persistent effects of historical labor market institutions and policies on women's labor market outcomes. We quantify these enduring effects by exploring quasi-experimental variation in the postwar mandatory reconstruction policy, which forced German women to work in the rubble removal and reconstruction process after WWII. Using the difference-in-differences and instrumental variable approaches, we document that postwar mandatory employment had persistent adverse effects on German women's labor market outcomes. Our results show that due to postwar mandatory employment, rubble women, the generation of women affected by this policy, had lower rates of labor force participation, full-time employment and weekly hours worked over the long term. Moreover, we find that these women were more likely to work in medium-skill and female-dominated occupations after the postwar mandatory employment law were repealed. A physical and mental exhaustion associated with manual labor, an increase in marriage and fertility rates in the postwar era, and the restoration of traditional gender roles as the men returned are some of the potential direct and indirect channels explaining our results.

Our findings provide suggestive evidence that women tend to drop out of the workforce and return to homemaking after post-conflict reconstruction ends when labor market institutions and policies that support the female employment are absent. Our results, therefore, underscore how important it is that countries

develop labor market institutions and policies that support and promote women's participation in the workforce, and this is all the more crucial for nations that are recovering from eras of conflict. In addition, as we find that the postwar mandatory employment has reduced German women's labor market attachment in the long-run; our results also provide suggestive evidence that work-contingent income support programs may have limited positive effects on female future labor market outcomes and welfare dependency unless such policies are further backed up by the provision of quality child care and labor market institutions at large.

References

Acemoglu, Daron, David H. Autor and David Lyle. 2004. "Women, War, and Wages: The Effect of Female Labor Supply on the Wage Structure at Midcentury." *Journal of Political Economy*, 112(3): 497-551.

Acemoglu, Daron, Simon Johnson and James A. Robinson. 2001. "The Colonial Origins of Comparative Development: An Empirical Investigation." *American Economic Review*, 91(5): 1369-1401.

Acemoglu, Daron, Simon Johnson and James A. Robinson. 2002. "Reversal of Fortune: Geography and Institutions in the Making of the Modern World Income Distribution." *Quarterly Journal of Economics*, 117(4): 1231-1294.

Akbulut-Yuksel, Mevlude. 2014. "Children of War: The Long-Run Effects of Large-Scale Physical Destruction and Warfare on Children." *Journal of Human Resources*, 49(3): 634-662.

Allied Control Authority Germany. 1946. *Enactments and Approved Papers.* Vol.2, Jan.-Feb. 1946. The Army Library. Washington D.C.

Alwin, Duane R., Michael Braun and Jacqualine Scott. 1992. "The Separation of Work and the Family: Attitudes towards Women's Labour-Force Participation in Germany, Great Britain, and the United States." *European Sociology Review*, 8(1): 13-37.

Blattman, Christopher and Edward Miguel. 2010. "Civil War." *Journal of Economic Literature*, 48(1): 3-57.

Card, David and Dean R. Hyslop. 2005. "Estimating the Effects of a Time-Limited Earnings Subsidy for Welfare Leavers." *Econometrica*, 73 (6): 1723-1770.

Case, Anne and Angus Deaton. 2005. *"Broken Down by Work and Sex: How Our Health Declines."* in Analyses in the Economics of Aging, University of Chicago Press, 185-205.

Dell, Melissa. 2010. "The Persistence Effects of Peru's Mining *Mita*." *Econometrica*, 78(6): 1863-1903.

Diefendorf, Jeffry. 1993. *In the Wake of the War: The Reconstruction of German Cities after World War II.* New York: Oxford University Press.

Donath, Svenja. 2008. "Von der Truemmerfrau zum Heimchen am Herd." Kritische Ausgabe, 8: 20-22.

Economist. 2008. "Women in Germany: Working Mothers, Unite!" 10th July 2008.
http://www.economist.com/node/11708457

Evans, Richard. 2008. *The Third Reich at War, 1939-1939.* Penguin Press HC.

Evans, Richard. 2005. *The Third Reich in Power, 1933-1939.* Penguin Press HC.

Fernández, Raquel. 2013. "Cultural Change as Learning: The Evolution of Female Labor Force Participation over a Century." *The American Economic Review*, 103(1): 472-500.

Friedrich, Joerg. 2002. *Der Brand: Deutschland im Bombenkrieg, 1940-1945.* Munich: Propylaen Publishing.

Frijters, Paul, John Haisken-DeNew, and Michael A. Shields 2011. "The Increasingly Mixed Proportional Hazard Model: An Application to Socio- Economic Status, Health Shocks and Mortality." *Journal of Business and Economic Statistics*, 29(2): 271-281.

Geo Epoche Panorama. 2014 *Truemmerzeit und Wiederaufblau: Deutschland 1945-1955.* Gruener Jahr AG Co KG, Druck- und Verlagshaus.

Goldin, Claudia. 1991. "The Role of World War II in the Rise of Women's Employment." *American Economic Review*, 81 (4): 741-56.

Goldin, Claudia. 2006. "The Quiet Revolution That Transformed Women's Employment, Education, and Family." *American Economic Review*, 96 (2): 1-21.

Goldin, Claudia and Claudia Olivetti. 2013. "Shocking Labor Supply: A Reassessment of the Role of World War II on U.S. Women's Labor Supply." *American Economic Review*, 103(3): 257-262.

Heineman, Elizabeth. 1996. "The Hour of the Woman: Memories of Germany's "Crisis Years" and West German National Identity." *The American Historical Review*, 101 (2): 354-395.

Hochstadt, Steve. 1999. *Mobility and Modernity: Migration in Germany 1820-1989.* Ann Arbor: University of Michigan Press.

Hoehn, Maria. 1997. *"Stunde Null der Frauen? Renegotiating Women's Place in Postwar West Germany."* In Stunde Null: The End and the Beginning Fifty Years Ago, Geoffrey Giles (eds), German Historical Institute, Washington DC, Occasional Paper 20.

Jaeger, David, Thomas Dohmen, Armin Falk, David Huffman, Uwe Sunde and Holger Bonin. 2010. "Direct Evidence on Risk Attitudes and Migration." *Review of Economics and Statistics*, 92(3): 684-689.

Jenk, Gabriele. 1988. *Steine gegen Brot. Truemmerfrauen schildern den Wiederaufbau in der Nachkriegszeit.* Gustav Luebbe Verlag, Bergisch Gladbach.

Kaestner, Friedrich. 1949. "Kriegsschoeden: Truemmermengen, Wohnungsverluste, Grundsteuerausfall und Vermoegensteuerausfall." *Statistisches Jahrbuch Deutscher Gemeinden*, 361-391.

Knopp Guido. 2001. *Der Jahrhundert Krieg.* Munchen: Econ Verlag.

Luettinger, Paul. 1986. "Der Mythos der schnellen Integration: Eine empirische

Untersuchung zur Integration der Vertriebenen und Fluechtlinge in der Bundesrepublik Deutschland bis 1971." *Zeitschrift fuer Soziologie,* 15 (1): 20-36.

McKinsey and Company. 2012. *Women Matter: Making the Breakthrough.*

Meiners, Antonia. 2011. *Wir haben wieder aufgebaut: Frauen der Stunde null erzaehlen.* Elisabeth Sandmann Verlag GmbH. Muenchen.

New York Times. 2011. Special Report: Women Nudged Out of German Workforce. 29th June 2011. http://www.nytimes.com/2011/06/29/world/europe/29iht-FFgermany29.html

Pischke, Steve and Till von Wachter. 2008. "Compulsory Schooling and Labour Market Institutions in Germany." *Review of Economics and Statistics*, 90(3): 592-598.

Rainer, Helmut and Thomas Siedler. 2009. "O Brother, Where Art Thou? The Effects of Having a Sibling on Geographic Mobility and Labor Market Outcomes." *Economica*, 76 (303): 528-556.

Research Data Center (RDC) of the Federal Statistical Office of Germany and the Statistical Offices of the Laender, Microcensus 1978, own calculations.

Statistisches Bundesamt Wiesbaden. 1972. Bevoelkerung und Wirtschaft 1872-1972.

Unruh, Trude (Hrsg.). 1987. *Truemmerfrauen: Biografien einer betrogenen Generation.* Klartext-Verlag.

USSBS. 1945. *The United States Strategic Bombing Survey: The Effects of Strategic Bombing on the German War Economy.* Washington, DC: Overall Economic Effects Division.

Wooldridge, Jeffrey M. 2009. *Econometric Analysis of Cross Section and Panel Data.* MIT Press: Cambridge, Massachusetts.
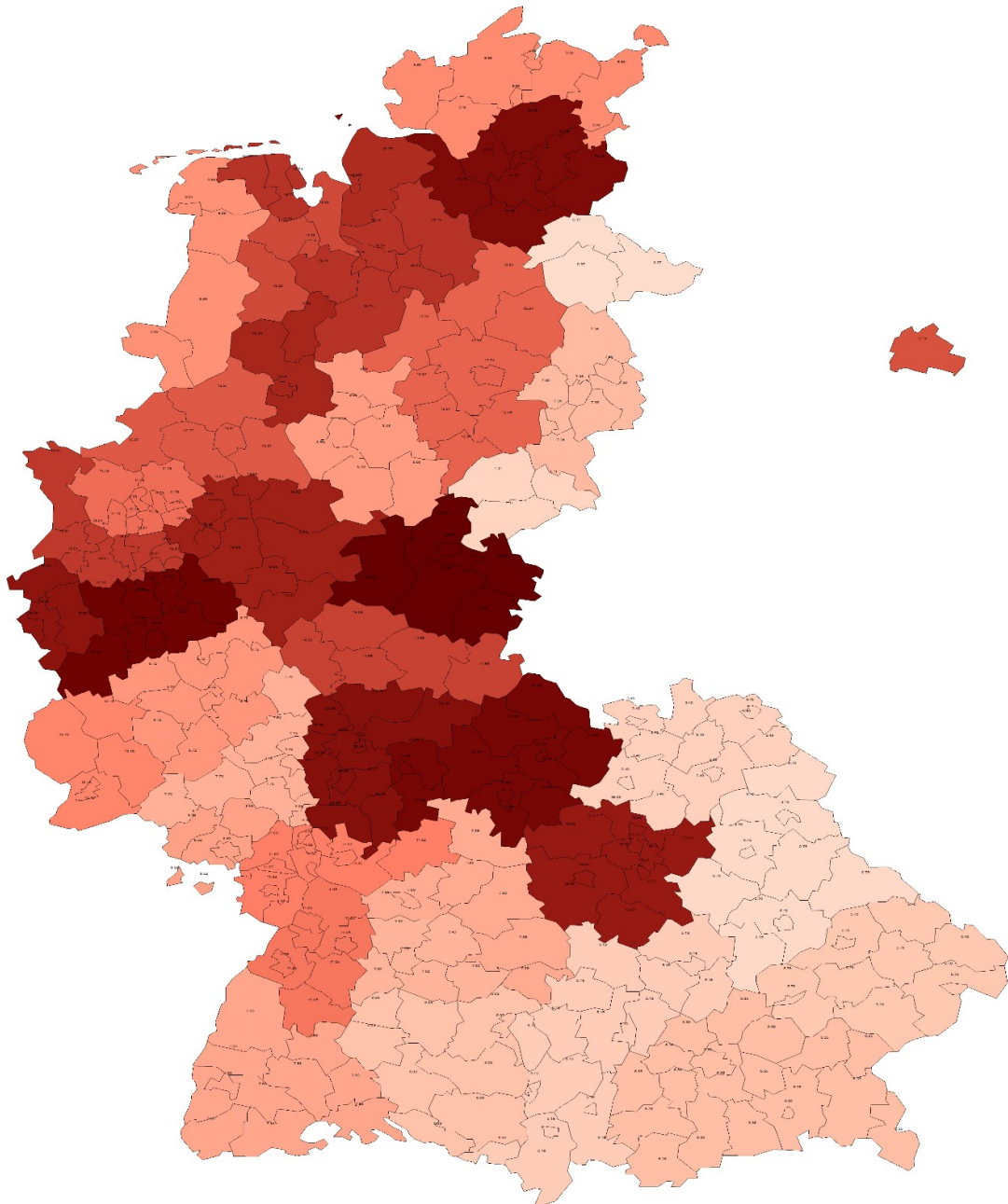
Source: Data on ROR boundaries is taken from the Federal Office for Building and Regional Planning (Bundesamt fr Bauwesen und Raumordnung, BBR). The darker the region, the more wartime destruction it experienced.

Figure 2. Cohort-specific Effects of Postwar Mobilization on Female Employment
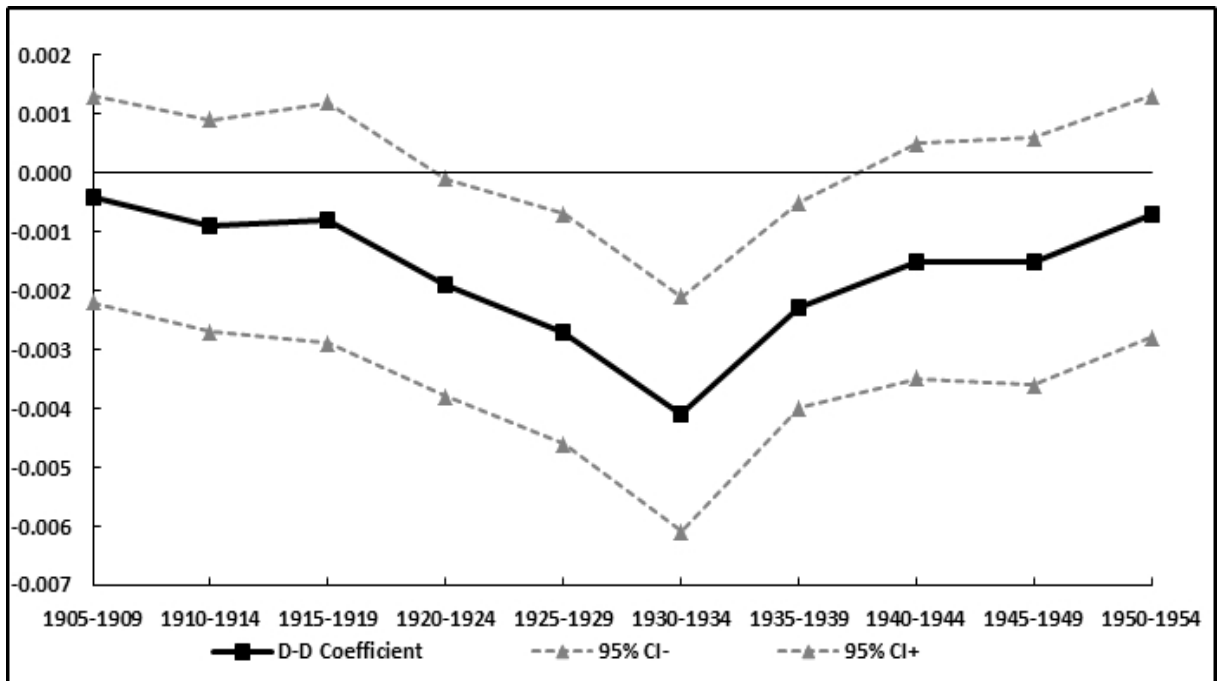
Source: Data are from the 1978 German Microcensus. The sample includes West German women born
between 1905 and 1960.

FIGURE 3. COHORT-SPECIFIC EFFECTS OF POSTWAR MOBILIZATION ON FEMALE FULL EMPLOYMENT
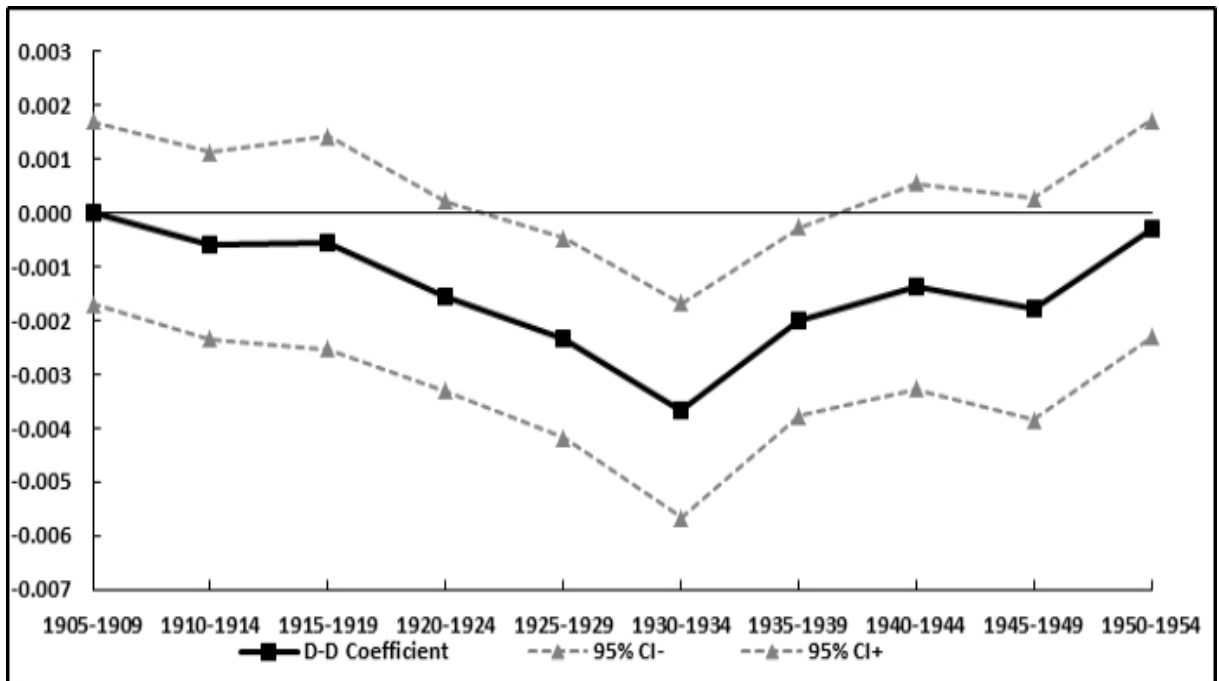
Source: Data are from the 1978 German Microcensus. The sample includes West German women born
between 1905 and 1960.

FIGURE 4. COHORT-SPECIFIC EFFECTS OF POSTWAR MOBILIZATION ON FEMALE HOURS WORKED
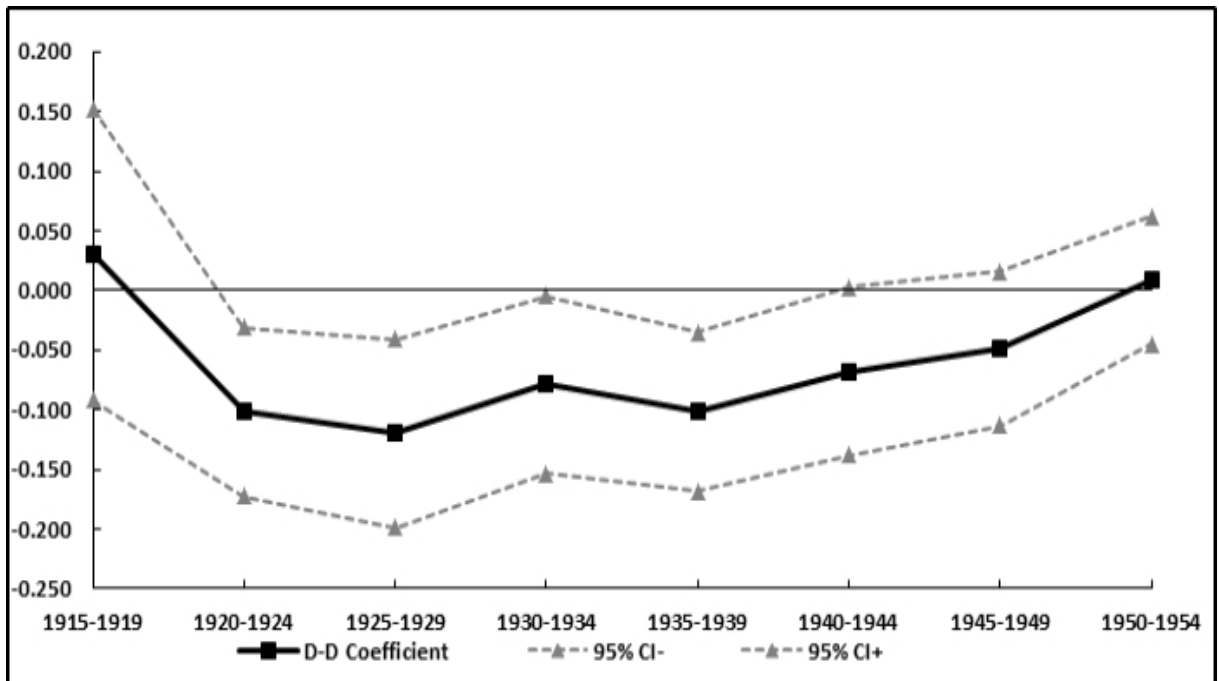
Source: Data are from the 1978 German Microcensus. The sample includes West German women born
between 1905 and 1960.

Figure 5. Distance to London and WWII Destruction (First-Stage)

Figure 5. Distance to London and WWII Destruction (First-Stage)
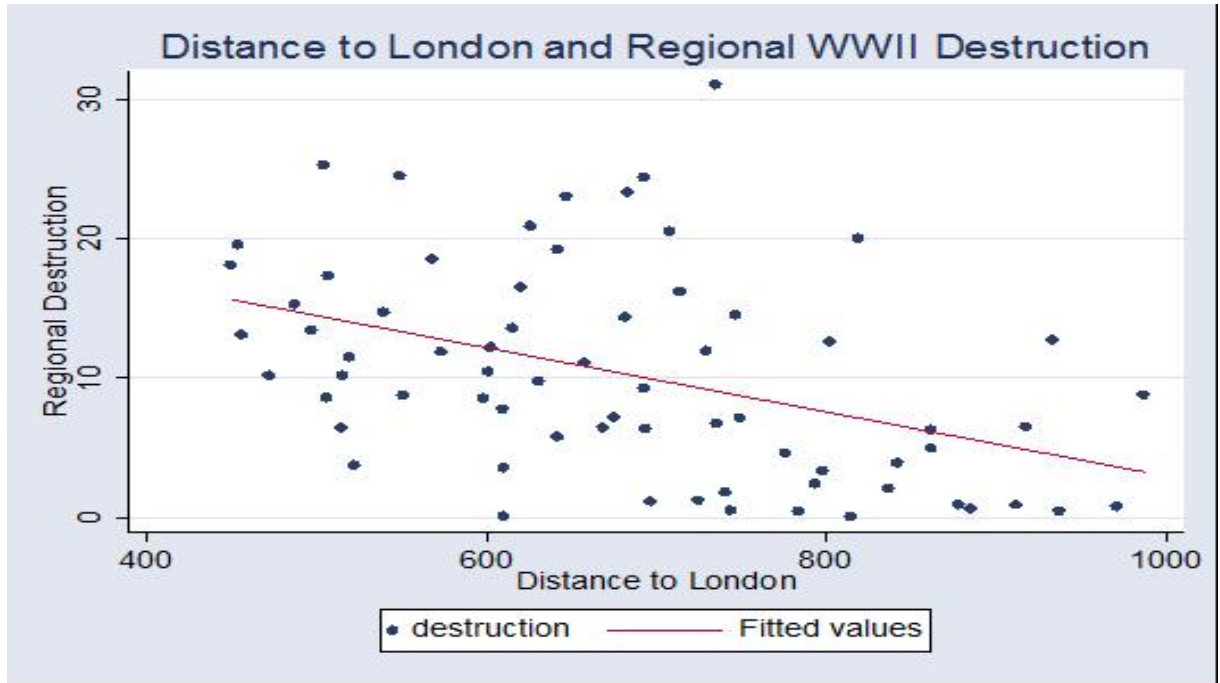
Source: Destruction data is from the 1949 German Municipalities Statistical Yearbook.

TABLE 1—DESCRIPTIVE STATISTICS FOR WWII DESTRUCTION

	All	RORs with above avg. Destruction	RORs with below avg. Destruction	Difference s.e.(Difference)
	(1)	(2)	(3)	(4)
Rubble in m^3 per Capita	12.183	18.487	6.425	12.062***
	(7.201)	(4.446)	(3.419)	(0.133)
Housing Units Destroyed (%)	37.224	49.706	25.823	23.882***
	(18.557)	(12.143)	(15.874)	(0.479)
Total bombs dropped in tons	25,036	36,333	14,717	21,616***
	(22,507.660)	(25,566.010)	(12,223.020)	(664.975)
Area in km^2 in 1938	253.296	359.747	156.060	203.687***
	(238.281)	(292.370)	(103.811)	(7.255)
Population Density in 1939	2,011	2,218	1,821	397***
	(909.237)	(946.585)	(829.899)	(29.881)
Income per Capita in RM in 1938	467.317	501.933	432.556	69.377***
	(106.305)	(68.110)	(124.841)	(3.760)
Distance to London in miles	419.062	394.324	441.657	-47.333***
	(88.413)	(82.205)	(87.854)	(2.869)
N Max.	93,403	48,748	44,655	93,403

Notes: The sample consists of Raumordnungsregionen ("RORs" or "regions") in the territory of former West Germany. Historical data are from the 1939 and 1949 German Municipalities Statistical Yearbook. The standard deviations are in parentheses. The sample is divided as above and below destruction using rubble per capita as measure of wartime destruction.

TABLE 2—DESCRIPTIVE STATISTICS, ESTIMATION SAMPLE

	All	Women born btw. 1920-1934	Women born btw. 1940-1954
	(1)	(2)	(3)
Employed	0.499	0.446	0.551
	(0.500)	(0.497)	(0.497)
Full-time Employment	0.472	0.421	0.524
	(0.499)	(0.494)	(0.499)
Part-time Employment	0.187	0.184	0.189
	(0.390)	(0.387)	(0.392)
Weekly Hours Worked	36.146	36.954	35.494
	(14.465)	(15.747)	(13.304)
Monthly Income in DM	1,033.496	997.446	1,063.965
	(661.467)	(703.225)	(622.386)
Low-Skill Occupation	0.143	0.180	0.107
	(0.350)	(0.384)	(0.384)
Medium-Skill Occupation	0.827	0.805	0.848
	(0.378)	(0.396)	(0.396)
High-Skill Occupation	0.029	0.015	0.045
	(0.169)	(0.122)	(0.122)
Female-Dominated Occupation	0.884	0.884	0.884
	(0.320)	(0.320)	(0.320)
Years of Schooling	10.410	9.995	10.820
	(1.860)	(1.566)	(2.029)
Has Gymnasium Diploma or More	0.050	0.035	0.064
	(0.218)	(0.185)	(0.245)
Technical High School Diploma	0.179	0.125	0.232
	(0.383)	(0.331)	(0.422)
Basic High School Diploma	0.762	0.832	0.692
	(0.426)	(0.373)	(0.462)
Married	0.806	0.793	0.820
	(0.395)	(0.405)	(0.384)
Number of Kids	1.222	1.068	1.376
	(1.189)	(1.246)	(1.108)
Monthly Income of HH head	1,788.987	1,731.237	1,845.725
	(1,044.920)	(1,105.831)	(978.101)
Rural	0.565	0.563	0.566
	(0.496)	(0.496)	(0.496)
N max.	93,403	46,673	46,730

Notes: Data are from the 1978 German Microcensus. The sample consists of West German women born between 1920 and 1954. The 1920-1934 cohorts constitute the affected group and the 1940-1954 cohorts encompass the control group. Standard deviations are presented in parentheses.

	(1)	(2)	(3)
Destruction X Rubble Women	-0.0017***	-0.0018***	-0.0019***
	(0.0006)	(0.0006)	(0.0006)
Years of Schooling		0.0361***	0.0574***
		(0.0010)	(0.0013)
Married		-0.2494***	-0.2414***
		(0.0045)	(0.0045)
Number of Kids		-0.0749***	-0.0733***
		(0.0025)	(0.0026)
Years of Schooling of Household Head			-0.0301***
			(0.0011)
Log Wage of Household Head			0.0099***
			(0.0009)
R^2	0.0514	0.1482	0.1596
N	90,663	87,050	85,976

Notes: Data are from the 1978 German Microcensus. The sample consists of West German women born between 1920 and 1954. The 1920-1934 cohorts constitute the affected group and the 1940-1954 cohorts encompass the control group. Each column is from a separate regression which controls for region and birth year fixed effects and a rural dummy. Standard errors clustered by regions are shown in parentheses. Asterisks denote significance levels (*=.10, **=.05, ***=.01).

Table 4—Effect of Postwar Reconstruction on Female Long-Term Employment: IV Results

	(1)	(2)	(3)
		Second-Stage	
Destruction X Rubble Women	-0.0036***	-0.0055***	-0.0057***
	(0.0013)	(0.0013)	(0.0013)
Years of Schooling		0.0360***	0.0575***
		(0.0010)	(0.0013)
Married		-0.2491***	-0.2410***
		(0.0045)	(0.0045)
Number of Kids		-0.0750***	-0.0735***
		(0.0025)	(0.0026)
Years of Schooling of Household Head			-0.0302***
			(0.0011)
Log Wage of Household Head			0.0100***
			(0.0009)
R^2 for the second-stage	0.0512	0.1478	0.1591
		First-Stage	
Distance to London (in miles) X Rubble Women	-0.0338***	-0.0341***	-0.0341***
	(0.0002)	(0.0002)	(0.0002)
F-Statistic for First-Stage	9643.72	9105.82	8748.55
R^2	0.8813	0.8813	0.8813
N	90,663	87,050	85,976

Notes: Data are from the 1978 German Microcensus. The sample consists of West German women born between 1920 and 1954. The 1920-1934 cohorts constitute the affected group and the 1940-1954 cohorts encompass the control group. Each column is from a separate regression which controls for region and birth year fixed effects and a rural dummy. The instrument is region's distance to London. The dependent variable in the first stage is Destruction X Rubble Women. Standard errors clustered by regions are shown in parentheses. Asterisks denote significance levels (*=.10, **=.05, ***=.01).

TABLE 5—EFFECT OF POSTWAR RECONSTRUCTION ON FEMALE LABOR MARKET OUTCOMES

	Difference-in-Differences			Instrumental Variable		
	Full-time Employment	Part-time Employment	Weekly Hours Worked	Full-time Employment	Part-time Employment	Weekly Hours Worked
	(1)	(2)	(3)	(4)	(5)	(6)
Destruction X Rubble Women	-0.0017***	0.0004	-0.0726***	-0.0049***	0.0021	-0.2301***
	(0.0006)	(0.0006)	(0.0244)	(0.0013)	(0.0013)	(0.0560)
Years of Schooling	0.0570***	-0.0030**	0.0338	0.0570***	-0.0031**	0.0378
	(0.0012)	(0.0015)	(0.0515)	(0.0012)	(0.0015)	(0.0515)
Married	-0.2570***	0.1325***	-3.7489***	-0.2567***	0.1324***	-3.7378***
	(0.0046)	(0.0039)	(0.1487)	(0.0046)	(0.0039)	(0.1490)
Number of Kids	-0.0762***	0.0521***	-0.6749***	-0.0763***	0.0521***	-0.6807***
	(0.0026)	(0.0024)	(0.0999)	(0.0026)	(0.0024)	(0.0999)
Years of Schooling of Household Head	-0.0296***	0.0065***	-0.1296***	-0.0297**	0.0066***	-0.1365***
	(0.0011)	(0.0015)	(0.0477)	(0.0011)	(0.0015)	(0.0477)
Log Wage of Household Head	0.0100***	0.0089***	-0.8870***	0.0100***	0.0089***	-0.8864***
	(0.0009)	(0.0008)	(0.0380)	(0.0009)	(0.0008)	(0.0380)
R^2	0.1682	0.0754	0.0728	0.1679	0.0752	0.0718
N	86,101	44,276	44,276	86,101	44,276	44,276

Notes: Data are from the 1978 German Microcensus. The sample consists of West German women born between 1920 and 1954. The 1920-1934 cohorts constitute the affected group and the 1940-1954 cohorts encompass the control group. Each column is from a separate regression which controls for region and birth year fixed effects and a rural dummy. The instrument is region's distance to London. Standard errors clustered by region are shown in parentheses. Asterisks denote significance levels (*=.10, **=.05, ***=.01).

Table 6—Effect of Postwar Reconstruction on Female Long-Term Occupational Choice

	Difference-in-Differences				Instrumental Variable			
	Low Skilled	Medium Skilled	High Skilled	Female Dominated	Low Skilled	Medium Skilled	High Skilled	Female Dominated
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Destruction X Rubble Women	-0.0014***	0.0016***	-0.0002	0.0010***	-0.0060***	0.0063***	-0.0003	0.0017**
	(0.0005)	(0.0005)	(0.0002)	(0.0004)	(0.0011)	(0.0012)	(0.0003)	(0.0009)
Years of Schooling	-0.0206***	-0.0445***	0.0651***	-0.0103***	-0.0206***	-0.0445***	0.0651***	-0.0103***
	(0.0007)	(0.0014)	(0.0011)	(0.0010)	(0.0007)	(0.0014)	(0.0011)	(0.0010)
Married	-0.0290***	0.0335***	-0.00444***	0.0809***	-0.0286***	0.0330***	-0.0044***	0.0808***
	(0.0038)	(0.0042)	(0.0016)	(0.0041)	(0.0038)	(0.0042)	(0.0016)	(0.0041)
Number of Kids	0.0061***	-0.0063***	0.0002	0.0202***	0.0060***	-0.0061***	0.0002	0.0202***
	(0.0014)	(0.0015)	(0.0005)	(0.0013)	(0.0014)	(0.0015)	(0.0004)	(0.0013)
Years of Schooling of Household Head	-0.0166***	0.0188***	-0.0022***	0.0050***	-0.0167***	0.0189***	-0.0023***	0.0050***
	(0.0006)	(0.0008)	(0.0005)	(0.0007)	(0.0006)	(0.0008)	(0.0005)	(0.0007)
Log Wage of Household Head	-0.0104***	0.0113***	-0.0009***	0.0010**	-0.0103***	0.0112***	-0.0009***	0.0010**
	(0.0007)	(0.0007)	(0.0002)	(0.0005)	(0.0007)	(0.0007)	(0.0002)	(0.0005)
R^2	0.1097	0.0805	0.4416	0.0286	0.1083	0.0792	0.4416	0.0285
N	86,101	86,101	86,101	86,101	86,101	86,101	86,101	86,101

Notes: Data are from the 1978 German Microcensus. The sample consists of West German women born between 1920 and 1954. The 1920-1934 cohorts constitute the affected group and the 1940-1954 cohorts encompass the control group. Each column is from a separate regression which controls for region and birth year fixed effects and a rural dummy. The instrument is region's distance to London. Occupation is defined as "Low Skill" if the average years of schooling of workers in this occupation is less than 10 years. "Medium-Skill" are occupations where the average years of schooling of workers are between 10 and 14 years. Occupation is defined as "High-Skill" if workers in this occupation have 15 years of schooling or more on average. "Female-dominated" are occupations where more than half of the employees in this occupation are females. Standard errors clustered by regions are shown in parentheses. Asterisks denote significance levels (*=.10, **=.05, ***=.01).

TABLE 7—ROBUSTNESS CHECKS

	Employment	Full-time Employment	Part-time Employment	Weekly Hours Worked	Low Skilled	Medium Skilled	High Skilled	Female Dominated
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Destruction X Rubble Women	-0.0033***	-0.0028***	0.0018*	-0.0580	-0.0020***	0.0021***	-0.0002	0.0019***
	(0.0009)	(0.0008)	(0.0011)	(0.0402)	(0.0007)	(0.0007)	(0.0002)	(0.0006)
Female/Male Ratio X Rubble Women	-0.0011	-0.0012	0.0015	-0.0591	0.0003	-0.0006	0.0003	0.0004
	(0.0009)	(0.0008)	(0.0010)	(0.0382)	(0.0006)	(0.0007)	(0.0002)	(0.0006)
Migrant Share X Rubble Women	-0.0033**	-0.0032*	-0.0053***	0.1461**	-0.0022**	0.0026**	-0.0004	-0.0004
	(0.0017)	(0.0017)	(0.0020)	(0.0721)	(0.0011)	(0.0012)	(0.0004)	(0.0011)
Refugee Share X Rubble Women	0.0030*	0.0027*	-0.0050***	0.1635***	0.0038***	-0.0034***	-0.0004	-0.0029***
	(0.0016)	(0.0015)	(0.0017)	(0.0615)	(0.0012)	(0.0013)	(0.0004)	(0.0011)
Amount of Savings Loss during WWII X Rubble Women	0.0032***	0.0031***	0.0015	-0.0042	0.0014**	-0.0013*	-0.0001	-0.0004
	(0.0009)	(0.0008)	(0.0010)	(0.0360)	(0.0006)	(0.0007)	(0.0002)	(0.0006)
Per Capita War Relief Payments X Rubble Women	-0.0042**	-0.0034*	0.0034*	-0.0919	-0.0019	0.0018*	0.0001	0.0029**
	(0.0017)	(0.0017)	(0.0020)	(0.0683)	(0.0012)	(0.0013)	(0.0005)	(0.0012)
Change in Female Share in Manufacturing X Rubble Women	-0.0037**	-0.0033*	-0.0030	0.0012	-0.0038***	0.0044***	-0.0006	0.0003
	(0.0018)	(0.0017)	(0.0021)	(0.0747)	(0.0013)	(0.0014)	(0.0004)	(0.0013)
Change in Female Share in Construction X Rubble Women	-0.0015	-0.0009	0.0033	-0.1332	-0.0029	0.0021	0.0008	0.0004
	(0.0035)	(0.0036)	(0.0041)	(0.1479)	(0.0028)	(0.0030)	(0.0009)	(0.0025)
Change in Female Share in Service Sector X Rubble Women	0.0265***	0.0249***	-0.0059	-0.0174	0.0078	-0.0090	0.0012	-0.0085
	(0.0087)	(0.0087)	(0.0091)	(0.3321)	(0.0065)	(0.0068)	(0.0023)	(0.0057)
Change in Female Share in Public Sector X Rubble Women	-0.0102**	-0.0102**	0.0067	-0.1513	-0.0057*	0.0069**	-0.0013	0.0068**
	(0.0042)	(0.0042)	(0.0047)	(0.1784)	(0.0032)	(0.0035)	(0.0010)	(0.0028)
Population Density in 1939 X Rubble Women	0.0000*	0.0000*	0.0000	-0.0003	-0.0020*	-0.0000*	0.0000	0.0000
	(0.0000)	(0.0000)	(0.0000)	(0.0005)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Income per Capita in 1938 X Rubble Women	-0.0001	-0.0001	0.0001**	-0.0061**	-0.0001	0.0001	0.0000	0.0001**
	(0.0001)	(0.0001)	(0.0001)	(0.0025)	(0.0000)	(0.0001)	(0.0000)	(0.0000)
Rural Share X Rubble Women	0.0014***	0.0012***	0.0002	-0.0116	0.0007*	0.0007*	0.0000	-0.0003
	(0.0005)	(0.0005)	(0.0006)	(0.0199)	(0.0004)	(0.0004)	(0.0001)	(0.0003)
R^2	0.1674	0.1759	0.0771	0.071	0.1084	0.0817	0.4404	0.0298
N	74,843	74,959	38,192	38,192	74,959	74,959	74,959	74,959
State-Cohort Trend	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Data are from the 1978 German Microcensus. The sample consists of West German women born between 1920 and 1954. The 1920-1934 cohorts constitute the affected group and the 1940-1954 cohorts encompass the control group. Each column is from a separate regression which controls for region and birth year fixed effects and a rural dummy. Other controls in each regression are years of schooling, married dummy, number of kids, the logarithm of household head's wage and years of schooling. Standard errors clustered by region are shown in parentheses. Asterisks denote significance levels (*=.10, **=.05, ***=.01).

TABLE 8—EFFECT OF POSTWAR RECONSTRUCTION ON FEMALE LABOR MARKET OUTCOMES WITH LENGTH OF EXPOSURE

	Employment	Full-time Employment	Part-time Employment	Weekly Hours	Low Skilled	Medium Skilled	High Skilled	Female Dominated
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Destruction X Rubble Women	-0.0002***	-0.0002***	0.0001	-0.0083***	-0.0002***	0.0002***	0.0000	0.0001***
	(0.0001)	(0.0001)	(0.0001)	(0.0028)	(0.0001)	(0.0001)	(0.0000)	(0.0000)
Years of Schooling	0.0574***	0.0570***	-0.0030**	0.0336	-0.0206***	-0.0445***	0.0651***	-0.0115***
	(0.0013)	(0.0012)	(0.0015)	(0.0515)	(0.0007)	(0.0014)	(0.0011)	(0.0009)
Married	-0.24137***	-0.2570***	0.1325***	-3.7490***	-0.0290***	0.0335***	-0.0045***	0.0632***
	(0.0045)	(0.0046)	(0.0039)	(0.1487)	(0.0038)	(0.0042)	(0.0016)	(0.0036)
Number of Kids	-0.07620***	-0.0762***	0.0521***	-0.6748***	0.0061***	-0.0063***	-0.0004	-0.0029***
	(0.0026)	(0.0026)	(0.0024)	(0.0999)	(0.0014)	(0.0015)	(0.0004)	(0.0011)
Log Wage of Household Head	0.00994***	0.0100***	0.0089***	-0.8869***	-0.0104***	0.0113***	-0.0009***	-0.0002
	(0.0009)	(0.0009)	(0.0008)	(0.0380)	(0.0007)	(0.0007)	(0.0002)	(0.0004)
Years of Schooling of Household Head	-0.03013***	-0.0296***	0.0065***	-0.1295***	-0.0166***	0.0188***	-0.0022***	0.0048
	(0.0011)	(0.0011)	(0.0015)	(0.0477)	(0.0006)	(0.0008)	(0.0005)	(0.0006)
R^2	0.1596	0.1682	0.0754	0.0728	0.1097	0.0805	0.4416	0.0225
N	85,976	86,101	44,276	44,276	86,101	86,101	86,101	86,101

Notes: Data are from the 1978 German Microcensus. The sample consists of West German women born between 1920 and 1954. The 1920-1934 cohorts constitute the affected group and the 1940-1954 cohorts encompass the control group. Each column is from a separate regression which controls for region and birth year and a rural dummy. Standard errors clustered by region are shown in parentheses. Asterisks denote significance levels (*=.10, **=.05, ***=.01).

TABLE 9—POTENTIAL CHANNELS

	Health Satisfaction	Health Satisfaction Excluding Ruhr	Currently Married	Ever Married	Fertility Rates in 1949
	(1)	(2)	(3)	(4)	(5)
Destruction X Rubble Women	-0.0060**	-0.0072**	0.0012**	0.0007*	
	(0.0029)	(0.0030)	(0.0005)	(0.0004)	
Female/Male Ratio X Rubble Women			-0.0035***	-0.0031***	-0.0853***
			(0.0008)	(0.0006)	(0.0052)
Years of Schooling	0.0194***	0.0192***	-0.0199***	-0.0227***	
	(0.0052)	(0.0054)	(0.0010)	(0.0010)	
Destruction					0.0263***
					(0.0034)
R^2	0.109	0.1125	0.0568	0.0691	0.1844
N	1,959	1,781	87,180	87,180	3,777

Notes: Data in the first two columns are from the 1985 German Socioeconomic Panel. Data in columns (3) and (4) are from the 1978 German Microcensus. Data in the last column are from the 1949 German Municiplaities Statistical Yearbook. The sample consists of West German women born between 1920 and 1954. The 1920-1934 cohort constitutes the affected group and the 1940-1954 cohort encompasses the control group. Each column is from a separate regression which controls for region and birth year fixed effects and a rural dummy. Standard errors clustered by regions are shown in parentheses. Asterisks denote significance levels (*=.10, **=.05, ***=.01).
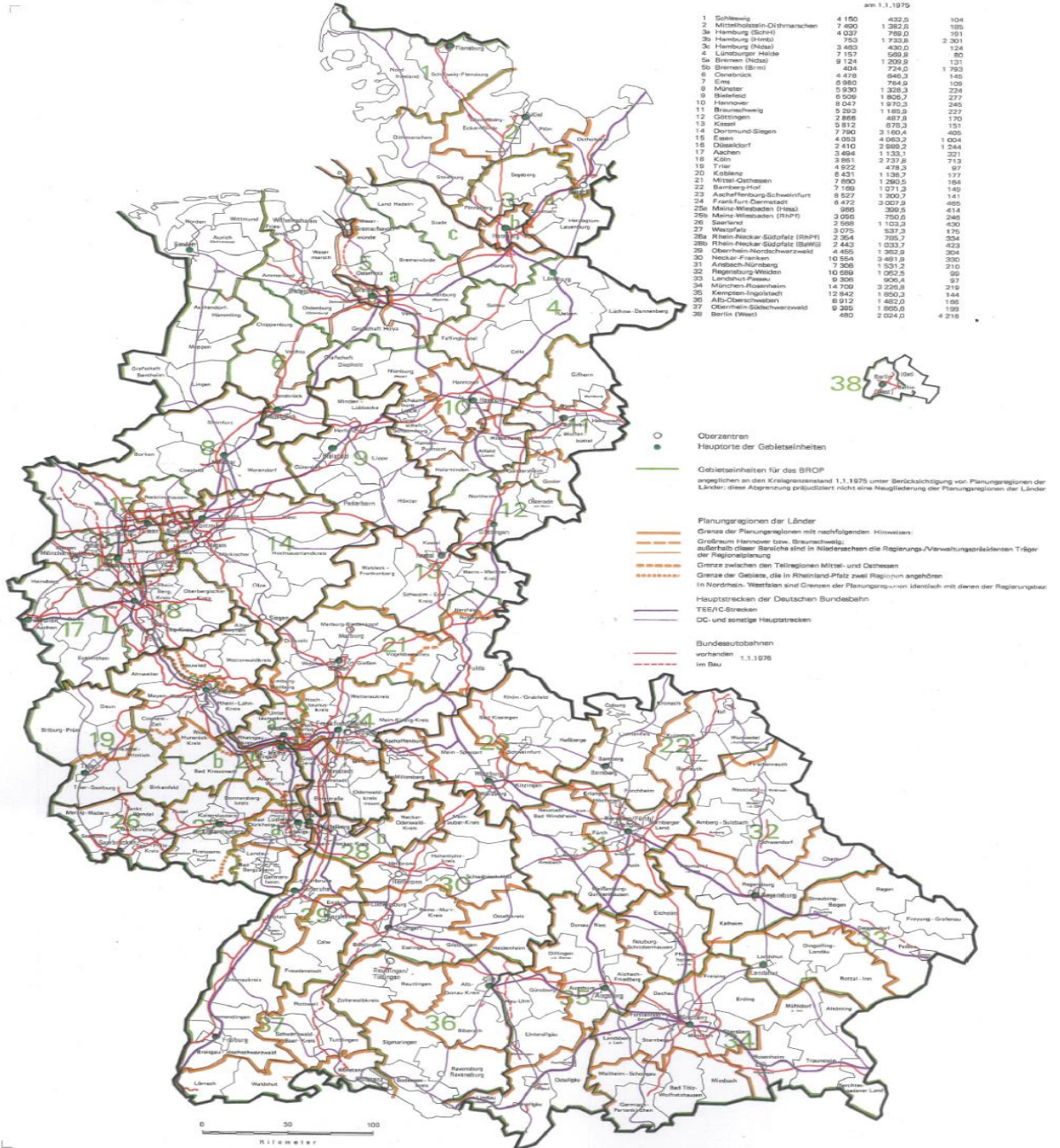
47

Source: Federal Office for Building and Regional Planning (Bundesamt fuer Bauwesen und Raumordnung, BBR). There are 38 Spatial Planning Regions (RORs) in former West Germany in 1978.

	Internal Migration		Mortality		Retirement	
	(1)	(2)	(3)	(4)	(5)	(6)
Destruction x Rubble Women	-0.0027	-0.0026	-0.0014	-0.0015	-0.0001	-0.0001
	(0.0035)	(0.0035)	(0.0028)	(0.0028)	(0.0002)	(0.0002)
Years of Schooling		0.0382***		-0.0038		-0.0061***
		(0.0063)		(0.0047)		(0.0004)
R^2	0.113	0.134	0.271	0.271	0.062	0.152
N	1,975	1,966	1,983	1,974	90,806	87,178

Notes: Data for the first four columns are from GSOEP and data in the last two columns are from the 1978 Microcensus. The sample consists of West German women born between 1920 and 1954. The 1920-1934 cohort constitutes the affected group and the 1940-1954 cohort encompasses the control group. Each column is from a separate regression which controls for region and birth year fixed effects and a rural dummy. Standard errors clustered by regions are shown in parentheses. Asterisks denote significance levels (*=.10, **=.05,***=.01).

TABLE A-2—DESCRIPTIVE STATISTICS BY DISTANCE TO LONDON

	All	RORs closer to London	RORs faraway from London	Difference s.e.(Difference)
	(1)	(2)	(3)	(4)
Rubble in m^3 per Capita	11.783	13.767	9.566	4.202**
	(6.622)	(4.612)	(7.879)	(2.124)
Area in km^2 in 1938	317.444	361.695	267.988	93.708
	(308.699)	(346.492)	(261.668)	(103.321)
Population Density in 1939	1,709	1,575	1,860	-284.585
	(731.477)	(497.458)	(920.124)	(242.914)
Income per Capita in RM in 1938	436.657	433.817	440.106	-6.289
	(140.468)	(122.972)	(164.007)	(51.549)
Female/Male Ratio	123.017	122.925	123.120	-0.195
	(6.174)	(6.014)	(6.534)	(2.091)
Change in Female Share in Manufacturing	-1.846	-2.041	-1.627	-0.414
	(3.042)	(3.153)	(2.993)	(1.028)
Change in Female Share in Construction	2.900	2.603	3.231	-0.628
	(2.188)	(2.043)	(2.358)	(0.733)
Change in Female Share in Service Sector	-1.121	-0.852	-1.421	0.569
	(1.131)	(0.988)	(1.232)	(0.371)
Change in Female Share in Public Sector	-0.639	-0.640	-0.636	-0.004
	(1.944)	(1.872)	(2.079)	(0.658)
Per Capita War Relief Payments	13.130	13.051	13.218	-0.166
	(4.680)	(3.022)	(6.134)	(1.585)
Per Capita Savings Loss during WWII	79.122	79.595	78.453	1.142
	(5.666)	(5.788)	(5.672)	(2.165)
N Max.	36	19	17	36

Notes: The sample consists of RORs in former West Germany. Standard deviations are in parentheses. Asterisks denote significance levels (*=.10, **=.05, ***=.01).

	Employment	Full-time Employment	Part-time Employment	Weekly Hours Worked
	(1)	(2)	(3)	(4)
Destruction X Rubble Women	-0.0017***	-0.0015***	0.0005	-0.0757***
	(0.0006)	(0.0006)	(0.0006)	(0.0224)
Years of Schooling	0.0579***	0.0574***	-0.0046***	0.0823*
	(0.0011)	(0.0011)	(0.0014)	(0.0486)
Married	-0.2360***	-0.2526***	0.1339***	-3.7657***
	(0.0043)	(0.0043)	(0.0036)	(0.1395)
Number of Kids	-0.0714***	-0.0742***	0.0506***	-0.6341***
	(0.0022)	(0.0022)	(0.0022)	(0.0868)
Years of Schooling of Household Head	-0.0319***	-0.0313***	0.0081***	-0.1741***
	(0.0010)	(0.0010)	(0.0014)	(0.0451)
Log Wage of Household Head	0.0082***	0.0083***	0.0099***	-0.9495***
	(0.0009)	(0.0008)	(0.0007)	(0.0356)
R^2	0.1526	0.1608	0.0754	0.0756
N	102,699	102,844	52,888	52,888

Notes: The sample consists of West German women born between 1920 and 1954. The 1920-1939 cohort constitutes the affected group and the 1940-1954 cohort encompasses the control group. Each column is from a separate regression which controls for region and birth year fixed effects and a rural dummy. Standard errors clustered by regions are shown in parentheses. Asterisks denote significance levels (*=.10, **=.05,***=.01).

TABLE A-4—EFFECT OF POSTWAR RECONSTRUCTION ON FEMALE LABOR MARKET OUTCOMES WITH LENGTH OF EXPOSURE

	Employment	Full-time Employment	Part-time Employment	Weekly Hours Worked	Low Skilled	Medium Skilled	High Skilled	Female Dominated
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Destruction X Length of Exposure	-0.0002***	-0.0002***	0.0001	-0.0081***	-0.0001***	0.0002***	0.0000	0.0001**
	(0.0001)	(0.0001)	(0.0001)	(0.0028)	(0.0001)	(0.0001)	(0.0000)	(0.0000)
Years of Schooling	0.0579***	0.0574***	-0.0046***	0.0817***	-0.0219***	-0.0414***	0.0633***	-0.0118***
	(0.0011)	(0.0011)	(0.0014)	(0.0486)	(0.0007)	(0.0013)	(0.0010)	(0.0008)
Married	-0.2360***	-0.2526***	0.1338***	-3.7652***	-0.0232***	0.0280***	-0.0048***	0.0646***
	(0.0042)	(0.0043)	(0.0036)	(0.1395)	(0.0037)	(0.0040)	(0.0015)	(0.0034)
Number of Kids	-0.0714***	-0.0742***	0.0506***	-0.6331***	0.0046***	-0.0063***	0.0004	0.0109
	(0.0022)	(0.0022)	(0.0022)	(0.0868)	(0.0012)	(0.0015)	(0.0004)	(0.0010)
Log Wage of Household Head	0.0082***	0.0083***	0.0099***	-0.9495***	-0.0120***	0.0127***	-0.0008***	0.0002
	(0.0009)	(0.0008)	(0.0007)	(0.0357)	(0.0007)	(0.0007)	(0.0002)	(0.0004)
Years of Schooling of Household Head	-0.0319***	-0.0313***	0.0081***	-0.1734***	-0.0170***	0.0193***	-0.0023***	0.0051***
	(0.0010)	(0.0010)	(0.0014)	(0.0451)	(0.0006)	(0.0007)	(0.0004)	(0.0006)
R^2	0.1526	0.1608	0.0754	0.0755	0.1116	0.0773	0.4293	0.0221
N	102,699	102,844	52,888	52,888	102,844	102,844	102,844	102,844

Notes: Data are from the 1978 German Microcensus. The sample consists of West German women born between 1920 and 1954. The 1920-1939 cohorts constitute the affected group and the 1940-1954 cohorts encompass the control group. Each column is from a separate regression which controls for region and birth year fixed effects and a rural dummy. Standard errors clustered by region are shown in parentheses. Asterisks denote significance levels (*=.10, **=.05, ***=.01).

Table A-5—Effect of Postwar Reconstruction on Female Labor Market Outcomes Excluding Ruhr Area

	Employment	Full-time Employment	Part-time Employment	Weekly Hours Worked	Low Skill	Medium Skill	High Skill	Female Dominated
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Destruction X Rubble Women	-0.0021***	-0.0019***	0.0002	-0.0756***	-0.0017***	0.0018***	-0.0002	0.0011***
	(0.0006)	(0.0006)	(0.0006)	(0.0250)	(0.0005)	(0.0005)	(0.0002)	(0.0004)
Years of Schooling	0.0567***	0.0565***	-0.0031*	0.0367***	-0.0210***	-0.0445***	0.0656***	-0.0119***
	(0.0013)	(0.0013)	(0.0016)	(0.0536)	(0.0008)	(0.0014)	(0.0011)	(0.0010)
Married	-0.2330***	-0.2491***	0.1320***	-3.7195***	-0.0255***	0.0303***	-0.0049***	0.0617***
	(0.0046)	(0.0047)	(0.0041)	(0.1602)	(0.0041)	(0.0045)	(0.0017)	(0.0038)
Number of Kids	-0.0716***	-0.0747***	0.0509***	-0.6269***	0.0069***	-0.0071***	0.0002	0.0092***
	(0.0027)	(0.0027)	(0.0025)	(0.1048)	(0.0015)	(0.0016)	(0.0005)	(0.0012)
Log Wage of Household Head	0.0091***	0.0092***	0.0092***	-0.9205***	-0.0119***	0.0128***	-0.0009***	0.0001
	(0.0010)	(0.0010)	(0.0008)	(0.0403)	(0.0007)	(0.0008)	(0.0002)	(0.0005)
Education of Household Head	-0.0319***	-0.0314***	0.0066***	-0.1348***	-0.0175***	0.0199***	-0.0024***	0.0050***
	(0.0012)	(0.0011)	(0.0016)	(0.0500)	(0.0007)	(0.0008)	(0.0005)	(0.0006)
R^2	0.1478	0.1575	0.0746	0.0738	0.1131	0.0788	0.4426	0.0202
N	75,624	75,722	40,341	40,341	75,722	75,722	75,722	75,722

Notes: Data are from the 1978 German Microcensus. The sample consists of West German women born between 1920 and 1954. The 1920-1934 cohorts constitute the affected group and the 1940-1954 cohorts encompass the control group. Each column is from a separate regression which controls for region and birth year fixed effects and a rural dummy. Standard errors clustered by regions are shown in parentheses. Asterisks denote significance levels (*=.10, **=.05, ***=.01).