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JEL Classification: G11, G41, G51, R21, R31

Keywords: housing, Homeownership, household finance, Experience effects, war destruction

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1 Introduction

Housing is typically the largest component of household wealth. After reaching 69% in the mid-2000s, the homeownership rate in the United States has experienced a significant decline in the following decade, falling to its lowest level in half a century. One explanation for the steep fall in homeownership rates, which is often cited by the popular press and policymakers, is changes in household attitudes toward homeownership fueled by negative housing experiences around the financial crises and the Great Recession (Bracha and Jamison, 2012; Simmons, 2014; Goodman and Mayer, 2018; Heimer and Fritsch, 2020). While this explanation has recently received a great deal of attention, empirically distinguishing its effect from other contemporaneous economic factors, such as stagnant incomes, tight credit conditions, or declining household wealth has proven to be difficult.

In this paper, we provide novel empirical evidence on the link between devastating housing experiences and long-lasting attitudes toward housing and homeownership using a unique quasi-experiment from Germany. In particular, we show that exposure to extensive residential destruction caused by the bombardment of Germany during World War II (WWII) leads to lower housing market participation decades later, after controlling for regional differences and a broad set of household characteristics. We find that this variation in participation is to a large extent driven by households' attitudes toward homeownership. Moreover, we show that exposure to destruction leads to long-lasting changes in consumption preferences: exposed households occupy smaller dwellings and report that they value non-housing consumption goods and services, such as traveling, more than homeownership.

The WWII destruction in Germany, which leveled approximately 4 million flats and left 13 million Germans homeless (Hampe, 1963), provides a natural setting to study the impact of negative housing experiences on household attitudes and preferences toward homeownership. While the Allied Air Forces bombing led to a total destruction of 22%

of Germany's housing stock,[1] destruction intensity varied substantially across cities. Exploiting both the variation in destruction rates across cities and the WWII exposure of different cohorts, we find that a one standard deviation increase in destruction rate leads to an approximately 3 percentage point decrease in the likelihood of homeownership for WWII-experiencing cohorts. We verify the robustness of these findings by performing several additional sensitivity and validity checks such as imposing various restrictions on the sample or using alternative cohort or destruction definitions.

Our identification strategy relies on a difference-in-differences type design that exploits the reasonably exogenous regional variation in destruction intensity and cross-cohort variation in exposure to WWII destruction. In particular, we measure the effect of destruction on the differences in tenure choice between war-exposed cohorts and post-war cohorts in heavily destructed areas relative to less destructed areas. This allows us to introduce region $\times$ year fixed effects to control for any unobserved (time-varying) regional characteristics.[2] Our identification relies on the parallel trends assumption that, had WWII exposure not occurred, the difference in homeownership between cohorts would be the same across regions with varying destruction intensity. We validate this assumption by conducting a placebo test on a migrant sample that arrived in Germany post-1955 (after the pre-war housing stock per capita has been reestablished) and find no effects.

Our nationally-representative household panel data are drawn from the German Socio-Economic Panel (SOEP), covering the period from 1985 to 2017. Since SOEP coverage starts four decades after the end of WWII, we study the long-term effects of destruction experienced by households who were children or young adults at the time. SOEP includes detailed information on household demographic and financial characteristics such as age,

[1] Diefendorf (1993) writes, "Postwar Germany experienced a serious, immediate housing crisis. Fully 22% of the 1939 housing stock in the area that became the Federal Republic was totally destroyed or so badly damaged as to be unsalvageable; another 23% suffered some degree of damage." (p.129)

[2] West Germany is divided geographically into 75 such regions, known as *Raumordnungsregion*, which are analogous to metropolitan statistical areas in the U.S., but they also include rural areas.

income, education, occupation, and household size. In addition to these variables, SOEP provides a broad set of self-reported "subjective" variables, such as the importance of being a homeowner and satisfaction with the current dwelling. Answers to these questions help us elicit household attitudes and preferences toward homeownership and inspect the mechanism behind observed housing tenure outcomes.

It is a-priori not clear how exposure to war destruction would affect household attitudes toward homeownership. On the one hand, a budding literature documents that personal experiences of past economic shocks such as stock market realizations, economic downturns or high inflation have long lasting effects on the economic behavior and choices of individuals (Malmendier and Nagel, 2011, 2016; Malmendier and Steiny, 2020; Malmendier, Nagel, and Yan, 2021).[3] Since residential war destruction was a major historical event that represents a significant, direct shock to the housing market, it is conceivable to conjecture that such an experience could lead to negative attitudes toward homeownership.

On the other hand, recent survey evidence shows that many households associate homeownership with a greater sense of security and control, and reasons related to ontological security are key determinants of homeownership decisions (McCabe, 2018).[4] Dupuis and Thorns (1998), drawing on the experiences of older homeowners, argue that homeownership offered the possibility to people of reestablishing a sense of security that had been largely undermined by the Great Depression. Hence, homeownership could also help exposed cohorts overcome the war destruction trauma by providing a sense of security, implying that exposure to war destruction could lead to positive attitudes toward homeownership and higher homeownership rates.

Our analysis provides strong support for the interpretation that war destruction neg-

[3]See Malmendier (2021) and Malmendier and Wachter (2022) for a comprehensive overview of the literature on experience effects in economics and finance.

[4]Respondents of the National Housing Survey conducted by the Fannie Mae identify non-financial factors such as "having a good place to raise children" and "having a physical structure where you and your family feel safe" as top reasons for buying a home (McCabe, 2018).

atively affects the attitudes of exposed households toward homeownership. Specifically, we first confirm that the answer to the importance of homeownership question is a strong determinant of housing tenure and that it reasonably captures the homeownership preferences of households. We then show that households who are exposed to war destruction report significantly lower importance of homeownership, and the shift in their attitudes toward homeownership represents the key underlying mechanism that links exposure to residential destruction to the housing tenure outcomes of households.

We examine other mechanisms, alternative to the attitudes channel, that can potentially generate similar effects. Two of these, wealth effects and supply-side factors, stand out. Wealth effects is the concern that war destruction could lead to loss of (parental) wealth, making homeownership inaccessible for destruction-exposed households. We directly address this concern by identifying and excluding all households who report ever receiving any gift or inheritance, including their primary residences, from our sample. We obtain very similar results in terms of economic and statistical significance to what we observe in our main specifications. Similarly, we also investigate whether wartime loss of parents may be driving the results. While the war-exposed cohorts from destructed areas are more likely to experience a parental loss during the war, excluding those households from our sample do not materially change the results. Hence, we conclude that (intergenerational) wealth effects do not account for differences in tenure outcomes between our treatment and control groups.

Supply-side factors is the concern that war destruction could lead to lower homeownership due to its effect on housing supply or subsidies that may be correlated with exposure to war destruction. Subsidies, *Wohngeld*, which take the form of direct payments to low-income households, and social housing, below-market-rate housing for rent, may affect their recipients' tenure choice. We address supply effects in multiple ways: Region $\times$ year fixed effects in our estimations and our placebo tests on post-war migrant sample address any differences in supply-side factors that are faced by all residents of a region.

To further mitigate this concern, we exclude households who receive subsidies from our sample and find similar results. Additionally, restricting the renter sample only to those with private, non-institutional landlords also results in similar findings.[5]

In addition to being an asset class, housing is a major consumption good. We document that war-exposed cohorts from destructed regions also exhibit weaker preferences toward housing *consumption*.[6] We arrive at this conclusion based on several results. First, we consider the *quantity* of housing consumed, measured by the number of rooms in households' dwellings, and find that war-exposed cohorts from destructed areas live in smaller dwellings. Next, we use the answers to subjective questions to elicit consumption preferences. In addition to the importance of homeownership, the same survey section asks participants to evaluate the importance of "being able to buy things for themselves" and "traveling and seeing the world."[7] We broadly interpret the answers to these questions as a preference for non-housing consumption goods and services and compare answers to these questions to the importance of homeownership to elicit preference rankings and calculate a *preference gap*. We find that the preference gap is significantly larger for the war-exposed cohorts from destructed regions. Taken alongside the attitudes toward homeownership, the consumption results suggest that war destruction changes household attitudes toward housing in general, both as an investment and a consumption good.

We consider several additional mechanisms that might be driving the results. War destruction may be leading to negative labor market outcomes of exposed cohorts, which

[5]Most rental housing in Germany is owned by private households, as opposed to institutional investors (Kemp and Kofner, 2010). Unlike the United States, rental and owner-occupied housing stock are not segmented in Germany. Households can find rental and owner-occupied housing at all locations and quality segments (Kindermann, Le Blanc, Piazzesi, and Schneider, 2020).

[6]Unlike the financial shocks studied earlier in the experience effects literature, war-induced housing destruction is both a financial and consumption shock. At an early age, destruction would be felt more acutely as a consumption shock, regardless of whether the family owned or rented their housing unit.

[7]Travel has been a major household consumption expenditure in Germany during our sample period. Reuters reports that, based on data from Bundesbank and the German National Tourist Board, Germans spend about 3.6% of their incomes on travel, above the average 2.9% for Europe. Germans are the world's biggest spenders abroad for vacations, well ahead of the Japanese, who rank a distant second (Gilardi, 1995).

may result in lower homeownership rates. We find that while war exposure results in lower educational attainment, controlling for education, it actually leads to more favorable labor market outcomes. Furthermore, all our regressions include education, occupation, industry, and labor income controls, along with other household characteristics, suggesting that the labor market channel is not driving our results. We check whether the low homeownership rate of destruction-exposed households is driven by risk preferences (Guiso, Sapienza, and Zingales, 2018) and confirm that exposure is not related to risk preferences. We also confirm that destruction exposure is distinct from other historical factors that could be relevant for homeownership, such as historical antisemitism (Voigtländer and Voth, 2012), and that it is not a determinant of debt market participation (Brown, Cookson, and Heimer, 2019).

The consequences of housing attitudes go beyond the homeownership rate. They also have implications for household wealth and its composition. We find that, on average, the financial wealth of destruction-exposed households is similar to others, but these households have lower total wealth due to their lower homeownership rate. However, among households that have at least a small amount of total (gross) wealth,[8] there is no significant difference between the total gross wealth of destruction-exposed households and others, while destruction-exposed households have significantly higher financial assets. Consequently, their portfolios are tilted away from housing toward financial assets: a one standard deviation increase in war destruction results in a more than 2 percentage point higher share of financial assets for WWII-experiencing cohorts.

The potential reasons underlying the unusually low homeownership rate in Germany (44 % as of 2010, which was the lowest rate in the European Union at that time) have attracted interest both from academics and policymakers. For example, Kaas, Kocharkov, Preugschat, and Siassi (2021) solve a life-cycle model of consumption and housing with endogenous homeownership and attribute the observed low levels of homeownership to

[8]SOEP includes wealth data every five years starting in 2002. However, more than one-tenth of the respondents report zero gross wealth.

high transfer taxes on home purchases, no mortgage interest tax deductibility, and the social housing sector in Germany. Malmendier and Steiny (2020), on the other hand, relate cross-country differences in homeownership rates to past inflation experiences such that the low inflation experience of current German households is consistent with their lower tendency to own a house. We contribute to this discussion by providing a novel additional channel: the widespread destruction Germany experienced during WWII had long-lasting effects on household attitudes toward homeownership, contributing to a lower homeownership rate. Our estimates imply that the homeownership rate of West German natives would be approximately 5 percentage points higher in 1985, the first year of our sample period, in the absence of exposure to war destruction. Furthermore, the declining share of the war-exposed cohort in the population can account for half of the increase in the aggregate homeownership rate since 1985.

Our paper also complements a small but growing literature that investigates the long-term effects of warfare on several economic outcomes. These outcomes include but are not limited to health (Akbulut-Yuksel, 2017), socioeconomic status (Kesternich, Siflinger, Smith, and Winter, 2014), wealth (Halbmeier and Schröder, 2021), and educational attainment of households (Akbulut-Yuksel, 2014) as well as regional outcomes such as economic development (Brakman, Garretsen, and Schramm, 2004; Vonyó, 2012). More broadly, our paper contributes to the budding literature that uses historical natural experiments to provide causal inference (e.g., Burchardi and Hassan, 2013; D'Acunto, Prokopczuk, and Weber, 2019) as recently surveyed in Fuchs-Schündeln and Hassan (2016).

Finally, our finding that exposure to war destruction has a long-lasting effect on household economic behavior relates to the growing literature on the role of past experiences in household economic and financial behavior (Malmendier and Nagel, 2011; Kaustia and Knüpfer, 2008; Haliassos, Jansson, and Karabulut, 2020). For example, Kuchler and Zafar (2019) document that past local house price movements influence individuals' expectations of future national house price changes. Similarly, Kindermann, Le Blanc, Piazzesi,

and Schneider (2020) show that homeowners and renters form their expectations about future rents and home prices differently based on their subjective experiences.

The remainder of the paper is structured as follows: Section 2 provides some background information on the historical setting that we use in our empirical analysis. In Section 3, we first describe the datasets and then present our identification strategy. Section 4 presents the benchmark estimates, while Section 5 explores the mechanism underlying our key results. Section 6 discusses the implications of our findings for the wealth and homeownership trends in Germany, and Section 7 concludes.

2 Historical Background

2.1 Residential Destruction During WWII

The majority of German cities experienced widespread destruction through the aerial bombardment by the Allied Air Forces during WWII. Over the course of the bombing period from 1939 until 1945, more than 1.6 million tons of bombs were dropped on German ground that, in total, erased more than 20% of the German housing stock (Diefendorf, 1993). Until early 1942, the British Royal Air Force (RAF) focused its bombing campaign on key industrial targets essential for the German war effort (e.g., metal production plants, military aircraft factories, and oil refineries). This strategy turned out to be ineffective to reduce the German war efforts. The Area Bombing Directive, issued in March 1942 by the British Government's Air Ministry, ordered bombers to attack city centers as new principal targets. The main idea of the new bombing strategy was that the destruction of urban areas would depress the morale of the general population and destroy Germany's will to fight. The US Air Force joined the British RAF in their aerial bombing pursuit. The vast majority of these second-wave attacks were broad area bombardments rather than focused attacks on economic targets.

Specifically, the selection of target cities was mainly driven by building density, pres-

ence of visible landmarks, and navigational capacity rather than the economic importance of those cities (Friedrich, 2002). For example, Vonyó (2012) finds no statistically significant relation between pre-war industrialization levels and the degree of destruction in a given region. Similarly, historical accounts of the bombardment suggest that wartime destruction also depended on random factors such as weather conditions, pilot errors, and technological malfunctions in addition to the fixed regional characteristics (e.g., proximity to the British airfields) (Akbulut-Yuksel, 2014).

Overall, WWII destruction in Germany leveled approximately 4 million flats and left 13 million Germans homeless (Hampe, 1963), providing a natural laboratory to examine the long-run effects of negative housing experiences on household attitudes toward homeownership. Importantly, almost all major German cities suffered to some degree from aerial bombings, though, the intensity of physical destruction varied substantially across regions. Panels A and B of Figure I illustrate the heterogeneity of destruction across West German regions as measured by the percentage of flats destroyed and the accumulated war rubble in m^3 per inhabitant, respectively. For example, 60% of the entire housing stock in Cologne was totally destroyed, while this figure accounted for 32% in Munich.

2.2 Post-war Policies

The dire housing situation in West Germany in the period following WWII was further aggravated by the arrival of millions of refugees from Eastern German territories and the Soviet Occupation Zone, leading to a housing shortage of around 5 million housing units by 1950 (Wertheimer, 1958).[9] Several policies were introduced by the German federal

[9]The contribution of the refugees to the housing shortage was as large as the impact of war destruction. Wertheimer (1958) reports that 2.3 million dwelling units were destroyed and needed to be replaced, and an additional 2.3 million units were required for housing the refugees in West Germany. New household formation and repairs account for the remaining units. The availability of the housing was the principal determinant of where the refugees settled in West Germany—the regions that suffered lower destruction experienced a disproportionately high share of refugee settlement (Burchardi and Hassan, 2013). Therefore, the housing needs were widespread and not limited to the high destruction regions.

government in an attempt to address the economic and housing challenges. First, the 1948 currency reform exchanged ten *Reichsmark* for one *Deutsche Mark*, reducing financial assets and liabilities. This was followed by a substantial levy in 1952, *Lastenausgleich* or "equalization of burdens act," which entailed a quasi-flat 50% tax on the net wealth of households and companies as assessed in 1948. The tax was levied on households whose wealth survived the war or benefited from the currency reform, annuitized to be paid over 30 years, and redistributed to refugees and households whose assets were destroyed in the war, albeit many years after the destruction.[10] While *Lastenausgleich* did not provide full compensation for assets lost through war destruction, it had a significant redistributive impact on private wealth in Germany and led to the lowest wealth inequality observed in Germany in the 20th century (Albers, Bartels, and Schularick, 2022).[11]

Second, with the introduction of the social housing laws in the 1950s, *Sozialer Wohnungsbau*, the government invested in the provision of subsidized housing and construction of new buildings, mostly for renting purposes, which led to a rise in the number of housing units in West Germany and Berlin by around 5 million between 1950 and 1961 (Statistisches Bundesamt, 1955, 1964). Most social housing was built by the private sector using subsidized government loans. Units were offered at a below-market rate for a limited time and are turned into market-rate housing upon the payment of the loans. With the reduction in housing shortage, the number of units under the social housing program gradually declined.[12] Finally, the housing benefit, *Wohngeld*, was introduced in 1965 to support households that would otherwise not be able to afford housing due to low income or high rents.[13] As presented in section 4.3, we ensure the robustness of our results

[10] The effect of the currency reform on households was not homogeneous. By reducing the value of private claims and bank deposits, the reform favored the owners of real assets. *Lastenausgleich* was intended to remedy this inequity, along with the other burdens of the war (Lutz, 1949).

[11] Albers, Bartels, and Schularick (2022) estimate that *Lastenausgleich* reduced the top 1% wealth share by 3 percentage points, which is larger than the effect of war bombings on the wealth share of that group.

[12] Although the social housing instrument was finally abolished in 2002, its impact was immense. From 1950 to 2000, 42 % of housing units built in Germany were publicly co-funded (Egner, 2011). Social housing accounted for roughly 30% of rental stock in 1968, but the rate declined to 12% in 2002 and have declined to single digits since 2002 (Kirchner, 2007).

[13] In 2008, around 1.4 % of all private households were receiving housing benefits (Egner, 2011).

by excluding households living in social housing or receiving housing benefits.

2.3 Compensations for War Damages

During WWII, in order to keep public morale up, the German National Socialist state committed itself to pay for war-induced property damage through the so-called War Damage Decree in 1940. A newly-created war damage ministry (*Reichskriegsschädenamt*) managed claims and payments related to war damage through war damage offices. While the state promised to pay out the war-damaged, in reality, the law had many loopholes, providing the state with the possibility to postpone or not serve the claims. For example, the timing and priority of compensations were dependent on the national economic development, and minor losses were often denied legal recognition (Hughes, 1999). After 1942, in light of massive destruction due to air raids, the offices had difficulty processing the amount of applications and could no longer pay out (Süß, 2011). By the end of WWII, around one-third of the West German population had lost all or most of their real property. However, claims of the war-damaged could not be legally enforced as the German state ceased to exist (Hughes, 1999), and most damages were not compensated until the arrival of *Lastenausgleich* payments after 1957 (Albers, 1989).

3 Data and Empirical Strategy

In this section, we first introduce the data sources and provide detailed information on our key variables of interest. We then discuss the econometric challenges in the empirical analysis and explain how we tackle them.

3.1 Data and Sample Construction

We hand collect information on the percentage of flats destroyed during WWII from the statistical yearbooks of German municipalities (Kästner, 1949) and use it as our preferred

measure of WWII destruction in a given region.[14] The yearbooks provide information on the Western German municipalities with more than 20,000 inhabitants as of 1946, which accounted for 47% of the historical West German population (Burchardi and Hassan, 2013). Approximately 10% of the municipalities did not report the share of flats destroyed during WWII. Following Kästner (1949), we treat those municipalities with missing destruction information as little- or no-destruction regions. We validate our measure by using auxiliary data on the total tonnage of bombs dropped in each region reported by the British and American air forces from Davis (2006) and set the destruction level of the municipalities with missing information to zero if the tonnage of bombs dropped on a municipality is zero or very low relative to its number of flats.[15] We aggregate the municipal destruction rates to the region (*Raumordnungsregion*) level by calculating the mean percentage of flats destroyed, weighted by the pre-war population of municipalities, to match them to the location of households. Regions are analogous to metropolitan statistical areas in the U.S. but also include rural areas. West Germany is divided geographically into 75 such regions, while the WWII destruction data are available for 73 of these regions.

In addition, we make use of the German Socio-Economic Panel (SOEP), which is a nationally representative household panel data, collected annually since 1984. SOEP provides detailed information on demographic and financial characteristics of respondents such as age, education, marital status, place of residence, income, as well as about their attitudes and beliefs. We focus on the sample period from 1985 to 2017 and merge the regional WWII destruction measures with the SOEP data using each respondent's first region location recorded when included in the panel.[16]

[14] See, e.g., Akbulut-Yuksel (2017), Brakman, Garretsen, and Schramm (2004), and Burchardi and Hassan (2013) for other applications of the destruction data.

[15] The mean ratio of tonnage dropped to the number of flats is 1:4 among the covered municipalities; we employ a conservative cutoff of 1:100 to set the destruction of the missing municipalities to zero. Note that our results are robust to removing these adjustments.

[16] Note that some regions were subject to border changes in 1996. We employ the post-1996 regional definitions for the entire study. Households observed prior to 1996 in regions with border changes are assigned to the new regional definition based on their 1996 location of residence. If households moved prior to 1996 and their first location cannot be assigned to the new regions with certainty, we match their first location to the new regional definitions based on maximum likelihood (largest aerial overlap). Furthermore,

In our analysis, we use information at the household rather than the individual level. The full panel of households that completed at least one household, individual, and biographical questionnaire results in 310,702 household-year observations. When constructing the working sample, we adopt a conservative strategy to minimize potential misclassification and measurement errors. Specifically, we apply the following sample selection criteria to arrive at our main sample: (i) household heads must be born in Germany and have German nationality, (ii) household heads born before 1989 must have lived in Western Germany before the fall of the Berlin Wall, (iii) households must be residing in "private residencies" (i.e., not in dorms, nursing homes, or hotels), (iv) renters must pay a monthly rent above 100€, (v) households must reside in one of the West German regions with available destruction data when entering the sample, and (vi) household heads must be between 21 and 80 years old at the time of observation. Applying these filters results in 158,064 household-year observations.

Table I presents summary statistics for the main sample. As shown in Panel A, the homeownership rate is 50 % in our sample, which is in line with the official statistics. Furthermore, we observe that household net wealth has a mean value of €210,000 while the average gross household wealth is €246,000, suggesting that the average German household has low levels of debt. In Panel B, we see that the destruction of West German regions during WWII was severe. On average, 35% of flats in a given region in Western Germany were totally destroyed. Similarly, the level of variation is also quite high with a standard deviation of 19%. Similar conclusions follow when we consider the alternative destruction measure, which is the rubble volume (in cubic meters) per inhabitant. Finally, as presented in Panel C of Table I, 62% of household heads in our sample are male, have a median age of 51, and have 12 years of schooling on average. Fifty-three percent of households are employed and have an average monthly net income of approximately €2,200. We provide detailed information about the variables employed in the empirical analysis

our results remain the same when we restrict our sample to those households that report to have lived their entire life in the same town where they grew up.

in Section A of the Online Appendix.

3.2 Identification Strategy

This section describes our empirical framework to identify the effect of exposure to residential destruction during WWII on housing tenure choices of households. We predict that war-exposed households in highly destructed areas will be less likely to own a home decades later. In line with the experience effects literature, the prediction would imply that direct negative shocks to the housing market result in negative attitudes toward homeonwership. The key econometric challenge we face is potential omitted variable bias when examining the relationship between regional wartime destruction and present day homeownership. Specifically, there could be unobserved (time-varying) regional characteristics that simultaneously affect the destruction in a given area and households' homeownership choices several decades later. For example, destruction during WWII could have influenced economic or financial development in a given region that can have persistent effects today (e.g., local construction cycles or trends in social housing supply).

Our empirical strategy addresses this challenge by exploiting regional variation in destruction intensity along with cross-cohort variation in exposure to WWII destruction. We measure the effect of destruction on the differences in tenure choices between war-exposed cohorts and post-war cohorts in heavily destructed areas relative to less destructed areas. This setting allows us to control for region $\times$ year fixed effects, which would capture all (fixed and time-varying) effects of economic, institutional, and housing market characteristics that influence all cohorts in a region to a similar extent. Our identifying assumption thus relies on the regional variation in destruction intensity to be exogenous to cohorts and their tenure decisions. To estimate the average treatment effect of wartime

destruction on household-level outcomes, we estimate the following regression:

$$Y_{i,r,t} = \beta_1 \cdot \text{Destruction}_{r_0} + \sum_{c=2}^{C} \beta_c \cdot (\text{Destruction}_{r_0} \times \text{Cohort}_{i,c}) + \alpha_r \times \alpha_t + \alpha_{city} + \gamma' \cdot X_{i,t} + \varepsilon_{i,r,t} \tag{1}$$

where $Y_{i,r,t}$ represents the outcome of interest of household i in region r at time t. Our main variable of interest is an indicator variable that takes the value of one if household i owns her primary residence in region r at time t, and zero otherwise. $Destruction_{r_0}$ is the natural logarithm of the (population-weighted) percentage of flats destroyed in the region r_0 where household i is first observed in the panel. $Cohort_{i,c}$ is a dummy equal to one if the head of household i belongs to cohort c and zero otherwise. In our main analysis, we divide individuals into cohorts based on whether they were directly exposed to WWII, or were born after the war and only experienced the consequences of WWII. We define cohorts born before 1940 as war-exposed cohorts and cohorts born after 1951 as post-war cohorts, which represent our reference category. For cohorts born between 1941 and 1950, the separation between direct exposure to the war and its aftermath is not clear. So, we opt to include this group in the regression and remain agnostic about the effects of destruction for this cohort.

$\alpha_r \times \alpha_t$ denotes region $\times$ year fixed effects, α_{city} city (municipality) size fixed effects and $X_{i,t}$ a vector of household characteristics, including birth year dummies, gender, education, income, occupation, industry, and marital status controls. We include city size fixed effects to account for any residual unobserved factors related to city size that might be correlated with economic development and level of destruction.[17] Detailed variable definitions are provided in Online Appendix A. Standard errors are clustered at the household level to account for correlations in household-level outcomes over time.

The validity of our analysis relies on the parallel trends assumption, which assumes that the differences in homeownership between cohorts would be the same across regions

[17] While we can only identify a respondent's location at the region level, households answer a question regarding their city size.

with varying destruction intensity, had the exposure to wartime destruction not occurred. To provide evidence for the plausibility of this assumption, we conduct a placebo test of the analysis with migrants that arrived in Germany after WWII. The (lack of) results from this falsification test, presented and described in Section 4.2, support the parallel trend assumption and substantiate the empirical tests.

4 The Effects of War Destruction on Homeownership

In this section, we first present our findings regarding the long-term effects of exposure to war destruction on homeownership decisions of households. We then report the results of a control experiment where we focus on the housing tenure decisions of a sample of immigrants who arrived in Germany in the post-war period. Next, we investigate two prominent alternative explanations, supply side factors and wealth effects, and present and discuss the results of several additional sensitivity and robustness tests.

4.1 Baseline Results

We begin our analysis by estimating the long-term causal effects of exposure to residential destruction on the homeownership outcomes of households. Table II reports parameter estimates of a linear probability model of homeownership on our destruction measure interacted with cohort dummies, presented in Equation 1. To limit the effect of potential outliers and ease economic interpretation, we use log transformation and standardize the destruction variable to have a mean of zero and a standard deviation of one, respectively.[18]

Column (1) of Table II reports the general effect of destruction on homeownership, while columns (2) and (3) augment the regressions with cohort $\times$ destruction interactions and a battery of fixed effects. Regardless of the specification, we document signif-

[18] For brevity, we only report the parameter estimates for the key variables of interest, but full estimation results are presented in Online Appendix Table O.A.1.

icant negative effects of exposure to residential destruction on housing tenure decisions of households decades after WWII. This negative effect is present after controlling for a rich set of relevant household characteristics such as household income, education, and household size as well as region-time, birth year cohort, and city size fixed effects, as described in Section 3.2. The estimated effects are not only statistically significant but also meaningful in economic terms. Specifically, based on the coefficient estimates in our preferred specification in column (3) that account for relevant household characteristics, region $\times$ year and city size fixed effects, ceteris paribus, we find that a one standard deviation increase in destruction rate leads to a 2.5 percentage point decrease in the probability of war-exposed cohorts to own a house (t-stat. = -2.24). This estimate implies a 5% decline in the homeownership probability, given that the mean homeownership rate in our sample is 50%.

The sign and statistical significance of other controls in our estimation model are largely consistent with earlier estimates for these variables in household finance literature. For example, the income and education level of household heads enter the regressions positively. On the other hand, the indicator variable for living in a rural area is not precisely estimated. Finally, it is important to note that introducing birth year fixed effects in our regressions allows us to isolate the effect of exposure to regional destruction from that of households' lifetime experiences with aggregate economic realizations such as stock market returns (Malmendier and Nagel, 2011), inflation (Malmendier and Nagel, 2016; Malmendier and Steiny, 2020) or economic growth (Giuliano and Spilimbergo, 2014), which are documented to be relevant and important determinants of household economic behavior.

Overall, the results presented in this section suggest that exposure to residential destruction has a strong "long shadow" effect on the homeownership decisions of exposed households. Our results thus speak to the experience effects literature that documents negative experience effects of past shocks on the economic behavior of households.

4.2 Control Experiment: Immigrant Households

In our empirical analysis, we identify the long-shadow effects of destruction entirely from the within region-year variation. This allows us to rule out potential effects of any unobserved (including time-varying) regional characteristics such as the level of regional (financial) development that can simultaneously be correlated with the destruction rate and the outcomes for households who live in that area. Moreover, our causal analysis relies on the (parallel trends) assumption that, had WWII exposure not occurred, the differences in homeownership rates between cohorts would have been the same across regions with varying destruction intensity. To verify the validity of this assumption, we next employ a control experiment. Specifically, we focus on the housing tenure decisions of a sample of first-generation immigrants who arrived in Germany post-1955 (i.e., after the pre-war housing stock per capita had been reestablished), and thus, were not directly exposed to the destruction in their area of residence during the war period.

The migrant sample consists of approximately 40,000 household-year observations. As presented in Table O.A.2 of the Online Appendix, 43 % of the sampled immigrants arrived in Germany before 1975, and more than 50 % of the immigrant households have spent at least 22 years in the country at the time of observation. The average immigrant is 48 years old and has a monthly household income of €2,066, which is comparable to that of the natives (52 years of age and €2,175 household income).

In Table III, we first repeat the baseline homeownership regressions, as outlined in Equation 1, using the entire immigrant sample. Reassuringly, we observe no significant effects of WWII destruction on the homeownership decisions of the pre-1940 migrant cohorts. This finding implies that our results in Section 4.1 are not a statistical artifact of any unobserved cohort differences and provides further support for the validity of our identifying assumption.[19]

[19] We recognize the possibility that the distribution of post-war immigrants across regions might be correlated with destruction intensity, which would make them less comparable to natives. However, both univariate and formal multivariate tests, tabulated in Table O.A.3 of the Online Appendix, address this

One may argue that the non-significant effects of war destruction in the immigrant sample can be trivially explained by their short length of stay or temporary status in the country. Specifically, the decision of immigrants to purchase a home partly depends on having sufficient time to accumulate financial wealth to meet downpayment requirements and other transaction costs as well as to familiarize themselves with the German institutional setup and local housing market institutions (Haliassos, Jansson, and Karabulut, 2017). To address this concern, we next restrict the sample to those immigrants who have been more established in Germany by being a German citizen and/or spending at least 10 years in Germany. Indeed, Online Appendix Table O.A.4 shows that the homeownership rate among immigrants who have been in Germany for at least 10 years and have German citizenship is significantly higher than what we observe in the entire immigrant sample (36% versus 26%), and their observable characteristics such as age, income, household size, and gender closely resemble those of the natives. Notably, when we reestimate the homeownership regressions using these alternative immigrant samples, we obtain similar results (see Online Appendix Table O.A.5).[20]

Finally, we use a triple difference-in-difference estimation strategy by pooling the native and immigrant households. The estimation results are reported in Table O.A.6 of the Online Appendix. We find that a one standard deviation increase in destruction rate leads to a 2.6 percentage point decrease in the probability of war-exposed native cohorts to own a home, whereas there is a positive but insignificant effect for the immigrant households.

4.3 Addressing the Supply-side Factors

Our results so far imply that residential destruction caused by the bombardment of Germany during WWII leads to significantly lower housing market participation decades

concern. For example, the correlation between the percentage of flats destroyed in the region of residence and an indicator for being an immigrant is essentially zero with a pairwise correlation coefficient of 0.009.

[20]The results are robust to alternative definitions of established immigrants, such as spending 5, 10, 15, 20 years in Germany and being a German citizen.

later among exposed households. Could these results simply be due to the differences in supply-side factors such as the ownership structure in the housing market, housing supply, or subsidies across high and low destruction regions? Importantly, our estimations always include region x year fixed effects, and these control for all unobserved aspects of a region, including the above mentioned factors, that could be playing a role in the homeownership decisions of households. Second, our control experiment with the immigrant sample, presented and discussed in the previous section, provides additional evidence that our results are not a simple manifestation of differences in the supply side factors across local housing markets. We find no systematic effect among immigrant households of the identical cohorts living in the same regions with the identical shared local environment as the natives who were directly exposed to war destruction. Still, we next perform additional tests to examine the robustness of our findings to potential differences in ownership structure in the housing market and availability of social housing and subsidies for households across regions.

Subsidies, *Wohngeld*, which take the form of direct payments to low-income households, and social housing, below-market-rate housing for rent, may affect their recipients' tenure choice. In fact, as reported in column (1) of Table IV, we see that war-exposed cohorts from more destructed regions are more likely to receive a rent subsidy even though the effect is both statistically and economically low, with a marginal effect of 0.7 percentage points. To address this concern, we next exclude those households who report receiving subsidies from our sample and re-estimate our homeownership regressions. The results, tabulated in column (2) of Table IV, are very similar in terms of economic and statistical significance to what we observe in our main specifications. In particular, we find that a one standard deviation increase in destruction rate leads to a 2.7 percentage point decrease in the likelihood of war-exposed cohorts to be a homeowner after the exclusion of households receiving housing benefits.

To account for potential differences in the availability and attractiveness of institu-

tionally supplied rentals, including social housing, across regions and cohorts, we next restrict our renters sample to those households with private, non-institutional landlords and repeat the estimation.[21] As shown in column (3) of Table IV, we again obtain similar results, alleviating any concerns that differences in ownership structure across the local housing markets are responsible for our results.

An additional factor that may influence the housing supply and household tenure choice is the regulation of the rental markets. In particular, strict rent control policies, if they exist, favor existing tenants and may discourage homeownership. Such policies may in turn distort the rental supply and reduce the quality and quantity of available rental units. After the acute post-war housing shortage was resolved, West Germany passed the Tenure Security Act of 1971 (*Wohnraumkündigungsschutzgesetz*), which allows for free negotiation of initial rents and rent increases that are consistent with comparable properties, effectively deregulating the rental market (Hubert, 1998). Therefore, the housing supply and tenure choices were not distorted by rent control policies in West Germany.

All in all, our findings do not support a strong role for supply-side factors in explaining our results.

4.4 Addressing the Wealth Effects

A prominent alternative explanation for lower homeownership rates of destruction-exposed households is the wealth effect. Specifically, the loss of (parental) wealth due to war destruction could be making homeownership inaccessible for the exposed households, making them *involuntary* renters later in life. For example, wealth loss could reduce the possibility or amount of gifts or inheritance received by the war-exposed cohort, potentially making it harder to meet the down payment required to purchase a home. We address this possibility of wealth effects in a number of ways.

[21] Most rental units in Germany are owned by landlord households, and these units can easily be purchased and converted to owner-occupied units.

First, we take a direct approach and exploit our ability to observe wealth transfers through inheritances and gifts. Specifically, we exclude from the sample those households who report inheriting their current primary residence. As presented in column (1) of Panel A in Table V, eliminating these households has almost no effect on our results. Next, we take a broader perspective and eliminate all households who report ever receiving a gift or inheritance from our sample. Since this inheritance question was only included in the survey in 2001, we focus solely on the cross-section of households using the 2001 wave of the SOEP data. The regression results are presented in columns (2) and (3) of Panel A of Table V. First, we check whether the likelihood of receiving a gift or inheritance is lower among war-exposed cohorts in destructed areas. As expected, we find the coefficient to be negative but not statistically significant. More importantly, we obtain similar results, tabulated in column (3) of Panel A of Table V, to our base analysis after eliminating those households who ever received a gift or inheritance. Interestingly, the economic magnitude of the long-shadow effects is even slightly larger. In particular, a one standard deviation increase in the destruction rate lowers the homeownership probability of war-exposed cohorts by approximately 4 percentage points. Collectively, these results suggest that loss of parental wealth and inheritance channel have little, if any, effect on our base findings.[22]

We finally test a related but distinct explanation that our results may be partly driven by the wartime death of parent, as a number of studies document the importance of intergenerational spillovers in earnings, human capital, and (tangible) wealth of individuals (Black, Devereux, and Salvanes, 2005; Björklund, Lindahl, and Plug, 2006; Majlesi, Lundborg, Black, and Devereux, 2019). In fact, column (1) of Panel B in Table V shows that the probability of having lost a parent during WWII is significantly higher among those war-exposed cohorts living in higher destruction areas.[23] In column (2), we exclude

[22]These results are consistent with post-war redistribution and compensation policies such as *Lastenausgleich*, which played a major role in evening out the financial burden of war destruction for most households after the majority of payments started in 1957 (see Section 2.2 for details).

[23]Sperling (1956) reports 593,000 bombing-related deaths, accounting for 0.8% of Germany's prewar

households who lost their parents during WWII from the analysis and confirm that exposure to destruction retains its economic and statistical significance for homeownership outcomes.

Overall, our findings strongly suggest that the patterns of statistical and economic significance we document in our base analysis are not a mere product of wealth effects. In Section 5, we explore and discuss in detail the economic mechanisms that underlie the persistent, long-shadow effects of exposure to war destruction on homeownership decisions of households.

4.5 Additional Robustness and Sensitivity Analysis

In this section, we perform several additional empirical tests to ensure the robustness of our findings. First, Goodman and Mayer (2018) mention anecdotally that it is common for German households to rent their primary residence but own another home or real estate to generate additional income. Similarly, recent survey evidence suggests that approximately 16 % of German households own real estate for investment purposes (Kindermann, Le Blanc, Piazzesi, and Schneider, 2020). We address this observation in several ways. First, we use an alternative, broader definition of homeownership that includes not only the primary residence but also other real estate investments of households. As shown in column (1) of Table VI, this definition leads to even stronger results with slightly larger and more significant effects of exposure to destruction. We further scrutinize this "investment property" channel by directly investigating other real estate ownership, which we measure from the information on whether the household reports receiving any rental income. As presented in column (2), the coefficient for destruction variable is negative and statistically significant. The coefficient estimate of -0.017 implies a 13% decline in the probability of owning an investment property per standard devia-

population. This is approximately one-tenth of military deaths, 5.3 million, accounting for 7.7% of the prewar population (Overmans, 2009).

tion in exposure based on the mean landlordship rate in our sample, reported in Table I. Thus, we confirm that our results extend beyond primary residence ownership to total real estate ownership, and the effects are even stronger for investment properties.

In our analysis up to this point, when defining a household's exposure to destruction, we have used the region where the respondent was first observed in the panel. Since some households could have moved away from their place of birth to other regions prior to entering the SOEP sample, this could potentially introduce some measurement error in our exposure variable. First, it is important to note that Germany, as compared to other similarly developed countries, is characterized by relatively low inter-regional migration (Tatsiramos, 2009). Second, measuring exposure to destruction with potential measurement error would bias against our results and hence would weaken the effect we uncover. Still, to address this concern, we restrict our sample to non-mover households who have lived their entire life in the same town where they grew up and re-estimate the base regression in Equation 1.[24] The results are presented in column (3) of Table VI. We obtain similar results when we use this more conservatively constructed sample. Interestingly, we see that both the economic magnitude and statistical significance of our main effect increases as compared to our base result, consistent with our expectation that the measurement error indeed biases against our results.

Third, we verify the robustness of our findings to an alternative measure of residential destruction based on the volume of rubble per inhabitant created by the bombing. As reported in column (4) of Table VI, when we use rubble volume in lieu of the percentage of destroyed flats in the area, we find very similar quantitative effects of exposure to destruction on the housing tenure.

Fourth, we use different cohort divisions when defining the exposure of households to war destruction. The results, tabulated in column (5) of Table VI, are very similar in

[24]We do not observe the birth region of households—we only observe their current region and their answers to the question asking whether they currently reside in the area they grew up in. Note that this restriction is possibly too conservative as many households who moved within the same region would classify themselves as not living in the area they are born in.

terms of magnitude and statistical significance when compared to the baseline results. For example, a one standard deviation increase in the exposure to destruction leads to a 2.8 percentage point decrease in the homeownership probability of the households born prior to 1925 and to a 2.9 percentage point decrease for households born between 1926 and 1940 compared to households born after 1955. While the economic magnitudes of estimates for the two cohorts born before 1941 are similar, the statistical significance declines for the oldest cohort due to the low number of observations from that group. In addition to the tabulated results, we find similar results with many different cohort cutoff combinations, confirming that the exact definition of cutoffs is not instrumental in our results.

Fifth, we conduct additional robustness checks to verify that the statistical inference is not sensitive to potential downward biases in standard errors in column (6) of Table VI. To do so, we correct standard errors for potential spatial correlation across households within the region by clustering the standard errors at the regional level and obtain similar results. In untabulated results, we confirm that all inferences remain even if the standard errors are double clustered by region and households. To alleviate any further concerns that our results may be driven by some spurious correlation with omitted characteristics, we conduct another placebo experiment. Specifically, we randomly assign different regional destruction exposures to households; for example, we randomly allocate households who resided in Cologne during the WWII (where 60% of the housing stock was totally destroyed) to a different region's destruction exposure other than Cologne, e.g., Munich (where 32% of the housing stock was totally destroyed). We construct 1,000 placebo samples that randomize households' exposure to wartime destruction and re-run our analysis in Table II on these placebo samples. Figure O.A.1 in the Online Appendix shows that the *t*-statistics on our placebo versions of destruction exposure are centered around zero, suggesting that the documented effects are not a mere result of some spurious correlations with omitted factors.

Finally, we examine the dynamics of the effects uncovered in Table II to check the

stability of our results over time. To do so, we run the base regressions in the first and second half of the sample (split both by the number of observations and the number of years) separately. As presented in Table O.A.7 of the Online Appendix, we document significantly negative and economically comparable effects in all subsamples, suggesting that the exposure to wartime destruction has a persistent long-term impact on housing tenure decisions of households throughout the entire sample period and that the effect does not decay over time.

5 Understanding the Mechanism

In this section, we describe various exercises to sharpen our understanding of the underlying mechanism that links exposure to residential destruction to the homeownership decisions of households.

5.1 Household Attitudes Toward Homeownership

A growing body of literature in financial economics documents the relevance of past personal experiences in household economic behavior. In key contributions, Malmendier and Nagel (2011, 2016) show that personal experiences of past economic shocks such as stock market realizations or high inflation have long-lasting effects on the financial choices of individuals such as their stock market participation decisions. Memories of past experiences may affect household economic behavior through beliefs or preference channels.[25] Since residential war destruction was a major historical event that represents a significant, direct shock to the housing market, we next investigate whether exposure to war destruction affects housing tenure decisions of households by altering their attitudes toward homeownership. Specifically, if households who experienced war destruction exhibit less enthusiastic attitudes toward homeownership, this could provide a plausible

[25]However, as noted by Malmendier and Wachter (2022), the distinction between these channels depends on how preferences and beliefs are modeled and is not universally clear.

rationale for their lower housing market participation decades later.[26]

To test this mechanism, we exploit the rich nature of our dataset that provides information about the beliefs and preferences of households, including their attitudes toward homeownership. More precisely, we directly elicit the homeownership preferences of households using their responses to the survey question on the importance of being a homeowner.[27]

To validate the measure, we first examine whether the attitude toward homeownership variable ($Attitude\_HO$) has indeed significant predictive power for the actual housing tenure decisions of households. As presented in column (1) of Table VII, we find a very strong positive relationship between the elicited and revealed preferences of households toward homeownership. For example, a one standard deviation increase in the $Attitude\_HO$ variable is associated with a 22.2 percentage point increase in the likelihood of being a homeowner, even after controlling for all the relevant household and regional characteristics as well as a battery of fixed effects. To put this estimate into context, the effect of $Attitude\_HO$ variable is more than twice as large as the effect of being married (relative to being single) on the probability of being a homeowner. These results confirm the notion that self-reported attitudes toward homeownership are a very strong determinant of the actual housing tenure behavior of individuals. More importantly, this validation exercise implies that the $Attitude\_HO$ variable reasonably captures the preferences of households toward homeownership.[28]

[26]This explanation is further motivated by the recent academic and policy discussion on the potential role of changes in attitudes toward homeownership to explain the steep decline in the homeownership rates in the U.S. in the period following the Great Recession (Goodman and Mayer, 2018; Heimer and Fritsch, 2020). For example, Simmons (2014) identifies, based on historical predictors such as income, education, and household composition, prospective first-time home buyers and shows that those households with sufficient financial resources are less likely to purchase a house in the aftermath of the financial crisis. Shahdad (2014) provides survey evidence consistent with the view that negative housing experiences acquired around the Great Recession led to a shift in attitudes toward homeownership. Bracha and Jamison (2012) document that these effects are larger for younger households and people who have personal connection to loss experiences. However, empirically identifying and isolating the effect of housing experiences on attitude shifts and homeownership has been a challenge.

[27]SOEP asks these attitude questions in select years starting in 1990. The responses to this question vary from a score of 0 ("Not Important at All") to a score of 3 ("Very important").

[28]In Table O.A.8 of the Online Appendix, we provide additional evidence that the attitude questions of

We next investigate whether exposure to war destruction affects the tenure decisions of households through its impact on their attitudes toward homeownership. To address this explanation, we estimate the regression specification shown in Equation 1 where the $Attitude\_HO$ measure serves as the dependent variable. Column (2) of Table VII presents the estimation results. Consistent with our conjecture, the regression estimates imply a negative and highly statistically significant effect of exposure to destruction on the attitudes of the WWII-experiencing households toward homeownership (t-stat. = -3.36). The magnitude of the destruction effect is also economically meaningful. This finding supports our interpretation of exposure to destruction as operating through the attitude/preference channel in contributing to the subsequent housing tenure decisions of households.

We finally provide some additional (suggestive) evidence on the mediating role of attitudes and preferences in the housing market participation decisions of individuals. To do so, following the approach in Black, Devereux, Lundborg, and Majlesi (2018), we augment our base homeownership model by including the $Attitude\_HO$ variable as an additional control and examine the sensitivity of the destruction coefficient for the WWII-experiencing cohorts to the inclusion of this variable.[29] The results are reported in column (3) of Table VII. We see that the destruction variable for the affected cohort turns out to be both statistically and economically insignificant after we control for the attitudes of households toward homeownership. On the other hand, the $Attitude\_HO$ variable enters the regression positively and, more importantly, it retains its statistical and economic sig-

the SOEP surveys can be used to elicit household preferences. For example, we document that household attitudes toward marriage and having kids, elicited through the same set of questions as for attitudes toward homeownership, strongly predict their actual marriage and fertility outcomes. These results provide additional support for the preference interpretation of our $Attitude\_HO$ measure.

[29]We acknowledge that the $Attitude\_HO$ in the homeownership regressions may represent a "bad control," as coined by Angrist and Pischke (2008), because this variable is also influenced by residential destruction during WWII. As noted by Black, Devereux, Lundborg, and Majlesi (2018) who also use a similar approach to identify the potential pathways though which education affects household risk taking, this exercise should be considered a standard mediation analysis. In our context, if the inclusion of $Attitude\_HO$ variable affects the coefficient estimate of the destruction variable, it would imply that the effect of destruction on housing tenure decision at least partly runs through the attitudes and preferences of households toward homeownership.

nificance as in the base case presented in column (1) of Table VII. This reinforces the idea that exposure to destruction affects the homeownership behavior of war-experiencing individuals through its effect on homeownership attitudes and preferences.

All in all, our results suggest that changes in attitudes toward homeownership induced by experiencing residential destruction during WWII appear to underlie the long-shadow effects of destruction on homeownership rates of households.

5.2 Addressing the "Sour Grapes" Effect

The previous section provides strong evidence that exposure to war destruction affects housing tenure decisions through its impact on household attitudes toward homeownership. Alternatively, one can argue that the stated preferences of the households on the importance of being a homeowner can simply be explained by their actual homeownership status or external constraints they face. For the former, Beggan (1992) documents that owners of a good tend to evaluate it more favorably than non-owners—an effect known as the mere ownership effect. For the latter, the negative attitudes of war exposed cohorts toward homeownership can be driven by their inability to become homeowners due to the external constraints, i.e., the "sour grapes" effect (Elster, 1983).[30] We address these concerns in a number of ways.

First, we verify our findings in Section 5.1 by using lagged values of household attitudes to mitigate simultaneity bias. Then we augment the homeownership regressions by including a lagged indicator variable for homeownership as an additional control. To the extent that stated attitudes are mere reflections of contemporaneous tenure outcomes, including such outcomes in the regressions should address this concern. The results, presented in Table O.A.9 of the Online Appendix, show that the negative impact of exposure to war destruction on household preferences for homeownership remains strong, even

[30]The expression "sour grapes" originates from one of Aesop's fables, *The Fox and the Grape*, which concerns a fox that tries to eat grapes from a vine but cannot reach them. Rather than admitting defeat, the fox states that the grapes are sour and undesirable.

when accounting for lagged homeownership status of households.

Next, we interact the household tenure outcome (owner or renter) with the self-reported answer to the importance of homeownership question (as introduced and discussed in Section 5.1) and group the sampled households into four categories: (i) Owner and homeownership important, (ii) owner and not important, (iii) renter and homeownership important, and (iv) renter and not important.[31] We then classify households in group (iv) as *voluntary* renters and those in group (iii) as *involuntary* renters and directly examine the role of exposure to destruction in being a voluntary and involuntary renter, respectively. The regression estimates are presented in Panel A of Table VIII. In column (1), we first replicate our main finding on the long-shadow effects of exposure to destruction on tenure outcome of being a renter using this subset of households for whom we are able to measure attitudes toward homeownership. The results for being a voluntary and involuntary renter are reported in columns (2) and (3) in Panel A, respectively. Based on this classification, we document that the likelihood of being a voluntary renter is higher among war-exposed cohorts in more destructed areas whereas being an involuntary renter is not significantly determined by exposure to destruction. It is also informative to inspect the coefficient estimates: Within our sample, 77% of all renters are classified as voluntary renters, and 23% are involuntary renters (see Table I). However, the regression coefficient for voluntary renters, 0.021, accounts for almost the entire effect estimated in column (1) for the renter dummy. The coefficient for the involuntary renter dummy is only 0.002. This result shows us that almost all incremental renters among war-exposed households are voluntary renters.

To reinforce this interpretation, we also use another survey question on the self-reported "satisfaction with current dwelling," and interact the tenure outcome with responses to this question to identify *happy* and *unhappy* renters.[32] As presented in Panel B of Ta-

[31] In order to convert the answers to the importance question to a dummy, we classify "not important at all" and "less important" answers as not important and "more important" and "very important" answers as important.

[32] The responses to this question range from 0 ("very unsatisfied") to 10 ("very satisfied"). We classify

ble VIII, we again find that the likelihood of being a happy renter is significantly higher among war-exposed cohorts in more destructed areas. On the other hand, exposure to residential destruction has no significant effect on the propensity of the war experiencing cohorts to be unhappy renters. A quick comparison of the regression coefficients for happy and unhappy renters, 0.018 and 0.008, to our renter sample shares of happy and unhappy renters constructed from Table I, 54% and 46%, reveals that happy renters are over-represented among incremental war-exposed renters. These results suggest that the housing tenure choices of destruction-exposed households are largely free choices and are not fully dictated by external constraints that would probably make them less satisfied with their tenure outcome.

5.3 Do the Effects Extend to Housing Preferences?

So far, our emphasis has been on housing as an investment good and asset class. But housing is also a major consumption good (Piazzesi, Schneider, and Tüzel, 2007), and housing expenditures account for roughly a quarter of net household income in Germany.[33] Therefore, war-induced housing destruction was not only a shock to housing investment returns but also a major shock to housing consumption, which was acutely experienced by the war-exposed cohorts in our sample who were mostly children at the time, regardless of whether their families owned or rented their housing units.[34] To that end, we investigate whether this experience led to changes in housing (consumption) preferences.

The German rental market is well developed, and most rental housing in Germany is owned by private households.[35] Consequently, the stock of units available to rent or own

answers 0-7 as "not happy" and 8-10 as "happy." Our results are not sensitive to this cutoff.

[33]See https://www.gut-leben-in-deutschland.de/indicators/life-infrastructure/costs/ for calculations by DIW Berlin, based on SOEPv34.

[34]Hughes (1999) notes that renters who lost their homes due to bombing and had no place to sleep could have experienced a greater loss than wealthy homeowners with other resources. (p.15)

[35]Kindermann, Le Blanc, Piazzesi, and Schneider (2020) report that more than 80% of all housing units were in the hands of private households based on the 2011 German Census. We find similar rates in our

are integrated and households can find rental or owner-occupied housing at all location and quality segments, allowing them to adjust their housing consumption regardless of their housing tenure decision.

In order to evaluate household preferences toward housing, we first consider the quantity of housing consumed, measured by the number of rooms in households' dwellings. For a given quality, the size of the dwelling would be the housing input in households' utility function. Controlling for household income and other characteristics, the size of the dwelling reveals the strength of the preference for housing.[36] The estimation result, presented in column (1) of Table IX, shows that war-exposed cohorts in destructed areas consume significantly smaller homes. Column (2) shows that housing consumption, as measured by the size of the dwelling, is strongly correlated with attitude toward homeownership, implying that the attitude toward homeownership extends beyond homeownership outcomes to consumption preferences.

Next, we use the answers to subjective questions in SOEP to elicit preferences toward other consumption goods and services and compare them to housing preferences. We identify two such questions that ask participants to evaluate the importance of "being able to buy things for themselves" and "traveling and seeing the world."[37] We interpret the answer to the prior question as a broad preference for non-housing consumption goods and the latter question as a preference for traveling, which is a major expenditure item among German households. By comparing the answers to these questions to the attitudes toward homeownership, we elicit consumption preference rankings and calculate a *preference gap*.[38] Notably, 60% of households state that traveling is at least as important

sample.

[36]Here we are abstracting from saving/consumption decision. If housing is the only consumption good, or if non-housing consumption perfectly mimics housing consumption, low housing consumption may imply a high saving rate. Our next specification looks at relative consumption preferences and is free of this concern.

[37]The responses to these questions use the same scale as the attitudes toward homeownership question, and range from a score of 0 ("Not Important at All") to a score of 3 ("Very Important"). All three questions are asked in the same section of the survey.

[38]While the attitude toward homeownership is not the same thing as the attitude toward housing consumption, our earlier result verified that the two are highly correlated, so we use it as a proxy for housing

as homeownership. Likewise, 77% of households state that being able to buy things for themselves is at least as important as homeownership. Our results in columns (3) and (4) of Table IX show that the preference gap is significantly larger for the war-exposed cohorts from destructed regions, implying that they value housing consumption relatively less. Taken alongside the attitudes toward homeownership, these consumption results suggest that war destruction led to changes in attitudes toward housing in general, both as an investment and a consumption good. ‘

5.4 Robustness to Alternative Interpretations

The results in our previous analysis strongly support the role of the attitude and preference channel in the long-lasting effects of wartime destruction on homeownership decisions of affected households. Sections 4.3 and 4.4 discussed two important alternative mechanisms, the effect of war destruction on housing supply and (parental) wealth, and showed that our results are highly consistent with the attitude channel and not the supply or wealth channel. In what follows, we discuss other potential explanations and how we tackle them. We present these results in Table X.

First, it is possible that being immersed in an environment with higher war destruction may lead to less favorable labor market outcomes, which may result in lower homeownership. For example, war destruction can impose additional constraints and frictions for the war-exposed households to invest in their human capital or it can directly affect the labor demand in the region due to its adverse effect on local development. To the former, as reported in Table O.A.10 of the Online Appendix, we indeed find that war destruction led to lower educational attainment of affected cohorts as measured by their years of schooling, which is consistent with the findings of Akbulut-Yuksel (2014).[39] Hence, we

consumption.

[39] In column (2) of Online Appendix Table O.A.10, we use an indicator variable of being a high school graduate as the dependent variable and find no systematic effect of exposure to war destruction on the probability of having a high school diploma.

recognize that war destruction can be associated with negative labor market outcomes. To address these effects, we include education, occupation, industry, and labor income controls such as level of earnings in all our regressions, as shown in Equation 1, explicitly accounting for their effects on the homeownership decision of households. Second, we directly estimate the effects of residential destruction on the labor income and unemployment risk of war-exposed households, respectively. The results are reported in Panel A of Table X. Strikingly, the regression estimates indicate a positive and significant effect of exposure to destruction on the earnings level of war experiencing cohorts after controlling for other household characteristics. Specifically, a one standard deviation increase in destruction in the region leads to a 2.2% increase in the earnings of the exposed cohort. We finally consider the unemployment risk of households as the outcome variable and find no significant effects. Collectively, our results suggest that the labor market is not an operative channel for our results.

War destruction could also affect homeownership through its possible effect on access to local financial institutions. Brown, Cookson, and Heimer (2019) show that early life exposure to financial institutions leads to long-term improvements in financial literacy and consumer credit outcomes. Differences in access to debt could lead to differences in housing market participation. We test this potential channel by directly looking at the debt market participation and find no systematic effect on household debt behavior, as presented in Online Appendix Table O.A.11.

We next consider the possibility that exposure to war destruction affects housing tenure decisions through its effects on household risk preferences rather than through their attitudes toward homeownership. Large shocks such as experiencing financial crisis can affect risk preferences of households and, hence, their risk-taking behavior, as shown by Guiso, Sapienza, and Zingales (2018). We test this alternative explanation by directly linking war destruction to several measures of household attitudes toward risk. Following Dohmen, Falk, Huffman, and Sunde (2012), we first use two measures of risk aversion

directly elicited through the SOEP survey, the first capturing the general willingness to take risks and the second measuring the willingness to take financial risks. The results, reported in columns (1) and (2) of Panel C, show no significant effect of war destruction on the qualitative indicators of risk preferences. Further support is provided in column (3) of Panel C where we focus on the stock market participation decisions of households. We again find no significant relationship between exposure to destruction and actual financial risk-taking behavior of households, suggesting that the impact of destruction exposure on homeownership does not run through household risk preferences.[40]

In refining our understanding of the link between wartime destruction and housing tenure decisions of households, it is also important to rule out that the destruction measure is a proxy for other regional historical predictors of homeownership. We recognize that the historical economic, social, and political conditions in a given region (that may be correlated with the destruction during WWII) could be relevant for homeownership decisions of households decades later. For example, D'Acunto, Prokopczuk, and Weber (2019) find that households living in regions with higher historical antisemitism have a lower tendency to use mortgage financing. To control for any such regional influences, we include region $\times$ year fixed effects in our regression specification presented in Equation 1. In addition, to directly test for the presence of such effects in our context, we augment our homeownership regressions by including the historical antisemitism measure of Voigtländer and Voth (2012). As presented in Table O.A.12 of the Online Appendix, we find no significant effect of historical antisemitism in a given region on the homeownership decisions of war-exposed cohorts. More importantly, our results on the effects of exposure to wartime destruction are statistically and economically similar to our baseline results even after explicitly controlling for historical antisemitism in the region.

[40]This finding is also consistent with another key feature of experience effects discussed in the literature, that the effects are specific to a certain context or domain (Malmendier and Nagel (2011) and Malmendier and Wachter (2022)), which is housing in our case.

6 Implications of the Findings

6.1 From Homeownership to Wealth Accumulation

The shift in attitudes toward homeownership can also have implications for the composition and accumulation of wealth. Housing is known to be the primary saving instrument for most households (Goodman and Mayer, 2018), and high realized returns to housing, especially when purchased with leverage, can lead to significant asset accumulation. The findings in a contemporaneous paper by Halbmeier and Schröder (2021) showing that war-exposed cohorts in more destructed regions tend to accumulate less wealth would be consistent with missing out on such effects.

A full-fledged analysis of wealth effects is beyond the scope of our study mainly due to several data-related constraints. First, SOEP starts to collect wealth information in the second half of our sample period beginning from 2002, and this information is only collected at a five-year frequency. This implies that we observe household portfolios only in four out of 33 waves of our data. Second, based on the available data, we observe that around one-tenth of the respondents report having zero gross total wealth, which is defined as the sum of all real and financial assets. We acknowledge that while those responses may reflect the true value of household wealth, some may be due to recall bias (**?**). Keeping these caveats in mind, we provide some interesting indicative evidence on the composition of wealth in Table XI.

Column (1) reports the estimates for the effect of exposure to war destruction on the logarithm of gross total wealth of households. We see that war-exposed households who reside in regions with higher destruction accumulate significantly less gross wealth, consistent with the findings in Halbmeier and Schröder (2021). Interestingly, as presented in column (2), the coefficient estimate for the log financial wealth is positive but not precisely estimated.

Our findings in columns (3) to (4) point to a more nuanced interpretation of the wealth

results. When we restrict the sample to households with positive gross wealth, we see that exposure to destruction no longer significantly affects gross wealth while it significantly positively contributes to the level of financial wealth. These results imply that destruction-exposed households with positive wealth tend to tilt their portfolios toward financial assets. Accordingly, as presented in column (5) of Table XI, we find that a one standard deviation increase in war destruction results in a more than 2 percentage point higher share of financial assets for WWII-experiencing cohorts. Overall, our findings imply that consequences of housing attitudes extend beyond homeownership and also have implications for household wealth and its composition.

6.2 Aggregate Homeownership

Our analysis so far shows that exposure to extensive residential destruction results in an economically large reduction in housing market participation decades after experiencing the shock. We came to this conclusion using a difference-in-difference methodology by comparing the homeownership outcomes of different cohorts in areas that differ in their destruction rates. We can also think about the implications of exposure to destruction for the aggregate homeownership rates in Germany. Given that almost all cities experienced some destruction, exposure may have a sizable impact on aggregate homeownership rates and offer an additional underlying reason for the low historical homeownership rates in Germany (Kaas, Kocharkov, Preugschat, and Siassi, 2021). Furthermore, the share of war-exposed cohorts in the population has changed significantly over the sample period, so the aggregate affect would reflect this composition change over time.

Using the fitted model of column 3 in Table II (our main specification), we predict a counterfactual homeownership rate had the war exposure not occurred (i.e., assuming a hypothetical destruction level of zero) and plot it in Panel A of Figure II along with the actual homeownership rate in the data. We calculate that war exposure led to a 4.5 percentage point lower homeownership rate in 1985 compared to our counterfactual of

no war destruction. The effect declined to 0.2 percentage points by 2017. The average effect over the years is 2.1 pp.[41] The decline in the aggregate effect over time is due to the declining share of exposed cohorts, which accounted for 63% of our sample in 1985 but only 8% in 2017. It is informative to compare these magnitudes to the time series of homeownership in West Germany, which increased steadily from 46% in 1985 to 56% in 2017. The declining share of the war-exposed cohort can account for half of the increase in homeownership rate over the same period. Furthermore, Panel B shows that homeownership increased much faster in regions that experienced high destruction (by 11 percentage points from 40% to 51%) compared to the regions that experienced low destruction (by 2 percentage points from 59% to 61%).

7 Conclusion

In this paper, we analyze the potential link between devastating housing experiences and long-lasting attitude shifts toward housing and homeownership using a unique historical setting, the massive residential bombing destruction of Germany during WWII. Exploiting the reasonably exogenous region-by-cohort variation in exposure to destruction, we first document that residential destruction caused by the bombardment of Germany during WWII leads to lower housing market participation among exposed households decades later. This negative effect is present after controlling for regional differences and a rich set of relevant household characteristics. We verify these findings by performing several additional sensitivity and robustness tests.

We scrutinize the economic mechanisms that underlie the persistent, long-shadow effects of exposure to war destruction on housing tenure decisions of households and

[41] Note that our simple exercise abstracts from any spillover effects from older generations to younger generations. It is possible that the effects of destruction could be transmitted intergenerationally, socially, or culturally, which would lead to larger aggregate effects on homeownership. The literature on cultural forces supports this view (Dohmen, Falk, Huffman, and Sunde, 2012). Consequently, we interpret our estimates as a lower bound for the actual aggregate effect of destruction on homeownership.

show that this variation in homeownership is primarily due to changes in household attitudes. Interestingly, these effects extend to preferences for housing consumption: exposed households occupy smaller dwellings, and they value non-housing consumption goods and services such as traveling more than homeownership. Overall, our results imply that war destruction led to changes in attitudes toward housing in general, both as an investment and a consumption good. In contrast, other explanations, such as the wealth effects, supply-side effects, labor market channel, and household risk preferences, which are alternatives to the attitudes channel, receive little or no support from the data.

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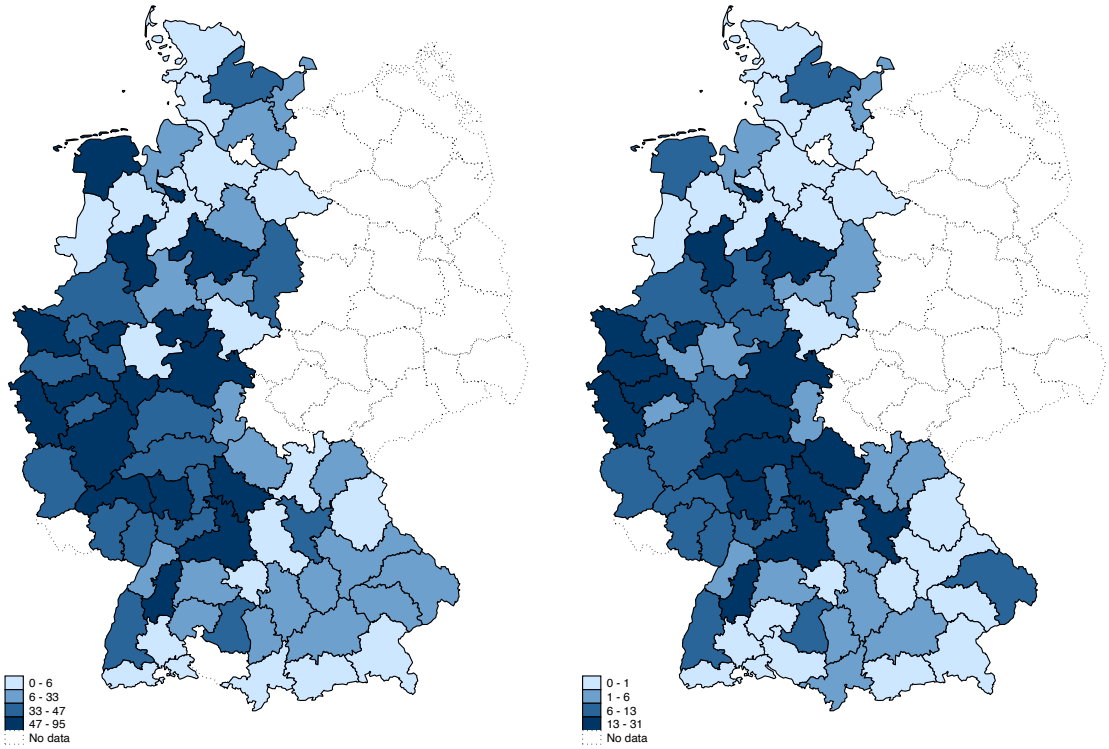
Figure I: Wartime Destruction in West Germany during WWII

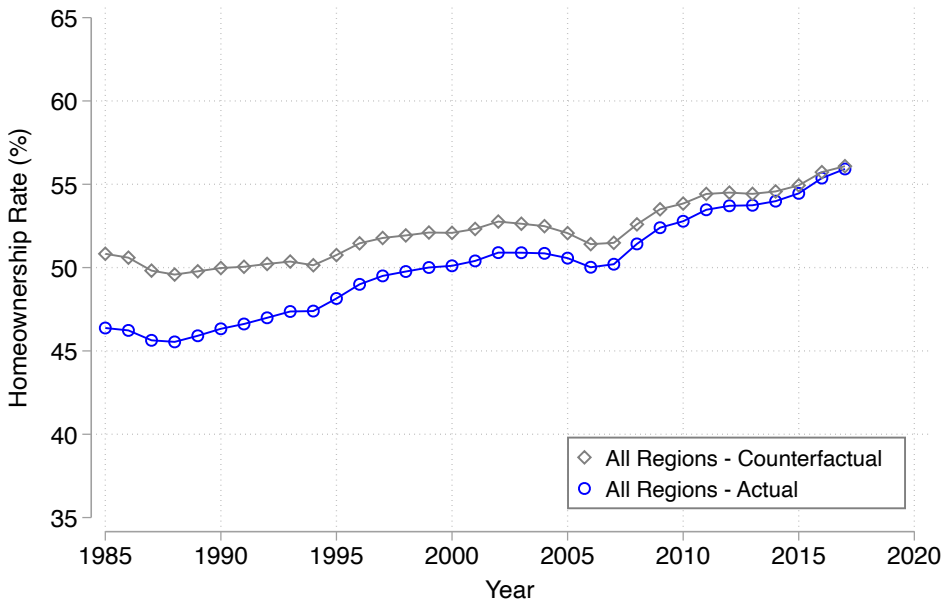
This figure depicts the war destruction in West German regions during WWII. In Panel A, we measure regional destruction using the percentage of flats destroyed between 1939 and 1945. Panel B uses rubble volume (in m^3) per inhabitant. The data for destruction come from Kästner (1949). See Appendix A for detailed variable definitions.



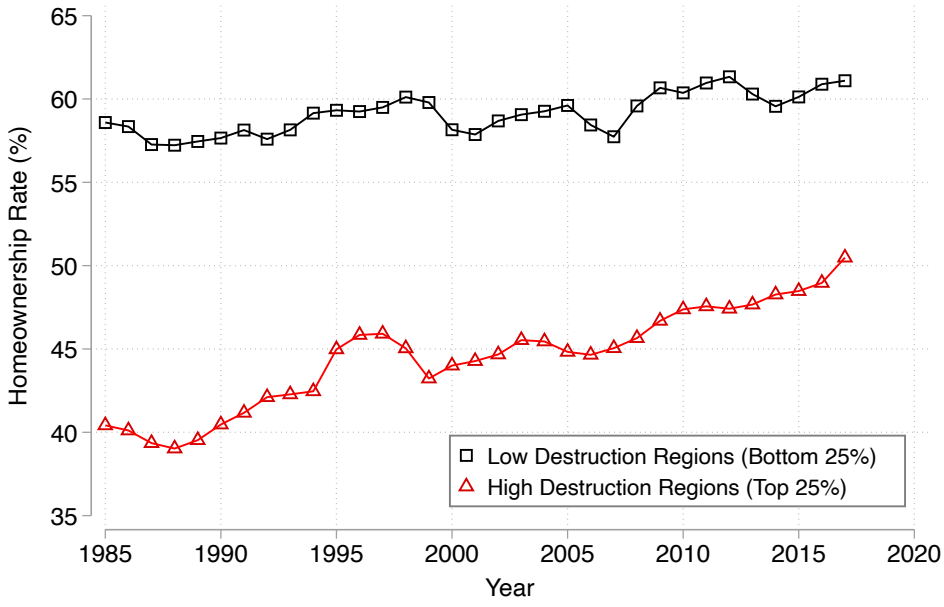
(a) Flats destroyed between 1939 and 1945 (in %) (b) Rubble m^3 per inhabitant reported in 1946

Figure II: Aggregate Implications: Homeownership Rates Over Time

This figure plots the homeownership rates in West Germany between 1985 and 2017. Panel A plots the aggregate homeownership rate in the data, along with the counterfactual homeownership rate had the exposure to WWII bombardment not occurred. The counterfactual is based on the fitted model of Table II, column (3), and predicts homeownership with zero destruction exposure. Panel B plots the moving average of homeownership rates of high destruction (top 25%) and low destruction regions (bottom 25%) over the sample period.



(a) Actual vs. counterfactual (no destruction) homeownership rates



(b) Homeownership rates in high and low destruction regions

Table I: Summary Statistics

This table presents summary statistics for the sample of West German households. Each observation is a household-year observation from years 1985 to 2017. To ensure representativeness, observations are weighted by the survey weights provided by German Socio-Economic Panel (SOEP). Individual-level variables such as gender, education years, and employment status are based on the household head. See Appendix A for detailed variable definitions.

Panel A: Dependent Variables

	Obs.	Mean	SD	Min	50%	Max
Economic Outcomes						
Homeowner	158,064	0.50	0.50	0	1	1
Landlord	155,098	0.13	0.34	0	0	1
Owns Real Estate	155,098	0.52	0.50	0	1	1
Owns Stocks	109,731	0.32	0.46	0	0	1
Total Net Wealth (in k€)	26,610	210.4	633.8	-1974.1	91.3	72085
Total Gross Wealth (in k€)	26,610	245.7	681.9	0	129.8	72085
Housing Net Wealth (in k€)	26,610	105.4	165.3	-500	17.5	5708.5
RE Net Wealth (in k€)	26,610	139.3	300.9	-2050.4	40	19000
Financial Assets (in k€)	26,610	30.1	127.4	0	5	6999.5
Attitudes, Preferences, Beliefs						
Attitude HO	35,704	1.56	1.01	0	2	3
Attitude Travel	35,812	1.44	0.84	0	1	3
Attitude Buy Things	35,831	1.93	0.61	0	2	3
Risk Taking General	76,871	4.56	2.31	0	5	10
Risk Taking Investments	17,928	2.35	2.22	0	2	10
Voluntary Renter	101,120	0.37	0.48	0	0	1
Involuntary Renter	101,120	0.11	0.31	0	0	1
Happy Renter	156,602	0.27	0.44	0	0	1
Unhappy Renter	156,602	0.23	0.42	0	0	1
Housing Consumption						
Number of Rooms	158,064	3.87	2.32	0	4	82

Panel B: Regional Variables

	Obs.	Mean	SD	Min	50%	Max
Destruction						
Fraction of Flats Destroyed	158,064	35.3	19.3	0	37.6	95.6
Fraction of Flats Destroyed (log)	158,064	3.28	1.03	0	3.65	4.57
Rubble m^3 per Inhabitant	158,064	11.2	7.68	0	9.73	31.3
Rubble m^3 per Inhabitant (log)	158,064	2.20	0.91	0	2.37	3.48
Regional Characteristics						
Rural Area	158,063	0.24	0.43	0	0	1
City Size Bucket	158,061	4.37	1.79	1	4	7

Table I: Summary Statistics (continued)

Panel C: Household Controls

	Obs.	Mean	SD	Min	50%	Max
Demographics						
Male	158,064	0.62	0.49	0	1	1
Age	158,064	51.8	15.9	21	51	80
Age^2	158,064	2930.4	1663.9	441	2601	6400
Birthyear	158,064	1949.5	17.5	1905	1950	1996
Years of Schooling	158,064	12.1	2.65	7	11	18
HH Size	158,064	2.19	1.20	1	2	11
Occupation						
Employed	158,064	0.53	0.50	0	1	1
Self-employed	158,064	0.070	0.25	0	0	1
Unemployed	158,064	0.073	0.26	0	0	1
Student	158,064	0.016	0.13	0	0	1
Retired	158,064	0.31	0.46	0	0	1
Civil Servant	158,064	0.16	0.36	0	0	1
HH Income (in €, mth.)	158,064	2175.2	1334.0	245	1892	10000
Marital Status						
Single	158,064	0.36	0.48	0	0	1
Married	158,064	0.51	0.50	0	1	1
Widowed	158,064	0.13	0.33	0	0	1

Table II: The Effects of Wartime Destruction on Homeownership

This table presents the coefficient estimates from linear probability models of homeownership based on Equation 1. The main variable of interest is *Destruction* which is defined as the log of (1 + the percentage of flats destroyed between 1939 and 1946) in each household's first-observed region in the panel. To ease economic interpretation, the variable is standardized to have a mean of zero and a standard deviation of one. Column (1) shows the no-interaction specification that accounts for household controls, birth year dummies, and year fixed effects. In column (2), *Destruction* is interacted with birth cohorts to isolate cohort-specific effects and adds region fixed effects and year fixed effects. The main specification in column (3) employs region-year fixed effects and further includes seven city size dummies as additional controls for the current location of residence within a region. Coefficient estimates are based on the OLS regression at the household-level. T-stats are presented in parentheses. Standard errors are clustered at the household-level. One, two, and three stars denote statistical significance at the 10%, 5%, and 1% level, respectively. N denotes the number of household-year observations, R^2 denotes the adjusted R squared. See Appendix A for detailed variable definitions.

	(1) Homeowner	(2) Homeowner	(3) Homeowner
Destruction	-0.023***	0.009	0.004
	(-4.61)	(0.83)	(0.35)
Born pre-1940 × Destruction		-0.028**	-0.025**
		(-2.46)	(-2.24)
Born 1941-1950 × Destruction		-0.010	-0.008
		(-0.79)	(-0.73)
Household Controls	x	x	x
Birthyear FE	x	x	x
Year FE	x	x	-
Region FE	-	x	-
Region × Year FE	-	-	x
City Size FE	-	-	x
R^2	0.261	0.289	0.325
N	158,063	158,063	157,908

Table III: Placebo Analysis

This table presents the results of Table II for an alternative sample from migrant households that arrived in Germany after 1955, i.e., after the pre-bombing level of housing stock per capita has been reestablished in Germany. Coefficient estimates are based on the OLS regression at the household-level. T-stats are given in parentheses. Standard errors are clustered at the household-level. One, two, and three asterisks denote statistical significance at the 10%, 5%, and 1% level, respectively. N denotes the number of household-year observations, R^2 denotes the adjusted R squared. See Appendix A for detailed variable definitions.

	(1) Homeowner	(2) Homeowner	(3) Homeowner
Destruction	-0.008	-0.007	-0.007
	(-0.81)	(-0.34)	(-0.44)
Born pre-1940 × Destruction		0.026	0.029
		(1.07)	(1.22)
Born 1941-1950 × Destruction		0.023	0.017
		(1.08)	(0.79)
Household Controls	x	x	x
Birthyear FE	x	x	x
Year FE	x	x	-
Region FE	-	x	-
Region × Year FE	-	-	x
City Size FE	-	-	x
R^2	0.248	0.289	0.327
N	39,122	39,118	38,927

Table IV: Supply-side Factors

This table presents robustness tests regarding supply-side factors. In column (1) the dependent variable is *Rent Subsidy* which equals one if the household receives rental subsidies ("Wohngeld") or resides in a social housing unit. Column (2) reports the baseline regression excluding recipients of rental subsidies and social housing. Column (3) additionally excludes renters whose landlords are non-private owners (e.g., companies, institutions, municipalities, or social cooperatives). Coefficient estimates are based on the OLS regression at the household-level. T-stats are given in parentheses. Standard errors are clustered at the household-level. One, two, and three asterisks denote statistical significance at the 10%, 5%, and 1% level, respectively. N denotes the number of household-year observations, R^2 denotes the adjusted R squared. See Appendix A for detailed variable definitions.

	(1) Rent Subsidy	(2) Homeowner	(3) Homeowner
Born pre-1940 × Destruction	0.007*	-0.027**	-0.025**
	(1.91)	(-2.22)	(-2.07)
Born 1941-1950 × Destruction	-0.004	-0.012	-0.009
	(-1.09)	(-0.93)	(-0.69)
Household Controls	x	x	x
Birthyear FE	x	x	x
Region × Year FE	x	x	x
City Size FE	x	x	x
Years	95-02,05-17	95-02,05-17	95-02,05-17
Sample	Full	No rent subsidy	No rent subsidy, no inst. owners
R^2	0.124	0.321	0.322
N	116,112	111,145	102,499

Table V: Addressing the Wealth Effects

This tables presents robustness checks regarding parental wealth transfers and parental loss. In Panel A, column (1) presents the baseline regression excluding households that have inherited their current residence. In column (2), the dependent variable is *Ever Inherited* which is a dummy that equals to one if a household head answered to have ever received an inheritance or gift throughout his/her life. Column (3) runs the baseline regression excluding households that have ever received an inheritance or gift. In column (1) of Panel (B), the dependent variable is *Parent Died WWII*, which is a dummy that equals one if at least one of the household head's parents died young during WWII, and zero otherwise. In particular, the dummy equals one for household heads whose parents died between 1939 and 1945 and were below the age of 45 at the time of death. In column (2), we run the baseline regression by excluding those households that suffered wartime parental loss from the sample.

Panel A: Inheritance

	(1) Homeowner	(2) Ever Inherited	(3) Homeowner
Born pre-1940 × Destruction	-0.027**	-0.017	-0.037**
	(-2.18)	(-1.14)	(-1.98)
Born 1941-1950 × Destruction	-0.010	0.014	-0.033*
	(-0.82)	(0.76)	(-1.65)
Household Controls	x	x	x
Birthyear FE	x	x	x
Region FE	x	x	x
City Size FE	x	x	x
Years	85-17	2001	2001
Sample	Home not inherited	Full	Non-inheritors
R^2	0.318	0.077	0.333
N	145,496	5,602	4,380

Panel B: Parental Loss

	(1) Parent Died WWII	(2) Homeowner
Born pre-1940 × Destruction	0.012**	-0.023**
	(2.22)	(-2.00)
Born 1941-1950 × Destruction	0.002	-0.007
	(0.38)	(-0.63)
Household Controls	x	x
Birthyear FE	x	x
Region × Year FE	x	x
City Size FE	x	x
Sample	Full	No parental loss WWII
R^2	0.103	0.327
N	157,802	152,793

Table VI: The Effects of Wartime Destruction on Homeownership: Robustness Checks

This table presents several additional robustness checks for the baseline results. Columns (1) and (2) employ alternative outcome variables, column (3) uses more conservative sample restrictions, columns (4) and (5) use alternative explanatory variables, and column (6) applies an alternative clustering of standard errors. Specifically, in column (1) the dependent variable is *Owns RE* which is a dummy that equals one if a household head has reported either to receive rental income or owns his current residency. In column (2), the dependent variable is *Landlord* which is a dummy that equals one if a household head has reported to receive rental income. Column (3) presents the baseline regression for a subsample of households that stated to still reside in the area they grew up in when entering the SOEP household panel. In column (4) the main explanatory variable *Destruction (alt.)* is based on the alternative destruction measure (rubble volume per inhabitant). Column (5) reports results for an alternative cohort division. Column (6) presents the baseline results with standard errors clustered at the region level. Coefficient estimates are based on the OLS regression at the household-level. T-stats are given in parentheses. Standard errors are clustered at the household-level. One, two, and three asterisks denote statistical significance at the 10%, 5%, and 1% level, respectively. N denotes the number of household-year observations, R^2 denotes the adjusted R squared. See Appendix A for detailed variable definitions.

	(1) Owns RE	(2) Landlord	(3) Homeowner	(4) Homeowner	(5) Homeowner	(6) Homeowner
Born pre-1940 × Destruction	-0.027**	-0.017**	-0.046***			-0.025**
	(-2.43)	(-2.40)	(-3.47)			(-2.13)
Born 1941-1950 × Destruction	-0.008	0.009	-0.009			-0.008
	(-0.71)	(1.20)	(-0.57)			(-0.76)
Born pre-1940 × Destruction (alt.)				-0.021*		
				(-1.88)		
Born 1941-1950 × Destruction (alt.)				-0.012		
				(-1.04)		
Born pre-1925 × Destruction					-0.029	
					(-1.51)	
Born 1926-40 × Destruction					-0.029**	
					(-2.29)	
Born 1941-55 × Destruction					-0.015	
					(-1.45)	
Household Controls	x	x	x	x	x	x
Birthyear FE	x	x	x	x	x	x
Region × Year FE	x	x	x	x	x	x
City Size FE	x	x	x	x	x	x
Sample	Full	Full	Non-movers	Full	Full	Full
SE Clustering	Household	Household	Household	Household	Household	Region
R^2	0.324	0.104	0.378	0.325	0.325	0.325
N	154,943	154,943	81,090	157,908	157,908	157,908

Table VII: Household Attitudes Toward Homeownership

This table presents the results for reported attitudes toward homeownership. In column (1) the main explanatory variable is *Attitude HO* which takes a value between 0 and 3 based on whether a household head has reported that homeownership is "not important at all" (0), "not important" (1), "important" (2), or "very important" (3) to him/her. The related survey question was asked in the years 1990, 1992, 1995, 2004, 2008, 2010, 2012, and 2016. In column (2), *Attitude HO* is the outcome variable. Column (3) employs our baseline regression using *Attitude HO* as an additional control. All specifications use the available survey years in which the respective question is asked. Coefficient estimates are based on the OLS regression at the household-level. T-stats are given in parentheses. Standard errors are clustered at the household-level. One, two, and three asterisks denote statistical significance at the 10%, 5%, and 1% level, respectively. N denotes the number of household-year observations, R^2 denotes the adjusted R squared. See Appendix A for detailed variable definitions.

	(1) Homeowner	(2) Attitude HO	(3) Homeowner
Attitude HO	0.222***		0.222***
	(56.42)		(56.38)
Born pre-1940 × Destruction		-0.081***	-0.001
		(-3.36)	(-0.12)
Born 1941-1950 × Destruction		-0.040	0.002
		(-1.62)	(0.19)
Household Controls	x	x	x
Birthyear FE	x	x	x
Region × Year FE	x	x	x
City Size FE	x	x	x
Years	90,92,95,04, 08,10,12,16	90,92,95,04, 08,10,12,16	90,92,95,04, 08,10,12,16
R^2	0.480	0.224	0.480
N	35,668	35,668	35,668

Table VIII: Is Renting a Free Choice?

This table presents the coefficient estimates from linear probability models of different types of renters based on Equation 1. In column (1) of Panel (A), the dependent variable is *Renter* which is a dummy that equals one if the household head rents his/her current residence; zero otherwise. In column (2) the dependent variable is *Voluntary Renter*, which is a dummy that equals one if the household head is a renter *and* reported that homeownership is either "not important at all" or "not important" to him/her in his/her latest answer to this question within the last three survey waves; zero otherwise. In column (3), the dependent variable is *Involuntary Renter*, which is a dummy that equals one if the household head is a renter *and* reported that homeownership is either "important" or "very important" to him/her, zero otherwise. In column (1) of Panel B, the dependent variable is again *Renter*. In column (2) the dependent variable is *Happy Renter*, which is a dummy that equals one if the household head is a renter *and* assigns a score higher than 7 on a scale from 0 to 10 when asked about his/her satisfaction with his/her current residence. In column (3) the dependent variable is *Unhappy Renter*, which is a dummy that equals one if the household head is a renter *and* assigns a score lower than or equal to 7 on a scale from 0 to 10 when asked about his/her satisfaction with his/her current residence.

Panel A: Renter Types by Attitudes

	(1) Renter	(2) Vol. Renter	(3) Invol. Renter
Born pre-1940 × Destruction	0.023*	0.021*	0.002
	(1.78)	(1.69)	(0.27)
Born 1941-1950 × Destruction	0.005	0.013	-0.008
	(0.41)	(1.15)	(-0.90)
Household Controls	x	x	x
Birthyear FE	x	x	x
Region × Year FE	x	x	x
City Size FE	x	x	x
Years	90-98, 04-17	90-98, 04-17	90-98, 04-17
R^2	0.323	0.235	0.106
N	100,987	100,987	100,987

Panel B: Renter Types by Satisfaction

	(1) Renter	(2) Happy Renter	(3) Unhappy Renter
Born pre-1940 × Destruction	0.026**	0.018*	0.008
	(2.27)	(1.94)	(1.23)
Born 1941-1950 × Destruction	0.009	0.018**	-0.009
	(0.77)	(2.12)	(-1.00)
Household Controls	x	x	x
Birthyear FE	x	x	x
Region × Year FE	x	x	x
City Size FE	x	x	x
R^2	0.325	0.118	0.151
N	156,446	156,446	156,446

Table IX: Housing Consumption

This table presents the results for the housing consumption. In column (1) the dependent variable is *Number of Rooms*, which is the total number of rooms (larger than six square meters) in the household's current residence. In column (2), the main explanatory variable is *Attitude HO* which takes a value between 0 and 3 based on whether a household head has reported that homeownership is "not important at all" (0), "not important" (1), "important" (2), or "very important" (3) to him/her. In column (3), the dependent variable is *Travel - HO* which is the difference between the importance scores for travel and homeownership. In column (4), the dependent variable is *Buy things - HO* which is the difference between the importance scores for being able to afford things and homeownership. Columns (2) to (4) are restricted to the survey years in which the importance questions were asked. Coefficient estimates are based on the OLS regression at the household-level. T-stats are given in parentheses. Standard errors are clustered at the household-level. One, two, and three asterisks denote statistical significance at the 10%, 5%, and 1% level, respectively. N denotes the number of household-year observations, R^2 denotes the adjusted R squared. See Appendix A for detailed variable definitions.

	(1) Number of Rooms	(2) Number of Rooms	(3) Travel - HO	(4) Buy things - HO
Born pre-1940 × Destruction	-0.108***		0.110***	0.096***
	(-2.84)		(3.84)	(3.66)
Born 1941-1950 × Destruction	-0.031		0.040	0.019
	(-0.70)		(1.30)	(0.69)
Attitude HO		0.279***		
		(6.82)		
Household Controls	x	x	x	x
Birthyear FE	x	x	x	x
Region × Year FE	x	x	x	x
City Size FE	x	x	x	x
Years	All	90,92,95,04, 08,10,12,16	90,92,95,04, 08,10,12,16	90,92,95,04, 08,10,12,16
R^2	0.298	0.310	0.212	0.192
N	157,908	35,668	35,639	35,641

Table X: Ruling out Alternative Explanations

This table presents the results for tests of alternative mechanisms. Panel A reports the results for employment-related outcomes, and Panel (B) for risk preference-related outcomes. In column (1) of Panel (A), the dependent variable is *Lg(HH Income)* which is the log of the annual net household income. In column (2), the dependent variable is *Unemployed*, which is a dummy that equals one if the household head is currently unemployed; zero otherwise. In column (1) of Panel (B), the dependent variable is *Risk Taking General* which is the score the household head assigns on a scale from 0 to 10 when asked about his/her general willingness to take risks. In column (2), the dependent variable is *Risk Taking Investments*, which is the score the household head assigns on a scale from 0 to 10 when asked about his/her willingness to take investment risks. In column (3), the dependent variable is *Owns Stocks*, which is a dummy that equals one if the household reported to own "stocks, options, or other financial securities", and zero otherwise. Coefficient estimates are based on the OLS regression at the household-level. T-stats are given in parentheses. Standard errors are clustered at the household-level. One, two, and three asterisks denote statistical significance at the 10%, 5%, and 1% level, respectively. N denotes the number of household-year observations, R^2 denotes the adjusted R squared. See Appendix A for detailed variable definitions.

Panel A: Income

	(1) Lg(HH Income)	(2) Unemployed
Born pre-1940 × Destruction	0.022**	0.004
	(2.49)	(1.01)
Born 1941-1950 × Destruction	0.015	-0.003
	(1.50)	(-0.46)
Household Controls	x	x
Birthyear FE	x	x
Region × Year FE	x	x
City Size FE	x	x
R^2	0.551	0.105
N	157,908	157,908

Panel B: Risk Preferences

	(1) Risk Taking General	(2) Risk Taking Invest.	(3) Owns Stocks
Born pre-1940 × Destruction	-0.018	-0.038	0.004
	(-0.34)	(-0.56)	(0.38)
Born 1941-1950 × Destruction	-0.006	0.044	0.012
	(-0.10)	(0.63)	(0.95)
Household Controls	x	x	x
Birthyear FE	x	x	x
Region × Year FE	x	x	x
City Size FE	x	x	x
Years	04,06,08-17	04,09,14	01-17
R^2	0.115	0.147	0.164
N	76,779	17,907	109,608

Table XI: Household Wealth

This table presents the results for household wealth outcomes. In column (1), the dependent variable is *Gross Wealth* which is the log of total household assets. In column (2), the dependent variable is *Financial Assets* which denotes the log of total household financial assets, including cash savings, stocks, bonds, and other financial instruments. Columns (3) and (4) report the results for *Gross Wealth* and *Financial Assets* for the subsample of households that have non-zero gross wealth. In column (5), the dependent variable is *Share Financial Assets*, which is the ratio of gross financial assets to total gross wealth for households with non-zero gross wealth. Coefficient estimates are based on the OLS regression at the household-level. T-stats are given in parentheses. Standard errors are clustered at the household-level. One, two, and three asterisks denote statistical significance at the 10%, 5%, and 1% level, respectively. N denotes the number of household-year observations, R^2 denotes the adjusted R squared. See Appendix A for detailed variable definitions.

	(1) Gr. Wealth	(2) Fin. A.	(3) Gr. Wealth	(4) Fin. A.	(5) Share Fin. A.
Born pre-1940 × Destruction	-0.288***	0.105	-0.029	0.289**	0.026***
	(-3.04)	(0.83)	(-0.67)	(2.23)	(3.03)
Born 1941-1950 × Destruction	0.060	0.142	-0.002	0.112	0.006
	(0.60)	(1.07)	(-0.05)	(0.85)	(0.63)
Household Controls	x	x	x	x	x
Birthyear FE	x	x	x	x	x
Region × Year FE	x	x	x	x	x
City Size FE	x	x	x	x	x
Years	02,07,12,17	02,07,12,17	02,07,12,17	02,07,12,17	02,07,12,17
Sample	Full	Full	Wealth > 0	Wealth > 0	Wealth > 0
R^2	0.357	0.216	0.380	0.145	0.147
N	26,577	26,577	23,682	23,682	23,682

Appendix for Online Publication

"Shattered Housing"

This Online Appendix includes tables and figures referred to but not included in the main body of the paper, which provide robustness checks and additional findings.

A Variable Definitions

Variable	Definition, source, and coverage
Homeowner	1 if owner of current residence, and 0 otherwise. Source: SOEP Coverage: 1985-2017
Renter	Inverse of *Homeowner* dummy. 1 if renter of current residence, and 0 otherwise. Source: SOEP Coverage: 1985-2017
Landlord	1 if household had received rental income during the survey year, and 0 otherwise. Source: SOEP Coverage: 1985-2017, except 1991
Owns RE	Combination of *Homeowner* and *Landlord* dummies. 1 if household owns its of current residence or household receives rental income, 0 otherwise. Source: SOEP Coverage: 1985-2017, except 1991
Owns Stocks	1 if a household stated to own stocks, options, or other financial securities in the respective survey year, 0 otherwise. Source: SOEP Coverage: 2001-2017
Total Net Wealth	Household's total net wealth (excl. student debt; self-assessed). Source: SOEP Coverage: 2002,2007,2012,2017
Total Gross Wealth	Household's total gross wealth (self-assessed). Source: SOEP Coverage: 2002, 2007, 2012, 2017
Housing Net Wealth	Household's total primary residence value less outstanding mortgage value (based on self-assessed current market value). Source: SOEP Coverage: 2002, 2007, 2012, 2017
RE Net Wealth	Household's total real estate wealth less outstanding mortgages value (based on self-assessed current market value). Source: SOEP Coverage: 2002, 2007, 2012, 2017
Financial Assets	Household's total financial assets, including cash savings, stocks, bonds, and options Source: SOEP Coverage: 2002, 2007, 2012, 2017
Attitude HO	Score between 0 and 3 dependent on whether a household head has reported that "owning my own home" is "quite unimportant" (0), "less important" (1), "important" (2), or "very important" (3) to him/her. Source: SOEP Coverage: 1990, 1992, 1995, 2004, 2008, 2010, 2012, 2016
Attitude Travel	Score between 0 and 3 dependent on whether a household head has reported that "seeing the world, traveling" is "quite unimportant" (0), "less important" (1), "important" (2), or "very important" (3) to him/her. Source: SOEP Coverage: 1990, 1992, 1995, 2004, 2008, 2010, 2012, 2016
Attitude Buy Things	Score between 0 and 3 dependent on whether a household head has reported that "being able to afford things for myself" is "quite unimportant" (0), "less important" (1), "important" (2), or "very important" (3) to him/her. Source: SOEP Coverage: 1990, 1992, 1995, 2004, 2008, 2010, 2012, 2016

Variable	Definition, source, and coverage
Risk Taking General	Score the household head assigns on a scale from 0 (low) to 10 (high) when being asked about his/her general willingness to take risks. Source: SOEP Coverage: 2004, 2006, 2008-2017
Risk Taking Inv.	Score the household head assigns on a scale from 0 to 10 when being asked about his/her willingness to take risks in investment manners. Source: SOEP Coverage: 2004, 2009, 2014
Voluntary Renter	1 if a household head is a renter and answered that homeownership is either "quite unimportant" or "less important" to him/her, 0 otherwise. Source: SOEP Coverage: 1990, 1992, 1995, 2004, 2008, 2010, 2012, 2016
Involuntary Renter	1 if a household head is a renter and answered that homeownership is either "important" or "very important" to him/her, 0 otherwise. Source: SOEP Coverage: 1990, 1992, 1995, 2004, 2008, 2010, 2012, 2016
Happy Renter	1 if a household head is a renter and assigns a score higher than 7 on a scale from 0 to 10 when being asked about his/her satisfaction with his/her current residence. Source: SOEP Coverage: 1985-2017
Unhappy Renter	1 if a household head is a renter and assigns a score lower or equal to 7 on a scale from 0 to 10 when being asked about his/her satisfaction with his/her current residence. Source: SOEP Coverage: 1985-2017
Number of Rooms	Total number of rooms larger than six square meters of a household's current residence. Source: SOEP Coverage: 1985-2017
Fraction of Flats Dest.	Fraction of flats destroyed between 1939 and 1945 in households' sample entry regions as reported by West German communes post-bombardment in 1946. Source: SOEP Coverage: 1985-2017
Fraction of Flats Dest. (log)	Main measure for destruction intensity of sample entry region computed as: log(1 + *Fraction of Flats Destroyed*). Source: Kästner (1949) Coverage: 1985-2017
Destruction	Standardized version of *Fraction of Flats Dest. (log)* to have a mean of 0 and a standard deviation of 1. Source: Kästner (1949) Coverage: 1985-2017
Rubble m^3 per Inh.	Rubble m^3 per inhabitant of households' sample entry regions as reported by West German communes post-bombardment in 1946. Source: Kästner (1949) Coverage: 1985-2017
Rubble m^3 per Inh. (log)	Alternative measure for destruction intensity of sample entry region computed as: log(1 + *Rubble m^3 per Inh.* Source: Kästner (1949) Coverage: 1985-2017
Destruction (alt.)	Standardized version of *Rubble m^3 per Inh. (log)* to have a mean of 0 and a standard deviation of 1.
Rural Area	1 if SOEP interviewer describes households' residential region as "rural", and 0 if "urban". Source: SOEP Coverage: 1985-2017

Variable	Definition, source, and coverage
City Size Bucket	Seven categories for the size of municipality that households reside in: 1: 0-2k inhabitants, 2: 2-5k inhabitants; 3: 5-20k inhabitants; 4: 20-50k inhabitants, 5: 50-100k, 6: 100-500k, 7: 500k+ inhabitants. Source: SOEP Coverage: 1985-2017
Male	1 if biological sex of household head is male, 0 if female. Source: SOEP Coverage: 1985-2017
Age	Age of household head in respective survey year computed as: survey year - birthyear. Source: SOEP Coverage: 1985-2017
Age^2	Squared *Age* of household head. Source: SOEP Coverage: 1985-2017
Birthyear	Year of birth of household head. Source: SOEP Coverage: 1985-2017
Years of Schooling	Total number of years the household head spent in education. Source: SOEP Coverage: 1985-2017
HH Size	Total number of people residing the household. Source: SOEP Coverage: 1985-2017
Employed	1 if the household head is employed but not self-employed, 0 otherwise. Source: SOEP Coverage: 1985-2017
Self-employed	1 if the household head is self-employed, 0 otherwise. Source: SOEP Coverage: 1985-2017
Unemployed	1 if the household head is unemployed, 0 otherwise. Source: SOEP Coverage: 1985-2017
Student	1 if the household head is currently a student or apprentice, 0 otherwise. Source: SOEP Coverage: 1985-2017
Retired	1 if the household head is a pensioner, 0 otherwise. Source: SOEP Coverage: 1985-2017
Civil Servant	1 if the household head is a currently working for the government, and 0 otherwise. Source: SOEP Coverage: 1985-2017
HH Income	Monthly net household income in Euro. Source: SOEP Coverage: 1985-2017
HH Income Quintile	Quintiles for *HH Income* computed for each respective survey year. Source: SOEP Coverage: 1985-2017
Single	1 if the household head's declared family status is "single", "divorced", or "permanently separated", 0 otherwise. Source: SOEP Coverage: 1985-2017

Variable	Definition, source, and coverage
Married	1 if the household head's declared family status is "married", or "registered partnership", 0 otherwise. Source: SOEP Coverage: 1985-2017
Widowed	1 if the household head's declared family status is "widowed", 0 otherwise. Source: SOEP Coverage: 1985-2017
Has Debt	1 if the household states to have any outstanding debt in a given survey year, 0 otherwise. Source: SOEP Coverage: 1997-2017
High School	1 if the household states to have completed a high school education, 0 otherwise. Source: SOEP Coverage: 1985-2017

B Further Robustness Checks

Table O.A.1: The Effects of Wartime Destruction on Homeownership - All Controls

This table is a more detailed version of Table II reporting coefficients on all household controls. Coefficient estimates are based on the OLS regression at the household-level. T-stats are presented in parentheses. Standard errors are clustered at the household-level. One, two, and three stars denote statistical significance at the 10%, 5%, and 1% level, respectively. N denotes the number of household-year observations, R^2 denotes the adjusted R squared. See Appendix A for detailed variable definitions.

	(1) Homeowner	(2) Homeowner	(3) Homeowner
Destruction	-0.023***	0.009	0.004
	(-4.61)	(0.83)	(0.35)
Born pre-1940 × Destruction		-0.028**	-0.025**
		(-2.46)	(-2.24)
Born 1941-1950 × Destruction		-0.010	-0.008
		(-0.79)	(-0.73)
Male	0.012	0.011	0.015
	(1.07)	(1.07)	(1.50)
Age^2	-0.000***	-0.000***	-0.000***
	(-4.21)	(-4.41)	(-4.54)
Years of Schooling	0.008***	0.008***	0.011***
	(4.34)	(4.56)	(6.25)
HH Size	0.045***	0.041***	0.031***
	(10.46)	(9.58)	(7.49)
Rural Area	0.119***	0.122***	0.007
	(10.46)	(7.53)	(0.43)
Married	0.192***	0.184***	0.170***
	(14.98)	(14.66)	(13.90)
Widowed	0.131***	0.126***	0.121***
	(6.56)	(6.61)	(6.62)
Student	0.065***	0.057***	0.073***
	(3.69)	(3.22)	(4.19)
Retired	0.040**	0.034**	0.033**
	(2.45)	(2.14)	(2.22)
Employed	0.013	0.007	-0.001
	(0.84)	(0.44)	(-0.10)
Self-employed	0.088***	0.084***	0.074***
	(4.41)	(4.22)	(3.85)
Inc-Quintile: 2	0.029**	0.028**	0.033***
	(2.38)	(2.45)	(2.98)
Inc-Quintile: 3	0.057***	0.061***	0.065***
	(4.21)	(4.61)	(5.15)
Inc-Quintile: 4	0.132***	0.129***	0.132***
	(9.02)	(9.09)	(9.67)
Inc-Quintile: 5	0.219***	0.219***	0.221***
	(13.70)	(13.95)	(14.60)
Civil Servant	0.051***	0.045***	0.043***
	(4.06)	(3.68)	(3.60)
Industry-of-Employment FE	x	x	x
Birthyear FE	x	x	x
Year FE	x	x	-
Region FE	-	x	-
Region × Year FE	-	-	x
City Size FE	-	-	x
R^2	0.261	0.289	0.325
N	158,063	158,063	157,908

Table O.A.2: Migrant Sample Statistics

This table presents additional statistics for the migrant sample. Panel A reports the sample shares of migration waves. Panel B reports the top ten birth countries of migrants in the sample. Untabulated cross-sectional results for individual years are similar.

Panel A: Migration Years

	Percent
1956-1965	13.4
1966-1975	29.7
1976-1985	15.6
1986-1995	26.7
1996-2005	10.4
post-2006	4.2
Total	100.0

Panel B: Birth Countries (Top Ten)

	Percent
01. Turkey	18.0
02. Poland	9.9
03. Italy	7.7
04. Kazakhstan	6.9
05. Russia	6.6
06. Romania	4.6
07. Croatia	3.9
08. Bosnia and Herzegovina	3.0
09. Greece	2.7
10. Austria	2.6
Other	34.1
Total	100.0

Table O.A.3: Distribution of Migrants Across Regions

This table presents the results for the distribution of migrants across regions using a combined sample of migrants and natives. The dependent variable is a dummy that equals 1 if the household is a post WWII migrant, 0 if the household is a West German native. Coefficient estimates are based on the OLS regression at the household-level. T-stats are presented in parentheses. Standard errors are clustered at the household-level. One, two, and three stars denote statistical significance at the 10%, 5%, and 1% level, respectively. N denotes the number of household-year observations, R^2 denotes the adjusted R squared. See Appendix A for detailed variable definitions.

	(1) Migrant	(2) Migrant	(3) Migrant
Destruction	-0.000	0.006	0.006
	(-0.16)	(0.91)	(0.90)
Born pre-1940 × Destruction		-0.002	-0.003
		(-0.38)	(-0.44)
Born 1941-1950 × Destruction		-0.008	-0.009
		(-1.09)	(-1.13)
Household Controls	x	x	x
Birthyear FE	x	x	x
Year FE	x	x	-
Region FE	-	x	-
Region × Year FE	-	-	x
City Size FE	-	-	x
R^2	0.111	0.126	0.137
N	197,186	197,186	197,038

Table O.A.4: Comparison of Native and Migrant Samples

This table reports selected averages for the sample of German natives and three migrant sub-samples. Each observation is a household-year observation from years 1985 to 2017. To ensure representativeness, observations are weighted by the survey weights provided by German Socio-Economic Panel (SOEP). Individual-level variables such as gender, education years, and employment status are based on the household head. See Appendix A for detailed variable definitions.

	Natives	Migrants		
	All	All	10+ years in DE or citizenship	10+ years in DE and citizenship
Male	0.62	0.66	0.67	0.60
Single	0.36	0.29	0.28	0.34
Age	51.75	48.35	49.24	48.58
Homeowner	0.50	0.26	0.28	0.36
HH Size	2.19	2.75	2.75	2.54
HH Income	2175.19	2066.89	2065.89	2150.64
Years in DE		23.57	24.97	24.91
N	158,064	39,123	34,200	12,131

Table O.A.5: Placebo Analysis - Further Robustness Checks

This table presents the results of Table III for different migrant sub-samples. Coefficient estimates are based on the OLS regression at the household-level. T-stats are given in parentheses. Standard errors are clustered at the household-level. One, two, and three asterisks denote statistical significance at the 10%, 5%, and 1% level, respectively. N denotes the number of household-year observations, R^2 denotes the adjusted R squared. See Appendix A for detailed variable definitions.

	(1) Homeowner	(2) Homeowner	(3) Homeowner
Destruction	-0.007	-0.007	-0.029
	(-0.44)	(-0.43)	(-1.32)
Born pre-1940 × Destruction	0.029	0.032	0.104*
	(1.22)	(1.27)	(1.75)
Born 1941-1950 × Destruction	0.017	0.019	-0.012
	(0.79)	(0.88)	(-0.26)
Household Controls	x	x	x
Birthyear FE	x	x	x
Region × Year FE	x	x	x
City Size FE	x	x	x
Sample	Full	10+ years in DE or citizenship	10+ years in DE and citizenship
R^2	0.327	0.332	0.426
N	38,927	34,002	11,759

Table O.A.6: Triple Difference-in-Difference Regression - Further Robustness Checks

This table reports the results of the triple difference-in-difference regression for different migrant subsamples. The main coefficient of interest is *Born pre-1940* $\times$ *Native* $\times$ *Destruction*, which measures the differential effect of destruction on German native vs. post-war migrants, both born before 1940. Coefficient estimates are based on the OLS regression at the household-level. T-stats are presented in parentheses. Standard errors are clustered at the household-level. One, two, and three stars denote statistical significance at the 10%, 5%, and 1% level, respectively. N denotes the number of household-year observations, R^2 denotes the adjusted R squared. See Appendix A for detailed variable definitions.

	(1) Homeowner	(2) Homeowner	(3) Homeowner
Native	0.118***	0.110***	0.028
	(9.01)	(7.91)	(1.52)
Destruction	0.004	0.003	0.006
	(0.26)	(0.19)	(0.29)
Native $\times$ Destruction	-0.002	-0.000	-0.003
	(-0.11)	(-0.03)	(-0.18)
Born pre-1940 $\times$ Native	0.179***	0.186***	0.199***
	(5.97)	(6.07)	(3.86)
Born 1941-1950 $\times$ Native	0.186***	0.193***	0.213***
	(6.61)	(6.69)	(4.21)
Born pre-1940 $\times$ Destruction	0.043	0.044	0.116**
	(1.45)	(1.45)	(2.09)
Born 1941-1950 $\times$ Destruction	0.023	0.024	-0.014
	(0.88)	(0.89)	(-0.25)
Born pre-1940 $\times$ Native $\times$ Destruction	-0.069**	-0.070**	-0.142**
	(-2.16)	(-2.16)	(-2.50)
Born 1941-1950 $\times$ Native $\times$ Destruction	-0.030	-0.031	0.006
	(-1.08)	(-1.09)	(0.11)
Household Controls	x	x	x
Birthyear FE	x	x	x
Region $\times$ Year FE	x	x	x
City Size FE	x	x	x
Sample	Full	10+ years in DE or citizenship	10+ years in DE and citizenship
R^2	0.327	0.325	0.323
N	197,038	192,112	170,038

Table O.A.7: The Effects of Wartime Destruction on Homeownership - Sample Splits

This table presents the baseline results for the first and second half of the sample. Columns (1) and (2) report the results by evenly splitting the sample by the number of observations. Columns (3) and (4) report the results by evenly splitting the sample by the number of years. Coefficient estimates are based on the OLS regression at the household-level. T-stats are presented in parentheses. Standard errors are clustered at the household-level. One, two, and three stars denote statistical significance at the 10%, 5%, and 1% level, respectively. N denotes the number of household-year observations, R^2 denotes the adjusted R squared. See Appendix A for detailed variable definitions.

	Split by Observations		Split by Years	
	(1) Homeowner	(2) Homeowner	(3) Homeowner	(4) Homeowner
Born pre-1940 × Destruction	-0.025**	-0.033**	-0.025*	-0.030**
	(-2.01)	(-2.15)	(-1.86)	(-2.16)
Born 1941-1950 × Destruction	-0.007	-0.009	-0.008	-0.010
	(-0.54)	(-0.63)	(-0.53)	(-0.67)
Household Controls	x	x	x	x
Birthyear FE	x	x	x	x
Region × Year FE	x	x	x	x
City Size FE	x	x	x	x
Years	1985-2005	2006-2017	1985-2001	2002-2017
R^2	0.328	0.321	0.325	0.327
N	76,294	81,614	53,181	104,727

Table O.A.8: External Validity of Attitude Questions

This table presents the results regarding the external validity of attitude questions in the household panel. In each column, the main explanatory variable takes a value between 0 and 3 based on whether the household head reported that certain life aspects are "not important at all" (0), "not important" (1), "important" (2), or "very important" (3) to him/her. To ease economic interpretation, the variables are standardized to have a mean of zero and a standard deviation of one. In column (1), the main dependent variable is *Homeowner*, which is a dummy equal to one if a household owns its primary residence and zero otherwise. In column (2), *Married* is a dummy equal to one if a household head is married or in a registered partnership and zero otherwise. In column (3), *Children* denotes the total number of children a household head has. In column (4), *Travel* is a dummy equal to one if a household has traveled during the last year and zero otherwise. All specifications use the available survey years in which the respective question is asked. Coefficient estimates are based on the OLS regression at the household-level. T-stats are given in parentheses. Standard errors are clustered at the household-level. One, two, and three asterisks denote statistical significance at the 10%, 5%, and 1% level, respectively. N denotes the number of household-year observations, R^2 denotes the adjusted R squared. See Appendix A for detailed variable definitions.

	(1) Homeowner	(2) Married	(3) Children	(4) Travel
Attitude HO	0.224*** (56.42)			
Attitude Marriage		0.104*** (35.88)		
Attitude Children			0.155*** (13.49)	
Attitude Travel				0.122*** (15.72)
Household Controls	x	x	x	x
Birthyear FE	x	x	x	x
Region × Year FE	x	x	x	x
City Size FE	x	x	x	x
Years	90,92,95,04, 08,10,12,16	90,92,95,04, 08,10,12,16	90,92,95, 04,08,10	2016
R^2	0.480	0.582	0.387	0.319
N	35,668	35,313	18,629	6,281

Table O.A.9: Household Attitudes toward Homeownership - Further Robustness Checks

This table presents further robustness checks for reported attitudes toward homeownership, presented in Table VII. Columns (1) to (3) repeat our baseline analysis with lagged attitudes variable, columns (4) to (6) include both the lagged attitudes and the lagged homeownership status of households. Coefficient estimates are based on the OLS regression at the household-level. T-stats are presented in parentheses. Standard errors are clustered at the household-level. One, two, and three stars denote statistical significance at the 10%, 5%, and 1% level, respectively. N denotes the number of household-year observations, R^2 denotes the adjusted R squared. See Appendix A for detailed variable definitions.

	(1) Homeowner	(2) Attitude HO	(3) Homeowner	(4) Homeowner	(5) Attitude HO	(6) Homeowner
Attitude HO (lag)	0.226***		0.226***	0.018***		0.018***
	(53.79)		(53.75)	(10.46)		(10.47)
Homeowner (lag)				0.923***	0.963***	0.923***
				(202.83)	(50.92)	(202.78)
Destruction		-0.015	0.011		-0.004	0.002
		(-0.73)	(1.09)		(-0.24)	(0.50)
Born pre-1940 × Destruction		-0.081***	-0.002		-0.062***	-0.003
		(-3.34)	(-0.23)		(-3.29)	(-1.07)
Born 1941-1950 × Destruction		-0.040	0.004		-0.034	-0.000
		(-1.61)	(0.37)		(-1.44)	(-0.08)
Household Controls	x	x	x	x	x	x
Birthyear FE	x	x	x	x	x	x
Region × Year FE	x	x	x	x	x	x
City Size FE	x	x	x	x	x	x
R^2	0.488	0.226	0.488	0.927	0.386	0.927
N	31,171	32,820	31,171	31,171	32,820	31,171

Table O.A.10: The Effects of Wartime Destruction on Education

This table presents the results for education outcomes. In column (1), the dependent variable is *Years of Schooling*, which is the number of years spent at school. In column (2), the dependent variable is *High School*, which is a dummy that equals one if the household head has completed high school, and zero otherwise. Coefficient estimates are based on the OLS regression at the household-level. T-stats are presented in parentheses. Standard errors are clustered at the household-level. One, two, and three stars denote statistical significance at the 10%, 5%, and 1% level, respectively. N denotes the number of household-year observations, R^2 denotes the adjusted R squared. See Appendix A for detailed variable definitions.

	(1) Years of Schooling	(2) High School
Born pre-1940 × Destruction	-0.249***	0.007
	(-4.09)	(0.82)
Born 1941-1950 × Destruction	-0.227***	0.002
	(-2.65)	(0.21)
Household Controls	x	x
Birthyear FE	x	x
Region × Year FE	x	x
City Size FE	x	x
R^2	0.264	0.160
N	157,908	157,908

Table O.A.11: Debt Market Participation

This table presents the results for debt market participation. The dependent variable *Has Debt* is a dummy that equals 1 if the household reports to have outstanding debt, and 0 otherwise. Coefficient estimates are based on the OLS regression at the household-level. T-stats are presented in parentheses. Standard errors are clustered at the household-level. One, two, and three stars denote statistical significance at the 10%, 5%, and 1% level, respectively. N denotes the number of household-year observations, R^2 denotes the adjusted R squared. See Appendix A for detailed variable definitions.

	(1) Has Debt	(2) Has Debt	(3) Has Debt
Destruction	-0.003	0.002	0.003
	(-0.56)	(0.22)	(0.43)
Born pre-1940 × Destruction	0.004	0.001	0.001
	(0.53)	(0.19)	(0.14)
Born 1941-1950 × Destruction	0.005	0.007	0.005
	(0.49)	(0.65)	(0.51)
Household Controls	x	x	x
Birthyear FE	x	x	x
Year FE	x	x	-
Region FE	-	x	-
Region × Year FE	-	-	x
City Size FE	-	-	x
Years	1997-2017	1997-2017	1997-2017
R^2	0.080	0.089	0.098
N	124,392	124,392	124,254

Table O.A.12: Historical Antisemitism

This table presents the robustness checks for historical antisemitism. The variable *Antisemitism* measures historical antisemitism and is based on the principal component of Jewish persecution in the 1920s/30s from Voigtländer and Voth (2012) in households' sample entry region. Columns (1) to (3) repeat our baseline analysis by replacing destruction with historical antisemitism measure, columns (4) to (6) include both historical antisemitism and WWII destruction. Coefficient estimates are based on the OLS regression at the household-level. T-stats are presented in parentheses. Standard errors are clustered at the household-level. One, two, and three stars denote statistical significance at the 10%, 5%, and 1% level, respectively. N denotes the number of household-year observations, R^2 denotes the adjusted R squared. See Appendix A for detailed variable definitions.

	(1) Homeowner	(2) Homeowner	(3) Homeowner	(4) Homeowner	(5) Homeowner	(6) Homeowner
Antisemitism	0.008	0.011	0.009	0.004	0.014	0.012
	(1.48)	(0.75)	(0.67)	(0.81)	(0.93)	(0.78)
Born pre-1940 × Antisemitism		-0.012	-0.006		-0.018	-0.013
		(-1.03)	(-0.57)		(-1.57)	(-1.10)
Born 1941-1950 × Antisemitism		-0.011	-0.010		-0.014	-0.014
		(-0.83)	(-0.78)		(-1.03)	(-1.03)
Destruction				-0.023***	0.013	0.009
				(-4.34)	(1.16)	(0.79)
Born pre-1940 × Destruction					-0.029**	-0.027**
					(-2.32)	(-2.15)
Born 1941-1950 × Destruction					-0.014	-0.015
					(-1.00)	(-1.19)
Household Controls	x	x	x	x	x	x
Birthyear FE	x	x	x	x	x	x
Year FE	x	x	-	x	x	-
Region FE	-	x	-	-	x	-
Region × Year FE	-	-	x	-	-	x
City Size FE	-	-	x	-	-	x
R^2	0.259	0.288	0.324	0.260	0.288	0.324
N	154,322	154,322	154,153	154,322	154,322	154,153

Figure O.A.1: Randomized Destruction Exposure

This figure plots the distribution of t-statistics of the main regression coefficient when destruction exposure is randomized at the regional level. In particular, all German households from one region are assigned a random destruction level of another region, and the baseline regression from Table II, column (3), is run. This randomization procedure is repeated 1000 times. The histogram plots the distribution of the resulting t-statistics of the main coefficient of interest, i.e., *Born pre-1940* $\times$ *Destruction*, and a normal distribution for reference. The location of our baseline t-statistics (Table II, column (3)) is highlighted in red.