The Long-Run Effects of Immigration: Evidence Across a Barrier to Refugee Settlement

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Abstract

We estimate the long-run effects on labor productivity and wages of a large immigration shock in post-WWII Germany, when refugee arrivals increased West Germany's population by almost 20% between 1945 and 1950. Our spatial regression discontinuity design considers municipalities in a narrow band around a barrier to refugee settlement established in 1945. In 1950, one year after the barrier was removed, population density was approximately 20% higher on the side where refugees had been allowed to settle. This discontinuity in population density has persisted ever since. While there were no economic differences before 1945, we find higher long-run labor productivity and wages where refugees could settle. Using a variety of data, we examine numerous explanations and conclude that these long-run effects are driven by agglomeration economies. We document the nature of these economies. The long-run effects are consistent with spatial equilibrium as higher wages are balanced by higher rents.

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1 Introduction

First-generation immigrants comprise by now around 15% of the native population in OECD countries (United Nations, 2019) and the number of forcibly displaced people has grown exponentially over the past decade (UNHCR, 2024). How are receiving countries affected by large immigration movements and, in particular, what are the economic consequences in the long run? Our understanding of the economics of immigration has expanded greatly (e.g., Friedberg and Hunt, 1995; Card, 2001; Borjas, 2014), and looking back in history allows learning about possible long-run consequences (Hornung, 2014; Droller, 2017; Rocha et al., 2017; Sequeira et al., 2020; Peters, 2022). Yet, very little is known about the effects of immigration on long-run labor productivity and wages.

We examine long-run labor productivity and wages in West Germany following a large immigration shock. In the three years after WWII ended in 1945, millions of (mostly) ethnic Germans from eastern parts of pre-war Germany, Czechoslovakia, Hungary, Poland, and Romania were displaced into what became West Germany in 1949 (Statistisches Bundesamt, 1953). In 1950, these refugees were almost 20% of the native population.

We identify the long-run economic effects of this immigration shock using a spatial regression discontinuity design (RDD). Our analysis builds on a barrier to refugee settlement during the 1945-49 period of Allied occupation that predated the foundation of West Germany in May 1949. The barrier arose because the French occupation zone severely restricted the immigration of refugees between 1945 and spring 1948, when arrivals were the largest (Archive de l'occupation française en Allemagne et en Autriche , 1945; Ausweisungsplan, 1945; Staatssekretariat für das französisch besetzte Gebiet Württembergs und Hohenzollerns, 1946; Staatsarchiv Sigmaringen, 1946; Schumann, 2014). All other Allied occupation zones admitted refugees. The French government argued it was not bound by agreements regarding refugees among the Soviet Union, the UK, and the US as it had not been party to the negotiations (Benz, 1999).

The immigration restrictions in the French occupation zone led to a large difference in refugee settlements compared to the UK and US zones, which reshaped the spatial population distribution in Western Germany. This can be seen clearly by comparing the French and US zones in what became the state of Baden-Württemberg in South-West Germany—the only state that had multiple occupation zones except Berlin. In 1950, one year after the dissolution of the occupation zones, the ratio of refugees to natives was 17 percentage points higher in the former US zone. A spatial RDD yields nearly the same difference right at the former border between the two occupation zones. Because of the immigration restrictions in the French zone, significant differences in population density emerged for the first time, even among municipalities located in close proximity to each other. Considering municipalities in a narrow band around the 1945-49 border between the French and US zones in Baden-Württemberg, our spatial RDD yields that,

historically, there never had been a significant difference in population density across what became the border in 1945. However, since 1950, population density has always been more than 20% higher on the former US side of the 1945-49 border.

To understand the long-run economic implications of the post-WWII immigration shock in West Germany, we compare labor productivity, wages, and rents today across the former border between the 1945-49 French and US occupation zones in Baden-Württemberg. Using municipality-, establishment-, and property-level data, our spatial RDD yields that municipalities on the former US side of the border have 13% higher output per worker, 8% higher hourly gross wages, and 12% higher rents.

What explains the persistence of the higher population density on the US side of the 1945-49 border, despite the higher rents? And what accounts for higher long-run labor productivity and wages? A classic explanation is agglomeration economies, a catch-all for various economic channels that translate higher population density into higher productivity and wages (Duranton and Puga, 2004; Rosenthal and Strange, 2004; Glaeser, 2008; Combes and Gobillon, 2015). Higher productivity and wages can, in turn, sustain higher-density and higher-rent locations in spatial equilibrium (Mill, 1967; Roback, 1982; Glaeser and Gottlieb, 2009). Our data supports this explanation. We find empirical evidence for agglomeration economies on the higher-density side of the former border. In addition, we show that the higher density is consistent with spatial equilibrium as the effect of higher rents on household utility is offset by the effect of higher wages.

The main agglomeration economies discussed in the literature are labor-market matching, input sharing, and learning spillovers. Using matched employer-employee data, we find higher levels of assortative matching between workers and firms on the higher-density side of the former border (Andersson et al., 2007; Dauth et al., 2022). Moreover, we show that the transportation infrastructure has developed more favorably there (Maystadt and Duranton, 2019) and, using establishment-level data, that production relies more on intermediate inputs. Using patent data, we find higher levels of innovation on the higher-density side of the former border.

We also find that higher long-run population density, wages, and rents on the former US side of the 1945-49 border are consistent with spatial equilibrium. By combining the approach in the literature (Roback, 1982; Albouy, 2011; Moretti, 2011; Diamond, 2016) with data on household expenditures and taxes, we show that the effect of higher rents on household utility is balanced by the effect of higher wages.

While we find empirical evidence for the agglomeration economies that sustain higher density, productivity, wages, and rents, other factors may have contributed to the long-run economic differences across the former border between the French and US occupation zones. However, we find no evidence that other factors mattered in the long run.

First, the differences we find across the former border today cannot be traced back to differences before 1945. The occupation-zone border never coincided with a national

or state border before 1945. There were no significant differences in WWII destruction. Between the foundation of Germany in 1871 and WWII, population density never differed significantly across what became the occupation-zone border in 1945. Using newly digitized data, we also fail to find significant differences in pre-WWII income per capita, land values, and business values for tax purposes; real-estate values used to calculate fire insurance premia; the number and the size of firms; and sectoral employment.

Second, we assess the role of the A8 highway, a pre-WWII highway on the US side of 1945-49 border that determined the shape of the occupation-zone border. In summer 1945, the US employed its political power to expand its territory southward, such that all counties crossed by this highway became part of the US occupation zone. The resulting border with the French zone disregarded any political divisions or the line between the territories conquered by the French and US troops during the war (Mosely, 1949). Because of how the border was drawn, municipalities on the former US side of the 1945-49 border were somewhat closer on average to the A8 highway. To examine whether the highway could explain the higher population density today, we construct placebo borders along other highways and evaluate whether similar differences in density emerged across these borders. We do not find any such differences and conclude that today's difference in population density across the 1945-49 border are not driven by the A8 highway.

Third, we assess whether the differences in labor productivity and wages we find today may be rooted in the education levels or education investments of WWII refugees. Becker et al. (2020) consider forcibly relocated households and their descendants in Poland and show that Poles with a family history of relocation invested more in education than other Poles. In our historical context, Grosser (2006) documents that in 1970, WWII refugees and the local population in South-West Germany had similar education levels—around 8.5 years of education. Moreover, he finds that refugees in the former US and French occupation zones in South-West Germany had similar education levels— 8.4 and 8.5 years of education respectively. Using municipality-level data from the 1970 census, we do not find significantly higher education levels or education investments on the former US side of the 1945-49 border. We conclude that today's differences in labor productivity and wages across the former border did not emerge because of refugees on the US side of the border raising education levels or investments relative to the French side.

Fourth, we examine the potential legacy of differences in social and economic policies, regulations, laws, and institutions between the French and US occupation zones between 1945 and 1949. France, the UK, and the US cooperated in many policy areas in post-WWII Germany. For instance, they had identical tax policies from the outset (Franzen, 1994).[1] According to historical accounts, the main policy difference regarded

[1]Moreover, in 1948, they together introduced the currency reform, merged their foreign trade offices, and agreed on the same food rations. They also jointly implemented the Marshall Plan (Pünder, 1966) and the French and US zone received roughly equal funds per capita, see Appendix Table E1.

the dismantling of industry structures agreed upon by the Allied forces (Pünder, 1966). We use newly digitized lists of dismantled establishments to examine the role of industry dismantling at the municipality level. We find no empirical evidence that industry dismantling can explain today's differences across the 1945-49 border.

Other policy differences, such as differences in official food rations until 1947, may have persisted through the health or education of those born during occupation. Using the German Socio-Economic Panel (SOEP), we compare those born in the French and US occupation zones to those born between 1950 and 1954 in the former occupation zones. We find no significant differences in health and education.

Differences today may also be accounted for by individual attitudes, preferences, and norms formed during the period of French and US occupation. Using the SOEP, we find no such differences in the answers to questions about the importance of different policy goals, risk preferences, interest in politics, party preferences, and unionization.

Another possibility is that workers in the former US occupation zone work more hours than workers in the former French zone. This might be because of difficult-to-observe individual attitudes, preferences, and norms that were implanted during the 1945-49 period of US occupation. However, our establishment-level data yields that workers on the former US side of the 1945-49 border work somewhat less. It is also possible that owners and managers in the former US occupation zone are more capable on average. Such differences in entrepreneurial and managerial ability should imply larger establishments or firms on the former US side of the border. We do not find this to be the case. Still another possibility we can examine with our establishment-level data is that firms on the former US of side of the border export more or more outside the European Union. This is not the case either. We also examine whether the 1945-49 occupation zones have persistent effects through language preferences, which could for instance make it easier for firms in the former US zone to find workers with English-language skills. Using school-level data, we find no difference in the popularity of English versus French as a foreign language in high school across the former border.

In summary, we find positive effects of immigration on labor productivity and wages in the long run. These effects are balanced by higher rents and thus consistent with spatial equilibrium. We document the nature of the agglomeration effects that sustain higher productivity and wages. We do not find empirical support for alternative explanations.

There is a growing literature on the economic effects of immigration and forced migration in the long run. We contribute an analysis of the effects on labor productivity, wages, and rents. To our knowledge, the only other works examining similar effects are Sarvimäki (2011) and Hornung (2014). Sarvimäki examines a forced relocation policy of the Finnish government after WWII using an instrumental-variables (IV) strategy and finds that it led to higher real wages in municipalities receiving the relocated population.[2] Hornung

[2]Using the same episode, Sarvimäki et al. (2022) find a positive effect on the income of relocated

uses an IV strategy to show that the immigration of Huguenot refugees into Prussia in 1695 had a positive long-run effect on the productivity of textile manufacturing.

Our work is also related to studies analyzing the long-run economic effects of WWII refugees in West Germany. Braun and Kvasnicka (2014) use an IV strategy to analyze the effect of WWII refugee settlements in West Germany on the agricultural employment share. Their identification strategy builds on fewer refugees settling in areas further away from the expulsion regions. Braun and Kvasnicka find that refugees led to transition away from agriculture by 1950, but that the effect became weaker and statistically insignificant by 1961. Schumann (2014) employs a spatial RDD on the South-West German border between the 1945-49 French and US occupation zones to show that the population shock induced by WWII refugees persisted to 1970.[3] He also uses the spatial RDD to examine other outcomes and concludes that "all differences in observables except for population disappear quickly after 1950" and that "no new differences open up" along the 1945-49 border (Schumann, 2014, p. 204). We reach the opposite conclusion for key economic outcomes (unavailable to him) like labor productivity, wages, and rents. Peters (2022) makes a first attempt to estimate the effect of refugee settlements on productivity. He reports effects on GDP per capita between 1950 and 1996 at the county level. The effects are significantly positive for 1957-1974 and mostly insignificant before and afterwards.[4,5]

Our main contribution to the literature on WWII refugees in Germany is empirical evidence on the long-run effects of WWII refugees on labor productivity, wages, and rents. The evidence on wages and rents allows us to assess whether the economic effects of the refugee inflow are consistent with spatial equilibrium. We also provide first evidence on the channels through which refugee settlements raised productivity.

The recent literature on the economic effects of forced migration as a consequence of expulsions, wars, civil conflicts, or natural disasters is surveyed in Becker and Ferrara (2019), Verme and Schuettler (2021), and Becker (2022). The more closely related papers in this literature are Sarvimäki (2011)—already discussed above—and Murard and Sakalli (2018). Murard and Sakalli study forced migration into Greece around 1920 and

households as they switched out of agriculture (although the relocation program provided agricultural land). In our historical context, there is evidence that refugees who worked in agriculture before WWII switched to manufacturing (Grosser, 2006). However, when we look across the 1945-49 border we focus on, the effect on the production structure appears to have been short-lived, see Table 6, Panel B.

[3] Wyrwich (2020) finds that the population growth shocks persist up to 2010 using a difference-in-difference comparison between the French occupation zone and the combined British and US zones.

[4] As clarified in Peters (2024), county-level GDP per capita in Peters (2022) refers to different concepts for different time periods. For 1957-1974, it refers to GDP per *Wirtschaftsbevölkerung*. This is a concept used in German statistics until the mid-1970s to proxy for labor productivity. A county's *Wirtschaftsbevölkerung* is defined as the county's population plus 2 times its net commuting inflow. Compared to GDP per worker as a measure of labor productivity, GDP per *Wirtschaftsbevölkerung* has the disadvantage that it will reflect any differences across counties in the labor-force participation rate of households. Ciccone and Nimczik (2024) use newly digitized data and estimate a significantly positive effect of refugee settlements on county-level GDP per worker in 1961 and 1970.

[5] Less related is Burchardi and Hassan (2013). They examine how social ties between refugees in West Germany and East Germans affected income per capita growth after the fall of the Berlin Wall in 1989.

document a positive long-run effect on education and occupation-based income scores.

Droller (2017), Rocha et al. (2017), and Sequeira et al. (2020) also study the long-run economic effects of immigration. Droller and Rocha et al. find that immigrants with relatively high human capital compared to natives had a positive long-run effect on education and income per capita in, respectively, Argentina and Brazil. Sequeira et al. assess the local economic effects of European immigrants in the US during the 1850-1920 period and find that today, counties with greater historical immigration are more urbanized and have higher education levels and incomes. Like us, they argue that these effects are driven by agglomeration economies following immigrant arrival.[6] Our main contribution is evidence on the effects of immigration on labor productivity, wages, and rents. We also provide evidence on the type of agglomeration economies involved.

Finally, we contribute to the quantitative spatial equilibrium literature. Following the seminal Rosen-Roback framework (Rosen, 1979; Roback, 1982), most studies find that wage gains from moving to higher-paying locations are more than offset by housing costs (e.g., Card et al., 2024). In our case, higher wages on the former US side of the 1945-49 border between the French and US occupation zones are balanced by higher rents.

The remainder of the paper is structured as follows. Section 2 provides historical background. Section 3 introduces the data and the empirical framework. Section 4 presents our results on pre-WWII socio-economic characteristics, the distribution of WWII refugees, and the population density shock across the border between the 1945-49 French and US occupation zones in South-West Germany. Section 5 discusses our findings on post-WWII outcomes. Section 6 examines alternative explanations. Section 7 concludes. Additional results are in the Appendix.

2 Historical Background

Reorganization of Germany after WWII Towards the end of WWII, as the German defeat became apparent, the Allied powers held several conferences to plan the future of Europe. In the Yalta Conference in January 1945, the UK, the US, and the Soviet Union decided to divide Germany into four occupation zones. However, except for the Soviet zone in eastern Germany, they were unable to reach an agreement as to the location of the occupation zones. The division of Germany among the occupying forces was finalized in the Potsdam Conference in the summer of 1945. The Allied forces also agreed to reverse all German annexations and to shift the eastern border of Germany westward. Appendix Figure E1 (a) depicts the borders of Nazi Germany just before WWII. The

[6] Burchardi et al. (2019) analyze the effect of the ancestry composition of US counties on foreign direct investment using an IV strategy based on the timing of immigration from different countries of origin. Our study also relates to the literature on short- and medium-run effects of internal and international migration on local labor markets, see, e.g., Boustan et al. (2010), Peri (2016), Abramitzky et al. (2023), and Terry et al. (2024).

striped areas mark the German territories in the east and the territories annexed by Nazi Germany. The two blue areas highlight the two historical states of Baden and of Württemberg, the focal area of our study. Panel (b) delineates the four occupation zones in post-WWII Germany.

The decisions taken in both the Yalta and Potsdam conferences were made by the UK, the US, and the Soviet Union. France had not been invited to participate. Nevertheless, the UK and the US decided to accommodate the French provisional government's demands for a French occupation zone (Willis, 1962), even though this reduced their own occupation zones (Mosely, 1949). After WWII, the US used its political power to draw the border between its occupation zone and the French occupation zone in South-West Germany. The border "was based on strictly logistical conceptions [...] so as to leave in the American zone the main highway [...]. Administrative and traditional divisions were disregarded completely" (Mosely, 1949, p. 600). The front lines conquered respectively by the French and US troops were also ignored in delineating the border. At the end of WWII, the line of contact between the French and US forces was roughly 50 km north of what would become the border between their 1945-49 occupation zones in South-West Germany. The French combat forces had expanded their territory further northwards than stipulated by the Supreme Headquarters of the Allied Expeditionary Forces, with the intention of increasing their future occupation zone (Willis, 1962).[7] The US position prevailed and the territory under US control was expanded southward to include all counties crossed by the highway through South-West Germany. An often cited motive for the French demand for an occupation zone is to restore national pride after France had been occupied by Nazi Germany during WWII (Koop, 2005, p. 19). At the same time, the Nazi occupation had left France in a difficult economic situation. Since the provisional French government was not invited to the Potsdam Conference, it did not feel bound by the agreements made there. This became particularly apparent in the French refusal to accommodate refugees in the context of the forced population resettlements that were part of the reorganization of Germany.

The arrival of the refugees The reorganization of Germany's boundaries was planned to be accompanied by an "orderly and humane" forced resettlement of the German and German-speaking populations living beyond the new borders of Germany to within the new borders (Potsdam, 1945). This implied a new phase of the population movements that had started during the final stages of the war. Since early 1945, with the advances of the Soviet army towards the eastern parts of pre-war Germany, the population had begun to flee westward (Kossert, 2009). Moreover, over the spring and summer of 1945, local militia and military forces expelled German-speaking people from Czechoslovakia

[7] The fact that municipalities on both sides of the 1945-49 border were freed by the French forces eliminates concerns about a differential effect of potential misdeeds during the military liberation period, as documented by Ochsner (2021) in Austria (see also Blumenstock, 1957).

and Poland. Including the population transfers organized by the Allied forces, a total of 12.4 million people had been displaced from the eastern parts of pre-war Germany, from Czechoslovakia, and from other countries in East and South-East Europe by the end of 1950 (Statistisches Bundesamt, 1953). 7.9 million people arrived in the territory of what would become West Germany in 1949.

Due to the arrival of these refugees, the population in West Germany grew by almost 20% between 1939 and 1950, despite the many fatalities in WWII. The population within the territory of the 1945-49 US occupation zone in South-West Germany grew by 21%, mainly driven by an inflow of refugees from Czechoslovakia who made up 54% of the incoming refugees (Statistisches Bundesamt, 1955). In contrast, France restricted access to their occupation zone for refugees (Benz, 1999). Arguing not to be bound by the Potsdam agreement, the French delegation in the Allied Control Council strove to prevent "any increase in the number of hungry mouths" (Archive de l'occupation française en Allemagne et en Autriche , 1945). As a consequence, the official expulsion plan of the Allied Control Council stipulated that only a vanishingly small proportion of refugees should end up in the French zone.[8]

In many regards, refugees were similar to the local population. They spoke German, had similar education levels, and shared other demographic characteristics. Based on a supplementary German microcensus in 1971 that was conducted to study the socio-economic situation of refugees, Grosser (2006) shows that refugees in the US occupation zone in South-West Germany had similar education levels, pre-WWII employment, and occupational status compared to the local population. We provide calculations based on Grosser's data in Section 6.2 and perform additional analyses to show that refugees were not selected in terms of their human capital in the border region.[9]

The 1945-49 occupation period in West Germany The economic and social policies across the four occupation zones in post-WWII Germany were supposed to be coordinated by the Allied Control Council established in August 1945. In some instances this worked as intended. For example, up until 1948, the four occupation zones followed a common tax policy, as agreed upon by the council (Franzen, 1994). Over time, coordination through the council deteriorated due to increasing disagreement between the

[8] According to Ausweisungsplan (1945), 2 million refugees were supposed to end up in the Soviet zone, 1.5 million refugees in the British zone, 2.25 million refugees in the US zone, and only 150,000 refugees from Austria in the French zone. The French zone further delayed and prevented the implementation of this plan, so that estimates suggest that no more than 3,000 people from Austria actually ended up in the French zone (Sommer, 1990). For all other refugees, the French military government completely blocked immigration into its zone in a legal order of March 12, 1946 (Staatssekretariat für das französisch besetzte Gebiet Württembergs und Hohenzollerns, 1946), and a tightening note of August 8, 1946 (Staatsarchiv Sigmaringen, 1946).

[9] Despite the many similarities, refugees faced substantial opposition from the local population. According to historical accounts, they were often treated as inferiors and strangers. One reason for this hostility was the scarcity of housing. Housing scarcity was the product of the large number of refugees and war destruction. In many cases, the occupying powers forced locals to host refugees.

Soviet Union and the Western Allies (Koop, 2005, p. 15ff.). However, the Western Allies continued to cooperate in many policy areas. In 1947, Britain and the US merged their occupation zones into the Bizone. Starting in 1948, the Bizone coordinated its policies closely with the French occupation zone. For example, in 1948, the Bizone and the French zone together introduced the currency reform, merged their offices to manage foreign trade, abolished controls at the occupation-zone borders, agreed on the same food rations, and jointly entered the European Recovery Program to implement the Marshall Plan (Pünder, 1966) where they received roughly equal amounts of funds on a per capita basis (see Appendix Table E1). The Bizone and the French zone also jointly implemented a tax reform in 1948 (e.g., Franzen, 1994, p. 34). The close policy coordination among the three Western powers paved the way for the dissolution of their occupation zones and the foundation of West Germany in 1949.[10]

The foundation of Baden-Württemberg In South-West Germany, the US and France had structured their occupation zones into three states during the occupation period. In the US zone, the new state of Württemberg-Baden unified the northern parts of the two historical states of Baden and Württemberg. In the French zone, the southern parts of these historical states became part of the new states of Baden and Württemberg-Hohenzollern (Matz, 2003). There had been a proposal, favored by the Western Allies, to join these states in a single federal state of West Germany (Matz, 2003). However, because of disagreement over the mode of the popular vote on the proposal, it took until April 1952 to found the state of Baden-Württemberg as the union of the three states in the territory of the former French and US occupation zones in South-West Germany.

3 Data and Empirical Framework

3.1 Data

To implement our spatial regression discontinuity design, we combine data from a broad variety of sources. We highlight the key points in this section and provide a detailed overview of the variables and sources in Appendix A.

The historical data is hand-digitized from censuses at the municipality level in Baden (1871, 1895, 1903, 1930, and 1939), Württemberg (1871, 1895, 1907, and 1933), and Baden-Württemberg (1950, 1960, 1970/71). We also digitized 1980 income tax statistics at the municipality level, provided by the Statistical Office of Baden-Württemberg. The most recent municipality-level data on labor productivity, income, and education comes from the online database of the Statistical Office of Baden-Württemberg. We complement

[10] France, the UK, and the US reserved veto power and ultimate authority over sensitive policy areas in an Occupation Statute until the Bonn-Paris conventions put an official end to the Allied occupation of West Germany in 1955.

the municipality-level data with micro-data from several sources. To examine value added per hour, hourly wages, intermediate inputs, and exports, we use data for the manufacturing sector provided by the German Statistical Offices. For rents, we use property-level data at the municipality level from the 1987 census and 2008-2016 data from the internet platform ImmobilienScout24. We also use a housing price index provided by the Federal Office for Building and Regional Planning available at the county level for 2022. To examine patenting activity, we use the PatentCity data (Bergeaud and Verluise, 2024). To examine labor market matching, we use municipality-level aggregates of worker- and establishment-level estimates obtained from matched employer-employee data by Dauth et al. (2022). To examine individual health, education, norms, and attitudes of those born or living in the former French and US occupation zones, we use survey data from the German Socio-Economic Panel (SOEP). For language courses chosen in school, we employ data provided by the Statistical Office of Baden-Württemberg. Additionally, we digitized municipality-level data on WWII destruction, industry dismantling after WWII, official food rations, and the presence of military bases after the 1945-49 occupation period.

All outcome data are linked to geo-data for Baden-Württemberg using historical maps provided by the House of History Baden-Württemberg and the German Federal Agency for Cartography and Geodesy. For each municipality, we obtain an indicator for location in the 1945-49 US occupation zone; longitude and latitude of the municipality center; distance to Stuttgart; distance to the closest highway exit; distance to the 1945-49 occupation-zone border; and a list of municipalities located within a certain radius around the municipality center. All geospatial calculations are done using QGIS. For most of the analysis, we aggregate historical data to modern municipality borders. Baden-Württemberg implemented a territorial reform in the early 1970s that reduced the number of municipalities from 3,379 to less than half that number. We use correspondence tables provided by the Statistical Office Baden-Württemberg to assign historical data to modern municipalities. In this process, we drop six modern municipalities because they stretch across both sides of the 1945-49 occupation-zone border in South-West Germany and hence cannot be assigned unambiguously to either the former French or former US side.

3.2 Empirical Framework

Our baseline empirical framework is a standard spatial regression discontinuity (RD) design (Dell et al., 2018; Van Patten and Mendez, 2022)

$$y_m = \alpha + \gamma USZoneLocation_m + f(\text{geo location}_m) + X_m'\beta + \sum_i^S seg_m^i + \varepsilon_m, \quad (1)$$

where y_m is the outcome of interest in municipality m, $USZoneLocation$ is the relevant treatment indicator—whether ($USZoneLocation = 1$) or not ($USZoneLocation = 0$) a municipality is located in what was the US occupation zone between 1945 and 1949—, and $f(\text{geo location}_m)$ is the RD polynomial. In the baseline specification, the polynomial is linear in longitude and latitude. The regression model is specified as a local linear regression (Gelman and Imbens, 2019) with a triangular kernel where weights decline linearly with distance to the border. In our sensitivity analysis, we consider alternative specifications for the functional form of the RD polynomial. The control variables X_m include quadratic functions of distance from the municipality's center to Stuttgart, the capital of Baden-Württemberg, and to the closest highway exit of the historic highway crossing South-West Germany (today, the A8 highway). Depending on the model, we include further control variables. In particular, models that pool several time periods include year fixed effects. Models that are based on firm-level manufacturing data include 4-digit industry and 11 firm-size group fixed effects. Models that are based on property-level housing data include property characteristics. In our sensitivity analysis, we consider additional control variables.

In the baseline, we include municipalities within a 15 km bandwidth around the border and have five boundary segment fixed effects seg_m^i. In our sensitivity analysis, we consider different bandwidths and different numbers of boundary segment fixed effects.

The main parameter of interest in equation (1) is γ, the effect of being located on the former or the future US side rather than the French side of the border between the 1945-49 French and US occupation zones in South-West Germany. Inference is based on Conley (1999) standard errors that allow for arbitrary correlations in the spatial dimension and, in models with several time periods, the time dimension (see also Colella et al., 2019). We implement a Bartlett-type kernel with a 25 km cutoff in the spatial dimension in the baseline and consider different cutoffs in our sensitivity analysis. In models with several time periods, we use a 20 year cutoff in the time dimension.

In equation (1) we use the simplest definition of treatment in our context: a treatment indicator capturing whether a municipality was located in what was the US occupation zone between 1945 and 1949. While simple, the definition might be too narrow given the relatively small size of municipalities and the evidence on the spatial reach of agglomeration economies (Rosenthal and Strange, 2020). We therefore also consider an alternative definition of treatment, which we refer to as exposure to the US occupation zone. To obtain US-zone exposure, we first draw a circle with a certain radius around the center of municipality m—10 km in our baseline and different radii in our sensitivity analysis. We then take all municipalities whose centers are within this circle and calculate the 1939 population share of those municipalities that ended up in the US occupation zone in 1945. This population share is the basis of our measure of US-zone exposure for municipality m. We use 1939 population as this captures basic determinants of where refugees could

potentially settle, but avoids endogeneity issues related to where refugees actually settled within the US and within the French occupation zones. Appendix Figure E2 illustrates the construction and distribution of the 1939 population share for municipalities in our border region. For many municipalities, US-zone exposure is identical to the US treatment indicator variable in (1). This is because either all municipality in the circle are located in the 1945-49 US occupation zone or all municipality in the circle are located in the 1945-49 French occupation zone. For municipalities at the 1945-49 occupation-zone border, US-zone exposure is generally strictly between 0 and 1, as some municipalities within the circle lie on the other side of the 1945-49 border. Also, because of the jagged shape of the occupation-zone border, some municipalities located in the 1945-49 US zone actually have *lower* US-zone exposure than some municipalities located in French zone (see, e.g., the case of the municipalities of Bondorf, located in the US zone, and Dettingen an der Ems, located in the French zone, in Appendix Figure E2).

The model specification adding US-zone exposure is

$$y_m = \alpha + \theta USZoneLocation_m + \delta USzoneExposure_m + f(\text{geo location}_m) + X'_m\beta + \sum_i^S seg_m^i + \varepsilon_m. \quad (2)$$

The new parameter of interest in equation (2) is δ, the effect of the $USzoneExposure$ of municipality m on outcome y. If some agglomeration economies range beyond municipality borders, $USzoneExposure$ should result in higher levels of labor productivity, wages, and rents today. $USzoneExposure$ is obtained by subtracting 0.5 from the 1939 population share within a 10-km radius in the 1945-49 US occupation zone.[11] Subtracting 0.5 from the 1939 population share does not affect the estimate of δ. However, it affects (the interpretation of) the parameter θ on the indicator $USZoneLocation$ for municipalities located in the 1945-49 US occupation zone. This parameter now captures the effect in a municipality located in the 1945-49 US occupation zone but so close to the border that half of the 1939 population of municipalities within a 10-km radius was in what became the 1945-49 French occupation zone. That is, θ is the effect of US-zone location when comparing municipalities on opposite sides of, but very close to, the 1945-49 border.

[11] Formally, let $d(o,m)$ denote the distance between the municipality centers of o and m in km. Then $USzoneExposure_m = \sum_{o:\, d(o,m)\leq 10} pop39_o \times USZoneLocation_o / \sum_{o:\, d(o,m)\leq 10} pop39_o$ - 0.5.

4 Refugees, Population Density, and the 1945-49 Border Before WWII

4.1 WWII Refugees and Population Density

In the 1950 census, West Germany had a resident population of around 50 million including 8 million WWII refugees. The map in Figure 1 illustrates the population share of refugees in 1950 at the municipality level in what became the state of Baden-Württemberg in 1952. The census defines refugees as individuals who in 1939 (i) resided in the territories of pre-WWII Germany east of the post-WWII occupation zones or (ii) resided outside of pre-WWII Germany and were native German speakers. The map suggests a spatial discontinuity in the share of refugees in 1950 that coincides with the South-West German border between the 1945-49 French and US occupation zones.

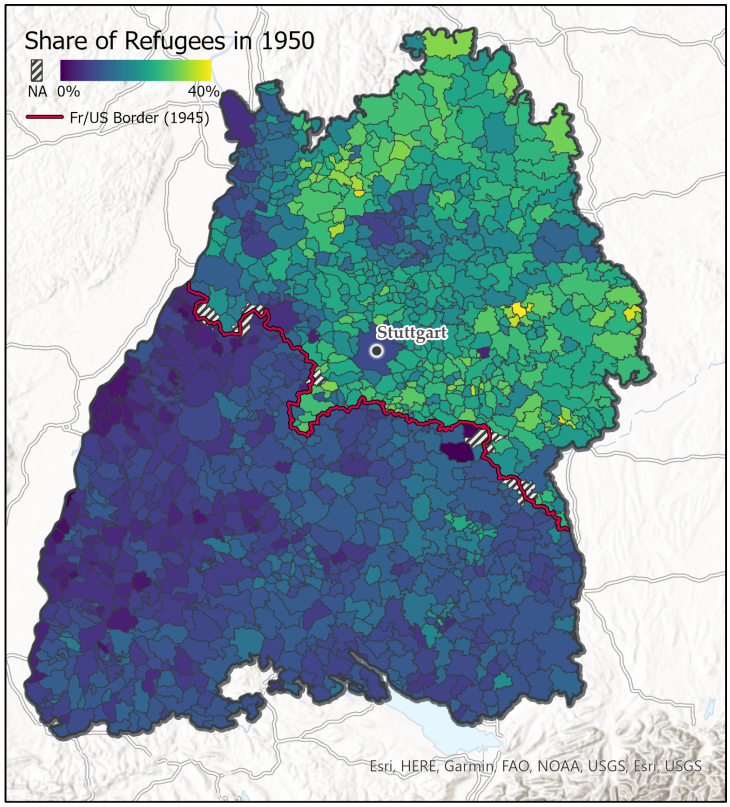
Table 1 quantifies the spatial discontinuity in the distribution of refugees in 1950 for the entire state of Baden-Württemberg as well as for municipalities within 15 km of the former border. Column (1) shows the discontinuity for the entire state. The population share of refugees is almost 12 percentage points higher in the former US than the former French occupation zone. Column (2) displays the spatial discontinuity for the 218 municipalities close to the former border. The estimate is identical to what we obtained for the entire state. Hence, the distribution of refugee settlements across the two occupation zones near the border mirrored the overall distribution in South-West Germany. The large-scale arrival of refugees in the US occupation zone had led refugees to spread right to the border with the French occupation zone.

Column (3) estimates the discontinuity in the population share of refugees at the former border using the spatial RDD equation in (1). The estimate for the indicator $USZoneLocation$ is 0.126 and highly statistically significant. Hence, the spatial RDD yields a population share of refugees that is 12.6 percentage points higher on the former US than French side of the 1945-49 border. Column (4) shows results when we add US-zone exposure as in equation (2). The spatial discontinuity in the distribution of refugees at the former border changes little. US-zone exposure is statistically insignificant, indicating that the discontinuity in refugee settlements at the 1945-49 border is sharp.

Columns (5) to (8) consider the number of refugees relative to natives as the outcome variable. The ratio is 17-18 percentage points higher on the former US side of the 1945-49 border. Hence, the arrival of refugees in the US occupation zone can explain 17-18% higher population density on the former US side of the 1945-49 border.

Figure 2 shows our estimates of population density at the 1945-1949 border based on separate estimates of equation (1) for years between 1871 and 2020. Before WWII, there never was a significant spatial discontinuity in population density at what became the

Figure 1: Population Share of WWII Refugees in 1950



Notes: The map shows the population share of refugees in 1950 at the municipality level for Baden-Württemberg. Refugees are defined as individuals who in 1939 (i) resided in the territories of pre-WWII Germany to the east of the four post-WWII occupation zones or (ii) resided outside of pre-WWII Germany and were native German speakers. The red line indicates the border between the 1945-49 French and US occupation zones. The data is aggregated at the level of modern municipalities. The six municipalities marked with stripes subsume historical municipalities that before the territorial reform of the early 1970s were on different sides of the 1945-49 occupation-zone border. We exclude these municipalities from our empirical analysis.

Table 1: Refugees in 1950 Across the 1945-49 Border

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Refugees / Pop				Refugees / Natives			
	Baden-Württemberg	Border Region	Equation (1)	Equation (2)	Baden-Württemberg	Border Region	Equation (1)	Equation (2)
US-zone Location	0.118***	0.118***	0.126***	0.122***	0.170***	0.169***	0.181***	0.176***
	(0.008)	(0.015)	(0.009)	(0.012)	(0.012)	(0.022)	(0.014)	(0.019)
US-zone Exposure (10km)				0.016				0.017
				(0.024)				(0.037)
Observations	1,095	218	218	218	1,095	218	218	218

Notes: The table shows regression results for the population share of refugees in 1950 and the ratio of refugees to natives at the municipality level. Refugees are defined as individuals who in 1939 (i) resided in the territories of pre-WWII Germany to the east of the four post-WWII occupation zones or (ii) resided outside of pre-WWII Germany and were native German speakers. The sample in columns (1) and (5) includes all municipalities in Baden-Württemberg. The coefficient shows the difference in the two outcomes between the US and French occupation zones. The sample in columns (2)-(4) and (6)-(8) includes municipalities within 15 km from the 1945-49 occupation-zone border. Columns (2) and (6) show the difference in the two outcomes between the US and French occupation zones in this border region. The remaining columns estimate the effect of the US occupation using our spatial regression discontinuity design following the models specified in equations (1) and (2). These regressions are local linear regressions controlling for longitude and latitude, quadratic polynomials in distance to Stuttgart and to the closest highway exit, and five boundary segment fixed effects. Standard errors in all regressions are Conley standard errors with a Bartlett kernel and a cutoff value of 25 km. *, **, and *** denote statistical significance at the 10%, 5%, and 1% level respectively.

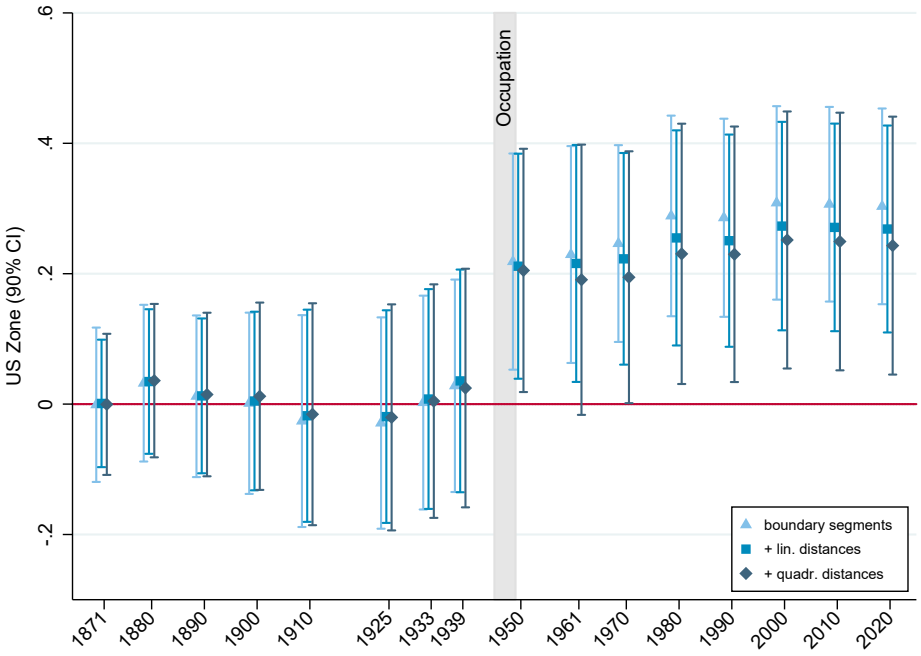


Figure 2: Population Density from 1871 to 2020

Notes: The figure shows regression coefficients for the difference in population density across the border between the 1945-49 French and US occupation zones and corresponding 90% confidence intervals. The analysis includes municipalities within 15 km from the 1945-49 occupation-zone border. Confidence intervals are based on Conley (1999) standard errors with a Bartlett kernel and a cutoff value of 25 km. Results are from separate regressions for years between 1871 and 2020. All regressions are local linear regressions controlling for longitude and latitude and fixed effects for five boundary segments. The estimates marked in light blue additionally control for linear distance to Stuttgart and the closest highway exit. The estimates marked in dark blue control for linear and quadratic distance to Stuttgart and to the closest highway exit—our baseline specification for all following results.

1945-49 border. But in 1950, there is a persistent discontinuity at the former border—with population density being around 20% larger on the former US side.[12] The differential shock to population density on the US side of the border is similar in size to the discontinuity in the ratio of refugees to natives in 1950 in Table 1, columns (7)-(8). Moreover, if we take into account the (statistically insignificant) difference in population density in 1939 at the border of 2.5%, the 18 percentage points higher ratio of refugees to natives exactly explains the difference in population density in 1950. By 2020, the difference in population density at the 1945-49 border is around 25%.

4.2 Economic Characteristics Before WWII

That there is no spatial discontinuity in population density before WWII at what became the border between the 1945-49 French and US occupation zones in South-West Germany suggests that municipalities across the border were similarly attractive places to live. We now examine additional socio-economic indicators for spatial discontinuities before WWII at the 1945-49 border.

A standard measure of historical economic development available in municipality censuses around 1900 and before WWII is the sectoral production structure.[13] Figure 3a shows our results based on equation (1). What would become the US occupation zone in 1945 actually had a somewhat lower employment share of manufacturing in manufacturing & agriculture and a lower employment share of manufacturing & trade in manufacturing & trade & agriculture before WWII. But the difference with what would become the French occupation zone is statistically insignificant.

We also examine several measures of income and wealth from municipality censuses for the period before WWII. In particular, we digitized data on taxable income per capita in 1895/1907; houses per capita in 1903/1908; house values in 1903/1908 assessed by fire insurance; and the value of land and businesses for tax purposes in 1930/1933, i.e., the official valuations by the tax authorities that are used as a tax base. None of these indicators reveal spatial discontinuities at what would become the border between the 1945-49 French and US occupation zones in South-West Germany. Neither is there any spatial discontinuity in the share of self-employed workers or the number of farms per capita. The only statistically significant pre-WWII difference we find indicates that what would become the US occupation zone in 1945 had a smaller number of non-agricultural businesses per capita in 1933/39.

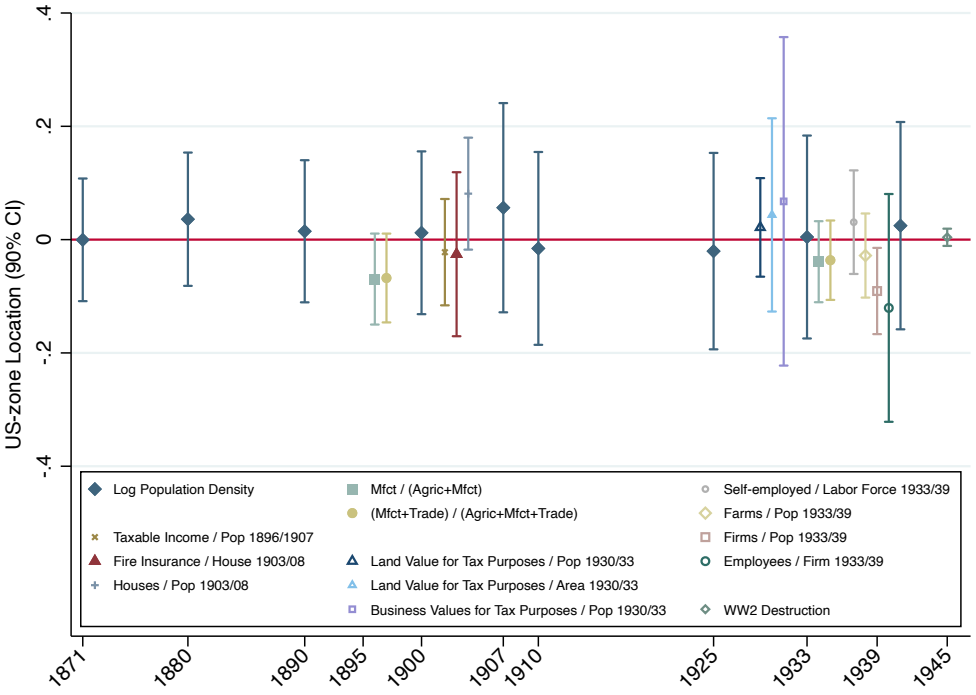
Taken together, the evidence in Figure 3a suggests that there were no significant

[12] Our findings are consistent with Schumann's (2014) result that 1939-1950 population growth was about 20 percentage point higher on the US side and that this growth differential persisted to 1970.

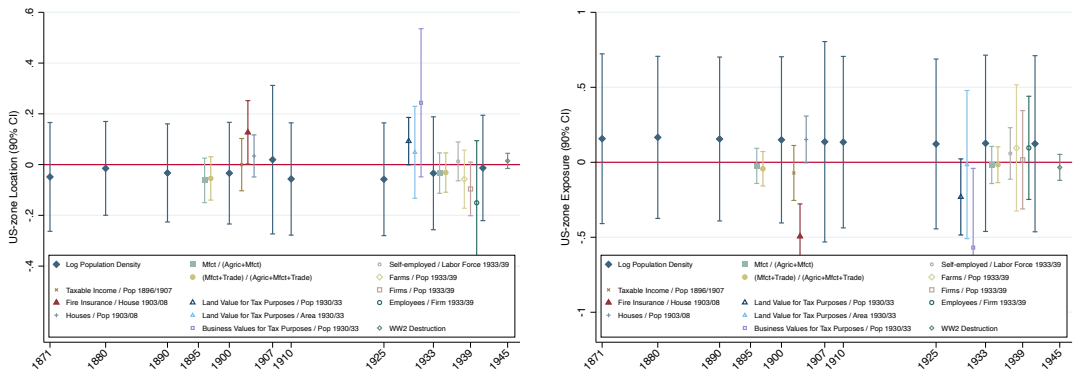
[13] As described in Appendix A, some variables are measured in different years in Baden and in Württemberg. For example, the sectoral production structure in Baden for the period around 1900 is available for 1895 and in Württemberg for 1907. In these cases, our regressions include a dummy variable which is equal to one for municipalities in Baden.

Figure 3: Economic Characteristics Before WWII

(a) US-Zone Location in Equation (1)



(b) US-Zone Location and US-zone Exposure in Equation (2)



US-zone Location | US-zone Exposure

Notes: The figure shows regression coefficients for the difference in pre-WWII characteristics across what would become the border between the 1945-49 French and US occupation zones and corresponding 90% confidence intervals. The upper graph shows the coefficient for US-zone location in equation (1). The lower graphs show the coefficients for US-zone location on the left and US-zone exposure on the right based on equation (2). Confidence intervals are based on Conley (1999) standard errors with a Bartlett kernel and a cutoff value of 25 km. The analysis includes municipalities within 15 km from the 1945-49 occupation-zone border. All regressions are local linear regressions controlling for longitude and latitude, quadratic polynomials in distance to Stuttgart and to the closest highway exit, and five boundary segment fixed effects.

economic differences before WWII across what became the border between the 1945-49 French and US occupation zones in South-West Germany. Furthermore, the figure shows that at the end of WWII in 1945, there was no spatial discontinuity in the percentage of housing and industrial structures destroyed during the war. Figure 3b shows that these findings also hold for US-zone location and US-zone exposure in equation (2). In the few cases where what would become a municipality's US-zone exposure in 1945 is statistically significant, the point estimates indicate that municipalities with greater US-zone exposure actually had lower levels of economic development before WWII.

5 Economic Outcomes Across the 1945-49 Border After WWII

5.1 Economic Outcomes in the Long Run

Table 2 contains our main results for long-run differences in labor productivity, wages, rents, income, and education in municipalities across the border between the 1945-49 French and US occupation zones in South-West Germany based on equations (1) and (2). Our sensitivity analysis is in Appendix B.

Aggregate labor productivity Table 2, Panel A contains results for (log) aggregate labor productivity at the municipality level in 2007-2018. Aggregate labor productivity is measured as the (taxable) sales of goods and services per worker of all active firms in a municipality. The result in column (1) is based on equation (1) and shows a significant spatial discontinuity at the border between the 1945-49 French and US occupation zones. The effect of US-zone location (0.13) implies that aggregate labor productivity is 13% higher on the former US than the former French side of the 1945-49 border. Column (2) is based on equation (2) adding US-zone exposure. This yields two findings. First, US-zone exposure has a significantly positive effect on aggregate labor productivity. Second, once we account for municipalities' US-zone exposure, the effect of US-zone location drops by around 60% and is no longer statistically significant. Hence, when we take into account that agglomeration economies range beyond municipality borders, the former occupation zone where the municipality is located loses statistical significance as a determinant of aggregate productivity. The effect of US-zone exposure implies that a municipality surrounded by former US-zone municipalities has 27% higher labor productivity today than a municipality surrounded by municipalities in the former French zone. Assuming a share of intermediate inputs and services of 50% (the value for Germany in 2020 according to Statistisches Bundesamt, 2021), implies an effect for value added per worker of 13.5%.

Table 2: Economic Outcomes in the Long Run, the Medium Run, and Prior to WWII

	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Aggregate Labor Productivity						
	2007-2018					
US-zone Location	0.130**	0.053				
	(0.057)	(0.065)				
US-zone Exposure (10km)		0.270*				
		(0.148)				
Observations	2,558	2,558				
Panel B: Hourly Wages and Value Added in Manufacturing						
	Hourly Wages 1995-2012		Value Added / hr. 1995-2012			
US-zone Location	0.076**	0.045	0.074	-0.006		
	(0.034)	(0.037)	(0.052)	(0.064)		
US-zone Exposure (10km)		0.105**		0.267***		
		(0.054)		(0.098)		
Observations	3,415	3,415	3,402	3,402		
Panel C: Rents						
	2008-2016		1987		1970	
US-zone Location	0.120***	0.011	0.080***	0.011	0.056*	0.031
	(0.026)	(0.027)	(0.015)	(0.026)	(0.032)	(0.036)
US-zone Exposure (10km)		0.232***		0.155***		0.087
		(0.057)		(0.042)		(0.062)
Observations	314,765	314,765	255,969	255,969	216	216
Panel D: Income per Capita						
	2007-2017		1980			
US-zone Location	0.014	-0.025	-0.000	-0.048		
	(0.018)	(0.023)	(0.032)	(0.032)		
US-zone Exposure (10km)		0.139***		0.170***		
		(0.046)		(0.054)		
Observations	1,519	1,519	218	218		
Panel E: Education						
	Years of Education		Share University Degree			
	1999-2020		1999-2020		1989-1998	
US-zone Location	0.079*	-0.012	0.013**	-0.001	0.006*	-0.004
	(0.047)	(0.059)	(0.006)	(0.006)	(0.004)	(0.004)
US-zone Exposure (10km)		0.319***		0.049***		0.036***
		(0.124)		(0.012)		(0.008)
Observations	4,786	4,786	4,786	4,786	2,180	2,180

Notes: The table shows regression results for labor productivity, hourly wages and value added in manufacturing, rents, income, and education. All regressions are local linear regressions controlling for longitude and latitude, quadratic polynomials in distance to Stuttgart and to the closest highway exit, and five boundary segment fixed effects. The analysis includes municipalities within 15 km from the 1945-49 occupation-zone border. Standard errors are Conley standard errors with a Bartlett kernel and cutoff values of 25 km and 20 years. *, **, and *** denote statistical significance at the 10%, 5%, and 1% level respectively. Regressions that pool multiple years include year fixed effects. Regressions in Panels, A, D, and E are at the municipality by year level. Regressions in Panel B are at the establishment by year level and show results from the sample of all one-establishment firms in the manufacturing sector surveyed in the cost structure survey from 1995 to 2012. We control for dummies for 11 firm size groups and fixed effects for 4-digit industries. Regressions in Panel C are at the property level and control for property characteristics. Rents in 2008-16 are offered rents from ImmobilienScout24, rents from the census 1987 are self-reported rents for properties rented after 1985, and rents in 1970 are average self-reported rents at the municipality level.

Wages and value added in manufacturing Table 2, Panel B contains results for (log) hourly wages at the municipality level. The data comes from a representative survey covering 45% of manufacturing firms with 20+ employees between 1995 and 2012. As we want to capture wages at the municipality level and the data includes firms with establishments in multiple municipalities, we focus on firms with a single establishment.

The result in column (1) based on equation (1) shows a spatial discontinuity in hourly wages at the border between the 1945-49 French and US occupation zones. The specification controls for 4-digit industry fixed effects and 11 firm-size group fixed effects. The effect of US-zone location indicates that hourly wages are 7.6% higher on the former US side of the border. Column (2) based on equation (2) adds US-zone exposure. The effect of US-zone location drops by around 40% and is no longer statistically significant. US-zone exposure has a significantly positive effect on wages. A municipality surrounded by municipalities on the former US side of the 1945-49 border has 10.5% higher wages than a municipality surrounded by municipalities on the former French side.

The manufacturing survey also provides data on the value added of the firms we examined in columns (1)-(2). Columns (3)-(4) use this data to analyze differences in (log) value added per hour across the border between the 1945-49 French and US occupation zones. The result in column (3) based on equation (1) shows a positive but statistically insignificant difference at the border. In column (4) based on equation (2), we find that US-zone exposure has a significantly positive effect on value added per hour. The magnitude of the effect of US-zone exposure indicates that a municipality surrounded by municipalities on the former US side of the border between 1945-49 occupation zones has 26.7% higher value added per hour in manufacturing today than a municipality surrounded by municipalities on the former French side.

Rents Table 2, Panel C contains results for (log) rents. Columns (1)-(2) examine rental prices offered in 2008-2016 on ImmobilienScout24—Germany's largest rental website with a market share of about 50%—controlling for a range of property characteristics listed in Appendix A1. The result in column (1) based on equation (1) shows a significant spatial discontinuity at the border between the 1945-49 French and US occupation zones. The effect of US-zone location indicates that rents are 12% higher on the former US of the border.[14] Column (2) adds US-zone exposure to the specification. US-zone location is no longer statistically significant. US-zone exposure has a significantly positive effect on rents. The estimate implies that a municipality surrounded by former US-zone municipalities has 23.2% higher rents today than a municipality surrounded by municipalities in the former French zone.

Columns (3)-(4) contain results for rental prices from the 1987 census. We focus on

[14]We obtain a very similar results using the county-level housing price index provided by the Federal Office for Building and Regional Planning for 2022. See Appendix C for more information.

properties rented between 1985 and 1987, excluding social housing and controlling for a range of property characteristics listed in Appendix A1. The results are qualitatively the same as those obtained for the 2008-2016 period, but quantitatively about 1/3 smaller. Columns (5)-(6) contain results for average rental prices at the municipality level from the 1970/71 census (not adjusted for any property characteristics since no data is available at the individual property level). The effects are qualitatively similar but smaller.

Income per capita Table 2, Panel D contains results for (log) income per capita from municipality-level tax statistics. In column (1) we show that US-zone location has a small and statistically insignificant effect. However, in column (2), we find a positive and statistically significant effect of US-zone exposure on income per capita. The point estimate indicates that a municipality surrounded by municipalities in the 1945-49 US occupation zone has 13.9% higher income per capita today than a municipality surrounded by municipalities in the French occupation zone.

Columns (3)-(4) show results for income per capita in 1980, the earliest available year with data at the municipality level after WWII. Results are qualitatively and quantitatively similar to those we obtained for the 2007-2017 period. Thus, the modern income effects across the 1945-49 border appear to have already been in place in 1980.

Education Table 2, Panel E contains results for education at the municipality level. Columns (1)-(2) examine average years of education in 1999-2020.[15] The result in column (1) shows a spatial discontinuity at the border between the 1945-49 French and US occupation zones. On average, there is a difference of about one month of educational attainment at the border. Column (2) adds our measure of US-zone exposure. US-zone exposure has a significantly positive effect on education levels. The estimate indicates that the average years of education in a municipality surrounded by former US-zone municipalities is almost a third of a year higher today than in a municipality surrounded by municipalities in the former French zone. The effect of US-zone location becomes smaller and is no longer statistically significant once we account for municipalities' US-zone exposure. The difference in years of education arises mainly because of differences in the share of employees with university education. Column (3) indicates that the share of workers with a university education is 1.3% higher on the former US side of the border. Column (4) shows that the share of workers with a university education in a municipality surrounded by former US-zone municipalities is 4.9% higher today than in a municipality surrounded by municipalities in the former French zone. Columns (5)-(6) contain our results for university education in 1989-1999. The results are similar to 1999-2020, but smaller. In Section 6.2 we provide comparable estimations for earlier periods and find

[15]The data contains shares for different categories of occupational degrees among employees in a municipality. We convert these shares into a measure of years of education by assuming that no vocational degree corresponds to 9 years of education, a vocational degree corresponds to 12 years of education, and a university degree corresponds to 18 years of education.

that the differences in education were not present in 1970. We conclude that the higher education levels on the former US side are not the result of a positive selection of refugees, but emerged only after an extended period of greater population density.

Summary Overall, the results in Table 2 paint a consistent picture. Our baseline specification examining the effect of location in the US occupation zone along the 1945-49 border, yields that aggregate labor productivity, hourly wages in manufacturing, rents, and education are significantly higher today on the former US side of the border. Effects become stronger when we account for agglomeration economies ranging beyond municipality borders by examining the effect of exposure to the US occupation zone. In this case, we obtain positive and statistically significant effects of US-zone exposure on labor productivity, hourly wages, value added per hour, rents, income per capita, and education. The effect for income per capita was already present in 1980. For rents, we see a gradual increase in the magnitude of the effects between 1970 and today. For education, there is no significant effect in 1970 and the higher levels today on the former US side of the 1945-49 border appear to only have emerged after an extended period of greater population density.

Sensitivity analysis Appendix B shows that the long-run effects on labor productivity, income, rents, and education are not driven by particular choices regarding the bandwidth around the border, the structure of the error terms, the functional form of the RD polynomial, or the number of boundary segment fixed effects. We also document that the relationship between US-zone exposure and income, labor productivity, rents, and education remains positive and significant if we additionally control for each municipality's distance to the 1945-49 border. In this specification, we implicitly compare municipalities with the same distance to the former border and exploit variation in US-zone exposure induced by the irregular shape of the border. Finally, we vary the radius of the circle used to define our measure of US-zone exposure. We find that the magnitude of the coefficient on US-zone exposure in equation (2) follows an inverse u-shape. The largest coefficient is found for a radius around 10 km. We provide simulation evidence that an inverse u-shape with a maximum at 10 km would be expected if the true data-generating process involves spillover effects over a 10 km range.

5.2 Spatial equilibrium

A key question is whether the differences in wages and rents today across the 1945-49 border are consistent with a spatial equilibrium in the classic framework of Rosen (1979) and Roback (1982) (for a review and advances on their framework see Albouy, 2011; Moretti, 2011; Diamond, 2016). In their framework, spatial equilibrium requires that wage differences across locations are equal to rent differences weighted by the tax-adjusted

share of housing expenditures in labor income if there are no differences in consumption amenities. In Appendix C, we show that this condition can be approximated as

$$\frac{HousingExpenditures}{(1-MTR)\times LaborIncome}\times \Delta log\, R \simeq \Delta log\, w, \tag{3}$$

where $\Delta log\, R$ denotes the log-difference in rent across the former border and $\Delta log\, w$ the log-difference in the wage; MTR refers to the marginal tax rate.[16]

To examine whether the difference in hourly wages and rents across the former border in Table 2 are consistent with spatial equilibrium, we evaluate (3) for the average household in Baden-Württemberg. The data on household income and housing expenses comes from the Statistical Office of Baden-Württemberg and the marginal tax rate from the Federal Ministry of Finance (see Table A1 for detailed sources). Average household labor income was EUR 3935 in Baden-Württemberg in 2022 and households spent an average of 1069 Euro on housing. We adjust labor income using a marginal tax rate of 37.3% and mandatory social insurance contributions of 9.9%.[17] This yields a change in the tax-adjusted housing expenses on the left-hand side of (3) of $\frac{1069}{(1-0.373-0.099)\times 3935}\times 0.12 = 0.062$. The estimated change in the wage is 0.076. Part of this effect is driven by differences in the composition of the workforce across the former border, as the share of individuals with university education is about 1.3 percentage points higher on the former US side. We adjust the wage change for these compositional differences, assuming a wage premium of 40% for university graduates (see, e.g., Dustmann et al., 2009). Hence, the composition-adjusted wage difference across the former border equals $0.076 - 0.4 \times 0.013 = 0.071$. These approximations suggest that the wage gains incurred by moving from a location on the former French side of the 1945-49 border to a location on the former US side of the border are roughly offset by the increase in housing expenses.[18]

A similar conclusion arises when we use the difference in hourly wages and rents across the former border implied by our second model specification in Table 2. In this case, the composition-adjusted wage change equals $0.15 - 0.4 \times 0.048 = 0.131$, while the tax-adjusted increase in rental prices amounts to $\frac{1069}{(1-0.373-0.099)\times 3935}\times 0.243 = 0.125$. Hence, wage gains from moving from a municipality on the former French side of the 1945-49 border that is fully surrounded by municipalities on the former French side to a municipality on the former US side that is fully surrounded by other municipalities on

[16] In Appendix C, we provide evidence that there is no variation across the former occupation-zone border in South-West Germany in local prices beyond housing. Hence, we abstract from such differences.

[17] We do not include mandatory contributions to unemployment and pension insurance as payments from these insurances depend on the level of income. Mandatory social insurance contributions include contributions for health care (7.95%) and long-term care (1.875%). Our conclusions do not change if we include unemployment and pension insurance.

[18] A basic t-test whether the two (adjusted) regression coefficients are equal yields a p-value of 0.69. Hence, we cannot reject that wage gains are equal to tax-adjusted rent increases. The basic t-test assumes that the covariance between the two coefficients is zero. A more sophisticated approach based on joint estimation is not feasible due to the data protection of the wage data.

the former US side are roughly equal to the rent increase incurred by the move.

5.3 The Channels of Agglomeration Economies

Our finding of sustained differences in population density accompanied by higher rents, higher labor productivity, and higher wages today is consistent with the presence of agglomeration economies. Agglomeration economies is a catch-all for the economic channels that translate higher population density into higher labor productivity and wages (Duranton and Puga, 2004; Rosenthal and Strange, 2004; Glaeser, 2008; Combes and Gobillon, 2015). The economic channels underlying the productivity effects of density are typically classified into sharing, matching, and learning (Duranton and Puga, 2004). We provide empirical evidence for each of these channels around the 1945-49 occupation-zone border in South-West Germany in Table 3.

Sharing The sharing channel for agglomeration economies can refer to the common use of publicly provided goods like transport infrastructure or to gains from a greater variety or quality of privately provided intermediate inputs that involve increasing returns in production or transportation. Panel A of Table 3 first shows that the transport infrastructure has seen a more favorable development in municipalities located in the former US zone. Column (1) indicates that the travel distance from each municipality to the closest highway exit has decreased 5% more on the former US side of the border than on the former French side. Column (2) shows that US-zone exposure also has a positive and significant effect on the change in travel distance to the closest highway exit. The remaining columns in the upper part of Panel A show the difference in travel distance in km across the border. Due to their geographic location, municipalities on the former US side of the border had on average a 0.5 km shorter travel distance to the highway in 1940. Today, the distance is about 1.5 km shorter on average. Using data on land use available from 1980 onward, the lower part of Panel A shows that municipalities in the former US zone use almost one percentage point more of their area for transportation (e.g. streets, roads, railways, airports). The effect becomes larger when we consider US-zone exposure in column (2). Panel A also examines the share of revenue that manufacturing firms spend on intermediate goods and energy inputs. We observe a significantly higher share of such inputs on the former US side of the border.

Matching The matching channel for agglomeration economies is mostly associated with a higher quality of matches in thicker labor markets. To assess this channel, we draw on the data and analysis of Dauth et al. (2022), who use German matched employer-employee data to examine the correlation between worker and establishment quality in different local labor markets. They proxy worker and establishment quality by fixed effects from a decomposition of log wages following the work of Abowd et al. (1999). For

Table 3: Agglomeration Mechanisms Across the 1945-49 Border

	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Sharing	Road Distance to Nearest Highway Exit in km					
	Δ % 1940-2015		1940		2015	
US-zone Location	-0.054*	-0.011	-0.58	-1.14*	-1.55***	-1.52***
	(0.030)	(0.034)	(0.507)	(0.395)	(0.534)	(0.289)
US-zone Exposure (10km)		-0.151**		1.99*		-0.115
		(0.066)		(1.812)		(1.118)
Observations	218	218	218	218	218	218
	Land use		Intermediate input use			
	Transport Infrastructure 1980-2021		Intermediate Goods / Revenue		(Intermediate Goods + Energy) / Revenue	
US-zone Location	0.008**	0.003	0.034**	0.040**	0.035**	0.041***
	(0.003)	(0.004)	(0.014)	(0.016)	(0.014)	(0.016)
US-zone Exposure (10km)		0.019**		-0.021		-0.020
		(0.010)		(0.262)		(0.026)
Observations	5,856	5,856	3,866	3,866	3,866	3,866
Panel B: Labor Market Matching	Positive Assortative Matching (1985-2014)		Size of LLM (1985-2014) Log Employment		Commuters to Other Zone (2021)	
US-zone Location	0.0452**	0.0414	1.78***	1.46***	-0.102***	-0.111***
	(0.0227)	(0.0290)	(0.375)	(0.375)	(0.031)	(0.042)
US-zone Exposure (10km)		0.0134		1.13**		0.033
		(0.0560)		(0.457)		(0.051)
Observations	1070	1070	1070	1070	218	218
Panel C: Patents	Log Patents					
	1980-2019		1950-1979		1871-1939	
US-zone Location	0.053	-0.247	0.022	0.029	-0.067	0.320
	(0.220)	(0.273)	(0.287)	(0.361)	(0.208)	(0.274)
US-zone Exposure (10km)		0.946*		-0.205		-1.150*
		(0.522)		(0.648)		(0.669)
Observations	809	809	479	479	397	397
	Log Patents per Capita					
	1980-2019		1950-1979		1871-1939	
US-zone Location	-0.039	-0.224	0.040	0.291	-0.063	0.077
	(0.119)	(0.151)	(0.219)	(0.321)	(0.155)	(0.201)
US-zone Exposure (10km)		0.584**		-0.747		-0.422
		(0.273)		(0.504)		(0.401)
Observations	809	809	479	479	397	397
	Patents per Capita Above Median					
	1980-2019		1950-1979		1871-1939	
US-zone Location	0.022	-0.080	-0.040	-0.002	-0.051	-0.026
	(0.058)	(0.082)	(0.082)	(0.099)	(0.051)	(0.064)
US-zone Exposure (10km)		0.334**		-0.122		-0.080
		(0.151)		(0.180)		(0.119)
Observations	856	856	642	642	1498	1498

Notes: This table provides evidence on agglomeration mechanisms. In Panel A, we examine transport infrastructure and intermediate inputs. First, we consider the change in the road distance to the closest A8 highway exit between 1940 and 2015. 2015 distance is measured using openstreetmap and 1940 distance using US army maps. Second, we consider the share of each municipality's area used for transport infrastructure like streets, roads, railways, and airports. Third, we use manufacturing establishment-level data to examine the revenue share of intermediate goods and energy inputs. In Panel B, we consider the correlation coefficient at the municipality level between estimated worker fixed effects and establishment fixed effects (residualized using industry dummies) obtained from AKM wage decompositions by Dauth et al. (2022) as a measure of positive assortative matching in the labor market. We further examine the size of the local labor market (*Arbeitsmarktregion*) each municipality is part of. Finally, we use 2021 commuter statistics to examine the share of workers who live in a municipality but work in a municipality on the other side of the former occupation-zone border. In Panel C, we use the PatentCity data (Bergeaud and Verluise, 2024). For each municipality, we aggregate all patents created within a decade. We then pool several decades as indicated in the column headers and include decade fixed effects in our main regressions. The upper part of Panel C considers the log number of patents per decade in each municipality, the middle part considers the log number of patents per capita, and the lower part considers a dummy that is equal one if a municipality created more patents than the median municipality in our border region. Standard errors are Conley standard errors with a Bartlett kernel and cutoff values of 25 km and 20 years. *, **, and *** denote statistical significance at the 10%, 5%, and 1% level respectively.

a given local labor market, they then compute the correlation coefficient between the worker and establishment fixed effects located in that market as a measure of positive assortative matching (PAM). The authors of Dauth et al. kindly provided their data for municipalities. Column (1) in Panel B of Table 3 shows that PAM is significantly higher on the former US side of the 1945-49 border, indicating that there are better matches formed on the side of the border where population density is higher.

The positive relationship between population density and PAM is a key finding of Dauth et al. In Table E2, we replicate their result using only the about 200 municipalities in our border region or only the 11 local labor markets in our border region.[19] Although we focus on the area around the 1945-49 border—and therefore end up which a much smaller sample—results are remarkably similar to Dauth et al.. They find that doubling population in a local labor market increases PAM by 3.8% to 6.1% depending on the time period. In Panel B, column (1), we estimate an effect of 5.3% for the 11 local labor markets in our border region. In Panel A, column (1), we find an effect of 4.2% for the about 200 municipalities in our border region. The effect increases to 6.1% in column (2) where we include the controls from our baseline model in equation (1). Column (3) indicates that the relationship between labor market thickness and PAM is driven by density, not by being located in the former US zone. This motivates column (4) where we use US-zone location as an instrument for population density. Taken together, our results indicate that the increase in population density triggered by the different policies regarding refugees between the US and French occupation zones increased positive assortative matching in the labor market.

Additional differences in today's labor markets across the 1945-49 border between the occupation zones are examined in columns (3)-(6) of Table 3. In columns (3) and (4), we find that municipalities located in the 1945-49 US zone or exposed to it form part of thicker local labor markets today. In columns (5) and (6), we show that workers residing in municipalities on the former US side of the border are less likely to commute to work in municipalities on the former French side of the border than vice-versa.

Learning The learning channel for agglomeration economies is based on the idea that density facilitates the generation and the diffusion of knowledge (Duranton and Puga, 2004). While our data does not allow us to explicitly measure the diffusion of knowledge, Panel C of Table 3 provides evidence that there are higher levels of innovation in municipalities more exposed to the 1945-49 US occupation zone. To measure innovation

[19] Dauth et al. include more than 8,000 municipalities and more than 200 local labor markets in their analysis for Germany. Local labor markets are defined as labor market regions (*Arbeitsmarktregionen*) based on the classification of the German Labor Agency. At the municipality level, three municipalities from our border region are not included in the regression since they include less than three establishments and are therefore censored. Due to the low number of municipalities and local labor markets we pool the data across the five time periods considered in Dauth et al. and include dummy variables for each time period while Dauth et al. also consider trends in PAM.

in each municipality, we use geo-located data from the PatentCity database (Bergeaud and Verluise, 2024) and compute the number of patents and patents per capita created in each municipality.[20] Our findings indicate that since the 1980s patenting activity is almost twice as high when surrounded by municipalities in the former US zone than by municipalities in the former French zone. In per-capita terms, the gap is 60%. This marks a substantial effect of US-zone exposure on patenting activity as estimates point in the opposite direction before WWII. Because many municipalities do not create any patents over several decades, the lower part of Panel C uses an indicator for having patenting activity above the median municipality with very similar conclusions as before.

6 Alternative Explanations

Our analysis in Section 4.2 and Figure 3 indicates that before WWII, municipalities on opposite sides of the border between the 1945-49 French and US occupation zones in South-West Germany had similar socio-economic characteristics. Moreover, the border did not coincide with a national or state border before WWII, and municipalities along the border have been part of West Germany since 1949 and the same state since 1952. Our examination of potential alternative explanations for today's economic differences across the occupation-zone border therefore focuses on the highway that determined the shape of the border, on the human capital of WWII refugees in the two occupation zones, and on differences between French and US occupation policies during the 1945-49 period.

6.1 The Role of the Highway

As explained in Section 2, the location of the border between the 1945-49 French and US occupation zones in South-West Germany was determined by the highway crossing South-West Germany (today, the A8 highway). While road traffic was limited around WWII it rapidly increased in the 1950s. As a consequence, today's differences in population density across the former border could be caused by the proximity to the highway. To address this potential alternative explanation, we control for the distance of each municipality to the closest highway exit in all our analyses (Schumann, 2014). In addition, we examine the role of the A8 highway using a placebo strategy. Mimicking the rule to choose counties crossed by the highway that the US enforced after WWII, we construct placebo borders in close proximity to other highways in Baden-Württemberg and in the neighboring state of Bavaria that was completely occupied by the US. We then assess whether we find similar differences in population growth across these placebo borders. Appendix D provides

[20] For each municipality, we aggregate the number of patents within a decade. We then pool multiple decades as indicated in the column headers and include decade fixed effects in the regressions. We deviate from our usual strategy of pooling yearly data because for most municipalities patent creation is a rare event, particularly in the earlier time periods.

details on the construction of the placebo borders and all results. We do not find any differences in population growth across these placebo borders and therefore conclude that the spatial discontinuity at the actual border between the 1945-49 French and US occupation zones in South-West Germany is not explained by the A8 highway,

6.2 Refugee Human Capital and Selection

In many regards, the WWII refugees arriving in West Germany from Central and Eastern Europe were similar to the local population (see also Section 2). Based on a supplementary German microcensus in 1971 that was conducted to study the socio-economic situation of refugees, Grosser (2006) documents that refugees in the US occupation zone in South-West Germany had similar education levels, pre-WWII employment, and occupational status as the local population. Based on his data, we calculate that refugees in the former US zone had 8.4 years of education on average, compared to 8.5 years in the local population. In both groups, roughly 66% of the working age population were employed in 1939.[21] Grosser also provides characteristics of refugees in the former French occupation zone in South-West Germany. Due to the restrictions during the French occupation, these refugees might be selected differently. There is, however, no indication of relevant differences in years of education or occupational status. Using his data we calculate that refugees in the former French occupation zone had 8.5 years of education, compared to 8.4 years among those in the former US zone.[22]

While the data in Grosser yields no evidence that WWII refugees in the US occupation zone in South-West Germany were better educated when compared to natives or to refugees in the French zone, there could have been positive selection on the US side close to the 1945-49 border. This could have led to a persistent increase in education levels and account for the higher labor productivity and wages we find today. In Table 4 we examine this possibility using municipality-level data from the 1970 census. In Panel A, we do not find any evidence of higher education levels on the former US side of the border, measured in average years of education (columns 1-2) or by the population share without a secondary or tertiary degree (columns 3-4); with a high-school degree (columns 5-6); with a vocational degree (columns 7-8); or with a university degree (columns 9-10). If anything, the level of educational attainment is marginally lower on the former US side of the border. In Panel B we find no evidence of differences in the population share currently investing in education (columns 1-2), nor in the composition of different education programs (columns

[21] The main differences between the two groups are higher shares among the refugees of people with only an elementary education and of farmers plus helping family members. This reflects the greater economic weight of agriculture in the refugees' origin regions and is consistent with the literature comparing refugees and locals more broadly.

[22] Bauer et al. (2013) examine the supplementary microcensus from 1971 for the whole of West Germany and find no differences between refugees and the local population in the pre-WWII age structure, education, employment and occupational status, and house ownership.

3-10). Hence, there is no evidence that higher labor productivity and wages today on the former US side of the 1945-49 border trace back to higher education levels or investments following the arrival of WWII refugees.

Table 4: Education in 1970

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Years of		Secondary or Tertiary Degree							
	Education		None		High-school		Vocational		University	
Panel A. Educational Attainment in the Population										
US-zone Location	-0.040	-0.040	0.009	0.009	-0.002	0.001	-0.005	-0.007*	-0.002	-0.003**
	(0.035)	(0.031)	(0.008)	(0.007)	(0.004)	(0.004)	(0.004)	(0.004)	(0.001)	(0.001)
US-zone Exposure (10km)		-0.000		0.002		-0.010		0.006		0.002
		(0.073)		(0.017)		(0.010)		(0.008)		(0.003)
Observations	218	218	218	218	218	218	218	218	218	218
Panel B. Schooling										
	Share Students		Share Students by School Type							
	in Population		Primary		Secondary		Vocational		University	
US-zone Location	0.001	0.001	-0.000	-0.003	0.006	0.003	-0.003	-0.001	-0.007	-0.003
	(0.002)	(0.003)	(0.015)	(0.018)	(0.013)	(0.016)	(0.002)	(0.003)	(0.007)	(0.004)
US-zone Exposure (10km)		-0.001		0.009		0.011		-0.006		-0.012
		(0.008)		(0.032)		(0.024)		(0.006)		(0.014)
Observations	217	217	216	216	216	216	216	216	216	216

Notes: This table examines differences at the border in the educational attainment and schooling of the local population in 1970. The data comes from the 1970 census. Panel A examines how many individuals in each municipalities have a secondary degree (*Mittlere Reife* or *Abitur*); a vocational degree (*Berufsfachschule* or *Berufsoberschule*); or a tertiary degree (University). The first column considers an approximation to the number of years of education where we assume 9 years of education for individuals without a degree, 13 years of education for those with a secondary degree, 12 years of education for those with a vocational degree, and 18 years of education for those with a university degree. Columns 3 to 10 report results for the share of residents in 1970 in the respective education categories. Panel B examines the composition of the local population that is currently in education. The first two columns show the difference in the share of the local population in schooling. Columns 3 to 10 show the composition of the student body focusing on the fraction of students in primary education (*Grund-/ Hauptschule*), secondary education (*Realschule* or *Gymnasium*), vocational education (*Berufsfachschule*), or university education (*Ingenieurschule* or *Hochschule / Fachhochschule*). All regressions are local linear regressions controlling for longitude and latitude, quadratic polynomials in distance to Stuttgart and to the closest highway exit, and five boundary segment fixed effects. The analysis includes municipalities within 15 km of the 1945-49 occupation-zone border. Standard errors are Conley standard errors with a Bartlett kernel and cutoff values of 25 km and 20 years. *, **, and *** denote statistical significance at the 10%, 5%, and 1% level respectively.

6.3 Other Policy Differences

As described in Section 2, the three Western occupying powers coordinated on a range of policies and jointly implemented the central economic reforms of 1948. Moreover, Appendix Table E1 shows that the aid provided by the European Recovery Program (Marshall Plan) was divided roughly equally across the former occupation zones on a per-capita basis. Nevertheless, in addition to the differences in dealing with WWII refugees there were other areas where policy in the French and US occupation zones diverged. We examine whether these differences might play a role for today's economic differences across the border between the occupation zones in South-West Germany.

Industry dismantling According to historical accounts, the main difference between the policies in the 1945-49 French occupation zone and the US occupation zone (or the British-US Bizone since 1947) regarded the dismantling of industry structures around the end of the occupation period (e.g., Pünder, 1966, p. 246). While the UK and US reduced dismantling in 1948, the French zone adhered to the plan until 1949. To examine the extent and any long-run effects of industry dismantling, we link detailed digitized lists of dismantled establishments (Reichelt, 1947; Harmssen, 1951) to the municipality level. Table 5, Panel A shows results for the share of dismantled establishments along the 1945-49 border using equations (1)-(2). The effect of US-zone location in column (1) implies that the share of dismantled establishments was 0.11 percentage points lower on the US than the French side of the border. This effect is statistically significant, confirming that—even close to the 1945-49 border—there were fewer dismantled establishments in the US zone than the French zone. In column (2), we include US-zone exposure. We find no statistically significant effect of US-zone exposure on industry dismantling. This stands in contrast to the significantly positive effect of US-zone exposure on income, productivity, rents, wages, value added, and education in Table 2. We see this as a first piece of evidence that industry dismantling cannot explain the economic patterns today along the 1945-49 border. Moreover, we examine the long-run economic effects of industry dismantling by including the share of dismantled establishment at the municipality level as a control variable in the regressions of Table 2. Our results remain unchanged and the coefficient for industry dismantling is mostly statistically insignificant (see Appendix B).

Our finding regarding industry dismantling is in line with the quantitative literature in economic history. Ritschl (1985) finds that in the summer of 1949, total industrial production in the former British-US Bizone was only a few percentage points closer to its 1936 level than in the former French occupation zone.[23] Manz (1968) documents a

[23] We reproduce the figure for industrial production in Ritschl (1985) in the left part of Appendix Figure E3. In July 1949, the Bizone is only a few percentage points closer to industrial production levels in 1936 than the French occupation zone. The figure on the right makes an (imperfect) adjustment for differences in the number of workers using data on employment in industry and handicrafts from Vonyó (2018). This adjustment is potentially important because the arrival of refugees in the 1945-49

Table 5: Additional Outcomes Across the 1945-49 Border

	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Industry Dismantling, Military Bases, and Housing Construction						
	Share Dismantled Establishments		Military Base Indicator		Share Houses Constructed after 1948 (in 1970)	
US-zone Location	-0.0011**	-0.0014***	0.005	0.046	0.067***	0.048**
	(0.00058)	(0.00054)	(0.023)	(0.033)	(0.015)	(0.020)
US-zone Exposure (10km)		0.0010		-0.143		0.064*
		(0.00078)		(0.094)		(0.034)
Observations	218	218	218	218	218	218
Panel B: Exports and Working Hours in Manufacturing						
	Internat. Revenue / Revenue		Non-EU Revenue / Revenue		Working Hours per Worker	
US-zone Location	-0.013	-0.016	-0.006	-0.004	-0.053**	-0.042
	(0.021)	(0.024)	(0.015)	(0.015)	(0.025)	(0.026)
US-zone Exposure (10km)		0.010		-0.008		-0.038
		(0.032)		(0.021)		(0.036)
Observations	3,840	3,840	1,468	1,468	3,415	3,415
Panel C: Headquarters in Manufacturing and Firm Size						
	Headquarter in same Municipality		Workers / Firm		Workers / Plant	
US-zone Location	0.025	-0.031	-0.148	-0.134	-0.078	-0.045
	(0.103)	(0.130)	(0.119)	(0.138)	(0.106)	(0.130)
US-zone Exposure (10km)		0.162		-0.047		-0.118
		(0.187)		(0.262)		(0.233)
Observations	6,119	6,119	2,563	2,563	2,559	2,559
Panel D: English in Secondary School						
	English as First Foreign Language		English as Advanced Course			
US-zone Location	-0.006	0.001	-0.006	-0.006		
	(0.006)	(0.005)	(0.016)	(0.022)		
US-zone Exposure (10km)		-0.016		0.000		
		(0.015)		(0.028)		
Observations	1,933	1,933	690	690		

Notes: Panel A examines the share of all (non-agricultural) establishments that were dismantled, an indicator if the municipality continued to host a military base after the occupation period, and the share of all houses in 1970 that were constructed after 1948. Panel B examines the share of international revenue in total revenue and the share of revenue from non-EU countries in total revenue for the manufacturing firms in Table 2 and working hours per worker in the manufacturing sector. Panel C examines an indicator for whether the firm headquarters of a manufacturing establishment is located in the same municipality, the log of the size of establishments in the municipality, and the size of firms registered in the municipality. Panel D examines the share of students in secondary school who take English rather than French as their first foreign language, and the share of students who elect advanced English rather than advanced French in upper-secondary school. All regressions are local linear regressions controlling for longitude and latitude, quadratic polynomials in distance to Stuttgart and to the closest highway exit, and five boundary segment fixed effects. The analysis includes municipalities within 15 km of the 1945-49 occupation-zone border. Regressions that pool multiple years include year fixed effects. Standard errors are Conley standard errors with a Bartlett kernel and cutoff values of 25 km and 20 years. *, **, and *** denote statistical significance at the 10%, 5%, and 1% level respectively.

small impact of industry dismantling on the aggregate capital stock in 1948 in the French occupation zone and in what became West Germany.

To provide additional evidence that the US occupation zone was not a more attractive place to live just after the occupation period, we examine the adjustment processes in population growth and employment shares in the first years after the occupation in Table 6. In Panel A, we look at population adjustments across the border between the 1945-49 French and US occupation zones just after the occupation period.[24] The result in column (1) indicates that between 1949 and 1951, the population grew about 5% more slowly on the former US side of the 1945-49 border. We see this as consistent with the idea that due to the arrival of refugees in the US zone, housing conditions were relatively crowded compared to the French zone at the end of the occupation period and this disadvantage was not (yet) compensated for by higher incomes. In column (2) we examine population growth between 1950 and 1960. In contrast to what would be expected if the former US occupation zone had been a more attractive place to live than the former French zone in the 1950s, population growth was similar across the former occupation-zone border. In column (3) we analyze the settlements in 1960 of refugees from East Germany—founded in 1949 in the Soviet occupation zone—along the 1945-49 occupation-zone border.[25] There is no spatial discontinuity in refugee settlement, which again indicates that living conditions across the former border were similar in the 1950s.

Table 6, Panel B examines changes in the share of manufacturing in employment in manufacturing & agriculture. Column (1) looks at the period from before WWII to 1950. Manufacturing grew faster on the US side of the 1945-49 border. This is consistent with the observation by historians that few refugees ended up in agriculture, even among those who worked in agriculture before WWII (Grosser, 2006). However, as can be seen in column (2), in the 1950s it was the former French side that experienced faster manufacturing growth.[26] These results do not change when we control for industry dismantling. This stands in contrast to what would be expected if by the end of the occupation period, the French zone had become a less efficient place for manufacturing than the US zone. Column (3) shows that between 1960 and 1970, the difference in

US occupation zone led to faster employment growth in the US than in the French occupation zone. The adjustment is imperfect since pre-WWII employment in Vonyó (2018) is for 1939 and post-WWII employment is for 1950, while the corresponding production data is for 1936 and 1949 respectively. The right part of Appendix Figure E3 shows that, after the employment adjustments, it is the French zone that is a few percentage points closer to its 1936 level than the Bizone.

[24] We combine population in 1950 with data on the average annual change in population between the start of 1949 and the end of 1951 (Statistisches Landesamt Baden-Württemberg, 1952) in order to compute a proxy for population growth between 1949 and 1951. As we know only the average annual change in population of municipalities between the start of 1949 and the end of 1951 (not the value for each year) and population levels in 1950, we cannot calculate exact population growth between the start of 1949 and the end of 1951.

[25] The number of East German refugees in West Germany was 3.1-3.6 million (Benz, 1999).

[26] As a result, we find that WWII refugees did not have a significant effect on the share of employment in agriculture or manufacturing in 1960, which is consistent with Braun and Kvasnicka (2014).

manufacturing growth across the former border is statistically insignificant.

In sum, there is no evidence that economic conditions were better in the US occupation zone at the end of the post-WWII occupation period.

Military bases after 1949 Another potential explanation for today's economic differences along the border between the 1945-49 French and US occupation zones in South-West Germany is the prolonged presence of Allied military bases after the occupation period. We construct an indicator that captures whether a municipality hosted a French or US military base following the occupation period. In Table 5, Panel A, columns (3)-(4), we see no statistically significant link between the prolonged presence of Allied military bases and US-zone location or exposure.

Lastenausgleichsgesetz In 1952, the German federal government enacted a law that aimed to "equalize the burden" from the war by compensating those who had lost all or most of their property through bombing or—as in the case of WWII refugees—through flight or expulsion. Of particular interest in our context were the provision of access to rent-controlled apartments as well as loans for housing construction or for buying property.[27] These loans could have provided an extra incentive—in addition to the incentive generated by the lack of housing and the agglomeration economies following the inflow of refugees—for housing construction on the former US side of the 1945-49 occupation-zone border.[28] Using data from the 1970 census, we find that the share of 1970 housing units built after 1948 was significantly higher on the former US side of the 1945-49 border and in areas exposed to refugee arrival, see columns (5) and (6) in Panel A of Table 5. In Appendix B we examine the long-run economic effects of housing construction by including the 1970 share of housing units built after 1948 as a control variable in the regressions of Table 2. Adding this control does not change our results.

Trade and hours worked The French and US occupation might have sparked persistent economic effects through the export orientation of firms. Specifically, firms in the former US occupation zone might be more export oriented than those in the former French occupation zone, or more oriented towards trade with the US. Table 5, Panel B, columns (1)-(4) examine this possibility using detailed export data for the manufacturing

[27]Because of the larger share of refugees, there could have been more households qualifying for rent-controlled apartments on the former US side of the 1945-49 occupation-zone border. Hence, the persistently higher population density on the former US side of the 1945-49 border might have been the result of lower rents because of a greater supply of rent-controlled (low-rent) apartments in response to more households qualifying for rent-controlled apartments. However, rents in 1970 (as well as in 1987 and later) were higher on the former US side of the 1945-49 border, see Table 2. The measure of rents available for 1970 includes rent-controlled apartments.

[28]The higher rents in 1970, 1987, and today on the former US side of the 1945-49 border that we document in Table 2 indicate that the *Lastenausgleichsgesetz* did not eliminate the relative scarcity of living space on the former US side of the 1945-49 border. Moreover, we find that living space per capita was significantly lower on the former US side of the 1945-49 border in 1970 (see also Schumann, 2014, p.203) and that this continues to be true today (not reported).

Table 6: Adjustments Across the 1945-49 Border before 1971

	(1)	(2)	(3)
Panel A: Population			
	Gain 1949-1950	Annual Growth 1950-1960	Refugees from SZ 1960
US-zone Location	-0.048***	-0.002	-0.001
	(0.008)	(0.003)	(0.004)
Observations	217	218	218
Panel B: Manufacturing Share			
	Annual Growth		
	1933/39-1950	1950-1960	1960-1970
US-zone Location	0.005***	0.005***	-0.003***	-0.003***	0.002	0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)
Share Dismantled Establishments		-0.198		-0.120		-0.764**
		(0.304)		(0.127)		(0.321)
Observations	218	218	218	218	218	218

Notes: All regressions are at the municipality level. The sample includes municipalities within 15 km of the 1945-49 occupation-zone border. Panel A examines a proxy for 1949-1951 population growth, population growth from 1950 to 1960, and the population share of refugees from East Germany (1945-49 Soviet occupation zone) in 1960. These refugees started arriving in West Germany in the 1950s. Panel B examines changes in the share of manufacturing employment in manufacturing & agriculture. In addition to the baseline specification, we provide additional regression results where we control for the share of dismantled establishments. All regressions are local linear regressions controlling for longitude and latitude, quadratic polynomials in distance to Stuttgart and to the closest highway exit, five boundary segment fixed effects. Standard errors are Conley standard errors with a Bartlett kernel and a cutoff value of 25 km. *, **, and *** denote statistical significance at the 10%, 5%, and 1% level respectively.

firms in Table 2. There is no statistically significant effect of US-zone location on export revenues today, whether we look at the ratio of export to total revenues or the ratio of non-EU export to total revenues. Nor is there a statistically significant link between overall exports or non-EU exports and US-zone exposure. Another potential explanation for today's better economic performance on the US side of the 1945-49 border could be that employees work more hours on average. However, in Panel B, columns (5)-(6) we actually find somewhat lower hours worked on the former US than the former French side of the border.

Headquarters and establishment/firm size We also examine whether manufacturing establishments on the former US side of the 1945-49 occupation-zone border in South-West Germany are more likely to be located in the same municipality as their firm's headquarters. The data comes from the firm-level survey already used in Table 2. Table 5, Panel C, columns (1)-(2) indicate that there is no statistically significant difference in establishment-headquarter co-location at the 1945-49 border. In Panel C, columns (3)-(6) we look at the size of all establishments and firms in municipalities across the 1945-49 border. Again, there are no statistically significant differences at the border. We also find that there is no statistically significant link between establishment-headquarter co-location or firm/establishments size and US-zone exposure.

Language preferences We consider the broader cultural legacy of French and US occupation by examining today's preferences for learning English or French in school. Our analysis is based on the 2005-2019 share of students who chose English rather than French as their first foreign language in secondary schools along the 1945-49 occupation-zone border in Baden-Württemberg. Table 5, Panel D, shows no statistically significant differences at the border. We also use information on advanced English and advanced French courses in upper secondary school. These courses provide advanced teaching of the language, the literature and the history of, respectively, English- and French-speaking countries. Again, we do not find a significant difference at the border. We also fail to find a statistically significant link between the preference for English versus French courses in (upper) secondary school and US-zone exposure.

Taxes at the municipality level The three Western powers adopted the same tax policies throughout the 1945-49 occupation period (Franzen, 1994).[29] This was also true for the laws governing municipal taxation, which were not changed during occupation. As a consequence, municipalities in the Western occupation zones continued to set their own tax rates on businesses and on agricultural and non-agricultural land. This is still the case today. It is therefore possible that differences between the French and US occupation zones have persistent economic effects through municipal tax rates. We examine this

[29]There were some differences in new, minor taxes introduced by the state legislatures in the three Western occupation zones, see Franzen (1994).

possibility using data on business tax rates and tax rates on land in 1950, 1960, and 1970 for municipalities along the 1945-49 border.[30] For business tax rates, we never find any statistically significant differences across the 1945-49 border, see Appendix Table E3. For tax rates on land, we find that these were lower on the former US than the former French side of the border in 1950. However, in 1960, there were no longer any statistically significant differences, and in 1970, the tax rate on non-agricultural land was actually somewhat higher on the former US side of the 1945-49 border.

Health and education Differences in social or economic policies between the 1945-49 French and US occupation zones might have persistent economic effects through the health or education of those born during the occupation period. An example of such a policy difference that could have triggered long-lasting effects is the size of official food rations, which was smaller in the French occupation zone in 1946 and 1947.[31] We examine the possibility that differences across occupation zones affected long-run health outcomes using the German Socio-Economic Panel (SOEP). We consider differences in body weight, body height, physical health, and mental health between individuals born during the occupation period (1945-49) and those born afterwards (1950-1954), and examine whether the magnitude of the difference depends on whether individuals were born in the 1945-49 French or US occupation zone.[32] Table 7, Panel A, shows that there are no significant differences between individuals born in the 1945-49 French and US occupation zones. The SOEP also allows us to compare the educational attainment of those born or educated during and after the 1945-49 occupation period. Again, there are no significant differences across occupation zones, see Table 7, Panel A.[33]

Attitudes and norms The 1945-49 French and US occupation might have led to persistent differences in attitudes and norms. We examine this possibility using individual responses to questions related to attitudes and norms in the SOEP. Table 7, Panel B shows our estimates based on the sample of individuals who at the time of the survey had lived in Baden-Württemberg for at least five years. We find no statistically significant differences in general interest in politics or the leaning towards a specific party between

[30] These tax rates are customarily expressed as multiples of a state-wide base rate.

[31] We reproduce the available data in Figure E4. Note that this data represents official food rations, not the amount of food that was available to the population. The evidence in Kesternich et al. (2015) suggests that this distinction matters. Using the Survey of Health, Ageing and Retirement in Europe (SHARE), they find no significant difference in self-reported hunger between the 1945-49 French and US occupation zones, whether or not they control for the official caloric intake. A potential explanation is that the actual availability of food depended on local agricultural conditions. In this case, the availability of food might not differ significantly in narrowly defined local areas, such as the one we focus on here.

[32] To ensure a large enough sample in the relevant age ranges we look at French and US occupation zones in Baden-Württemberg and three bordering states—Bavaria, Hesse, and Rhineland-Palatine.

[33] Moreover, in Table 2, we found no spatial discontinuity in university education in 1970 at the border between the 1945-49 French and US occupation zones in South-West Germany. In Appendix Table 4, we show that there also was no spatial discontinuity in 1970 in the population share with an upper-secondary school degree or a vocational school degree.

Table 7: Individual-Level Characteristics from the German Socio-Economic Panel

	(1)	(2)	(3)	(4)	(5)
Panel A: Health and Education					
	Body Height	Body Weight	Mental Health	Physical Health	Years of Education
Occupation Period	-0.000	0.009	0.027	0.006	0.006
	(0.004)	(0.021)	(0.014)	(0.016)	(0.013)
US-zone Location	0.000	0.005	-0.002	-0.009	-0.005
	(0.004)	(0.019)	(0.014)	(0.016)	(0.014)
US-zone Location × Occupation Period	0.006	-0.012	0.001	0.046	0.034
	(0.008)	(0.038)	(0.022)	(0.032)	(0.020)
Observations	1,098	1,090	1,818	1,818	3,815
Panel B: Norms and Attitudes					
	Interest in Politics	Leaning towards Party	Union in Estab	Risk Preferences	
US-zone Location	-0.036	-0.037	0.049	-0.002	
	(0.023)	(0.024)	(0.044)	(0.131)	
Observations	48,233	48,228	4,934	25,345	
	The most important policy objective is				
	Peace and Order	More Citizen Influence	Price Stability	Free Speech	
US-zone Location	0.024	-0.002	-0.024	0.008	
	(0.038)	(0.034)	(0.087)	(0.091)	
Observations	5,788	5,777	5,761	5,779	

Notes: The table is based on individual-level data from the German Socio-Economic Panel (SOEP). In Panel A, columns (1)-(4), the sample consists of individuals in the SOEP born after 1945 and before 1955 in Baden-Württemberg, Bavaria, Hesse, or Rhineland-Palatine (the states neighboring Baden-Württemberg). In column (5), the sample consists of individuals in the SOEP born after 1923 and before 1955. The occupation period indicator variable equals one if the individual was born before 1949 in columns (1)-(4) and before 1943 in column (5). The US zone indicator variable equals one if the individual was born in the 1945-49 US occupation zone. The regressions pool survey years and include survey-year fixed effects. In Panel B, the sample consists of SOEP respondents who have lived in Baden-Württemberg for at least five years. The regressions pool all survey years in which the respective question was asked and include survey-year fixed effects. All regressions are linear regressions controlling for longitude and latitude, linear polynomials in distance to Stuttgart and to the closest highway exit, and five boundary segment fixed effects. Additionally, we control for a gender dummy, a quadratic function of age, an indicator for having a partner in the household, years of work experience, unemployment, log household income, a dummy for first-generation migrants, and years of education (unless this is the outcome). Standard errors are Conley standard errors with a Bartlett kernel and a cutoff value of 25 km. *, **, and *** denote statistical significance at the 10%, 5%, and 1% level respectively.

the 1945-49 French and US occupation zones. In a few survey waves, the SOEP also asks individuals whether there is a union (work council) that represents workers in the establishment where they are employed. There is no significant difference between the 1945-49 occupation zones. Another SOEP question of interest concerns the extent to which individuals are willing to take risks. Again, there is no significant difference between the 1945-49 occupation zones. Finally, answers do not differ significantly between the 1945-49 French and US occupation zones when individuals are asked whether the most important policy objective should be protecting the right to free speech; fighting against inflation; increasing citizen influence on government decisions; or maintaining peace and order in the country.

Summary Although we look at a very broad range of relevant outcomes, we find no empirical evidence for potential alternative explanations of today's economic differences along the border between the 1945-49 French and US occupation zones. Economic differences cannot be explained by industry dismantling during the occupation period or the prolonged presence of military bases. There is no difference in the location of headquarters or the size of establishments and firms. Trade volumes and patterns today do not differ along the former border and hours worked are actually somewhat lower on the former US side. The first foreign language chosen in secondary school doesn't point to a lasting broader cultural legacy of French and US occupation nor does the data on attitudes and norms.

7 Conclusion

While the occupation zone of the US in post-WWII Germany admitted refugees, the French zone severely restricted immigration during the period arrivals were largest. The consequence for refugee settlements can be seen clearly by comparing the French and the US zone in what became the state of Baden-Württemberg in South-West Germany—the only state that had multiple occupation zones except Berlin. One year after the dissolution of the occupation zones in 1949, the ratio of refugees to natives was 17 percentage points higher in the former US zone. A spatial RDD yields nearly the same difference right at the former border between the two occupation zones. The large-scale inflow of refugees and extensive wartime destruction in urban areas had led refugees in the US zone to settle right up to the border with the French occupation zone.

Refugee arrivals raised population density on the US side of the border above density on the French side—never before had there been a difference in density across what became the border in 1945. The higher population density on the US side of the border has persisted to 2020, more than 70 years after the occupation zones were dissolved in 1949. While there were no economic differences before 1945, we find that today, labor

productivity, wages, and rents are significantly higher on the US side of the former border. We provide evidence that these long-run economic effects following the refugee inflow into the US zone are sustained by agglomeration economies.

References

Abowd, J. M., F. Kramarz, and D. N. Margolis (1999): "High Wage Workers and High Wage Firms," *Econometrica*, 67, 251–333.

Abramitzky, R., P. Ager, L. Boustan, E. Cohen, and C. Hansen (2023): "The Effect of Immigration Restrictions on Local Labor Markets: Lessons from the 1920s Border Closure," *American Economic Journal: Applied Economics*, 15, 164–191.

Albouy, D. (2011): "Are Big Cities Bad Places to Live? Estimating Quality of Life across Metropolitan Areas," NBER Working Paper 14472.

Andersson, F., S. Burgess, and J. I. Lane (2007): "Cities, Matching and the Productivity Gains of Agglomeration," *Journal of Urban Economics*, 61, 112–128.

Archive de l'occupation française en Allemagne et en Autriche (1945): "Letter by General Koeltz, French delegation in the Allied Control Council, to General Pierre-Marie Koenig, French Commander-in-Chief in Germany from November 9th 1945," *Gouvernement Militaire Française de Berlin*, caisse 250 - Colmar.

Ausweisungsplan (1945): "Plan der Umsiedlung der aus Österreich, der Tschechoslowakei, Ungarn und Polen ausgewiesenen deutschen Bevölkerung nach den vier Besatzungszonen," in *Deklarationen, Gesetze, Befehle*, ed. by Verlag der Sowjetischen Militärverwaltungen in Deutschland, p. 65 cf.

Bauer, T. K., S. Braun, and M. Kvasnicka (2013): "The Economic Integration of Forced Migrants: Evidence for Post-War Germany," *The Economic Journal*, 123, 998–1024.

Becker, S. O. (2022): "Forced Displacement in History: Some Recent Research," *Australian Economic History Review*, 62, 2–25.

Becker, S. O. and A. Ferrara (2019): "Consequences of Forced Migration: A Survey of Recent Findings," *Labour Economics*, 59, 1–16.

Becker, S. O., I. Grosfeld, P. Grosjean, N. Voigtländer, and E. Zhuravskaya (2020): "Forced Migration and Human Capital: Evidence from Post-WWII Population Transfers," *American Economic Review*, 110, 1430–63.

Benz, W. (1999): *Deutschland unter Alliierter Besatzung*, Berlin: Akademie Verlag.

Bergeaud, A. and C. Verluise (2024): "A new dataset to study a century of innovation in Europe and in the US," *Research Policy*, 53, 104903.

Blumenstock, F. (1957): *Der Einmarsch der Amerikaner und Franzosen im nördlichen Württemberg im April 1945*, Stuttgart: Kohlhammer.

Borjas, G. J. (2014): *Immigration Economics*, Harvard University Press.

Boustan, L. P., P. V. Fishback, and S. Kantor (2010): "The Effect of Internal Migration on Local Labor Markets: American Cities during the Great Depression," *Journal of Labor Economics*, 28, 719–746.

Braun, S. and M. Kvasnicka (2014): "Immigration and Structural Change: Evidence from Post-War Germany," *Journal of International Economics*, 93, 253–269.

Burchardi, K., T. Chaney, and T. Hassan (2019): "Migrants, Ancestors, and Investments," *Review of Economic Studies*, 84, 1448–1486.

Burchardi, K. and T. Hassan (2013): "The Economic Impact of Social Ties: Evidence from German Reunification," *The Quarterly Journal of Economics*, 128, 1219–1271.

Card, D. (2001): "Immigrant Inflows, Native Outflows, and the Local Labor Market Impacts of Higher Immigration," *Journal of Labor Economics*, 19, 22–64.

Card, D., J. Rothstein, and M. Yi (2024): "Location, Location, Location," *American Economic Journal: Applied Economics*, (forthcoming).

Ciccone, A. and J. Nimczik (2024): "Market Size and Spatial Growth–Evidence from Germany's Post-War Population Expulsions: A Comment," July, CRC TR 224 Discussion Paper.

Colella, F., R. Lalive, S. O. Sakalli, and M. Thoenig (2019): "Inference with Arbitrary Clustering," IZA Discussion Paper 12584.

Combes, P.-P. and L. Gobillon (2015): "The Empirics of Agglomeration Economies," in *Handbook of Regional and Urban Economics*, ed. by G. Duranton, J. V. Henderson, and W. C. Strange, Elsevier, vol. 5, 247–348.

Conley, T. G. (1999): "GMM Estimation with Cross Sectional Dependence," *Journal of Econometrics*, 92, 1–45.

Dauth, W., S. Findeisen, E. Moretti, and J. Suedekum (2022): "Matching in Cities," *Journal of the European Economic Association*, 20, 1478–1521.

Dell, M., N. Lane, and P. Querubin (2018): "The Historical State, Local Collective Action, and Economic Development in Vietnam," *Econometrica*, 86, 2083–2121.

Diamond, R. (2016): "The Determinants and Welfare Implications of US Workers' Diverging Location Choices by Skill: 1980-2000," *American Economic Review*, 106, 479–524.

Droller, F. (2017): "Long Run Economic Development: Evidence from Settlements in the Pampas," *The Economic Journal*, 128, 2321–2352.

Duranton, G. and D. Puga (2004): "Micro-Foundation of Urban Agglomeration Economies," in *Handbook of Regional and Urban Economics*, ed. by J. V. Henderson and J.-F. Thisse, Elsevier, vol. 4, 2036–2117.

Dustmann, C., J. Ludsteck, and U. Schönberg (2009): "Revisiting the German Wage Structure," *The Quarterly Journal of Economics*, 124, 843–881.

Franzen, K. (1994): *Die Steuergesetzgebung der Nachkriegszeit in Westdeutschland: (1945–1961)*, Bremen: Kamloth.

Friedberg, R. M. and J. Hunt (1995): "The Impact of Immigrants on Host Country Wages, Employment and Growth," *Journal of Economic Perspectives*, 9, 23–44.

Gelman, A. and G. Imbens (2019): "Why High-Order Polynomials Should Not Be Used in Regression Discontinuity Designs," *Journal of Business & Economic Statistics*, 37, 447–456.

Glaeser, E. and J. Gottlieb (2009): "The Wealth of Cities: Agglomeration Economies and Spatial Equilibrium in the United States," *Journal of Economic Literature*, 47, 983–1028.

Glaeser, E. L. (2008): *Cities, Agglomeration, and Spatial Equilibrium*, Oxford University Press.

Grosser, T. (2006): *Die Integration der Heimatvertriebenen in Württemberg-Baden*

1945-1961, Stuttgart: Kohlhammer.

Harmssen, G. W. (1951): *Am Abend der Demontage: Sechs Jahre Reparationspolitik; mit Dokumentenanhang*, Bremen: Friedrich Trüjen Verlag.

Hornung, E. (2014): "Immigration and the Diffusion of Technology: The Huguenot Diaspora in Prussia," *American Economic Review*, 104, 84–122.

Kesternich, I., B. Siflinger, J. P. Smith, and J. K. Winter (2015): "Individual Behaviour as a Pathway Between Early-Life Shocks and Adult Health: Evidence from Hunger Episodes in Post-War Germany," *The Economic Journal*, 125, F372–F393.

Koop, V. (2005): *Besetzt. Französische Besatzungspolitik in Deutschland*, Berlin: be.bra-Verlag.

Kossert, A. (2009): *Kalte Heimat: Die Geschichte der deutschen Vertriebenen nach 1945*, Pantheon Verlag.

Manz, M. (1968): *Stagnation und Aufschwung in der französischen Besatzungszone 1945 bis 1948*, Augsburg.

Matz, K.-J. (2003): "Grundlagen und Anfänge von Baden-Württemberg 1948–1960," in *Die Länder seit 1918*, ed. by H.-M. Schwarzmaier and M. Klein, Stuttgart, 519–590.

Maystadt, J.-F. and G. Duranton (2019): "The development push of refugees: evidence from Tanzania," *Journal of Economic Geography*, 19, 299–334.

Mill, E. S. (1967): "An Aggregative Model of Resource Allocation in a Metropolitan Area," *American Economic Review*, 57, 197–210.

Moretti, E. (2011): "Local Labor Markets," Elsevier, vol. 4 of *Handbook of Labor Economics*, 1237–1313.

Mosely, P. E. (1949): "The Occupation of Germany: New Light on how the Zones were Drawn," *Foreign Affairs*, 28, 580–604.

Murard, E. and S. O. Sakalli (2018): "Mass Refugee Inflow and Long-Run Prosperity: Lessons from the Greek Population Resettlement," IZA Discussion Paper 11613.

Ochsner, C. (2021): "It's the Red Army, stupid! A quasi-natural experiment in post-WWII Austria on the European economic East-West divide," mimeo.

Peri, G. (2016): "Immigrants, Productivity, and Labor Markets," *Journal of Economic Perspectives*, 30, 3–30.

Peters, M. (2022): "Market Size and Spatial Growth–Evidence from Germany's Post-War Population Expulsions," *Econometrica*, 90, 2357–2396.

——— (2024): "Market Size and Spatial Growth–Evidence from Germany's Post-War Population Expulsions - Update Regarding Data Source," October, Replication Package Zip File, available at https://www.econometricsociety.org/publications/econometrica/2022/09/01/Market-Size-and-Spatial-GrowthEvidence-From-Germanys-Post-War-Population-Expulsions#supplemental_material.

Potsdam (1945): "Protocol of the Proceedings of the Berlin Conference," https://history.state.gov/historicaldocuments/frus1945berlinv02/d1383.

Pünder, T. (1966): *Das Bizonale Interregnum: Die Geschichte des Vereinigten Wirtschaftsgebiets 1946-1949*, Köln and Berlin: Grote'sche Verlagsbuchhandlung KG.

Reichelt, W. O. (1947): *Die Demontageliste. Eine vollständige Übersicht über die Reparationsbetriebe sowie die amtlichen Erklärungen der Militärbefehlshaber der Britischen und USA-Zone*, Hamburg: Drei Türme.

Ritschl, A. (1985): "Die Währungsreform von 1948 und der Wiederaufstieg der westdeutschen Industrie. Zu den Thesen von Mathias Manz und Werner Abelshauser über

die Produktionswirkungen der Währungsreform," *Vierteljahrshefte für Zeitgeschichte*, 33, 136–165.

Roback, J. (1982): "Wages, Rents, and the Quality of Life," *Journal of Political Economy*, 90, 1257–1278.

Rocha, R., C. Ferraz, and R. R. Soares (2017): "Human Capital Persistence and Development," *American Economic Journal: Applied Economics*, 9, 105–136.

Rosen, S. (1979): "Wage-Based Indexes of Urban Quality of Life," Philadelphia, Current Issues in Urban Economics.

Rosenthal, S. S. and W. C. Strange (2004): "Evidence on the Nature and Sources of Agglomeration Economies," in *Handbook of Regional and Urban Economics*, ed. by J. V. Henderson and J.-F. Thisse, Elsevier, vol. 4, 2119–2171.

——— (2020): "How Close Is Close? The Spatial Reach of Agglomeration Economies," *Journal of Economic Perspectives*, 34, 27–49.

Sarvimäki, M., R. Uusitalo, and M. Jäntti (2022): "Habit Formation and the Misallocation of Labor: Evidence from Forced Migrations," *Journal of the European Economic Association*, 20, 2497–2539.

Sarvimäki, M. (2011): "Agglomeration in the Periphery," SERC Discussion Paper.

Schumann, A. (2014): "Persistence of Population Shocks: Evidence from the Occupation of West Germany after World War II," *American Economic Journal: Applied Economics*, 6, 189–205.

Sequeira, S., N. Nunn, and N. Qian (2020): "Immigrants and the Making of America," *Review of Economic Studies*, 87, 382–419.

Sommer, M. (1990): *Flüchtlinge und Vertriebene in Rheinland-Pfalz. Aufnahme, Unterbringung und Eingliederung*, v. Hase & Koehler, Mainz.

Staatsarchiv Sigmaringen (1946): "Schreiben des Landeskommisariats für Flüchtlingsangelegenheiten," *Staatskanzlei Württemberg-Hohenzollern*, 1465.

Staatssekretariat für das französisch besetzte Gebiet Württembergs und Hohenzollerns (1946): "Rechtsanordnung über den Zuzug in das französisch besetzte Gebiet Württembergs und Hohenzollerns," *Amtsblatt*, 5.

Statistisches Bundesamt (1953): *Statistisches Taschenbuch über die Heimatvertriebenen in der Bundesrepublik Deutschland und in West-Berlin*, Wiesbaden: Statistisches Bundesamt.

——— (1955): *Die Vertriebenen und Flüchtlinge in der Bundesrepublik Deutschland in den Jahren 1946-1953*, Stuttgart und Köln: Kohlhammer Verlag.

——— (2021): *Volkswirtschaftliche Gesamtrechnungen: Wichtige Zusammenhänge im Überblick*, Wiesbaden: Statistisches Bundesamt.

Terry, S. J., T. Chaney, K. B. Burchardi, L. Tarquinio, and T. A. Hassan (2024): "Immigration, Innovation, and Growth," mimeo.

UNHCR (2024): *Global Trends: Forced Displacement in 2023*, Copenhagen.

United Nations (2019): *World Population Prospects*, United Nations Publications.

Van Patten, D. and E. Mendez (2022): "Multinationals, Monopsony, and Local Development: Evidence From the United Fruit Company," *Econometrica*, 90, 2685–2721.

Verme, P. and K. Schuettler (2021): "The Impact of Forced Displacement on Host Communities: A Review of the Empirical Literature in Economics," *Journal of Development Economics*, 150, 102606.

Vonyó, T. (2018): *The Economic Consequences of the War. West Germany's Growth Miracle after 1945*, Cambridge Studies in Economic History - Second Series, Cambridge, UK and New York: Cambridge University Press.

Willis, F. R. (1962): *The French in Germany, 1945-1949*, Stanford: Stanford University Press.

Wyrwich, M. (2020): "Migration Restrictions and Long-Term Regional Development: Evidence from Large-Scale Expulsions of Germans after World War II," *Journal of Economic Geography*, 20, 481–507.

ONLINE APPENDIX

A Data

Historical census data Our historical outcome data is collected from historical censuses at the municipality level in Baden (1871, 1895, 1903, 1930, and 1939), Württemberg (1871, 1895, 1907, and 1933), and Baden-Württemberg (1950, 1960, and 1970/71). Table A1 provides a detailed overview of all variables and sources. We hand-digitized most historical data from the original sources, only population density is provided by the Statistical Office of Baden-Württemberg. For some statistics, data for Baden and Württemberg is not available for the same year. In these cases, we use information from different census years (e.g., sectoral employment shares in Württemberg 1933 and in Baden 1939) and include an indicator that equals one if the data is from Baden in all regressions that combine data from different years.

Modern outcome data The data on municipality-level sales per worker, income per capita, and education comes from a collection of online databases put together by the Statistical Office of Baden-Württemberg. Variable descriptions and detailed sources are in Table A1. The statistical office also provided 1980-2021 data on land use, 2005-2020 data on foreign-language courses in secondary schools, and 2021 data on commuters across municipalities.

Geographic data We use several sources to collect data on the geography of Baden-Württemberg. Historical maps are obtained from the House of History Baden-Württemberg in Stuttgart. These maps are used to obtain the longitude and latitude of municipality centers, the required geographic distances, and the territory for municipalities and counties before the territorial reform in the early 1970s. For modern geographic data, we combine information from the German Federal Agency for Cartography and Geodesy with the municipality directory (*Gemeindeverzeichnis*) of the German Statistical Office (2016). For part of the analysis, we aggregate historical municipality-level data to modern municipality borders.[34] All geospatial calculations are done using QGIS.

Wartime destruction and military bases We obtain data on wartime destruction from the Historical Atlas of Baden-Württemberg (Ch. 7,11, Kommission für geschichtliche Landeskunde in Baden-Württemberg (eds.), 1972-1988). The atlas reports a percentage score of wartime destruction of housing and industry at the municipality level that is collected from various sources. We gather lists of French and US military bases in Baden-Württemberg and their year of dissolution from Wikipedia.

[34]The territorial reform in the early 1970s created six municipalities that stretch out across both sides of the 1945-49 border between the French and US occupation zones. We exclude these municipalities from our empirical analysis.

Industry dismantling We use detailed information on industry dismantling provided by Reichelt (1947) who lists establishments that had been dismantled or were planned to be dismantled by the occupation forces. We also rely on Harmssen (1951), who adjusts the list for establishments that were later saved from dismantling. We digitize this information, assign each listed establishment to its location, and construct a municipality-level measure of industry dismantling by computing the share of pre-war establishments that were dismantled.

Micro-data on establishments We use plant-level micro data provided by the German Statistical Offices in the project "Administrative Firm-Data for Germany" (AFiD, Statistische Ämter der Länder, 2017a). This data contains a panel of the universe of plants in manufacturing and collects information on employment, working hours, and revenues. Of particular interest is the subset of establishments for which we also have data on wages, value added, and exports in a representative survey (*Kostenstrukturerhebung*, Statistische Ämter der Länder, 2017b). In contrast to the AFiD panel, the data on wages, value added, and exports is provided at the firm level. It covers 45% of all firms with at least 20 employees and is available for 1995, 1997, 1999, 2003, 2008, and 2012. Firms are sampled stratified by industry and firm size and are required by law to report their information.

Micro-data on rents We use property-level data to measure rents in 1987 and from 2008 to 2016. For 1987, we use the census (Statistische Ämter der Länder, 1987), which is based on the full population count in Germany and contains housing information including rental prices. For the years 2008-2016, we use data from ImmobilienScout24 published by the RWI (Schaffner, 2020). ImmobilienScout24 is the largest real-estate internet platform in Germany with a market share of about 50%. The data contains information on offer rental prices and property characteristics.

Patents We use data on the location and nature of patentees from the database *PatentCity* (Bergeaud and Verluise, 2024), which provides information derived from an automated extraction of relevant information from patent documents published by the German, French, British and US Intellectual Property offices. Geo-located patent data from Germany is available from 1871 onwards.

Labor Market Matching Our analysis of labor market matching is based on data that we kindly received from the authors of Dauth et al. (2022). The data includes municipality and local labor market (LLM) aggregates of estimated worker and establishment fixed effects, their correlation, as well as the size of local labor markets. The estimates in Dauth et al. (2022) are based on the Integrated Employment Biographies provided by the German Institute for Labor Market Research (IAB). Municipality cells for with fewer than three establishments are censored.

Data on individuals We complement our analysis using individual information from the German Socio-economic Panel (SOEP), a longitudinal survey conducted since 1984 that is representative of the population living in Germany (Goebel et al., 2019). We use the spatial extension of the SOEP and measure health and education outcomes, norms and attitudes, and the preferences of individuals born or living in the 1945-49 French and US occupation zones.

Bavaria The data on population, income, and education in Bavaria are provided by the Statistical Office of Bavaria (https://www.statistikdaten.bayern.de/genesis/online/). The measure of aggregate labor productivity available for Baden-Württemberg is not published for Bavarian municipalities and education for Bavarian municipalities is only available for the years 2007, 2010, and 2013.

Table A1: Variable Description and Sources.

Outcome	Description	Source
Population		
1871-2020	Population	Statistical Office Baden-Württemberg via https://www.statistik-bw.de/BevoelkGebiet/Bevoelkerung/
Bavaria 1939-2020	Population	Statistical Office Bavaria via https://www.statistikdaten.bayern.de/genesis/online/
(GDR) Refugees		
1950 (refugees)	People who in 1939 (i) had their place of residence in the territories of pre-WWII Germany to the east of the four post-WWII occupation zones or (ii) resided outside of pre-WWII Germany and were native German speakers.	Gemeinde- und Kreisstatistik Baden-Württemberg 1950 (Statistisches Landesamt Baden-Württemberg, 1952)
1960 (GDR refugees)	People who came to West Germany from East Germany (officially the German Democratic Republic; 1945-49 Soviet occupation zone)	Gemeindestatistik Baden-Württemberg 1960/61. Teil 1: Bevölkerung und Erwerbstätigkeit (Statistisches Landesamt Baden-Württemberg, 1964)
Sectoral Shares		
Baden 1895	Workers in agriculture, manufacturing, and trade	Beiträge zur Statistik des Grossherzogthums Baden. Heft 55. Die Berufszählung vom 14. Juni 1895 (Statistisches Landesamt Baden, 1895)
Württemberg 1907	Workers in agriculture, manufacturing, and trade	Württembergische Gemeindestatistik. Zweite Ausgaben nach dem Stand vom Jahre 1907 (Königliches Statistisches Landesamt Württemberg, 1910)
Württemberg 1933	Workers in agriculture, manufacturing, and trade	Württembergische Gemeinde und Bezirksstatistik. Dritte Ausgabe nach dem Stand vom Jahre 1933 (Statistisches Landesamt Württemberg, 1935)
Baden 1939	Workers in agriculture, manufacturing, and trade	Statistik des Deutschen Reichs. Band 557. Volks-, Berufs- und Betriebszählung vom 17. Mai 1939. Die Berufstätigkeit der Bevölkerung in den Reichsteilen. Heft 25: Baden (Statistisches Reichsamt, 1942)
1950	Workers in agriculture, manufacturing, and trade	Gemeinde- und Kreisstatistik Baden-Württemberg 1950 (Statistisches Landesamt Baden-Württemberg, 1952)
1960	Workers in agriculture, manufacturing, and trade	Gemeindestatistik Baden-Württemberg 1960/61. Teil 1: Bevölkerung und Erwerbstätigkeit (Statistisches Landesamt Baden-Württemberg, 1964)
1970	Workers in agriculture, manufacturing, and trade	Statistik von Baden-Württemberg. Gemeindestatistik 1970. Ergebnisse der Grosszählungen 1968-1971. Heft 2: Bevölkerung und Erwerbstätigkeit 1970 (Statistisches Landesamt Baden-Württemberg, 1973)
Houses & Fire Insurance		
Baden 1903	Fire insurance value & number of houses	Beiträge zur Statistik des Grossherzogthums Baden. Heft 61: Der pfandrechtlich gesicherte Schuldenstand auf 1. Januar 1903 (Statistisches Landesamt Baden, 1910)
Württemberg 1907	Fire insurance value & number of houses	Württembergische Gemeindestatistik. Zweite Ausgaben nach dem Stand vom Jahre 1907 (Königliches Statistisches Landesamt Württemberg, 1910)
Taxable Income		
Baden 1895	Total taxable income per capita	Die Ergebnisse der im Jahre 1895 vollzogenen Veranlagung der Einkommensteuer (Finanzministerium und Steuerdirektion des Grossherzogthums Baden, 1896)
Württemberg 1907	Total taxable income per capita	Württembergische Gemeindestatistik. Zweite Ausgaben nach dem Stand vom Jahre 1907 (Königliches Statistisches Landesamt Württemberg, 1910)
1980	Total taxable income per capita	Income Tax Statistic (*Einkommensteuerstatistik*) 1980. Provided by the Statistical Office Baden-Württemberg
2007-2017	Total taxable income per capita	Wage and Income Tax Statistic (*Lohn- und Einkommensteuerstatistik*) via https://www.regionalstatistik.de
Aggregate Labor Productivity		

Continuation of Table A1

Outcome	Description	Source
2006-2018	Taxable sales (goods and services) per worker (subject to social security payments) for firms with at least one worker or at least 22,000 Euro in annual sales (excluding firms in agriculture, public administration, and private households)	Company Register (*Unternehmensregister*) via https://www.statistik-bw.de/GesamtwBranchen/UnternehmBetriebe
Land Values and Taxes		
Baden 1926	Value of land for tax purposes (Steuerwerte Grundvermögen)	Staatliche Grund- und Gewerbesteuer in Baden fuer das Rechnungsjahr 1926 auf Grund amtlichen Materials (Statistisches Landesamt Baden, 1930)
Württemberg 1933	Value of land for tax purposes (Kataster Grund)	Württembergische Gemeinde und Bezirksstatistik. Dritte Ausgabe nach dem Stand vom Jahre 1933 (Statistisches Landesamt Württemberg, 1935)
1950	Land tax rates (multiples of a state-wide base rate)	Gemeinde- und Kreisstatistik Baden-Württemberg 1950 (Statistisches Landesamt Baden-Württemberg, 1952)
1960	Land tax rates (multiples of a state-wide base rate)	Gemeindestatistik Baden-Württemberg 1960/61. Teil 5: Gemeindefinanzen (Statistisches Landesamt Baden-Württemberg, 1964)
1970	Land tax rates (multiples of a state-wide base rate)	Statistik von Baden-Württemberg. Gemeindestatistik 1970. Ergebnisse der Grosszählungen 1968-1971. Band 161. Heft 5: Weitere Strukturdaten (Statistisches Landesamt Baden-Württemberg, 1973)
Business Taxes		
Baden 1926	value of businesses for tax purposes (Steuerwerte Betriebsvermögen)	Staatliche Grund- und Gewerbesteuer in Baden für das Rechnungsjahr 1926 auf Grund amtlichen Materials (Statistisches Landesamt Baden, 1930)
Württemberg 1933	value of businesses for tax purposes (Kataster Gewerbe)	Württembergische Gemeinde und Bezirksstatistik. Dritte Ausgabe nach dem Stand vom Jahre 1933 (Statistisches Landesamt Württemberg, 1935)
1950	Business tax rates (multiples of a state-wide base rate)	Gemeinde- und Kreisstatistik Baden-Württemberg 1950 (Statistisches Landesamt Baden-Württemberg, 1952)
1960	Business tax rates (multiples of a state-wide base rate)	Gemeindestatistik Baden-Württemberg 1960/61. Teil 5: Gemeindefinanzen (Statistisches Landesamt Baden-Württemberg, 1964)
1970	Business tax rates (multiples of a state-wide base rate)	Statistik von Baden-Württemberg. Gemeindestatistik 1970. Ergebnisse der Grosszählungen 1968-1971. Band 161. Heft 5: Weitere Strukturdaten (Statistisches Landesamt Baden-Württemberg, 1973)
Agricultural Establishments		
Württemberg 1933	Establishments in agriculture and forestry	Württembergische Gemeinde und Bezirksstatistik. Dritte Ausgabe nach dem Stand vom Jahre 1933 (Statistisches Landesamt Württemberg, 1935)
Baden 1939	Establishments in agriculture and forestry $>$ 0.5ha	Endgültige Ergebnisse der Volks-, Berufs- und Betriebszählung am 17. Mai 1939 in den Gemeinden, Stadt- und Landkreisen, Landeskommissärbezirken und für das Land Baden im Ganzen (Badisches Statistisches Landesamt, 1941)
Non-Agricultural Establishments) & Employees		
Württemberg 1933	Non-agricultural establishments; workers	Württembergische Gemeinde und Bezirksstatistik. Dritte Ausgabe nach dem Stand vom Jahre 1933 (Statistisches Landesamt Württemberg, 1935)
Baden 1939	Non-agricultural establishments; workers	Endgültige Ergebnisse der Volks-, Berufs- und Betriebszählung am 17. Mai 1939 in den Gemeinden, Stadt- und Landkreisen, Landeskommissärbezirken und für das Land Baden im Ganzen (Badisches Statistisches Landesamt, 1941)
1950	Non-agricultural establishments; workers	Gemeinde- und Kreisstatistik Baden-Württemberg 1950 (Statistisches Landesamt Baden-Württemberg, 1952)
1960	Non-agricultural establishments; workers	Gemeindestatistik Baden-Württemberg 1960/61. Teil 3: Arbeitsstätten ohne Landwirtschaft (Statistisches Landesamt Baden-Württemberg, 1964)

Continuation of Table A1

Outcome	Description	Source
1970	Non-agricultural establishments; workers	Statistik von Baden-Württemberg. Gemeindestatistik 1970. Ergebnisse der Grosszählungen 1968-1971. Heft 3: Nichtlandwirtschaftliche Arbeitsstätten 1970 (Statistisches Landesamt Baden-Württemberg, 1973)
Self-Employed		
Württemberg 1933	Self-employed workers in agriculture, trade, manufacturing, and other professions	Württembergische Gemeinde und Bezirksstatistik. Dritte Ausgabe nach dem Stand vom Jahre 1933 (Statistisches Landesamt Württemberg, 1935)
Baden 1939	Self-employed workers	Endgültige Ergebnisse der Volks-, Berufs- und Betriebszählung am 17. Mai 1939 in den Gemeinden, Stadt- und Landkreisen, Landeskommissärbezirken und für das Land Baden im Ganzen (Badisches Statistisches Landesamt, 1941)
WW2 Destruction	Percentage score of war destruction	Historischer Atlas von Baden-Württemberg. Erläuterungen 7, 11. Kriegsschäden in Baden-Württemberg 1939-1945 (Kommission für geschichtliche Landeskunde in Baden-Württemberg (eds.), 1972-1988)
Industry Dismantling	Dismantled establishments / (non-agricultural) establishments in 1933/39	Reichelt (1947) and Harmssen (1951)
Military Bases	Indicator that equals one if a municipality hosted a US or French military base that was dissolved later than 1950	Wikipedia via https://de.wikipedia.org/wiki/Liste_der_franz%C3%B6sischen_Milit%C3%A4rstandorte_in_Deutschland and https://de.wikipedia.org/wiki/Liste_der_amerikanischen_Milit%C3%A4rstandorte_in_Deutschland, last accessed on Nov 3rd
Education		
1970	Highest completed degree in population (high school, vocational, college)	Gemeindestatistik 1972. Ausgewählte Ergebnisse der Volks- und Arbeitsstättenzählung 1970 in der Gliederung nach den neuen Kreisen und Regionalverbänden. Heft 2: Bevölkerung und Erwerbstätigkeit Arbeitsstätten und Beschäftigte (Statistisches Landesamt Baden-Württemberg, 1972)
1989-1998	Share of workers (subject to social security contributions) at place of residence with university degree	Available at Statistics Service of the Bundesagentur für Arbeit
1999-2020	Share of workers (subject to social security contributions) at place of residence with university degree	Bundesagentur für Arbeit via https://www.statistik-bw.de/Arbeit/Besch\unhbox\voidb@x\bgroup\accent127a\protect\penalty\@M\hskip\z@skip\egroupftigte/
Bavaria 2007, 2010, 2013	Share of workers (subject to social security contributions) at place of residence with university degree	Statistical Office Bavaria via https://www.statistikdaten.bayern.de/genesis/online/
Rents		
1970	Average (cold) rent in the municipality per square meter, aggregated to modern municipalities using the share in the total number of apartments	Statistik von Baden-Württemberg. Gemeindestatistik 1970. Ergebnisse der Grosszählungen 1968-1971. Band 161. Heft 1: Gebäude und Wohnungen 1968 (Statistisches Landesamt Baden-Württemberg, 1973)
1987	(Cold) rent and characteristics (size, number of rooms, year of construction, kitchen or kitchenette, bathroom, toilet, mode of heating, building type (building with normal apartments or building including community use areas)) for properties that were rented between 1985 and 1987 excluding social housing	Volkszählung 1987 (Statistische Ämter der Länder, 1987)
2008-2016	Offer prices (cold rent) and characteristics (size, number of rooms, year of construction, balcony, basement, lift, quality of equipment, number of floors, floor, garden, terraced house, exclusive house, semi-detached house) for apartments and houses for rent from the internet platform ImmobilienScout24	RWI Real Estate Data: Apartments for Rent & Houses for Rent. RWI-GEO-RED (RWI; ImmobilienScout24, 2020)

Continuation of Table A1

Outcome	Description	Source
Manufacturing Establishments	Value added, revenue, wages, employees, total work hours, international revenues, non-EU revenues, intermediate input use, energy use for one-establishment firms in 1995, 1997, 1999, 2003, 2008, and 2012	AFiD Panel Industriebetriebe 1995-2016 (Statistische Ämter der Länder, 2017a). Panel der Kostenstrukturerhebung im Bereich verarbeitendes Gewerbe, Bergbau und Gewinnung von Steinen und Erden 1995-2012 (Statistische Ämter der Länder, 2017b).
Patents	Number of Patents granted aggregated at the municipality times decade level	PatentCity database (Bergeaud and Verluise, 2024)
Labor Market Matching	Correlation Coefficient between AKM worker fixed effects and (residualized) establishment fixed effects; number of employees for five time intervals between 1985 and 2014	Dauth et al. (2022) based on Integrated Employment Biographies from the German Institute for Labor Market Research (IAB)
Land Use	Share of Municipality Area that is used for Traffic Infrastructure (Streets, Roads, and Squares; Railway; Airports; Ships)	Flächennutzung in Baden-Württemberg, available via https://www.statistik-bw.de/Service/Veroeff/Statistische_Daten/221722001.bs
Commuters	Commuters among residents in each municipality by place of work	Pendlerstatistik via https://www.regionalstatistik.de/genesis/online?operation=statistic&levelindex=0&levelid=1696417437803&code=19321#abreadcrumb
SOEP Data		
	Body height, body weight, mental health score, physical health score, years of education, unemployment duration, income, interest in politics, tendency towards a certain political party, most important policy objective, union at workplace, risk preferences	Sozio-oekonomisches Panel (SOEP) (2019)
English Language		
2005-2019	Share of students in secondary school with English/French as first foreign language; share of students in upper-secondary school in advanced English/French course	Available at the Statistical Office of Baden-Württemberg
Household Income & Living Costs		
2022	Housing Costs of Private Households	Statistical Office Baden-Württemberg via https://www.statistik-bw.de/PrivHaushalte/EinAusgaben/LWR_Konsum_ausgew.jsp?path=/Wohnen/WkostenVerhaeltnis/
2022	Gross income from employment	Statistical Office Baden-Württemberg via https://www.statistik-bw.de/PrivHaushalte/EinAusgaben/StruktHHbruttoEK.jsp
2022	Marginal and average tax rates	Obtained via https://www.bmf-steuerrechner.de/index.xhtml
2022	Price indexes for housing and non-housing costs at the county level	Federal Office for Building and Regional Planning (BBR) via https://www.bbsr.bund.de/BBSR/DE/forschung/fachbeitraege/raumentwicklung/regionaler-preisindex/01-start.html#doc4318992bodyText1

B Sensitivity Analysis

Bandwidth Our baseline sample consists of municipalities whose center is less than 15 km from the border between the 1945-49 French and US occupation zones in Baden-Württemberg. In Figure B1 we show the main coefficients and 90% confidence intervals based on Conley standard errors for a range of bandwidth choices between 2 and 100km. The left-most figure in each row shows the coefficient γ for US zone location in equation (1).[35] The figures in the middle and on the right show the coefficient θ for the US zone location and δ for US-zone exposure in equation (2).

Standard errors Our baseline results are based on Conley (1999) standard errors that account for spatial and temporal correlation in the error terms. Our baseline choice for the spatial cutoff is 25 km and our baseline choice for the temporal cutoff is 20 years. In Tables B1-B4, Panel A, we provide results for alternative assumptions on the error structure. This includes default heteroscedasticity-robust errors, clustered standard errors on the municipality or county level, and alternative values for the spatial cutoff in the Conley standard errors.

RD polynomial In our baseline specification, the RD polynomial is a linear function of longitude and latitude. We use a triangular kernel where the weight for each municipality within the bandwidth declines linearly with distance to the border. In Tables B1-B4, Panel B, we provide results for alternative specifications of the RD polynomial. In particular, we use a uniform kernel that puts equal weight on each municipality within the bandwidth. For the multidimensional polynomial, we examine the sensitivity when we use quadratic or a cubic functions of longitude and latitude. In addition, we consider a one-dimensional regression discontinuity specification where the geographic location of a municipality is captured by a running variable in the distance to the border (instead of the location's latitude and longitude). We estimate versions with a local linear specification of the running variable interacted with the US zone indicator variable and with a local quadratic specification of the running variable interacted with the US zone indicator variable. This specification is similar to Schumann (2014).

Boundary segments In our baseline specification, we split the border into five segments of equal length and include indicator variables for the closest boundary segment. This ensures that we compare municipalities in spatial proximity on opposite sides of the border. In Tables B1-B4, Panel C, we provide results for a number of boundary segments ranging from 1 to 50.

[35] The Covid-19 pandemic severely restricted the opening hours of the research data centers where the micro-data for manufacturing used in Table 2 is made available. As a consequence, we were unable to implement the sensitivity analysis for these outcomes within the access period stipulated in our contract with the German Statistical Offices. However, we can make these results available in the future upon request.

Further controls Tables B1-B4, Panel D, provide results including additional controls. Columns (1)-(2) control for industry dismantling based on detailed lists of dismantled establishments. We measure dismantling as the share of dismantled establishments among all non-agricultural establishments. Columns (3)-(4) control for the share of housing built after 1948, using data from the 1970 census. Columns (5)-(6) control for distance to the border between the 1945-49 French and US occupation zones, defined as the positive distance to the border for municipalities in the US zone and negative distance to the border for municipalities in the French zone. Due to the irregular shape of the border, municipalities at the same distance from the border can differ in their US-zone exposure.

Range of spillover effects In our baseline specification, US-zone exposure is based on pre-WWII population within a 10 km radius around municipality centers. In Figure B2, we provide results when we vary the radius between 2 and 25 km. The figures on the left show the coefficient θ for US-zone location in equation (2). The figures on the right show the coefficient δ for US-zone exposure. The coefficient δ tends to be an inverse u-shaped function of the radius, with a maximum at around 10 km.

In order to better understand the figures for the coefficient δ, we conduct a simulation exercise. We assume that the true range of spillovers is 10 km and assess how estimates of δ vary with misspecification of the radius used to obtain US-zone exposure. The data in the simulation exercise is for municipalities that are within 15 km from the border. The starting point of our simulation exercise is an artificial economic outcome generated as

$$y_m = 1 + 0.139 * USzoneExposure_m + u_m, \tag{B1}$$

where $USzoneExposure_m$ is the share of 1939 population in a circle with a 10 km radius on what would become the 1945-49 US occupation zone and $u_m \overset{i.i.d.}{\sim} \mathcal{N}(0, 0.07)$. That is, the artificial economic outcome is generated assuming that the true range of spillovers is 10 km. The effect of US-zone exposure on the artificial outcome (0.139) is the value estimated for income in Table 2, Panel A, column (2). The side of the 1945-49 occupation-zone border where the municipality is located is assumed to be irrelevant.

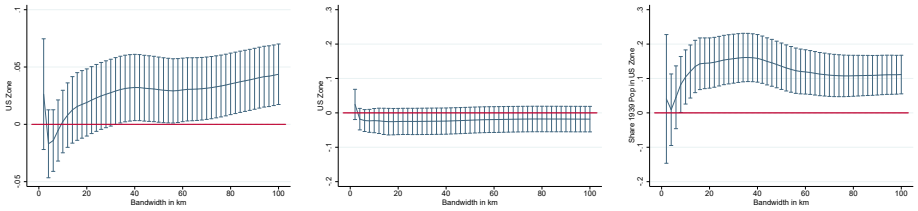
We then use the artificial outcome generated using equation (B1) to estimate

$$y_m = \alpha + \theta US_m + \delta USzoneExposure_m^{(r)} + \varepsilon_m, \tag{B2}$$

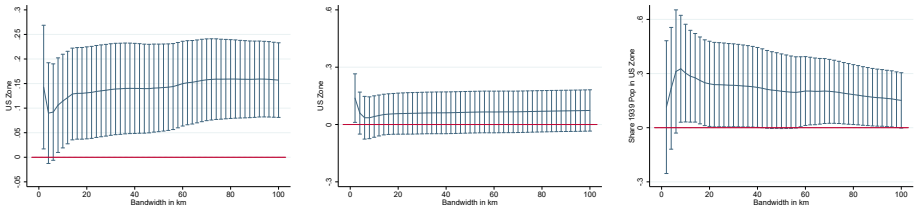
for values of $r \in \{2km, \ldots, 25km\}$. For each r, we repeat the process 100 times and obtain the average θ, the average δ, and the 90% confidence interval based on the standard deviation across simulations. Our results are displayed in Figure B3. The figure on the right depicts the results for δ as a function of the radius used to obtain US-zone exposure. The pattern appears similar to the one we find in the data. In particular, δ increases with the radius used up to 10 km (the true range of spillovers) and declines above 10 km.

Figure B1: Varying the Bandwidth around the 1945-49 Border

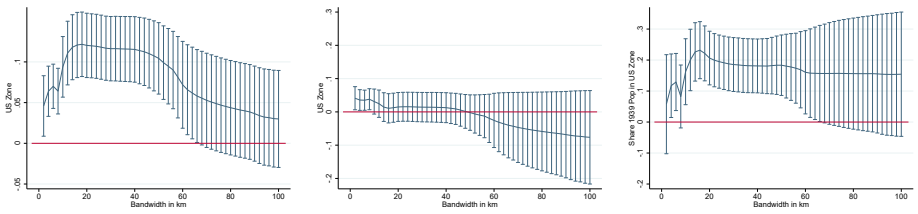
(a) Income per Capita (2007-2017)



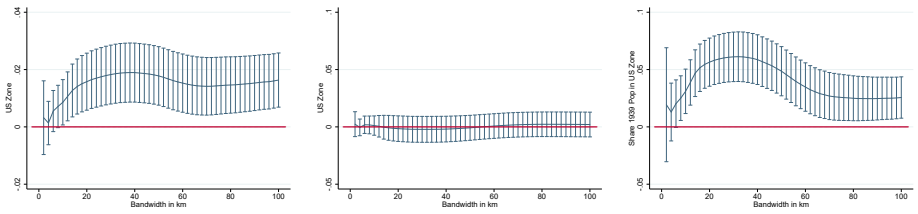
(b) Aggregate Labor Productivity (2006-2018)



(c) Rents ImmobilienScout24 (2008-2016)



(d) Share University (1999-2020)

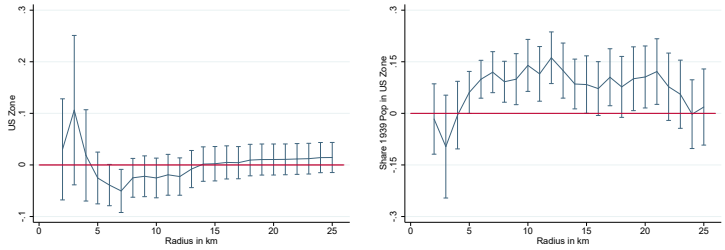


γ in equation (1) θ in equation (2) δ in equation (2)

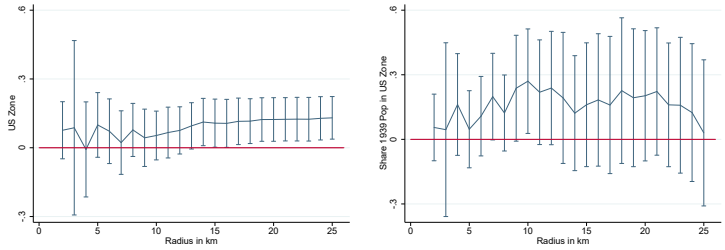
Notes: The left-most figure in each row plots the coefficient γ for the US zone indicator in equation (1) for varying bandwidths around the border between the 1945-49 French and US occupation zones. The figures in the middle and on the right plot the coefficients θ and δ in equation (2) for varying bandwidths around the border. δ is the effect of our measure of US-zone exposure within a 10 km radius. θ is the effect for a (hypothetical) municipality that is on the former US side of the border between the 1945-49 French and the US occupation zones, but close enough to the border so that half of the pre-WWII population within a 10 km radius is on what became the French side of the 1945-49 occupation-zone border. All regressions are local linear regressions controlling for longitude and latitude, quadratic polynomials in distance to Stuttgart and to the closest highway exit, and five boundary segment fixed effects. All regressions pool multiple years and include year fixed effects. 90% confidence intervals are based on Conley standard errors with a Bartlett kernel and cutoff values of 25 km and 20 years.

Figure B2: Varying the Range of Spillover Effects

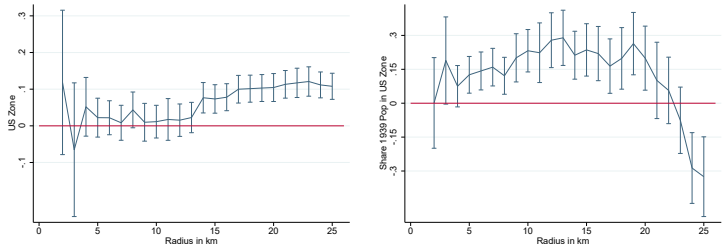
(a) Income per Capita (2007-2017)



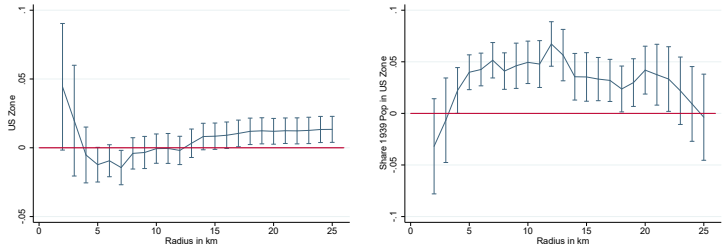
(b) Aggregate Labor Productivity (2006-2018)



(c) Rents ImmobilienScout24 (2008-2016)



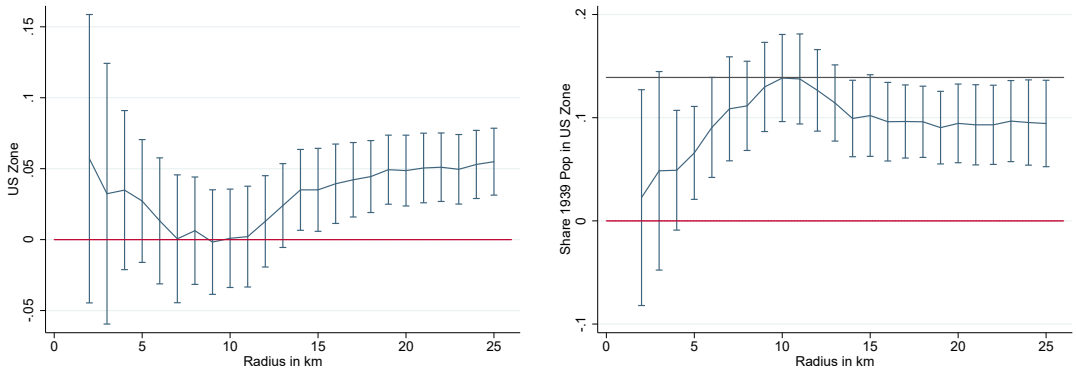
(d) Share University (1999-2020)



θ in equation (2) δ in equation (2)

Notes: The figure plots the coefficients θ and δ in equation (2) using different radii to obtain our measure of US-zone exposure within a certain distance of municipality centers. δ is the effect of our measure of US-zone exposure within the radius while θ is the effect for a (hypothetical) municipality that is on the former US side of the border between the 1945-49 French and US occupation zones but close enough to the border that half of the pre-WWII population within the radius is on what became the French side of the 1945-49 occupation-zone border. All regressions are local linear regressions controlling for longitude and latitude, quadratic polynomials in distance to Stuttgart and to the closest highway exit, and five boundary segment fixed effects. All regressions pool multiple years and include year fixed effects. 90% confidence intervals are based on Conley standard errors with a Bartlett kernel and cutoff values of 25 km and 20 years.

Figure B3: Understanding Estimates of the Range of Spillover Effects



θ in equation (2) δ in equation (2)

Notes: This figure shows results of a simulation exercise for municipalities in a 15 km bandwidth around the border between the 1945-49 French and US occupation zones in Baden-Württemberg. We first use equation (B1) to generate a synthetic outcome variable. The outcome is solely determined by the share of 1939 population within a 10 km circle (the true range of spillovers in the simulation exercise) around municipality centers on what would become the 1945-49 US occupation zone. We then estimate equation (B2) for the synthetic outcome variable and vary the radius used to calculate our measure of US-zone exposure between 2 and 25 km. Average point estimates and 90% confidence intervals across 100 simulations are shown for the US zone indicator variable (θ, on the left) and for the measure of US-zone exposure to the arrival of refugees in 1945-49 US occupation zone (δ, on the right).

Table B1: Sensitivity of the Results for Income per Capita (2007-2017)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Panel A: Standard Errors	Baseline		Robust		Cluster Municip.		Cluster County			
US-zone Location	0.014	-0.025	0.014*	-0.025**	0.014	-0.025	0.014	-0.025		
	(0.018)	(0.023)	(0.007)	(0.010)	(0.018)	(0.024)	(0.018)	(0.016)		
US-zone Exposure (10km)		0.139***		0.139***		0.139***		0.139**		
		(0.046)		(0.019)		(0.047)		(0.049)		
Observations	1,519	1,519	1,519	1,519	1,519	1,519	1,519	1,519		
	Conley 2km		Conley 10km		Conley 50km		Conley 75km		Conley 100km	
US-zone Location	0.014	-0.025	0.014	-0.025	0.014	-0.025	0.014	-0.025	0.014	-0.025
	(0.018)	(0.024)	(0.018)	(0.024)	(0.018)	(0.023)	(0.018)	(0.023)	(0.018)	(0.023)
US-zone Exposure (10km)		0.139***		0.139***		0.139***		0.139***		0.139***
		(0.047)		(0.047)		(0.045)		(0.044)		(0.044)
Observations	1,519	1,519	1,519	1,519	1,519	1,519	1,519	1,519	1,519	1,519
Panel B: RD Polynomial			Multidimensional Polynomial				One-Dimensional RD			
	Uniform Kernel		Quadratic		Cubic		Linear		Quadratic	
US-zone Location	0.029	-0.028	0.016	-0.024	-0.006	-0.036*	-0.024	-0.036	-0.042	-0.032
	(0.019)	(0.024)	(0.018)	(0.023)	(0.018)	(0.021)	(0.022)	(0.024)	(0.037)	(0.037)
US-zone Exposure (10km)		0.169***		0.139***		0.124***		0.107**		0.109*
		(0.045)		(0.046)		(0.045)		(0.054)		(0.059)
Observations	1,526	1,526	1,519	1,519	1,519	1,519	1,519	1,519	1,519	1,519
Panel C: Boundary Segments	1		2		10		25		50	
US-zone Location	0.023	-0.021	0.019	-0.021	0.011	-0.027	-0.002	-0.037*	-0.008	-0.053***
	(0.017)	(0.023)	(0.017)	(0.023)	(0.018)	(0.023)	(0.015)	(0.020)	(0.014)	(0.016)
US-zone Exposure (10km)		0.149***		0.140***		0.132***		0.134***		0.173***
		(0.044)		(0.045)		(0.049)		(0.045)		(0.037)
Observations	1,519	1,519	1,519	1,519	1,519	1,519	1,519	1,519	1,519	1,519
Panel D: Control Variables	Dismantling		Housing Construction		Distance to Border					
US-zone Location	0.013	-0.028	0.013	-0.025	-0.031	-0.042*				
	(0.018)	(0.022)	(0.017)	(0.022)	(0.023)	(0.024)				
US-zone Exposure (10km)		0.141***		0.140***		0.102*				
		(0.045)		(0.047)		(0.053)				
Share Dismantled Establishments	-1.139	-1.939								
	(3.785)	(3.927)								
Share Houses Constructed after 1948			0.022	-0.008						
			(0.079)	(0.077)						
Distance to 1945-49 Border					0.008***	0.005*				
					(0.003)	(0.003)				
Observations	1,519	1,519	1,512	1,512	1,519	1,519				

Notes: The table contains a sensitivity analysis of our baseline results in Table 2, Panel A. These results are based on local linear regressions with a triangular kernel, a bandwidth of 15 km around the border, and control for longitude and latitude, quadratic polynomials in distance to Stuttgart and to the closest highway exit, and five boundary segment fixed effects. All regressions pool multiple years and include year fixed effects. In the baseline, standard errors are Conley standard errors with a Bartlett kernel and cutoff values of 25 km and 20 years. Panel A varies how we compute standard errors. We use heteroscedasticity-robust standard errors, clustering by municipality, and clustering by county. We also vary the spatial cutoff used in estimating Conley standard errors. Panel B varies the kernel used in the local linear regression and the RD polynomial. For the multidimensional polynomial, we examine the sensitivity to quadratic and cubic specifications in the coordinates. In addition, we consider a one-dimensional polynomial in the linear and quadratic distance to the border (estimated separately on each side of the border). Panel C varies the number of boundary segments used in the estimation. Panel D varies the control variables included in the regression. Distance to the border is defined as the distance to the border for municipalities in the 1945-49 US occupation zone and negative distance to the border for municipalities in the 1945-49 French occupation zone. *, **, and *** denote statistical significance at the 10%, 5%, and 1% level respectively.

Table B2: Sensitivity of the Results for Aggregate Labor Productivity (2006-2018)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Panel A: Standard Errors	Baseline		Robust		Cluster Municip.		Cluster County			
US-zone Location	0.130**	0.053	0.130***	0.053**	0.130**	0.053	0.130**	0.053		
	(0.057)	(0.065)	(0.019)	(0.022)	(0.058)	(0.066)	(0.047)	(0.055)		
US-zone Exposure (10km)		0.270*		0.270***		0.270*		0.270		
		(0.148)		(0.049)		(0.150)		(0.181)		
Observations	2,558	2,558	2,558	2,558	2,558	2,558	2,558	2,558		
	Conley 2km		Conley 10km		Conley 50km		Conley 75km		Conley 100km	
US-zone Location	0.130**	0.053	0.130**	0.053	0.130**	0.053	0.130**	0.053	0.130**	0.053
	(0.058)	(0.065)	(0.057)	(0.065)	(0.056)	(0.064)	(0.056)	(0.064)	(0.055)	(0.064)
US-zone Exposure (10km)		0.270*		0.270*		0.270*		0.270*		0.270*
		(0.149)		(0.148)		(0.147)		(0.147)		(0.147)
Observations	2,558	2,558	2,558	2,558	2,558	2,558	2,558	2,558	2,558	2,558
Panel B: RD Polynomial			Multidimensional Polynomial				One-Dimensional RD			
	Uniform Kernel		Quadratic		Cubic		Linear		Quadratic	
US-zone Location	0.145**	0.066	0.129**	0.051	0.139**	0.057	0.134*	0.094	0.100	0.135
	(0.059)	(0.066)	(0.057)	(0.066)	(0.064)	(0.068)	(0.074)	(0.074)	(0.108)	(0.108)
US-zone Exposure (10km)		0.233		0.272*		0.341**		0.359**		0.384**
		(0.144)		(0.148)		(0.157)		(0.176)		(0.184)
Observations	2,570	2,570	2,558	2,558	2,558	2,558	2,558	2,558	2,558	2,558
Panel C: Boundary Segments	1		2		10		25		50	
US-zone Location	0.134**	0.066	0.141**	0.065	0.138**	0.063	0.166***	0.068	0.170***	0.052
	(0.056)	(0.065)	(0.057)	(0.066)	(0.057)	(0.067)	(0.057)	(0.068)	(0.055)	(0.063)
US-zone Exposure (10km)		0.227		0.264*		0.264*		0.373**		0.452***
		(0.146)		(0.148)		(0.146)		(0.160)		(0.143)
Observations	2,558	2,558	2,558	2,558	2,558	2,558	2,558	2,558	2,558	2,558
Panel D: Control Variables	Dismantling		Housing Construction		Distance to Border					
US-zone Location	0.130**	0.051	0.129**	0.056	0.127*	0.091				
	(0.058)	(0.064)	(0.059)	(0.066)	(0.076)	(0.075)				
US-zone Exposure (10km)		0.272*		0.272*		0.354**				
		(0.146)		(0.149)		(0.174)				
Share Dismantled Establishments	-0.318	-1.850								
	(6.278)	(6.889)								
Share Houses Constructed after 1948			0.019	-0.041						
			(0.297)	(0.300)						
Distance to 1945-49 Border					0.001	-0.011				
					(0.009)	(0.010)				
Observations	2,558	2,558	2,546	2,546	2,558	2,558				

Notes: The table contains a sensitivity analysis of our baseline results in Table 2, Panel B. These results are based on local linear regressions with a triangular kernel, a bandwidth of 15 km around the border, and control for longitude and latitude, quadratic polynomials in distance to Stuttgart and to the closest highway exit, and five boundary segment fixed effects. All regressions pool multiple years and include year fixed effects. In the baseline, standard errors are Conley standard errors with a Bartlett kernel and cutoff values of 25 km and 20 years. Panel A varies how we compute standard errors. We use heteroscedasticity-robust standard errors, clustering by municipality, and clustering by county. We also vary the spatial cutoff used in estimating Conley standard errors. Panel B varies the kernel used in the local linear regression and the RD polynomial. For the multidimensional polynomial, we examine the sensitivity to quadratic and cubic specifications in the coordinates. In addition, we consider a one-dimensional polynomial in the linear and quadratic distance to the border (estimated separately on each side of the border). Panel C varies the number of boundary segments used in the estimation. Panel D varies the control variables included in the regression. Distance to the border is defined as the distance to the border for municipalities in the 1945-49 US occupation zone and negative distance to the border for municipalities in the 1945-49 French occupation zone. *, **, and *** denote statistical significance at the 10%, 5%, and 1% level respectively.

Table B3: Sensitivity of the Results for Rents (2008-2016)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Panel A: Standard Errors	Baseline		Robust		Cluster Municip.		Cluster County			
US-zone Location	0.120***	0.011	0.120***	0.011***	0.120***	0.011	0.120***	0.011		
	(0.026)	(0.027)	(0.002)	(0.002)	(0.024)	(0.027)	(0.036)	(0.037)		
US-zone Exposure (10km)		0.232***		0.232***		0.232***		0.232***		
		(0.057)		(0.003)		(0.057)		(0.061)		
Observations	314,765	314,765	314,765	314,765	314,765	314,765	314,765	314,765		
	Conley 2km		Conley 10km		Conley 50km		Conley 75km		Conley 100km	
US-zone Location	0.120***	0.011	0.120***	0.011	0.120***	0.011	0.120***	0.011	0.120***	0.011
	(0.024)	(0.027)	(0.025)	(0.027)	(0.027)	(0.027)	(0.027)	(0.026)	(0.026)	(0.026)
US-zone Exposure (10km)		0.232***		0.232***		0.232***		0.232***		0.232***
		(0.057)		(0.057)		(0.058)		(0.057)		(0.056)
Observations	314,765	314,765	314,765	314,765	314,765	314,765	314,765	314,765	314,765	314,765
Panel B: RD Polynomial			Multidimensional Polynomial				One-Dimensional RD			
	Uniform Kernel		Quadratic		Cubic		Linear		Quadratic	
US-zone Location	0.130***	-0.004	0.107***	0.010	0.065***	0.010	0.046*	0.006	0.073	0.054
	(0.028)	(0.031)	(0.022)	(0.027)	(0.020)	(0.023)	(0.028)	(0.022)	(0.050)	(0.044)
US-zone Exposure (10km)		0.250***		0.212***		0.212***		0.157**		0.173***
		(0.057)		(0.054)		(0.050)		(0.062)		(0.054)
Observations	315,111	315,111	314,765	314,765	314,765	314,765	314,765	314,765	314,765	314,765
Panel C: Boundary Segments	1		2		10		25		50	
US-zone Location	0.072**	-0.034	0.121***	0.016	0.108***	-0.016	0.068***	-0.001	0.061***	0.001
	(0.033)	(0.036)	(0.028)	(0.027)	(0.024)	(0.030)	(0.019)	(0.021)	(0.019)	(0.019)
US-zone Exposure (10km)		0.230***		0.226***		0.262***		0.168***		0.148***
		(0.080)		(0.055)		(0.057)		(0.042)		(0.046)
Observations	314,765	314,765	314,765	314,765	314,765	314,765	314,765	314,765	314,765	314,765
Panel D: Control Variables	Dismantling		Housing Construction		Distance to Border					
US-zone Location	0.116***	0.032	0.109**	-0.000	0.017	-0.018				
	(0.021)	(0.025)	(0.039)	(0.038)	(0.031)	(0.026)				
US-zone Exposure (10km)		0.181***		0.233***		0.140*				
		(0.047)		(0.064)		(0.073)				
Share Dismantled Establishments	18.959***	15.095***								
	(6.793)	(5.780)								
Share Houses Constructed after 1948			0.163	0.169						
			(0.176)	(0.148)						
Distance to 1945-49 Border					0.014***	0.010**				
					(0.003)	(0.004)				
Observations	314,765	314,765	314,636	314,636	314,765	314,765				

Notes: The table contains a sensitivity analysis of our baseline results in Table 2, Panel C. These results are based on local linear regressions with a triangular kernel, a bandwidth of 15 km around the border, and control for longitude and latitude, quadratic polynomials in distance to Stuttgart and to the closest highway exit, and five boundary segment fixed effects. All regressions pool multiple years and include year fixed effects. In the baseline, standard errors are Conley standard errors with a Bartlett kernel and cutoff values of 25 km and 20 years. Panel A varies how we compute standard errors. We use heteroscedasticity-robust standard errors, clustering by municipality, and clustering by county. We also vary the spatial cutoff used in estimating Conley standard errors. Panel B varies the kernel used in the local linear regression and the RD polynomial. For the multidimensional polynomial, we examine the sensitivity to quadratic and cubic specifications in the coordinates. In addition, we consider a one-dimensional polynomial in the linear and quadratic distance to the border (estimated separately on each side of the border). Panel C varies the number of boundary segments used in the estimation. Panel D varies the control variables included in the regression. Distance to the border is defined as the distance to the border for municipalities in the 1945-49 US occupation zone and negative distance to the border for municipalities in the 1945-49 French occupation zone. *, **, and *** denote statistical significance at the 10%, 5%, and 1% level respectively.

Table B4: Sensitivity of the Results for Share University Education (1999-2020)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Panel A: Standard Errors	Baseline		Robust		Cluster Municip.		Cluster County			
US-zone Location	0.013**	-0.001	0.013***	-0.001	0.013**	-0.001	0.013	-0.001		
	(0.006)	(0.006)	(0.001)	(0.002)	(0.006)	(0.006)	(0.009)	(0.009)		
US-zone Exposure (10km)		0.049***		0.049***		0.049***		0.049***		
		(0.012)		(0.003)		(0.012)		(0.014)		
Observations	4,786	4,786	4,786	4,786	4,786	4,786	4,786	4,786		
	Conley 2km		Conley 10km		Conley 50km		Conley 75km		Conley 100km	
US-zone Location	0.013**	-0.001	0.013**	-0.001	0.013**	-0.001	0.013**	-0.001	0.013**	-0.001
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
US-zone Exposure (10km)		0.049***		0.049***		0.049***		0.049***		0.049***
		(0.012)		(0.013)		(0.012)		(0.012)		(0.012)
Observations	4,786	4,786	4,786	4,786	4,786	4,786	4,786	4,786	4,786	4,786
Panel B: RD Polynomial			Multidimensional Polynomial				One-Dimensional RD			
	Uniform Kernel		Quadratic		Cubic		Linear		Quadratic	
US-zone Location	0.020***	-0.003	0.015***	0.001	0.003	-0.005	0.000	-0.004	-0.012	-0.009
	(0.007)	(0.007)	(0.006)	(0.007)	(0.006)	(0.006)	(0.007)	(0.007)	(0.011)	(0.011)
US-zone Exposure (10km)		0.065***		0.048***		0.032**		0.038***		0.037**
		(0.014)		(0.013)		(0.014)		(0.014)		(0.014)
Observations	4,808	4,808	4,786	4,786	4,786	4,786	4,786	4,786	4,786	4,786
Panel C: Boundary Segments	1		2		10		25		50	
US-zone Location	0.015***	0.002	0.016***	0.002	0.014**	0.003	0.007	-0.000	0.003	-0.004
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.005)	(0.005)	(0.006)	(0.005)
US-zone Exposure (10km)		0.046***		0.049***		0.039***		0.027**		0.028**
		(0.014)		(0.012)		(0.014)		(0.012)		(0.013)
Observations	4,786	4,786	4,786	4,786	4,786	4,786	4,786	4,786	4,786	4,786
Panel D: Control Variables	Dismantling		Housing Construction		Distance to Border					
US-zone Location	0.013**	-0.002	0.009	-0.004	-0.007	-0.010				
	(0.006)	(0.006)	(0.006)	(0.006)	(0.007)	(0.007)				
US-zone Exposure (10km)		0.051***		0.046***		0.027**				
		(0.012)		(0.012)		(0.013)				
Share Dismantled Establishments	-0.924	-1.216								
	(1.194)	(1.103)								
Share Houses Constructed after 1948			0.072***	0.061**						
			(0.027)	(0.026)						
Distance to Border					0.004***	0.003***				
					(0.001)	(0.001)				
Observations	4,786	4,786	4,764	4,764	4,786	4,786				

Notes: The table contains a sensitivity analysis of our baseline results in Table 2, Panel D. These results are based on local linear regressions with a triangular kernel, a bandwidth of 15 km around the border, and control for longitude and latitude, quadratic polynomials in distance to Stuttgart and to the closest highway exit, and five boundary segment fixed effects. All regressions pool multiple years and include year fixed effects. In the baseline, standard errors are Conley standard errors with a Bartlett kernel and cutoff values of 25 km and 20 years. Panel A varies how we compute standard errors. We use heteroscedasticity-robust standard errors, clustering by municipality, and clustering by county. We also vary the spatial cutoff used in estimating Conley standard errors. Panel B varies the kernel used in the local linear regression and the RD polynomial. For the multidimensional polynomial, we examine the sensitivity to quadratic and cubic specifications in the coordinates. In addition, we consider a one-dimensional polynomial in the linear and quadratic distance to the border (estimated separately on each side of the border). Panel C varies the number of boundary segments used in the estimation. Panel D varies the control variables included in the regression. Distance to the border is defined as the distance to the border for municipalities in the 1945-49 US occupation zone and negative distance to the border for municipalities in the 1945-49 French occupation zone. *, **, and *** denote statistical significance at the 10%, 5%, and 1% level respectively.

C Spatial Equilibrium

We derive a relationship between wages and rents across locations in spatial equilibrium following the classic framework of Rosen (1979) and Roback (1982) (for a review and advances on their framework see Albouy, 2011; Moretti, 2011; Diamond, 2016). In Section 5.2, we use this relationship to examine whether today's differences in wages and rents across the border between the 1945-49 French and US occupation zones in South West Germany are consistent with a spatial equilibrium.

Model Setup Consider a household with preferences over a tradable consumption good c, housing h, and labor supply l, given by the twice differentiable utility function $U(c, h, l)$. The household can live in two locations that solely differ in the wage w the household can earn and the rent R per unit of housing. The household has after-tax capital income z, which is independent of the location.

Denote the household's indirect utility as a function of w and R by $V(w, R)$: $V(w, R) = \max_{c,h,l} U(c, h, l)$ subject to $c + Rh \leq wl - T(wl) + z$ and $0 \leq l \leq \bar{l}$ where $T(wl)$ are taxes on labor income and $\bar{l}$ is the household's time endowment. Suppose that the optimal solutions are interior.[36] Using the envelope theorem, the partial derivatives of the indirect utility function are $\frac{\partial V}{\partial R} = -\lambda^* h^*$ and $\frac{\partial V}{\partial w} = \lambda^* l^* (1 - MTR)$ where asterisks denote optimal values, λ is the Lagrange multiplier, and $MTR = T'(wl^*)$.

Spatial Equilibrium Suppose the household is indifferent between the two locations. Totally differentiating $V(w, R)$ yields that for a change in the rent dR and the wage dw to leave indirect utility unchanged, it must be that $\frac{\partial V}{\partial R} dR + \frac{\partial V}{\partial w} dw = 0$ or $\frac{\partial V}{\partial R} dR = -\frac{\partial V}{\partial w} dw$. Using the expressions for the partial derivatives of the indirect utility function therefore implies $(Rh^*)dR/R = (wl^*)(1 - MTR)\, dw/w$. Dividing both sides of this equality by labor income multiplied by one minus the average tax rate $(1 - ATR)$ yields

$$\frac{Rh^*}{(1 - ATR) \times wl^*} \times \Delta log\, R \simeq \frac{1 - MTR}{1 - ATR} \Delta log\, w. \tag{C1}$$

The left-hand side of (C1) is the log-difference in the rent across locations weighted by the share of housing expenditures in after-tax labor income. This reflects the impact of the difference in the rent across locations on household expenditures. The right-hand side of (C1) is the log-difference in the wage across locations weighted by the measure of tax progressivity $(1 - MTR)/(1 - ATR)$. This reflects the effect of the difference in the wage across locations on income after taxes. Hence, intuitively, (C1) states that when moving to the higher-rent location, the increase in household expenditures because of the impact of the higher rent must be matched by an equivalent increase in income for the

[36] That is, households consume a strictly positive amount of the tradable good, housing, and leisure and supply a strictly positive amount of labor.

household to be indifferent between the two locations. This basic insight goes back to the models of Rosen (1979) and Roback (1982) without consumption amenities.

In equation (3) in our main text, we rewrite the condition in (C1) without reference to the average tax rate. The intuition remains very similar to (C1) but has the advantage that we only require a single statistic, $HousingExpenditures/(1-MTR)LaborIncome$, to check whether the log-differences in the wage (before taxes) and the rent across locations are consistent with spatial equilibrium.

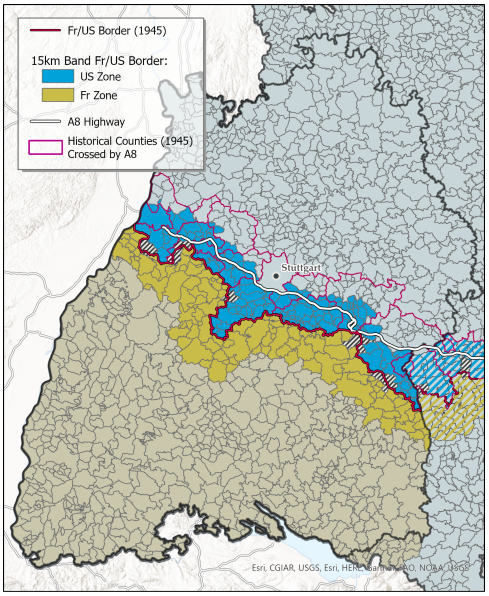
Local Prices Our framework only considers local rents while in principle also other prices could differ by location (Albouy, 2011). To examine the importance of local cost differences beyond housing costs we draw on local price indexes provided by the Federal Office for Building and Regional Planning (BBR, see Table A1). The BBR offers separate price indexes for housing costs and non-housing costs at the county level for 2022. Estimating our RDD specification by imputing for each municipality the price index of its respective county yields a strongly significant discontinuity in housing costs of 11.7% (with a standard error of 1.85). This discontinuity is strikingly close to our estimate of 12% based on the detailed property-level data in Table 2. In contrast, estimating the RDD specification with the imputed values for non-housing costs yields a small and insignificant discontinuity of 0.07% (with a standard error of 0.11). We thus conclude that we can abstract from local differences in non-housing costs in our framework.

D Examining the Role of the Highway

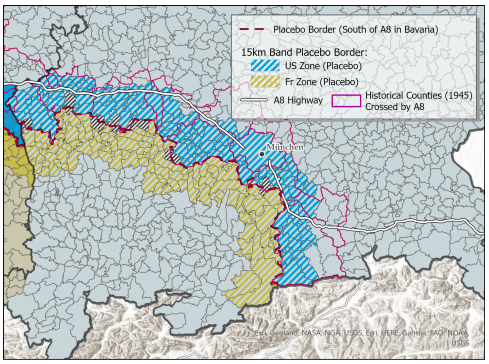
As explained in Section 2, the location of the border between the 1945-49 French and US occupation zones in South-West Germany was determined by the highway crossing South-West Germany (today, the A8 highway). After WWII, the US employed its political power to expand its territory southward to include all counties crossed by the highway. Figure D1 (a) shows the border and the A8 highway in Baden-Württemberg. As a consequence of this border delineation, municipalities on the US side of the border were on average somewhat closer to the highway than those on the French side.

Before and shortly after WWII, there was little road traffic. In the 1950s, however, traffic increased rapidly. As a result, the highway may explain today's differences in population density across the South-West German border between the French and US occupation zones. In all of our main analyses, we account for the potential role of the A8 highway by controlling for the distance of municipalities to the highway (Schumann, 2014). In this section, we examine the role of the A8 highway for population density today using a placebo strategy. In a first step, we construct a placebo-US occupation zone along a given highway by replicating the US rule that all historical counties crossed by the highway should be part of the US occupation zone. Second, we construct a placebo-

Figure D1: The role of the Highway



(a) Baden-Württemberg



(b) Bavaria

Notes: Figure (a) shows a map of the state of Baden-Württemberg and highlights municipalities within 15 km of the border between the 1945-49 French and US occupation zones. The map also shows the location of the A8 highway that determined where the 1945-49 border was placed. The exact shape of the 1945-49 border was determined by the shape of the borders of the historical counties crossed by the A8 highway. We therefore also show the borders of all historical counties crossed by the A8 highway. Figure (b) displays municipalities, historical county borders, and the A8 highway in the neighboring state of Bavaria. This state was part of the 1945-49 US occupation zone (with the exception of one county, far off the A8 highway). To examine today's economic effects across the 1945-49 occupation-zone border in Baden-Württemberg using a placebo strategy, we construct placebo borders along the Bavarian segment of the A8 highway. These placebo borders are drawn by replicating the rule the US employed to determine its 1945-49 occupation-zone border within Baden-Württemberg (i.e., all historical counties crossed by the A8 highway should be in the US occupation zone). The figure illustrates the placebo border and municipalities within 15 km of the placebo border in the case where we place the placebo-French occupation zone to the south of the placebo-US occupation zone. We also examine the case where the placebo-French occupation zone is placed to the north of the placebo-US occupation zone and analogous placebo borders along highways in Baden-Württemberg.

French occupation zone. As any band of counties crossed by a highway has two outer borders, there are generally two choices for the placebo-French occupation zone (and the placebo border). Third, we examine differences across the borders between the placebo occupation zones using equation (1). Our baseline includes municipalities within 15 km of the placebo borders. We implement this placebo strategy for the A5, A6, A7, A8, and A81 highways in Baden-Württemberg.[37] Except for the A8, these highways were all constructed or completed after WWII.

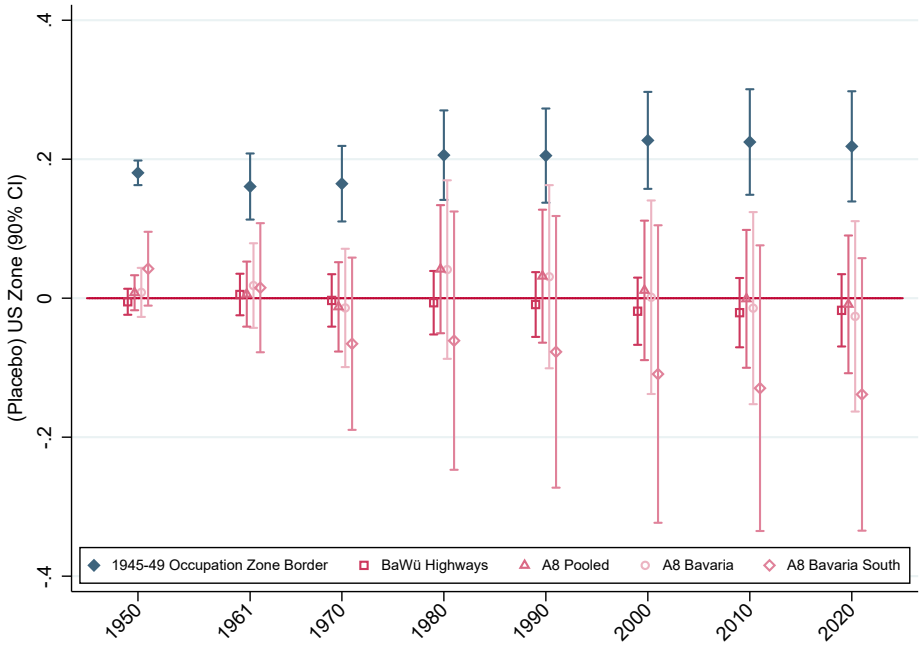
We therefore also implement the placebo strategy for the segment of the A8 highway that runs through the state of Bavaria, which neighbors Baden-Württemberg to the west and was occupied by the US (except for one county far off the A8 highway). This highway segment is as old as the one in Baden-Württemberg. The placebo-US occupation zone in Bavaria along the A8 highway again replicates the US rule that all historical counties crossed by the highway should be part of the US occupation zone. Again, there are two possibilities for the placebo-French occupation zone (and the placebo border). Figure D1 (b) illustrates the Bavarian placebo when we place the placebo-French occupation zone to the south of the placebo-US occupation zone (and to the south of the A8 highway).

Figure D2 shows the results of applying our placebo strategy to examine (log) population growth between 1939 and the year indicated on the horizontal axis using equation (1). The estimates in red are those for the placebo borders. For comparison, the estimates in blue show the results for the actual border between the 1945-49 French and US occupation zones. No time period after 1939 and no set of placebo borders yields a statistically significant difference for population growth across our placebo borders. This holds true whether we pool the placebo borders for all highways in Baden-Württemberg; pool the two placebo borders for the highway A8 in Bavaria; pool the three placebo borders for the highway A8 in Baden-Württemberg and Bavaria;[38] or only consider the placebo for the A8 highway in Bavaria where the placebo-French zone is to the south of the placebo-US zone. These results indicate that the spatial discontinuity in population growth at the border between the 1945-49 French and US occupation zones in South-West Germany is not due to the rule the US used to draw the border.

[37] The A6 highway runs east to west within what was the 1945-49 US occupation zone. The other highways run north to south and cut nearly perpendicularly across what was the border between the 1945-49 French and US occupation zones. We can only place one placebo border (west of) the A5 highway as this highway runs close to the border with France. Similarly, we can only place one placebo border (east of) the A7 highway as it runs close to the border with the state of Bavaria. We can also only place one placebo border (north of) the A8 highway as the border south of that highway is the actual 1945-49 border between the French and US occupation zones in South-West Germany. Of the 225 municipalities within 15 km of this placebo border (108 in the placebo-French zone and 117 in the placebo-US zone), 218 were in the 1945-49 US occupation zone.

[38] We can only place one placebo border along the A8 highway in Baden-Württemberg (north of the highway) as the border south of that highway is the actual 1945-49 border between the French and US occupation zones in South-West Germany.

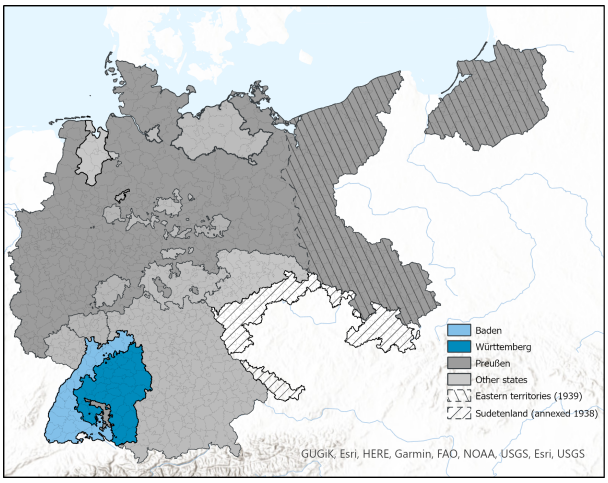
Figure D2: Population Growth Across the 1945-49 Border and Across Placebo Borders



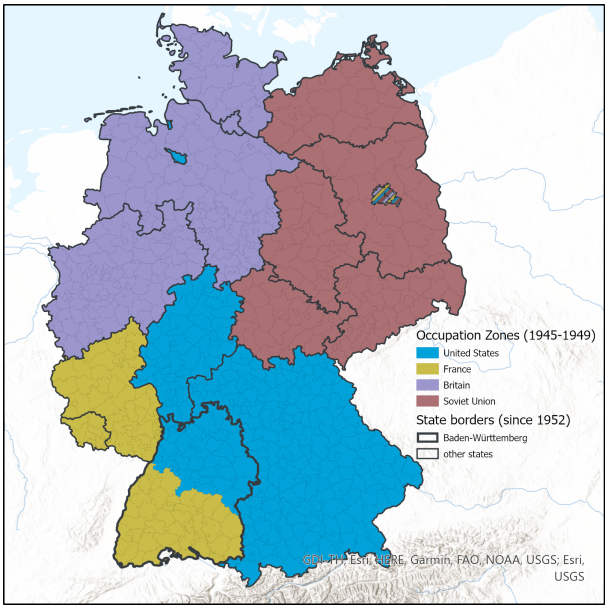
Notes: The figure shows regression coefficients for the difference in population growth since 1939 across the border between the 1945-49 French and US occupation zones in blue. Results are for population growth up to different years between 1950 and 2020. The analysis includes municipalities within 15 km from the 1945-49 occupation-zone border. Equivalent regression coefficients across placebo borders along highways in Baden-Württemberg and Bavaria are shown in different shades of red. Placebo borders are drawn by replicating the rule the US employed to determine its 1945-49 occupation-zone border within Baden-Württemberg. The 90% confidence intervals are based on Conley (1999) standard errors with a Bartlett kernel and a cutoff value of 25 km. All regressions are local linear regressions controlling for longitude and latitude, quadratic polynomials in distance to either Stuttgart in Baden-Württemberg or to Munich in Bavaria, quadratic polynomials in distance to the closest highway exit, and five boundary segment fixed effects.

E Additional Figures and Tables

Figure E1: Germany before and after WWII



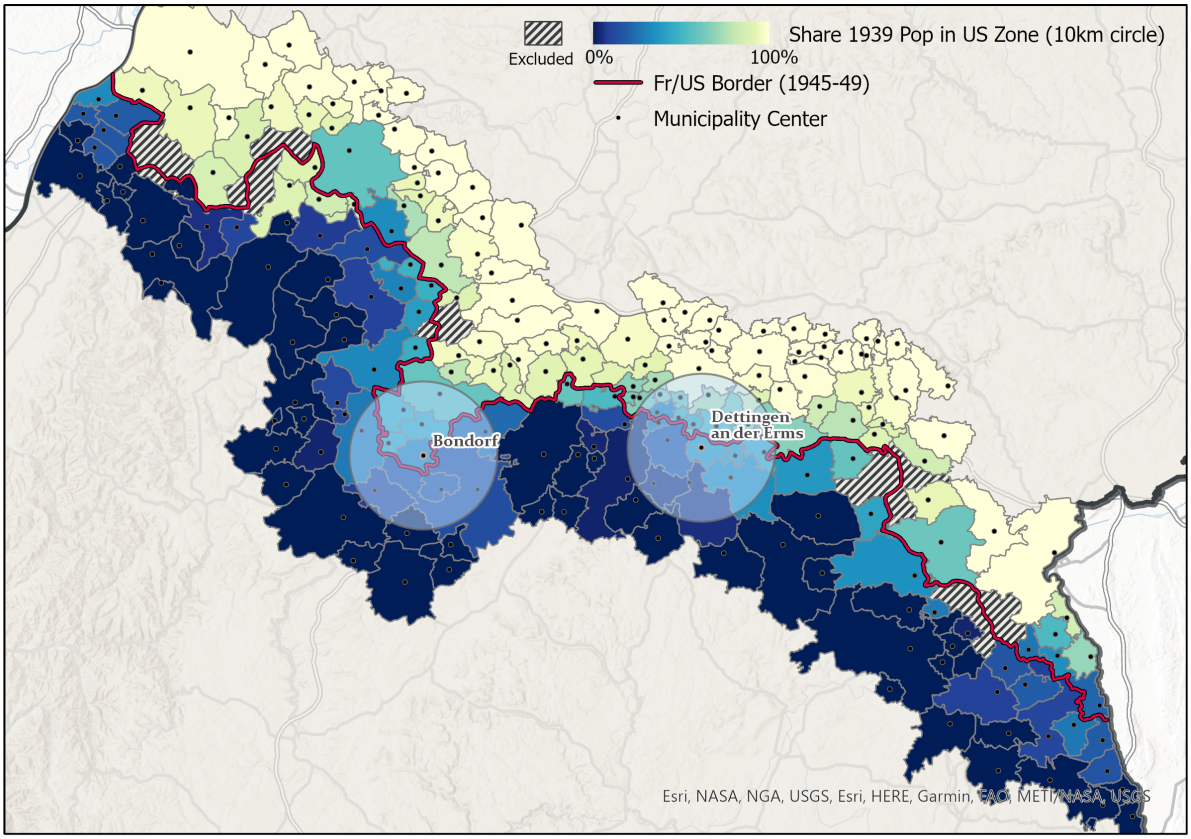
(a) Germany in 1939



(b) Germany after WWII

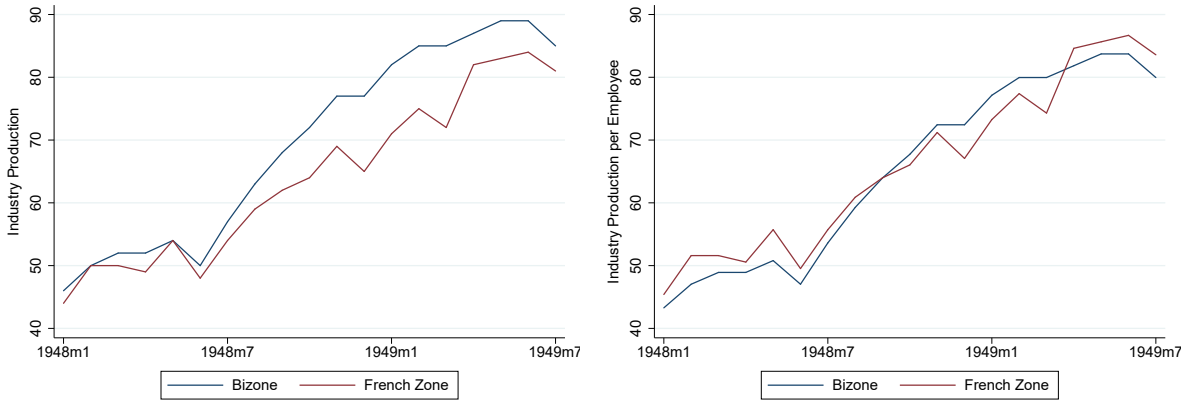
Notes: Figure (a) shows the pre-WWII borders of Germany in 1939. The shaded areas mark the eastern territories of pre-WWII Germany and some territories annexed in the years just before WWII that had to be ceded after WWII. The map also shows the historical states of Baden and Württemberg, the two states that together form the focal area of our paper. Figure (b) depicts the borders of Germany today and the four occupation zones that existed between 1945 and the foundation of West Germany in 1949. The dark boundaries mark the 16 federal states, while the thicker boundary corresponds to the state of Baden-Württemberg, founded in 1952. The border between the 1945-49 French and US occupation zones we focus on is the border within Baden-Württemberg.

Figure E2: Illustrating the Measure of US-zone Exposure



Notes: The figure illustrates our measure of US-zone exposure in South-West Germany. The map shows municipalities within 15 km of the 1945-49 border between occupation zones and the location of their municipality centers. Municipalities are colored according to the share of the 1939 population within a 10 km radius around municipality centers that lived on what would become the US side of the 1945-49 border. To construct the share for a municipality m, we first obtain all municipalities whose center is located within a circle with a radius of 10 km around m. Then, we compute the sum of the population in 1939 in municipalities within the circle that would become part of the 1945-49 US occupation zone and divide it by the total population within the circle. Lighter colors denote higher shares of 1939 population in what became the US occupation zone. We use the 1939 population as this captures basic determinants of where refugees could potentially settle, but avoids endogeneity issues related to where refugees actually settled within the US and within the French occupation zones. The two circles shown in the figure are centered on the municipalities of Bondorf (circle on the left) and of Dettingen an der Erms (circle on the right). Both are located close to the 1945-49 border. Bondorf was in the US occupation zone, whereas Dettingen was in the French occupation zone. Bondorf has 30% of the 1939 population within its circle in what became the US occupation zone. Dettingen has 40% of the 1939 population within its circle on what became the US occupation zone. Hence, US-zone exposure is larger for Dettingen than Bondorf, although Dettingen was in the French zone whereas Bondorf was in the US zone.

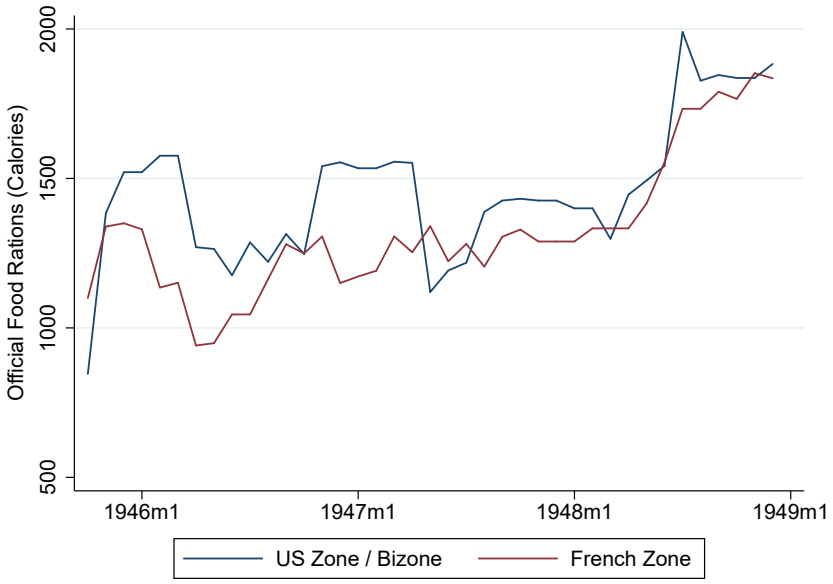
Figure E3: Industrial Production 1948-49 (Ritschl, 1985)



Total Production (1936=100) Production per Worker (1936=100)

Notes: The figure on the left reproduces the index of total industrial production (1936=100) as calculated by Ritschl (1985) for the Bizone (the combined UK and US occupation zone) and the French occupation zone. The figure on the right is meant to approximate an index of industrial productivity (1936=100) and is obtained by adjusting industrial production in 1936 by the number of workers in industry and handicrafts in 1939 and industrial production in 1948-1949 by the number of workers in industry and handicrafts in 1950. The employment data comes from Vonyó (2018). We use employment in 1939 and 1950 as there is no data for 1936 and 1948-1949.

Figure E4: Official Food Rations



Notes: The figure shows the caloric intake of official food rations in the French and US (Bizone from 1947) occupation zones. The data comes from Manz (1968) and Schlange-Schöningen (1955).

Table E1: Distribution of Funds in the European Recovery Fund (Marshall Plan)

	(1)	(2)
	Württemberg-Baden (former US Zone)	Württemberg-Hohenzollern and Baden (former French zone)
Panel A. Subscription Amount for KfW Bonds in 1949		
Total (million DM)	2.42	1.55
DM per capita	0.620	0.614
Panel B. Guarantees by the Federal States		
Total (million DM in 1950)	1.81	3.37
DM per capita (1950)	0.46	1.34
Total (million DM in 1951)	16.90	2.72
DM per capita (1951)	4.32	1.08
	former Bizone	former French zone
Panel C. First Export Credit Agency Tranche (Million DM in 1949)		
Manufacturing	200.5	33.5
Agriculture	106	15.5
Energy	93	17
Gas and Water	33.6	1.4
Total	433.1	67.4
DM per capita	10.56	11.23

Notes: This table reports data from the annual reports of the *Kreditanstalt für Wiederaufbau* (KfW) for the years 1949 to 1951 (Kreditanstalt für Wiederaufbau, 1950-1952). Panels A and B are based on statistics that are reported separately by state. From 1952 on, the three Southwest German states Württemberg-Baden (former US occupation zone), Württemberg-Hohenzollern, and Baden (both in former French occupation zone) are subsumed in the new state Baden-Württemberg. Panel A reports the total amount of subscriptions to the KfW bonds (*Zeichnungsbetrag*) and the corresponding per capita values. Panel B reports total and per capita amounts of guarantees provided by the federal states (*Länderbürgschaften*). Panel C reports amounts provided to companies by sector in million Deutsche Mark (DM). Here, the data is separated into the former Bizone and the former French occupation zone, i.e., it comprises all of West Germany. Note that in addition to the listed industries, the former Bizone received support in industries that are not present in the former French occupation zone, in particular in Sea Ships, Iron and Steel, and Mining. To calculate per capita values, we calculate with a population of 41 million in the former Bizone and 6 million in the former French occupation zone.

Table E2: Positive Assortative Matching - Details

	(1)	(2)	(3)	(4)
Panel A: Municipalities				
	Dauth et al.	+ Controls	+ US Dummy	IV
Population Density	0.0421***	0.0609***	0.0563***	0.1490**
	(0.0072)	(0.0171)	(0.0172)	(0.0572)
US-zone Location			0.0281	
			(0.0220)	
Observations	1075	1070	1070	1070
First Stage F-Stat				51.46
Panel B: Local Labor Markets				
	Dauth et al.			IV
Population Density	0.0525***		0.0150	0.0802***
	(0.0191)		(0.0361)	(0.0166)
US-zone Exposure		0.0716***	0.0583	
of Local Labor Market		(0.0271)	(0.0495)	
Observations	55	55	55	55
First Stage F-Stat				74.67

Notes: This table replicates and extends the headline result of Dauth et al. (2022) for the municipalities in our border region. Panel A considers the correlation coefficient between estimated worker fixed effects and establishment fixed effects (residualized using industry dummies) obtained from AKM wage decompositions by Dauth et al. at the municipality level as a measure of positive assortative matching (PAM) in the labor market. Column (1) regresses PAM on population density. We pool the data across the five different time periods reported in Dauth et al. (overlapping seven-year intervals ranging from 1985 to 2014) and include dummies for each period. Column (2) adds the controls, weights, and standard error specification of our baseline specification in equation (1). Column (3) adds the dummy for US-zone location. Finally, column (4) uses the US-zone location dummy as an instrumental variable for population density at the municipality level. Panel B considers PAM at the level of 11 local labor markets (LLMs or *Arbeitsmarktregionen*) in our border region, corresponding to the main level of analysis in Dauth et al.. Again, column (1) regresses PAM on population density. Column (2) regresses PAM on US-zone exposure at the LLM-level, i.e., the share of the 1939 population in the LLM that was located in the former US occupation zone. Column (3) uses both measures. Finally, column (4) uses US-zone exposure as an instrumental variable for population density at the LLM level. Note that the regressions at the LLM level do not use further control variables (as in Dauth et al.). *, **, and *** denote statistical significance at the 10%, 5%, and 1% level respectively.

Table E3: Tax Rates at the Municipality Level

	(1)	(2)	(3)	(4)	(5)	(6)
	1950		1960		1970	
Business Tax Rate						
US-zone Location	-0.063	-0.080	-0.002	-0.006	0.006	0.001
	(0.054)	(0.060)	(0.014)	(0.017)	(0.012)	(0.008)
US-zone Exposure (10km)		0.060		0.013		0.018
		(0.063)		(0.025)		(0.020)
Observations	613	613	613	613	591	591
Land Tax Rate, Type A						
US-zone Location	-0.220***	-0.265***	-0.008	-0.028	0.018	0.008
	(0.039)	(0.029)	(0.031)	(0.038)	(0.031)	(0.025)
US-zone Exposure (10km)		0.157**		0.070		0.037
		(0.075)		(0.062)		(0.045)
Observations	611	611	611	611	599	599
Land Tax Rate, Type B						
US-zone Location	-0.171***	-0.255***	0.034	0.007	0.038**	0.019
	(0.037)	(0.042)	(0.031)	(0.044)	(0.019)	(0.023)
US-zone Exposure (10km)		0.296**		0.095		0.069**
		(0.125)		(0.074)		(0.030)
Observations	611	611	611	611	599	599

Notes: The table examines the three main tax rates set at the municipality level: a local business tax and two land taxes (type A for agricultural land, type B for non-agricultural land). These tax rates are customarily expressed as multiples of a state-wide base rate. Estimates refer to differences across the border between the 1945-49 French and US occupation zones. All regressions are local linear regressions controlling for longitude and latitude, quadratic polynomials in distance to Stuttgart and to the closest highway exit, and five boundary segment fixed effects. Standard errors are Conley standard errors with a Bartlett kernel and a cutoff value of 25 km. *, **, and *** denote statistical significance at the 10%, 5%, and 1% level respectively. The analysis includes municipalities within 15 km of the border between the 1945-49 French and US occupation zones. Due to the inherent difficulty of aggregating tax rates across municipalities, the analysis considers municipalities as defined before the territorial reform in the early 1970s. We observe no significant difference in the local business tax rates across the 1945-49 border. Land tax rates in 1950 are lower on what had been the US side of the 1945-49 border. In 1960 and 1970, land tax rates are either higher on the former US side or differences are statistically insignificant.

Appendix References

Badisches Statistisches Landesamt (1941): *Endgültige Ergebnisse der Volks-, Berufs- und Betriebszählung am 17. Mai 1939 in den Gemeinden, Stadt- und Landkreisen, Landeskommissärbezirken und für das Land Baden im ganzen*, Karlsruhe: Macklotsche Druckerei und Verlag.

Finanzministerium und Steuerdirektion des Grossherzogthums Baden (1896): *Die Ergebnisse der im Jahre 1895 vollzogenen Veranlagung der Einkommensteuer*, Karlsruhe: Macklotsche Druckerei und Verlag.

German Statistical Office (2016): "Gemeindeverzeichnis. Alle politisch selbständigen Gemeinden mit ausgewählten Merkmalen am 31.12.2015, im Juli 2017 wegen korrigierter Fläche revidiert," Dataset.

Goebel, J., M. M. Grabka, S. Liebig, M. Kroh, D. Richter, C. Schröder, and J. Schupp (2019): "The German Socio-Economic Panel Study (SOEP)," *Jahrbücher für Nationalökonomie und Statistik / Journal of Economics and Statistics*, 239, 345–360.

Kommission für geschichtliche Landeskunde in Baden-Württemberg (eds.) (1972-1988): *Historischer Atlas von Baden-Württemberg*, Stuttgart.

Königliches Statistisches Landesamt Württemberg (1910): *Württembergische Gemeindestatistik. Zweite Ausgaben nach dem Stand vom Jahre 1907*, Stuttgart: Kohlhammer.

Kreditanstalt für Wiederaufbau (1950-1952): *I. Jahresbericht - Geschäftsjahr 1949; II. Jahresbericht - Geschäftsjahr 1950; III. Jahresbericht - Geschäftsjahr 1951*, Buch- und Kunstdruckerei Rudoph, Offenbach/Main.

RWI; ImmobilienScout24 (2020): "RWI Real-Estate Data – Apartments for Rent – suf. RWI-GEO-RED," Dataset, RWI – Leibniz Institute for Economic Research, Essen, Version: 1.

Schaffner, S. (2020): "FDZ Data Description: Real-Estate Data for Germany (RWI-GEO-RED) - Advertisements on the Internet Platform ImmobilienScout24," RWI Projektberichte, RWI – Leibniz Institute for Economic Research, Essen.

Schlange-Schöningen, H. (1955): *Im Schatten des Hungers. Dokumentarisches zur Ernährungspolitik und Ernährungswirtschaft in den Jahren 1945–1949*, Berlin: Verlag Paul Parey.

Sozio-oekonomisches Panel (SOEP) (2019): "Version 34, Daten der Jahre 1984-2017 (SOEP-Core v34)," Dataset.

Statistische Ämter der Länder (1987): "Volkszählung 1987," Dataset.

——— (2017a): "AFiD Panel Industriebetriebe 1995-2016," Dataset.

——— (2017b): "Panel der Kostenstrukturerhebung im Bereich Verarbeitendes Gewerbe, Bergbau und Gewinnung von Steinen und Erden 1995-2012," Dataset.

Statistisches Landesamt Baden (1895): *Beiträge zur Statistik des Grossherzogthums Baden. Heft 55. Die Berufszaehlung vom 14.Juni 1895*, Karlsruhe: Statistisches Landesamt Baden.

——— (1910): *Beiträge zur Statistik des Grossherzogthums Baden. Heft 61. Der pfandrechtlich gesicherte Schuldenstand auf 1. Januar 1903*, Karlsruhe: Statistisches Landesamt Baden.

——— (1930): *Staatliche Grund- und Gewerbesteuer in Baden fuer das Rechnungsjahr*

1926 auf Grund amtlichen Materials, Karlsruhe: Statistisches Landesamt Baden.

Statistisches Landesamt Baden-Württemberg (1952): *Gemeinde- und Kreisstatistik Baden-Württemberg 1950*, Stuttgart: Statistisches Landesamt Baden-Württemberg.

——— (1964): *Gemeindestatistik Baden-Württemberg 1960/61*, Stuttgart: Statistisches Landesamt Baden-Württemberg.

——— (1972): *Gemeindestatistik 1972. Ausgewählte Ergebnisse der Volks- und Arbeitsstättenzählung 1970 in der Gliederung nach den neuen Kreisen und Regionalverbänden*, Stuttgart: Statistisches Landesamt Baden-Württemberg.

——— (1973): *Statistik von Baden-Wuerttemberg. Gemeindestatistik 1970. Ergebnisse der Grosszaehlungen 1968-1971*, Stuttgart: Statistisches Landesamt Baden-Württemberg.

Statistisches Landesamt Württemberg (1935): *Württembergische Gemeinde und Bezirksstatistik. Dritte Ausgabe nach dem Stand vom Jahre 1933*, Stuttgart: Kohlhammer.

Statistisches Reichsamt (1942): *Statistik des Deutschen Reichs. Band 557. Volks-, Berufs- und Betriebszählung vom 17. Mai 1939. Die Berufstätigkeit der Bevölkerung in den Reichsteilen. Heft 25. Baden*, Berlin: Verlag für Sozialpolitik, Wirtschaft und Statistik Paul Schmidt.