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ABSTRACT

Immigration and Electoral Outcomes: Evidence from the 2015 Refugee Inflow to Germany*

This paper investigates the effects of local exposure to refugees on electoral outcomes in the 2016 state election in Germany. Based on quasi-random variation in the allocation of refugees across municipalities and unique data on refugee populations and their type of accommodation, I find that an increase in the population share of refugees increases the vote share of right-wing parties and decreases the vote share of the incumbent federal government parties. The electoral effects, however, are solely driven by refugees living in centralized accommodation, while no such effects are found for refugees living in decentralized accommodation. These findings have important implications for the design of public policies in handling future receptions of refugees, as they reveal that an earlier transfer of refugees from centralized to decentralized accommodation could attenuate a growing support for right-wing parties.

JEL Classification: D72, F22, J15, R23

Keywords: immigration, refugees, political economy, voting

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1 Introduction

In 2015, Europe witnessed a sharp increase in the number of refugees, fueled in particular by the conflict in the Syrian Arab Republic. In Germany alone, 890,000 people arrived and declared their intention to apply for asylum, which makes this mass arrival of refugees the largest of its kind since the early 1990s (BMI, 2016).[1] At the same time, concerns about the consequences of immigration for the economy and the society have risen among the native population. Stoking fears about the adverse economic and cultural impact of immigration also plays a central role in the rhetoric of right-wing populist parties, who, thriving on rising anti-foreign sentiment, have seen recent electoral successes in many European countries.

As migration pressure on Europe and other industrialized countries is likely to remain high for decades to come (Dustmann *et al.*, 2019), a key question is whether large inflows of refugees – as witnessed in recent years – increase the support for right-wing populist parties. In addition, dispersing and providing accommodation for large numbers of forced migrants entails various challenges for the receiving countries. A second important question is therefore whether the type of housing provided for refugees, especially a placement in centralized vs. decentralized accommodation, affects natives' perception about refugee immigration and thus voting outcomes.

I analyze these questions in the context of the federal state election held in March 2016 in the West German state of Rhineland-Palatinate. I focus on this election instead of the federal election held in September 2017 for two main reasons: First, Rhineland-Palatinate was the first German state to hold elections after the huge inflow of refugees in 2015. As refugees are in general not allowed to move while still in the asylum process, the short timing between the refugee inflow and the date of the Rhineland-Palatinate election allows me to exploit quasi-random variation in the allocation of refugees. Second, Rhineland-Palatinate was the only state in Germany that provided me with detailed information on refugee populations and their type of accommodation on a small regional (i.e., municipal) level, which is crucial to actually capture natives' exposure to refugees.

In the first elections held after the refugee inflow in 2015, right-wing parties, most notably the right-wing populist party *Alternative for Germany* (AfD), won significant vote shares. In the March 2016 state election in Rhineland-Palatinate, the AfD gained 12.6% of all votes, which equals the party's nationwide vote share in the 2017 federal election. The success of the AfD is widely seen to express a state of fear and exasperation in German society and, more generally, a deep discontent with the course of chancellor Angela Merkel

[1] I consider as "refugees" all individuals who arrived in Germany and registered informally as seeking protection with the intent to lodge a formal asylum application, irrespective of their later residence status and the outcome of their asylum application. I thus henceforth use the terms "refugee" and "asylum seeker" interchangeably.

in the refugee crisis. When analyzing the effects of refugee immigration on right-wing voting, however, it is important to differentiate between effects at the macro level and effects at the micro level. While the salience of the refugee situation in the media and the political rhetoric has likely contributed to an overall increase in anti-refugee sentiment, local exposure to refugees might reduce prejudice among the native population and thus the support for right-wing parties (Allport, 1954). In this paper, I thus focus on the latter aspect and analyze whether exposure to refugees, as measured by the regional inflow of refugees and by their type of accommodation (centralized vs. decentralized), affects the success of right-wing populist parties, and electoral outcomes in general.

For identification, I use the large inflow of refugees to Germany in 2015 as a natural experiment. The 2015 refugee wave was caused by war, ethnic and religious conflict, and it was massive, sudden and, partly chaotic in nature. These contextual features differentiate this inflow of refugees from more gradual peace-time and primarily work-related international migration. Most importantly, as the federal states were responsible for distributing and providing housing for refugees, refugees had no influence over where they were placed and were obliged to stay in the place allocated to them at least for several months after arrival. Thus, self-selection of refugees into specific areas, for example based on labor market conditions or political preferences in the receiving regions, is not an issue in the analysis. In addition, and as I will show, the state government had, if any, very limited room for a strategical placement of refugees. While state authorities usually allocated refugees to subordinate counties and municipalities based on year-fixed population quotas, housing capacity shortages combined with the overwhelming volume of inflows often forced state governments to simply place the refugees where some kind of spare housing was available. Ultimately, the sheer necessity to somehow accommodate refugees led to large differences in the number of refugees hosted by municipalities – municipalities that in other dimensions, especially in terms of election outcomes, followed similar time trends prior to the refugee inflow in 2015.

In the empirical analysis, I exploit this source of exogenous variation within a fixed effects framework. The results reveal that a larger population share of refugees in a municipality increases the vote share of right-wing parties. The estimated effect, however, is rather small. A one percentage point (pp.) increase in the refugee share increases the right-wing vote share by about 0.05 pp. The increase in the right-wing vote share is accompanied by an equally sized reduction of votes for the incumbent federal government parties, especially the Christian Democratic Union (CDU) of Angela Merkel. These effects become larger when spillover effects of neighboring municipalities are accounted for, but they remain still moderate in size. Lastly, and in contrast, there appears to be no measurable effect of refugee migration on the electoral support for the state government or left-wing parties.

Heterogeneity analyses by different municipal characteristics show that the positive effect of the refugee inflow on right-wing voting is stronger, the higher is the pre-crisis share of foreigners and the lower is the number of housing vacancies in the municipality. This suggests that competition in the housing market is an important channel underlying natives' attitudes towards refugees. I find no evidence, though, that previous economic conditions, as measured by the income level or the unemployment rate, foster or attenuate the refugee effect.

To analyze the role of refugee housing in shaping the electoral effects, I further distinguish between refugees living in centralized accommodation, i.e., reception centers or collective accommodation centers, and refugees living in decentralized accommodation, i.e., private apartments. The results reveal that a higher population share of refugees in centralized housing increases the success of right-wing parties, while no such effect is found for refugees in decentralized housing. By excluding municipalities that host reception centers for refugees, I further show that the effect of refugees in centralized housing is only driven by municipalities that host such reception centers. This reveals that voters oppose the centralized accommodation of large numbers of refugees in their community, but not the hosting of refugees in general.

I conduct a placebo test using previous election results, which precludes that differential trends in election outcomes between municipalities with high and low refugee inflows bias the results. I further run several sensitivity analyses to confirm the robustness of the results. Most importantly, I show that the results are robust to using alternative models to estimate the effect of refugee exposure on election outcomes.

By analyzing the short-term effects of a relatively sudden inflow of refugees, this paper complements several recent economic studies on the medium- and long-term effects of immigration on electoral outcomes. These studies usually employ regional variation in both the share of immigrants and electoral outcomes across small administrative units and use fixed effects regressions or shift-share type instruments (Card, 2001) to account for potential endogeneity of the size of the local immigrant population.[2] Studies of this kind usually find a positive effect of the local share of immigrants on voters' support for anti-immigrant or (extremist) right-wing parties (Mendez and Cutillas, 2014; Otto and Steinhardt, 2014; Barone *et al.*, 2016; Halla *et al.*, 2017; Harmon, 2018). Research that is able to distinguish between high- and low-skilled immigration further shows that the increasing support for right-wing parties is only driven by inflows of low-educated migrants, while high-skilled immigration has no (Edo *et al.*, 2019) or even a negative effect (Mayda *et al.*, 2022; Moriconi *et al.*, 2019) on the votes for nationalist or conservative parties.[3]

[2]The shift-share instrument has recently received a lot of criticism. Jaeger *et al.* (2018), for example, show that, in the absence of changes in immigration policy or other shocks that dramatically change the immigrant composition over time, the exogeneity assumption of the instrument is likely to be violated.

[3]A related literature looks at the effects of immigration on natives' attitudes towards immigrants (e.g.,

A smaller but growing literature explicitly analyzes the political effects of refugee migration, and provides mixed results. Exploiting a quasi-random dispersal policy for refugees in Denmark, Dustmann *et al.* (2019) analyze the effect of refugee allocations on election outcomes in the period 1986-98. The authors find that larger allocations of refugees lead to an increase in the vote share of anti-immigration and center-right parties in rural municipalities, while the opposite holds for the most urban municipalities.

Focusing on the electoral effects of the 2015 European refugee crisis, Steinmayr (2021) investigates the success of the far-right Freedom Party of Austria (FPÖ) in the Upper Austrian state elections of September 2015. Using IV regressions to control for a potential endogeneity in the regional distribution of refugees, the author finds a negative effect of the presence of refugees in a municipality on the support for the FPÖ. On the contrary, in municipalities at the German border, which experienced large inflows of refugees who were passing through on their way to Germany, the FPÖ vote share increases. Evidence on the effects of recent refugee migration to Europe for other countries is mixed as well. While Schneider-Strawczynski (2020) and Vertier *et al.* (2021) for France and Gamalerio *et al.* (2021) for Italy find a negative effect of local exposure to refugees on voting for the extreme-right, Dinas *et al.* (2019) for Greece and Campo *et al.* (2021) for Italy find opposite effects.

For Germany, Gehrsitz and Ungerer (2017) investigate whether county-level allocations of refugees in 2014/15 explain changes in the support for the AfD between the federal elections held in 2013 and the state elections held in 2016 in the states of Baden-Wuerttemberg, Rhineland-Palatinate, and Saxony-Anhalt. The authors find no evidence for a significant correlation between refugee allocations and changes in AfD vote shares.[4] Restricting their analysis to East German regions that did not host any foreigners before 2015, Schaub *et al.* (2021) also find no effect of the receipt of refugees on a region's vote share for the AfD in the 2017 federal election.

This paper makes several contributions to the literature. It contributes to the small literature on the electoral effects of refugee immigration by providing evidence on the causal impact of the European refugee crisis on natives' voting behavior in Germany – a country that received about 1.6 million refugees since 2015 (BAMF, 2018a), the largest absolute intake recorded for any European country. In doing so, it complements the results of Steinmayr (2021) for Austria by showing that local exposure to refugees must not necessarily lead to more negative attitudes towards refugees among the native population and thus a rising success of right-wing parties. Most importantly, however, this paper is

Mayda, 2006; Facchini and Mayda, 2009; Hatton, 2016).

[4]However, as acknowledged by the authors, the results have to be interpreted with some caution, because a comparison of AfD votes in 2013 and 2016 is critical, as the party drastically changed its ideology from being a euro-skeptic to becoming a clear anti-immigrant party (see also Section 2.3 for further details). In addition, the analysis not only covers crisis-induced refugee inflows in 2015 and is conducted at a rather aggregate regional level, resulting in a sample of less than 100 observations.

the first to show that the type of accommodation provided for refugees plays an important role in shaping natives' perceptions of refugees. While voters oppose the accommodation of large receptions centers for refugees, the local exposure to refugees living in private housing does not affect their voting behavior. This finding suggests that quicker asylum procedures and an early transfer of refugees to decentralized follow-up accommodation may reduce negative attitudes towards refugees and thus the support for right-wing populist parties. In addition, by exploring the heterogeneity of the refugee effect, this paper contributes to studies that analyze the underlying channels of xenophobia and anti-foreign sentiment (e.g., Scheve and Slaughter, 2001; O'Rourke and Sinnott, 2006; Dustmann and Preston, 2007; Card *et al.*, 2012). The results reveal that at least in the context of recent refugee migration to Europe, concerns regarding labor market competition are not an important driver of anti-refugee sentiment, while competition in the housing market seems to be more important.

The remainder of the paper is as follows. Section 2 provides background information on the 2015 German refugee crisis as well as on the political parties in Germany. Section 3 describes the underlying data and presents descriptive statistics. Section 4 outlines the empirical framework and discusses the identification strategy. Section 5 presents the results of the analysis of refugee immigration on electoral outcomes, and Section 6 concludes.

2 Background

2.1 The 2015 refugee inflow to Germany

The outbreak of civil war in the Syrian Arab Republic in 2011 has led to a huge increase in the number of people abandoning their home countries. While most of them were seeking shelter in the neighboring countries, such as Turkey and Jordan, beginning in 2014 an increasing number of refugees made their way to Europe.[5] According to European Union (EU) law – the Dublin Regulation – asylum seekers have to file their asylum claims in the country in which they first enter the EU, which shifts the burden of handling the refugee situation on the peripheral southern EU Member States. On August 24, 2015, faced with large numbers of displaced people being stranded at the gates of Europe, German chancellor Angela Merkel decided to suspend the Dublin Regulation and to allow all Syrian refugees who had passed through other EU countries to file for asylum in Germany (ECRE, 2015). On September 4, 2015, Merkel further decided that Germany would admit the thousands of refugees who were stranded in camps and train stations in Hungary (CNN, 2018).

Germany's decision to open the borders and take-in the refugees from Hungary led to

[5] See Dustmann *et al.* (2017) for details of recent refugee migration to the EU.

a huge jump in daily arrival rates, with thousands of new refugees seeking asylum at the German border every day. By the end of 2015, a total of 890,000 refugees were registered at the German border (BMI, 2016). As is depicted in Figure 1, these mass arrivals only came to a halt by March 2016, after a deal was forged between the EU and Turkey, in which Turkey committed to bear down on people smugglers in return for billions in aid provided for refugees living in Turkey, and the Balkan Route was effectively closed.

In late summer 2015, when thousands of refugees arrived every day, the prevailing mood in Germany was friendly and welcoming. Many German citizens were willing to help, directly or indirectly, and plenty welcomed refugees upon their arrival at train stations in Munich and elsewhere (TIME, 2015). However, it did not take long until critics and skeptics began to raise their voices and anti-foreign sentiments began to spread. The persistent arrival of refugees soon prompted debates about the number of refugees that Germany can manage to shelter, and about competition between refugees and German citizens for scarce public resources (Liebe *et al.*, 2018). In addition, authorities were blamed for their failure to master the administrative and logistical challenges created by the mass arrival of refugees to the country.

2.2 Asylum process and regional allocation of refugees

The unexpectedness and massive extent of the refugee inflow to Germany in late 2015 led to chaotic circumstances in the registration and accommodations of refugees, as well as in the processing of asylum applications. This severely complicated the statistical recording of the actual size of the refugee inflow, and of the spatial distribution of refugees across German regions.

Upon arrival in Germany, asylum seekers had to report to a state organization – either directly to the border authorities, who then sent them to the closest initial reception center, or to a state or public authority, e.g., the police or a local branch of the Federal Office for Migration and Refugees (BAMF) (*Bundesamt für Migration and Flüchtlinge* (BAMF, 2018b). All individuals who declared their intent to seek asylum in Germany were registered in the so-called EASY system[6] and were issued an Asylum Seeker Registration Certificate (BüMA)[7] (AIDA, 2015). As the first official document, the BüMA certificate entitled refugees to reside in Germany and to receive state benefits in accordance with the Act on Benefits for Asylum Seekers (*Asylbewerberleistungsgesetz*, AsylbLG) (BAMF, 2018b). In my analysis, I use high-quality register data with full coverage of the recipients of these benefits (see Section 3 for details). The formal filing and registration of applications

[6]The acronym EASY refers to *Erstverteilung der Asylbegehrenden*, i.e., the initial distribution of asylum seekers.

[7]In March 2016, the BüMA (*Bescheinigung über die Meldung als Asylsuchender*) was replaced by the Proof of Arrival (*Ankunftsnachweis*), which is to be issued after the asylum seeker reports at an initial reception center (AIDA, 2016).

for asylum, however, was often delayed for weeks or sometimes even months, as the BAMF did not manage to keep up with the registration of applications amid the massive number of newly arriving asylum seekers in 2015 (AIDA, 2015).

The records in the EASY system provided the basis for the initial distribution of asylum seekers onto the federal states in accordance with the "Königstein Key" (*Königsteiner Schlüssel*). The Königstein Key is a pre-determined quota, which is based on the states' tax revenues (weight of two thirds) and population sizes (weight of one third) and meant to ensure a suitable and fair distribution of refugees among the federal states (BAMF, 2018b). Upon arrival in their assigned state, asylum seekers were accommodated in one of the state's reception centers, where they were obliged to stay for up to six months during the processing of their application (§47 *Asylgesetz*, AsylG).[8] Afterward – or more often earlier, if the BAMF decided that it could not process the application in a timely manner – asylum seekers were redistributed to the subordinate counties or municipalities within the state. Asylum seekers were obliged to stay in the municipality to which they have been allocated for the whole duration of their asylum procedure (AIDA, 2015).

This allocation process to the local level varies by state, as each state has the authority to distribute asylum seekers according to its own legislation. In the state of Rhineland Palatinate, as in the majority of states, asylum seekers are first allocated to counties and then to municipalities within the county, and allocation is usually done based on the population size of the counties and municipalities, respectively (BBSR, 2017). In theory, such a population-based quota system should provide no variation in the population-normalized inflow of asylum seekers across regions within the same state. However, the exceptional magnitude of the refugee inflow in 2015 stretched the allocation scheme to its limit. In many places, local authorities could not arrange for suitable accommodation of refugees. Although the local authorities are by law required to provide accommodation for asylum seekers, many municipalities, especially small municipalities that did not host refugees before, were not prepared to receive asylum seekers. Also, existing accommodation for refugees, e.g., collective accommodation centers and state- or privately owned apartments, were quickly filled, so that other forms of housing (e.g., barracks, schools, or warehouses) served as provisional accommodation. As a result, deviations from the population-based allocation system were inevitable, and decisions on where asylum seekers were placed were often determined by the availability of suitable accommodations (AIDA, 2015). Such circumstances generate quasi-experimental variation in the allocation of asylum seekers, which I will use for identification (see Section 4).

[8] Before October 24, 2015, the limit was set at three months. Violations of this residential obligation could lower the chances of being granted asylum.

2.3 Political parties and elections

Since the 1990s, the political landscape in West Germany as well as in Rhineland-Palatinate was dominated by four parties: The conservative, center-right Christian Democratic Union (CDU)[9], the center-left Social Democratic Party of Germany (SPD), the center-right Liberal Democratic Party (FDP), and the center-left Greens, a party mainly focusing on ecological, economic, and social sustainability. At the federal level, the CDU/CSU and the SPD formed a "grand coalition" since 2013, with CDU leader Angela Merkel as chancellor, who has held this office since 2005. Since 2011, Rhineland-Palatinate was governed by a center-left coalition between the SPD and the Greens, the latter having been the main winners of the 2011 election, in which they gained over 15% of all votes.

While winning larger vote shares in East Germany, parties on the extreme left were rather unsuccessful in West Germany. The same applies to extreme right-wing parties. The last time for a party with strong far-right tendencies to sit in the German Federal Parliament was in the early 1960s. One reason for its low success is that the extreme right was rather fragmented and characterized by a number of small parties. Some of these parties, among them the National Democratic Party of Germany (NPD), the Republicans (REP), and the German People's Union (DVU), have occasionally succeeded in gaining representation in West German state parliaments. In Rhineland-Palatinate, the NPD managed to take seats in the federal state parliament from 1967 to 1971.

The situation changed when the AfD entered the political stage. The window of opportunity for the party, which was established in 2013, was opened by the Euro crisis. Combining euro-skepticism with liberal economic policies and a conservative social issue agenda, the AfD mainly capitalized on the neglecting of these matters by the liberal and conservative parties (i.e., the FDP and CDU/CSU). While the party narrowly failed to pass the 5% threshold for parliamentary representation in its first federal election in 2013, it gained 7.1% of all votes in the European Parliament election of 2014. However, the AfD was soon riven by an internal discord between the market-oriented moderate wing represented by party founder Bernd Lucke and the radical advocates of national populism, which led to the split-off of the former in July 2015. Consequently, the party shifted more clearly in a radical right direction, with an agenda emphasizing above all resistance to immigration in the wake of Germany's "refugee crisis". Among other things, the AfD demands to restrict asylum rights, to seal the EU's borders, to institute rigorous identity checks along Germany's national borders, and to set up holding camps abroad to prevent migrants from leaving for Germany in the first place. It also argues that Germany is being "islamified" and portrays itself as a stronghold for traditional Christian values (Decker, 2016; Goerres *et al.*, 2018).

[9] In national elections, the CDU teams up with its Bavarian sister party, the Christian Social Union (CSU).

By September 2017, the AfD was able to secure representation in 14 of the 16 German state parliaments, while generally gaining more support in the Eastern than in the Western part of Germany. In the March 2016 state election in Rhineland-Palatinate, the AfD gained 12.6% of all votes. Eventually, the AfD established itself on the national level, receiving 12.6% of all votes in the federal election of September 2017.[10] This result not only equals the party's vote share in the previous state election in Rhineland-Palatinate, but also represents the best result of any party newly entering the German Federal Parliament since 1949.

Although asylum policy is no competence of federal states, the refugee crisis was the leading issue in the March 2016 state election. By the time of the election, "refugees" or "immigration" had for months been the dominant topic in German TV newscasts (IFEM, 2019), and had been extensively covered in national and local newspapers and online media (SVR, 2019). Opinion polls further reveal that the refugee situation was a topic of major concern among the German population. In March 2016, three in four Germans (75%) perceived immigration as the most important current problem in Germany (see Figure A1 in Appendix A). Accordingly, in polls conducted after the 2016 election in Rhineland-Palatinate, one third of all voters (and two thirds of the AfD voters) stated that the refugee situation was decisive for the cast of their vote (ARD/Infratest dimap, 2016a).[11]

3 Data and descriptive statistics

I obtain municipal-level data on the total votes and vote shares of all parties that run in the state elections from the Statistical Office of Rhineland-Palatinate. As Germany's election system is based on proportional representation, meaning that parties' seats in parliament are determined fairly in proportion to the received votes, I use the parties' vote shares as outcome variables. The main outcome of interest is the vote share of right-wing populist parties, which I construct by aggregating the vote shares of all right-wing parties that were running in the 2011 or 2016 elections.[12] Besides the AfD, the NPD, and the Republicans, this is the Alliance for Progress and Renewal (*Allianz für Fortschritt und Aufbruch*, ALFA)[13], established in July 2015 as a split from the AfD, and The Third Path (*III. Weg*), a minor far-right and neo-Nazi party that only operates in a few federal states.

[10] Polls and election surveys reveal that the AfD mainly receives support from previous voters of the CDU/CSU and from nonvoters (ARD/Infratest dimap, 2016b, 2017).

[11] The percentage of voters stating that the refugee situation was decisive for their vote was of similar size in the 2017 federal election.

[12] In Rhineland-Palatinate, as in all other German states, federal state elections are held every five years.

[13] In November 2016, the party changed its name to Liberal Conservative Reformers (*Liberal-Konservative Reformer*, LKR).

As a further outcome, I consider the vote share of left-wing parties[14], as it could well be that immigration leads to more extremist voting on both sides of the political spectrum, as, e.g., shown by Edo *et al.* (2019). In addition, I look at the electoral success of the incumbent federal government parties (i.e., the CDU and the SPD) and the state government parties (i.e., the SPD and the Greens). While the federal government, especially the CDU under Angela Merkel, has made the decision to take in the refugees, the state government is responsible for accommodating and integrating the refugees in the communities. Lastly, I analyze voter turnout to see whether the refugee crisis has induced more people to cast a ballot.[15]

Figure 2 shows the regional distribution of votes cast for right-wing parties in the March 2011 elections, the March 2016 elections, and the change between the two elections.[16] In 2011, the vote share of right-wing parties was quite low, hardly anywhere reaching more than 5%. Right-wing parties have been most successful in the southern and far northern parts of Rhineland-Palatinate, both of which are characterized by comparatively high unemployment rates (see Figure A3 in Appendix A). In 2016, the right-wing vote share has increased dramatically, exceeding 5% in almost all municipalities and reaching more than 15% in many regions of the south and far north. The 2011 and 2016 figures thus show similar regional patterns, though at different levels. Accordingly, looking at the change in right-wing vote shares across municipalities, the regional clustering is less pronounced, but differences between the south and far north and the rest of the regions are still observable.

The data on refugee populations represent special data extracts from the Statistic on Recipients of Regular Asylum Seekers' Benefits (SRRAS) provided by the Statistical Offices of the German Federal States. The SRRAS is based on administrative records for the entire universe of individuals who seek refugee status in Germany and receive some kind of regular financial or other support from public authorities under the Act on Benefits for Asylum Seekers (AsylbLG) (see Appendix B for further details on the SRRAS). On December 31, 2015, the data contains records of 974,506 individuals, which closely resembles the official (corrected) number of 890,000 people who declared their intent to seek asylum status in Germany in 2015.[17]

The data extracts provided to me are full stock samples for the sampling dates December 31, 2010 and December 31, 2015 for German counties and municipalities. For the state of Rhineland Palatinate, the data includes information on (i) the number of refugees, (ii)

[14]In addition to the main left-wing party The Left (*Die Linke*), this includes the minor German Democratic Party (*Deutsche Demokratische Partei*, ddp).

[15]Table 1 shows descriptive statistics of the dependent variables.

[16]Figure A2 in Appendix A shows the changes in vote shares of the other parties as well as in voter tunrout.

[17]Deviations between arrival numbers as recorded in the EASY system and the number of people seeking asylum are due to the long duration of asylum processes in 2014 and 2015, which led to the fact that some asylum applications that have been filed in 2014 have not yet been decided on by the end of 2015.

the number of refugees in centralized accommodation (reception centers and collective accommodation centers), and (iii) the number of refugees in decentralized accommodation at the municipal level.[18] I use this information to construct municipal-level population shares of refugees (by type of accommodation). The Statistical Office of Rhineland-Palatinate further provided me with information on the exact location of all reception centers for refugees.

Table 1 provides information on the average population shares of refugees across all municipalities. While asylum seekers made up only 0.13% of the total population in 2010, this share increased to 1.17% by the end of 2015 – an increase of more than 1 pp. (or almost 900%). In addition, there has been a clear shift in the type of housing provided for refugees. While the vast majority of refugees lived in private accommodation in 2010, the share of refugees living in centralized housing has largely increased between 2010 and 2015. By the end of 2015, almost a third of all refugees were accommodated in reception centers or collective accommodation centers.

Figure 3 shows the regional distribution of refugees across municipalities in 2010, in 2015, and the difference between 2010 and 2015. In 2010, only 15% of the municipalities hosted refugees, and the population share of refugees in these municipalities mostly did not exceed 0.5%. In 2015, after the mass arrival of refugees, almost half (44%) of the municipalities hosted refugees, with large variation in population shares, now exceeding 1% in many municipalities.[19] Most importantly for my analysis, however, Figure 3 shows that there is no indication of a regional clustering. Refugees have been distributed across the whole state, being present both in rural areas and in the larger cities.[20]

In 2010, all newly arriving refugees were initially placed in a large state-run reception center located in the city of Trier, which was the only of its kind in the state of Rhineland-Palatinate. However, with large numbers of refugees arriving every day in 2015, existing accommodation facilities were quickly filled and alternative accommodation options had to be found. By the end of 2015, the state government has set up 20 new local reception centers, which have been spread across the whole state, placed in both larger cities and small communities (see Figure 4(a)).

Figures 4(b) and (c) further show the change in the population share of refugees

[18]The statistical offices of the other federal states did only provide me with information on the number of refugees (by type of accommodation) at the county level, but not at the municipal level.

[19]Several circumstances led to the fact that – despite the size of the inflow – many (small) municipalities did not host any refugees by the end of 2015. First, at this time 20% of refugees were still accommodated in reception centers and have not yet been re-allocated to municipalities. Second, although local authorities are in general required to provide accommodation for asylum seekers, many small municipalities never received refugees in pre-crisis times when inflows were low and were thus not able to provide the necessary infrastructure. Lastly, as families have not been separated as part of the allocation scheme, many smaller municipalities did not receive any refugee, while others received several refugees. The main findings are robust to excluding municipalities without reception centers from the sample (see Panel A of Table 11).

[20]Figure A3 in Appendix A shows regional patterns in population density, unemployment rates, income, and the share of foreigners across the municipalities in Rhineland-Palatinate.

separately by type of housing. Still in 2015, only 60 (or 3%) of all municipalities in Rhineland-Palatinate provided centralized housing for refugees. Those that did, however, often hosted large numbers of refugees (see also Table 1). The change in the distribution of refugees in decentralized housing looks similar to the overall change in the distribution of refugees (Figure 3(c)), except that those municipalities that provided centralized accommodation for refugees usually host no or small numbers of refugees in private accommodation. Again, Figure 4 shows that the authorities distributed refugees widely across the state, irrespective of the type of housing and with no indication of a regional clustering of refugees in certain areas.

I augment the data on vote shares and refugee populations with information on several other municipal characteristics, which I gathered from different sources. Data on population and population density are obtained from the Statistical Offices of the German States. Data on the number of employed and unemployed people are obtained from the German Federal Employment Agency and used to calculate municipal-level unemployment rates. I further rely on RWI-GEO-GRID data (RWI; microm, 2019) to derive information on the average income of households and the share of foreign households.[21] Lastly, I refer to the 2011 German census to obtain information on the number of vacant flats. Descriptive statistics of these municipal characteristics are provided in Table 1.[22]

4 Econometric framework and identification

To analyze the effect of local exposure to refugees on electoral outcomes, I estimate the following model in first differences:

$$\Delta V_{i,15}^{p} = \alpha^{p} + \beta^{p}\Delta R_{i,15} + \chi^{p}\Delta X_{i,14} + \delta^{p}X_{i,10} + \phi_{c}^{p} + \Delta\epsilon_{i,15}^{p}. \tag{1}$$

$\Delta V_{i,15}^{p}$ captures the change in the vote share of party p in municipality i between the federal state elections held in March 2011 and March 2016. The variable of interest, $\Delta R_{i,15}$, is the change in the prevalence of refugees in municipality i between December 31, 2010 and December 31, 2015. In the baseline specification, the change in the regional prevalence of refugees is measured by the change in the population share of refugees, $\Delta R_{i,15} = (Ref_{15} - Ref_{10})/Pop_{10}$. The vector $\Delta X_{i,14}$ captures changes in other municipal characteristics between 2010 and 2014[23] and the vector $X_{i,10}$ captures time-constant

[21] The RWI-GEO-GRID data is based on data by *microm Micromarketing-Systeme und Consult GmbH*, a commercial micro- and geomarketing provider. Microm uses more than a billion individual data points for the aggregation of their data set. For this study, I aggregate the data at the municipal level.

[22] In 2015, there were 2,303 municipalities in Rhineland-Palatinate. For 35 municipalities (about 1.5% of the sample), I do not have information on all characteristics due to their small population size. I drop these municipalities from the sample.

[23] As some of these characteristics, such as the population size, the unemployment rate, or the share

municipal characteristics measured in 2010. In a first-difference model, the respective coefficients δ^p measure the differential impact of a certain characteristic between the years 2010 and 2015. Accordingly, α^p represents a common time trend and ϕ_c^p county-specific time trends. $\Delta\epsilon_{i,15}^p$ is the error term. All estimates are weighted by the number of eligible voters in 2011 and standard errors are clustered at the county level.

By estimating the model in first differences and by adding county-level time trends, Eq. (1) controls for both time-invariant unobserved heterogeneity at the municipal level, such as persistent level differences between municipalities in preferences or attitudes, and time-varying unobserved heterogeneity at the county level. Identification thus solely relies on within-county changes in refugee populations and electoral outcomes across municipalities. Accordingly, Eq. (1) will consistently estimate β^p, the coefficients of main interest, if $Cov(\Delta R_{i,15}, \Delta\epsilon_{i,15}) = 0$, i.e., if there is no unobserved time-varying factor that is correlated with both municipal-level changes in electoral outcomes and municipal-level changes in refugee populations, conditional on all control variables. I argue that in the context at hand, this assumption is satisfied. The inflow of refugees to Germany in the second half of 2015 was caused by war, ethnic and religious conflict, and it was massive, sudden and, at least in the first months, chaotic in nature. These contextual features differentiate this refugee inflow from more gradual peace-time and primarily work-related international migration. Most importantly, as outlined above, the refugees themselves had no choice over where they are placed, leaving hardly any scope for a potential self-selection of forced migrants into regions suffering a contemporaneous positive or negative shock or differential trends that may confound the relationship of primary interest. Also, housing capacity shortages and the large inflow of refugees left hardly any room for a strategic placement of refugees by the federal state government, as refugees were often simply placed where some kind of spare housing was available. Nevertheless, as the regional distribution of refugee arrivals in 2015 may not be wholly immune to potentially confounding influences, I will carefully check the validity of the identification assumption.

As a first indirect test of exogeneity, I conduct a balancing test. Specifically, I test whether several municipal characteristics, which may potentially influence electoral outcomes, are correlated with the change in the refugee share. As can be seen from Figure 5, the estimated coefficients of these regressions are never significantly different from zero, and the point estimates are small in magnitude. Thus there is no evidence that the change in the population share of refugees is systematically correlated with municipal characteristics that could also impact voting behavior.

Figure 6 shows the results of the same test, now distinguishing between the change in the share of refugees in centralized and decentralized accommodation. The results

of foreigners, might itself be affected by the huge inflow of refugees in 2015, I consider changes between 2010 and 2014 instead of 2010 and 2015. Using $\Delta X_{i,15}$ instead, however, does hardly alter the estimation results.

reveal that the sample is fully balanced in terms of the population share of refugees in centralized housing. However, while the population share of refugee in decentralized housing is uncorrelated with any trends in municipal characteristics, it is correlated with some pre-treament characteristics. In particular, the refugees arriving in 2015 were more likely to be placed in decentralized accommodation in municipalities characterized by a high population density, a high unemployment rate, low incomes, and more housing vacancies prior to the refugee inflow (i.e., in 2010 and 2011, respectively). As we will see from Table 4, these factors are positively correlated with right-wing voting. Thus if refugees are more likely to be placed in economically disadvantageous regions, and this is not fully captured by observable characteristics, this would lead us, if anything, to overestimate a positive effect of the share of refugees in decentralized accommodation on right-wing vote shares.

One possible concern regarding the placement of refugees is the role of migrant networks. While refugees usually have no choice over where they are placed, the situation is different for refugees who have close family members who already live in Germany. If refugees declare their wish to be reunited with close family members, they are allocated to the federal state the family lives in. After being placed in reception centers as all other refugees, they either move in with their families or, if this is not possible, authorities try to accommodate them close to their residing families. This might lead to a situation where refugees select into regions that already host migrants or refugees from their country of origin. To check whether existing networks drive the refugee allocation, I regress the inflow of refugees in 2015 on the 2011 population share of foreigners from the three main source countries of people seeking for asylum in Germany in 2015.[24] As can be seen from Table 2, the existing migrant population from these countries has no impact on the regional distribution of the refugee inflow. Refugee selection based on existing networks should therefore not be a concern in the analysis.

Another possible threat that may violate the identification assumption is the possibility of political power influencing the refugee distribution. As politicians can anticipate voters' reactions, we can expect local governments to try to oppose the reception of refugees to gain votes or to avoid losing popularity. As the decision over were to place refugees is with the state government, it may strategically place refugees in municipalities that are governed by an opposing party. In this case, my results would be biased due to reverse causality.[25]

[24]The three main source countries of people seeking for asylum in Germany in 2015 are Syria, Afghanistan, and Kosovo/Montenegro/Serbia (Federal Statistical Office, 2016). Municipal-level data on the number of foreigners by country of origin are obtained from the 2011 census.

[25]Gamalerio (2018) provides evidence of electoral effects on refugee placements in the context of recent refugee flows to Italy. In particular, he shows that the probability of opening a reception center for refugees in a municipality is significantly lower when the Home Office launches a tender just before new elections, compared to municipalities in other years of the term. In the setting investigated in this paper, the effect of electoral incentives cannot be tested, as municipal elections take place on the same day in all municipalities.

To check for such "beggar-thy-rival-party" effects, I test whether municipalities in which one of the federal government parties, i.e., the SPD or the Greens, won the majority of votes in the last election received less refugees.[26] As Panel A of Table 3 shows, whether or not the federal government parties won the majority of votes in the 2011 elections has hardly any explanatory power for the distribution of refugees. If anything, the results show that municipalities led by the federal government parties host a higher number of refugees in centralized housing, but this effect vanishes once other municipal characteristics are controlled for. Creating an indicator for whether the two parties gained at least 50% of the votes (Panel B of Table 3) yields similar results, namely no correlation between the party affiliation of the municipal government and regional refugee inflows. This makes me confident that a strategic placement of refugees by the federal government is not a threat to the identification strategy.[27]

5 Results

5.1 Exposure to refugees

Baseline results

Table 4 shows the results of estimating Eq. (1), where the dependent variable is the change in the vote share of right-wing parties. The bivariate relationship between the change in the right-wing vote share and the change in the local refugee share (column I) is positive, but very imprecisely estimated and thus not statistically different from zero. When adding county-specific time trends (column II), the estimated coefficient of the refugee share becomes larger and statistically significant at the 1% level. While adding other time-variant municipal characteristics (column III) hardly alters the results, the inclusion of pre-treatment municipal characteristics (column IV) slightly reduces the estimated coefficient of the refugee share. In this preferred specification, a 1 pp. increase in the local share of refugees increases the vote share of right-wing parties by about 0.046 pp. To put this into context, the results reveal that the total increase in the refugee share between 2010 and 2015, which was about 1.1 pp., is able to explain only about 0.4% of the overall increase in the right-wing vote share in that period, which amounted to 12.6 pp. The estimated effect of local exposure to refugees on right-wing voting is thus rather small.

Table 5 shows the results for the vote shares of other parties as well as for voter turnout. The results reveal that the local refugee inflow has no effect on the electoral success of left-wing parties, but a negative and significant effect on the vote share of the incumbent

[26] Ideally, one would like to control for the party affiliation of the municipality's mayor. However, as most of the municipalities are rather small, many elected mayors do not even belong to any party. I thus use the share of votes in the last federal elections to proxy for the party affiliation of the mayor.

[27] Further sensitivity analyses, including a test of the common trend assumption, follow in Section 5.3.

federal government parties, i.e., the CDU and the SPD. The effect is of comparable size as the effect on right-wing vote shares, meaning that a 1 pp. increase in the refugee share decreases the vote share of the incumbent federal government parties by about 0.05 pp. The vote share of the incumbent state government parties, i.e., the SPD and the Greens, in contrast, is not affected by the change in the municipal-level refugee share. This finding shows that the effect on the federal government parties is mainly driven by decreasing votes for the conservative party of Angela Merkel.[28] With respect to turnout, there is a small positive effect of the refugee inflow, though the estimated coefficient just misses the 5% significance threshold.

With respect to other municipal characteristics, the initial unemployment rate appears to be one of the most important determinants of electoral outcomes. While having a strong positive effect on right-wing voting, it decreases the share of votes for the federal and state government parties. Figure 7 compares the size of the unemployment effect to that of the change in the refugee share by plotting the standardized beta coefficients of the two variables. The effect of the pre-treatment unemployment rate on right-wing voting is about four times, and its effect on the vote share of the incumbent federal government parties is about three times as large as the effect of the local refugee inflow. This reveals that, while the 2015 refugee crisis has likely led to an overall increase in right-wing voting, this increase is not primarily driven by municipalities that are more exposed to refugees, but rather by municipalities with high levels of unemployment. It thus seems that people who have been in a bad economic situation and supposably felt left behind even before the refugee crisis are now more likely to vote for right-wing populist parties, in part irrespective of their local exposure to refugees.

Concerning the other determinants of electoral outcomes, the vote share of right-wing parties is higher the lower is the increase in income and the lower is the initial housing vacancy rate. Interestingly, the local share of foreign households has no effect on right-wing voting, or on election outcomes in general. The change in the vote share of the federal government parties, especially of the CDU, is positively correlated with population size and the average income per household, while it is negatively correlated with population density. Lastly, voter turnout is lower in municipalities with large population sizes and a large number of housing vacancies.

Heterogeneity across municipalities

In the next step, I interact the change in the refugee share with different pre-treatment municipal characteristics to assess the role of initial local conditions in mediating the electoral impact of local exposure to refugees. Focusing on the change in the right-wing vote share, the results of these heterogeneity analyses are displayed in Figure 8.

[28] Separate regressions for the single parties confirm this result.

The positive effect of the local refugee inflow on right-wing voting seems to be stronger in municipalities with a higher population size (Figure 8(a)) and a higher population density (Figure 8(b)), though the estimated interaction effects are small and the confidence bands of the estimated refugee effect are large. With respect to the initial unemployment rate (Figure 8(c)), there is hardly any variation of the refugee effect over the local level of unemployment. If anything, the effect of the local refugee inflow becomes smaller and insignificant for increasing levels of unemployment. This observation suggests that the fear of labor market competition is not an important motive underlying negative attitudes towards refugees among the native population.While there is also hardly any interaction effect with the municipalities' income level (Figure 8(d)), the positive effect of the local refugee inflow on right-wing voting becomes stronger the larger the pre-existing share of foreigners among the population (Figure 8(e)). One explanation for this relationship could be that people feel more exposed to refugees if more immigrants are already living in the community. Lastly, Figure 8(f) shows that the refugee effect is strongest for municipalities with tight housing markets. This finding suggests that compositional amenities, and the competition for housing in particular, are an important channel underlying natives' anti-foreign sentiment.

5.2 Centralized vs. decentralized accommodation of refugees

Next, I take advantage of the information on the type of housing provided for refugees and explore whether a placement in centralized vs. decentralized accommodation affects natives' perception about refugee immigration and thus their voting behavior. In doing so, I split up the overall effect of the refugee inflow into the effect of refugees living in centralized accommodation and refugees living in decentralized accommodation. Table 6 shows the estimated effects of the two variables on the change in the right-wing vote share. The estimated coefficient for the change in the share of refugees in centralized housing is positive and statistically different from zero through all specifications. In the preferred specification including all controls (column III), the estimated coefficient amounts to 0.052 and is thus slightly larger than the effect of the overall change in the local refugee share (0.046).

The change in the share of refugees in decentralized housing, however, has no significant effect on the change in the right-wing vote share. The estimated effect is positive but very imprecisely estimated as long as no (column I) or only time-variant (column II) municipal characteristics are controlled for. It turns, however, negative once pre-treatment characteristics are added to the model (column III), though the coefficient is small and very imprecisely estimated. This finding is in line with the results of the balancing test (see Figure 6), which shows that refugees have been more likely accommodated in decentralized housing in economically weak municipalities, which experienced a larger increase in right-

wing voting irrespective of the local inflow of refugees (see Figure 4). As the bias accruing from this kind of endogeneous placement of refugees in decentralized housing might not fully captured by controlling for observable characteristics, I use the approach by Oster (2019) to assess the size of bias due to unobservable characteristics. Under the assumption that selection on the observed controls is proportional to the selection on the unobserved controls, column IV of Table 6 shows the bounding set of the true effect of the refugee share in decentralized housing.[29] The results reveal that the identified set of estimates is strictly negative. Hence, while the null effect of the refugee share in decentralized housing shown in column III might not represent an unbiased estimate, we can rule out that the true effect is actually positive.[30]

In the next step, I break down the refugee effect even further by excluding municipalities that hosted reception centers for refugees in 2015 (columns III and IV of Table 7). Although only 21 municipalities hosted reception centers in 2015, these accommodated 36% of all refugees living in Rhineland-Palatinate. When excluding municipalities with reception centers, the positive effect of the change in the refugee share completely vanishes, and the sign of the coefficient actually turns negative, though it is very imprecisely estimated.[31] This finding implies that the positive effect of local exposure to refugees on right-wing vote shares is solely driven by municipalities that host reception centers for refugees.[32] As can be seen from Table A1 in Appendix A, a similar pattern emerges for the other parties. The change in the share of refugees in centralized housing has a negative impact on the change in the vote share of the incumbent federal government parties and a positive impact on turnout, but both effects vanish once municipalities with reception centers are excluded from the sample. These results suggest that exposure to refugees only leads to more negative attitudes towards refugees if the exposure is very strong. While people oppose the centralized accommodation of large numbers of refugees in their community, they do not oppose the hosting of refugees in general (at least not in terms of a respective electoral response). This finding is in accordance with Liebe *et al.* (2018), who show – based on stated choice experiments among a sample of German residents – that most

[29]Following Oster (2019), I set the maximum R^2 that would result if all unobservables were to be included in the regression to $R_{max} = 1.3\tilde{R}$. County-specific time trends are included in both the controlled and the uncontrolled model.

[30]Figure A5 in Appendix A further shows that the effect of the refugee share in decentralized housing is mostly zero or negative along the distribution of different pre-treatment municipal characteristics. For refugees in centralized housing, the respective heterogeneity analysis in Figure A4 in Appendix A confirms the results of the heterogeneity analysis discussed in Section 5.1.

[31]As the magnitude of the coefficient estimate is not negligible, the result in column IV might hint at a true negative effect of the population share of refugees in centralized housing. However, the robustness checks shown in Tables 9-11 reveal that the estimated effect is by far not robust, switching both in sign and in magnitude.

[32]To assure that the effect is not driven by a single municipality, Figure A6 in Appendix A shows that the effect of the change in the refugee share on right-wing voting is relatively stable to excluding one municipality with a reception center at a time.

people oppose the opening of refugee homes in their vicinity. In addition, it supports the results of Kürschner Rauck and Kvasnicka (2018), who find an adverse effect of refugee immigration on rental price growth across German counties, which is stronger if a larger share of refugees is housed in centralized facilities rather than in decentralized accommodation. Kürschner Rauck (2020) further shows that houses located in proximity to reception centers exhibit a lower price growth than comparable dwellings located beyond this distance threshold. Overall, these findings suggest an important role of "*not in my backyard*" (NIMBY) (Dear, 1992) perceptions of the native population.

This result is also supported by regressions that allow for nonlinearities in the effect of the refugee inflow on election outcomes. Figure 9 shows the result of regressing the change in the right-wing vote share on dummy variables for each quintile of the distribution of the change in the local refugee inflow, where municipalities in the lowest quintile serve as a reference category. While municipalities that experienced modest inflows of refugees between 2010 and 2015, i.e., municipalities in the 2^{nd} to 4^{th} quintile, do not differ from municipalities with small inflows, municipalities with the largest inflows of refugees show a significantly higher increase in the vote share of right-wing parties (by 1.3 pp. compared to municipalities in the lowest quintile). Interestingly, municipalities that did not host any refugees in both 2010 and 2015 also experience a larger increase in the electoral support for right-wing parties. In such municipalities with zero inflows of refugees, the increase in the vote share of right-wing parties is about 0.7 pp. higher compared to municipalities with small inflows of refugees. This finding is in line with Allport's contact hypothesis and supports the results of Steinmayr (2021), suggesting that local exposure to (small populations of) refugees can actually reduce prejudice among the native population and thus the support for right-wing parties.

5.3 Sensitivity analyses

Placebo regression

The main assumption underlying the identification strategy is that municipalities with high and municipalities with low changes in refugee shares have followed similar trends with respect to election outcomes prior to the refugee inflow. To test this assumption, I run a placebo regression to see whether the change in the refugee share between 2010 and 2015 has any impact on the change in voting outcomes between the 2006 and 2011 election. If I were to find any effect for previous elections, the common trend assumption would be violated. Table 8 shows the respective estimation results, where the dependent variable is the change in the right-wing vote share between the 2006 and 2011 state elections. As becomes obvious, the change in the regional distribution of refugees between 2010 and 2015 has no explanatory power for previous trends in right-wing voting: Irrespective of refugees' type of housing, the estimated coefficients are small in magnitude and not statistically

different from zero. Table A2 in Appendix A shows the respective estimation results for the other parties as well as for voter turnout. Overall, the change in the refugee share between 2010 and 2015 has no explanatory power for previous election results. An exception is the 2006-2011 change in votes for left-wing parties, which is positively correlated with the change in refugees in centralized housing, though the correlation is weak and only holds as long as municipalities with reception centers are included in the regressions.

To test the exogeneity of the incidence of reception centers, I thus run a further placebo regression, checking whether municipalities with and without reception centers followed similar trends in election outcomes prior to the refugee inflow. As shown in Figure 10, the incidence of a reception center in 2015 has no explanatory power for changes in voting outcomes between the 2006 and 2011 elections, thus corroborating the common trend assumption.[33]

Alternative models

I further check the robustness of the results by choosing two alternative models to estimate electoral outcomes. While the first-difference design in Eq. (1) is able to control for time-invariant unobserved heterogeneity at the municipal level, time-variant unobserved heterogeneity (that is not captured by the county-specific time trends) might still be an issue here. Following Angrist and Pischke (2009), I therefore check the robustness of the results by also estimating a lagged dependent variable model that captures all time-variant instead of time-invariant unobserved heterogeneity at the municipal level. In doing so, I regress the 2016 right-wing vote share on the 2015 population share of refugees, including the 2011 right-wing vote share as an additional independent variable. The respective results of the this regression are displayed in Table 9. The results are qualitatively and quantitatively similar: There is a positive and significant effect of the local share of refugees in centralized housing, which vanishes once municipalities with reception centers are excluded from the regressions.[34] In addition, the findings reveal a strong positive correlation between the regional vote share of right-wing parties in the 2011 election (in which the AfD did not run yet) and the 2016 election. This results supports the finding of Cantoni *et al.* (2019), who show that municipalities that expressed strong support for the Nazi party in 1933 are more likely to vote for the AfD in the 2017 federal election, revealing a long-run cultural persistence of right-wing ideology.

In addition, I estimate a difference-in-difference (DID) model, comparing municipalities with and without reception centers before and after the large inflow of refugees in 2015. As can be seen from Figure 11, the results of this model reveal a similar pattern as the

[33]Figure A7 in Appendix A further shows that municipalities with and without reception centers do not differ in observable characteristics (in neither trends nor levels).

[34]The results for the other parties are also robust to the use of this alternative model (Table A3 in Appendix A).

baseline results. In municipalities with reception centers, the increase in the right-wing vote share is about 1 pp. larger and the decrease in the vote share of the federal government parties is about 1.6 pp. larger than in municipalities without reception centers. The effect on the right-wing vote share, however, is less precisely estimated, slightly missing the 5% significance threshold. The lack of precision is probably due to the small number of municipalities hosting reception centers in 2015. Though the results have therefore to be interpreted with some caution, the fact that the main findings are robust to alternative identification strategies reveals that the results are not driven by a specific model choice.

Spillover effects

Next, I analyze spillover effects of the local refugee effect. In Panel A of Table 10, I estimate a spatial regression that allows for spillover effects of refugee inflows in adjacent municipalities. The results reveal the same pattern as the baseline results, i.e., a positive effect of the refugee inflow on the right-wing vote share, which vanishes once municipalities with reception centers are excluded from the estimation. However, accounting for the indirect effect of adjacent municipalities increases the effect size by about four times, thus revealing strong spillover effects of local refugee inflows on neighboring municipalities. This finding is consistent with Bratti *et al.* (2020), who investigate geographical spillover effects of refugee premises and find that proximity to refugee reception centers increases the electoral support for populist parties in the 2016 Italian constitutional referendum.

A similar pattern emerges when aggregating the data to a higher administrative regional unit, the so-called *Verbandsgemeinde* level.[35] As can be seen from Panel B of Table 10, the effect of the refugee inflow on the support for right-wing parties is positive and significant, and about five times larger than in the baseline specification. Again, however, the effect is only driven by refugees in centralized accommodation, and vanishes once municipalities with reception centers are excluded from the analysis. Overall, the results in Table 10 reveal that, while the local effect of the inflow of refugees on municipalities is rather small, there are strong regional spillover effects on the election outcomes of neighboring municipalities. Hence, although the macro-level effect of the refugee inflow (i.e., the effect of the salience of the refugee situation in the media and political rhetoric) on right-wing voting is possibly much larger than the effect at the micro level, the micro-level effects are not only restricted to the immediate proximity to refugees (or refugee accommodations).

Further sensitivity analyses

Table 11 shows the results of further robustness checks. To address the concern that municipalities that did not receive any refugees in 2015 might differ from other municipalities

[35]The state of Rhineland-Palatinate is divided into 162 *Verbandsgemeinden*, which are municipal associations grouped within the 36 counties of the state.

in terms of unobservable characteristics correlated with voting outcomes, Panel A shows the estimation results when municipalities that did not host refugees in 2010 and 2015 are excluded from the sample. In line with the evidence provided in Figure 9, the estimated coefficient of the refugee inflow slightly increases in magnitude, but the results are still qualitatively and quantitatively similar to the baseline results in Table 7.

Next, I explore whether the increase in right-wing voting is solely due to an increasing support for the AfD, or whether the refugee inflow also led to electoral gains for traditional right-wing extremist parties, such as the NPD or the Republicans. In doing so, I run a regression in which the votes for the AfD are excluded from the 2016 right-wing vote share, the results of which are shown in Panel B of Table 11. Irrespective of the type of housing provided for refugees, the size of the regional refugee inflow has no significant impact on the vote share of right-wing extremist parties, revealing that the overall effect is solely due to an increasing support for the AfD. This finding is in accordance with the fact that, unlike the AfD, the traditional right-wing extremist parties did not benefit from the public discourse of the refugee situation in terms of an increasing electoral support, with their votes shares remaining relatively constant over the course of the German refugee crisis.

In addition, I address the concern that electoral support for the AfD before the 2015 refugee inflow might be correlated with the initial placement of refugees. Although the AfD presented itself as an economic liberal, Eurosceptic, and conservative movement upon its foundation in 2013, and only shifted further to the right by focusing on opposing migration amid the large inflow of refugees in 2015 (see Section 2.3), municipalities with a strong initial supporter base of the AfD might have received less refugees, which would result in a downward bias of my estimates. To address this concern, I estimate an alternative specification in which the change in the right-wing vote share between the 2013 federal election and the 2016 state election serves as the dependent variable. As can be seen from Panel C of Table 11, the results are qualitatively and quantitatively robust to using the right-wing vote share in the 2013 federal election (which includes votes for the AfD) as baseline. This result reveals that the initial placement of refugees is uncorrelated with support for the AfD before the 2015 refugee inflow.

Lastly, I explore whether the electoral gain of right-wing parties due to regional inflows of refugees in 2015 is restricted to the short term or also persists through the longer term. In doing so, I look at the federal election of September 2017 and regress the change in the right-wing vote share between the 2013 and 2017 federal election on the 2015 inflow of refugees.[36] As can be seen from Panel D of Table 11, refugee distributions in 2015 have no explanatory power for the electoral success of right-wing parties in 2017. Although other

[36]As the AfD was not considered as an anti-immigrant party in 2013 (see Section 2.3), and to facilitate comparability with the baseline results shown in Table 7, votes for the AfD are excluded from the 2013 right-wing vote share. The results, however, are qualitatively and quantitatively similar when including AfD votes in the 2013 right-wing vote share.

explanations cannot be ruled out, this finding might suggest that the negative shift in anti-foreign attitudes due to the exposure to large populations of refugees only holds in the short term.

6 Conclusion

In 2015, Europe witnessed a sharp increase in the number of refugees. In Germany alone, 890,000 people arrived and applied for asylum, which makes this mass arrival of refugees the largest of its kind since the early 1990s (BMI, 2016). At the same time, right-wing populist parties have seen recent electoral successes in many European countries. In Germany, the right-wing populist party *Alternative for Germany* (AfD) won significant vote shares in all state and federal elections following the so-called "refugee crisis". While the salience of the refugee situation in the media and the political rhetoric has likely contributed to the increasing support for the AfD, it is less clear how local exposure to refugees affected anti-immigrant sentiment and thus electoral outcomes. This paper thus analyzes the effect of local exposure to refugees on election results in the context of the 2015 refugee inflow in Germany. Specifically, using unique data on refugee populations and their type of accommodation at the municipal level, I analyze the effect of local exposure to refugees on the outcomes of the state elections held in March 2016 in the state of Rhineland-Palatinate. For identification, I make use of the fact that the sheer necessity to accommodate the large number of refugees led to exogenous variation in the allocation of refugees across German municipalities.

The results reveal that a larger population share of refugees in a municipality increases the vote share of right-wing parties. The estimated effect is, however, rather small. A 1 pp. increase in the refugee share increases the right-wing vote share by about 0.05 pp. The increase in the right-wing vote share is accompanied by reduced votes for the incumbent federal government parties, especially the Christian Democratic Union (CDU) of Angela Merkel, while there is no effect on the votes for the state government or left-wing parties. This shows that a higher share of refugees in the municipality induced more CDU voters to switch to the AfD or other right-wing parties.

I further show that a higher initial share of foreigners and a lower number of housing vacancies in the municipality fosters the positive effect of the refugee share on right-wing voting. Previous economic conditions, as measured by the income level or the unemployment rate, in contrast, have no impact on the size of the refugee effect. These results reveal that, at least in the context of recent refugee migration to Europe, concerns regarding labor market competition are not an important driver of anti-refugee sentiment.

In addition, I explore the heterogeneity of the effect by distinguishing between refugees living in centralized accommodation, i.e., reception centers or collective accommodation

centers, and refugees living in decentralized accommodation, i.e., private apartments. As the responsibility of organizing the distribution and accommodation of refugees is solely with the state authorities, providing evidence on whether the type of housing provided for refugees affects natives' attitudes towards immigrants and thus electoral outcomes is of particular interest for local policy makers. The results reveal that the population share of refugees in centralized housing increases the vote share of right-wing parties, while no such effect is found for refugees in decentralized housing. The effect of refugees in centralized housing, however, vanishes once municipalities that host reception centers for refugees are excluded from the regression. Thus voters oppose the accommodation of large receptions centers for refugees, while the local exposure to refugees living in private housing does not increase the support for right-wing parties. The results are robust to several sensitivity checks. Most importantly, I show that the results are robust to using alternative models to estimate the effect of refugee exposure on election outcomes. A placebo test using previous election results further confirms that the results are not driven by differential trends in election outcomes between municipalities with high and low refugee inflows.

The findings of this study complement previous evidence on the impact of local exposure to refugees on electoral outcomes. The results support the findings of Dustmann *et al.* (2019) by showing that voters' response to refugee immigration depends on local conditions. Most importantly, they complement the results of Steinmayr (2021) by revealing that different types of local exposure to refugees can have a differential impact on natives' perceptions of refugees and thus on their voting behavior. While the local exposure to refugees living in private housing does not increase the electoral support for right-wing parties, the exposure to large reception centers for refugees has a positive impact on right-wing voting. This finding has important implications for the allocation of refugees and for the design of asylum procedures, as it suggests that quicker asylum procedures and an early transfer of refugees from centralized to decentralized follow-up accommodation could reduce anti-refugee sentiments among the native population and thus the support for right-wing populist parties.

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Figures

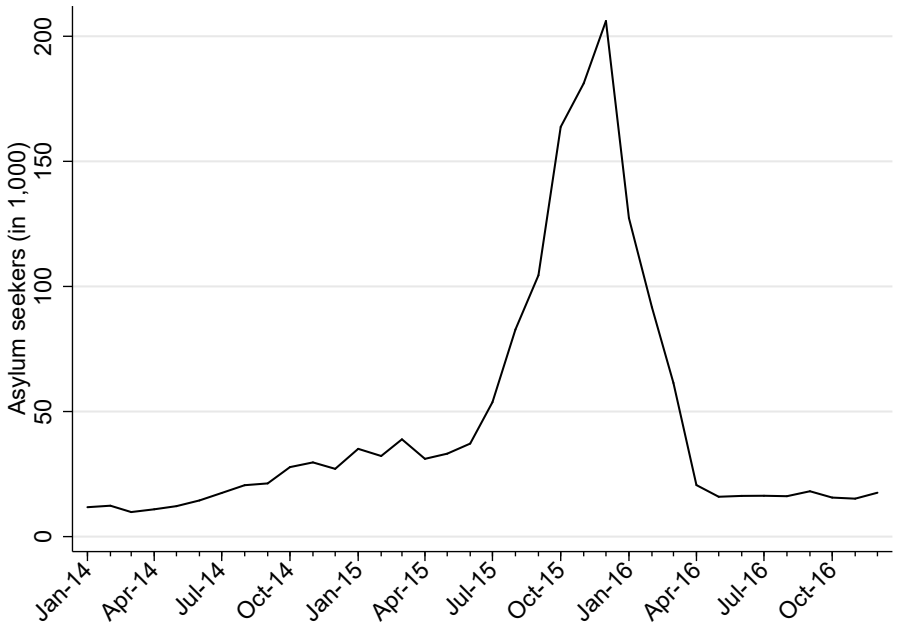
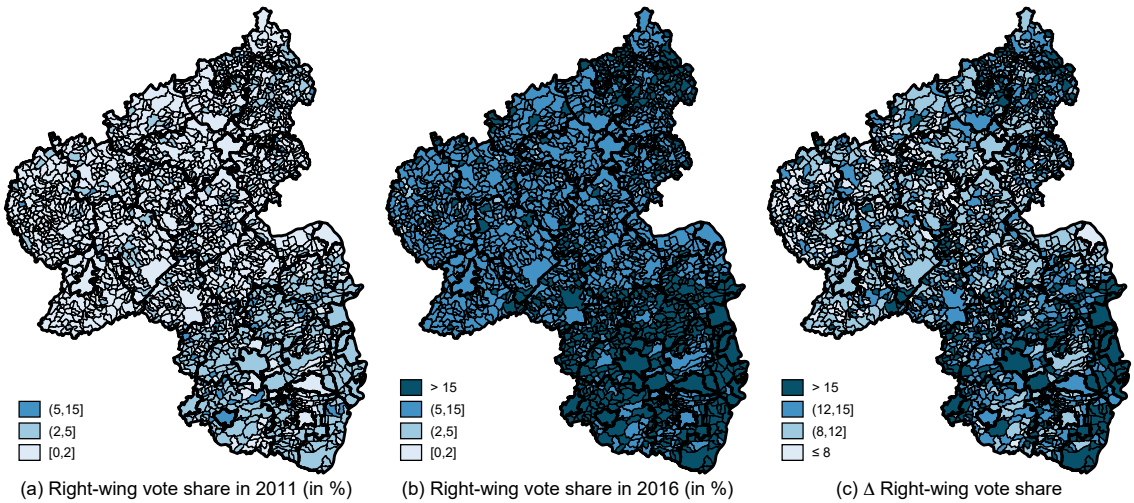


Figure 1: Monthly Number of Asylum Seekers Arriving in Germany

Note: Monthly number of informal registrations of individuals who intended to file an asylum application in Germany as recorded by the EASY registration system (BPB, 2019).



(a) Right-wing vote share in 2011 (in %) (b) Right-wing vote share in 2016 (in %) (c) Δ Right-wing vote share

Figure 2: Vote Share of Right-wing Parties

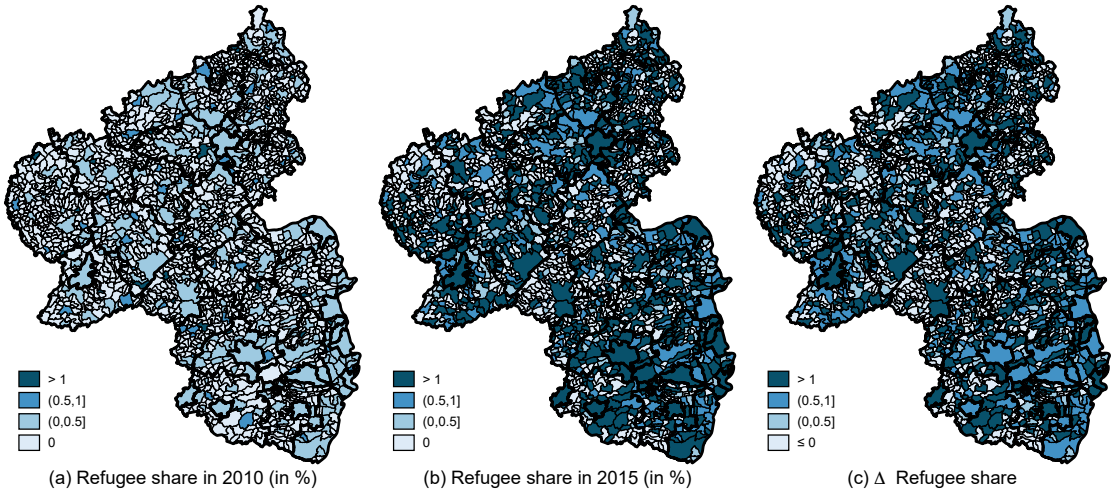


Figure 3: Refugee Distribution across Municipalities

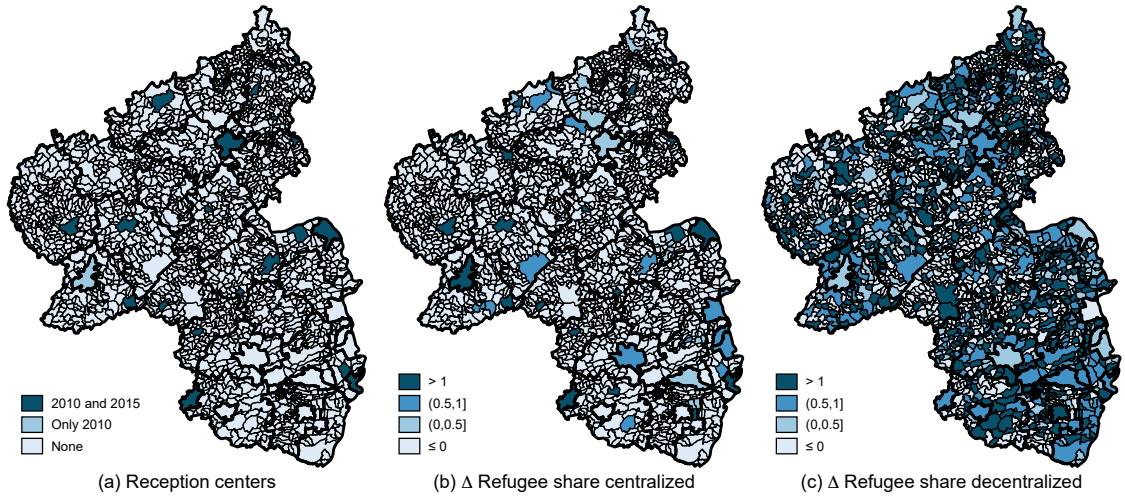


Figure 4: Reception Centers and Refugee Distribution by Type of Housing

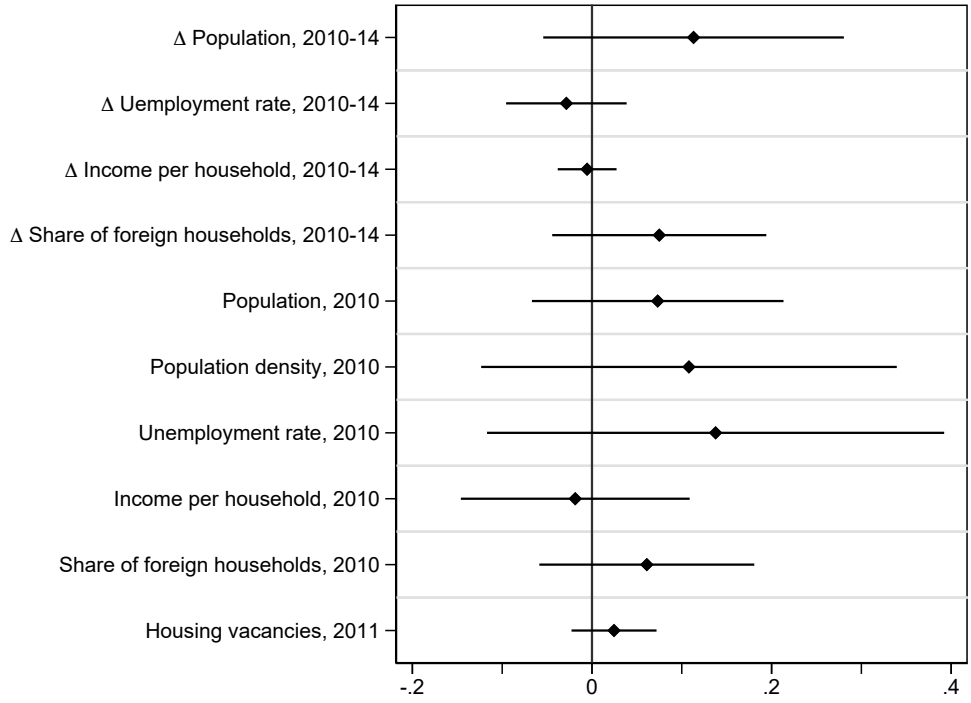


Figure 5: Balancing Test: Correlates of Change in Refugee Share
Note: Standardized beta coefficients with 95%-confidence intervals are shown.

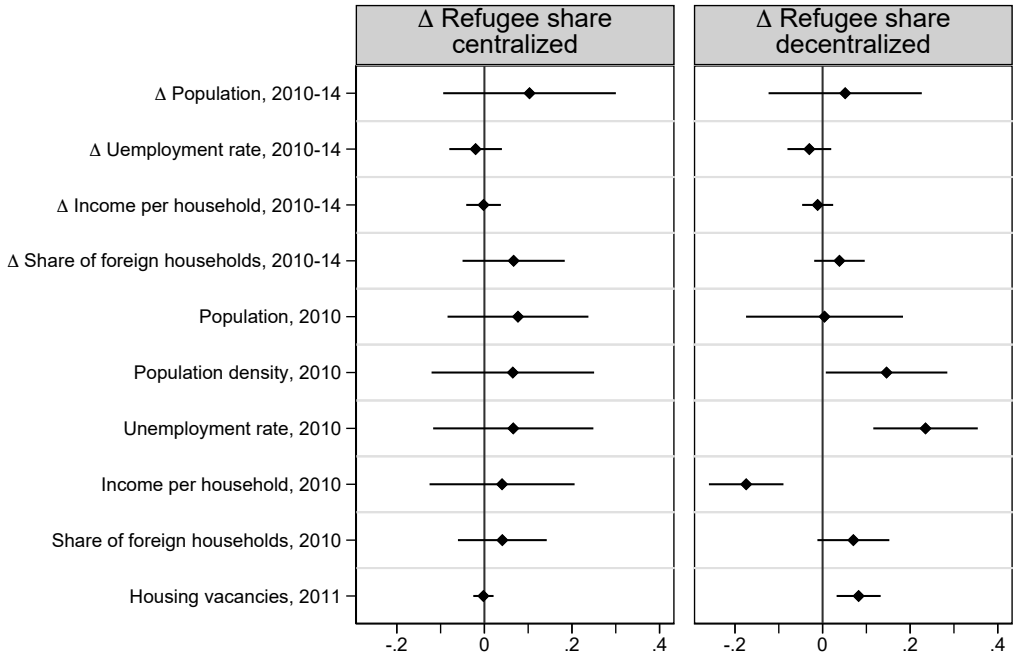


Figure 6: Balancing Test: Change in Centralized and Decentralized Refugee Share
Note: Standardized beta coefficients with 95%-confidence intervals are shown.

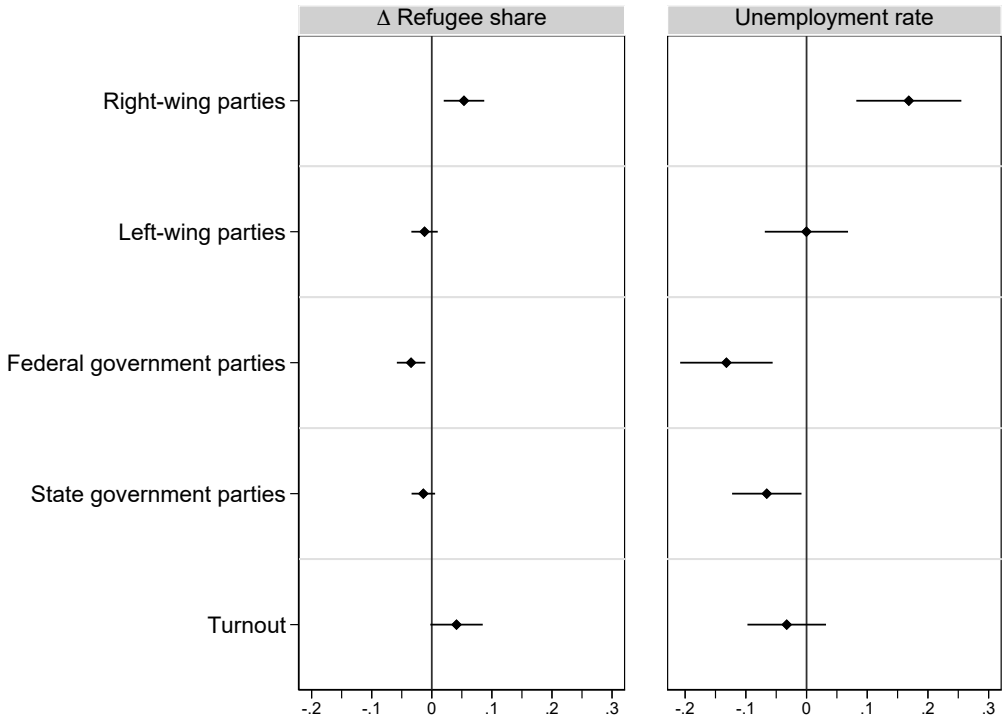
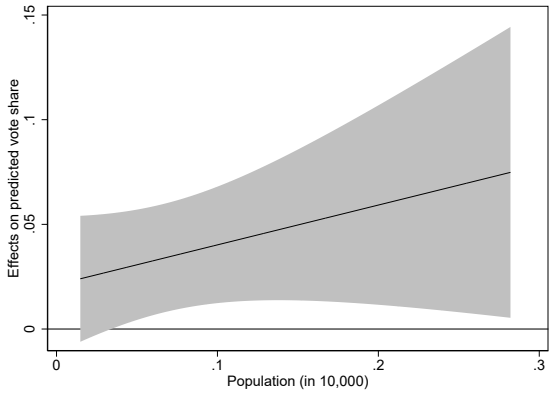
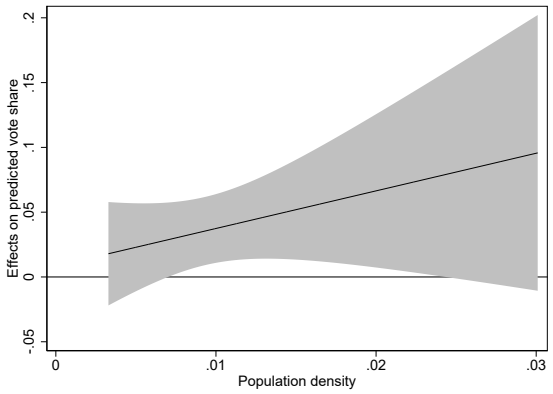


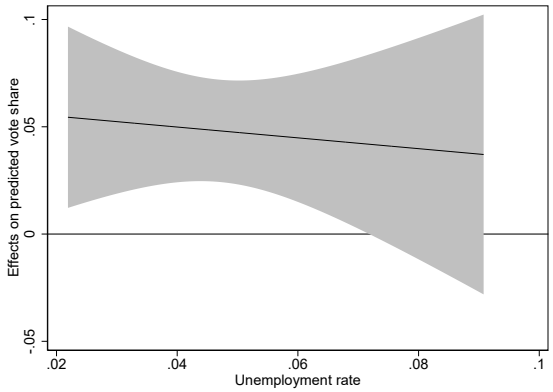
Figure 7: Electoral Effects of Refugee Inflow and Unemployment Rate
Note: Standardized beta coefficients with 95%-confidence intervals are shown.



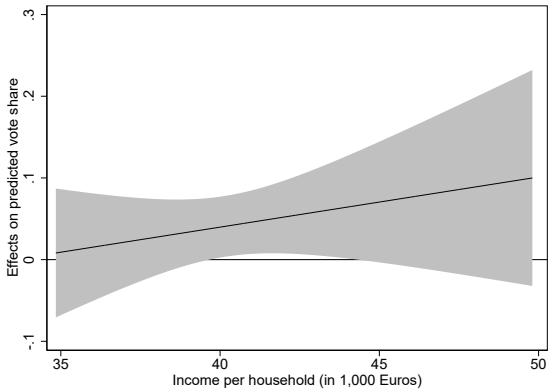
(a) Population in 2010



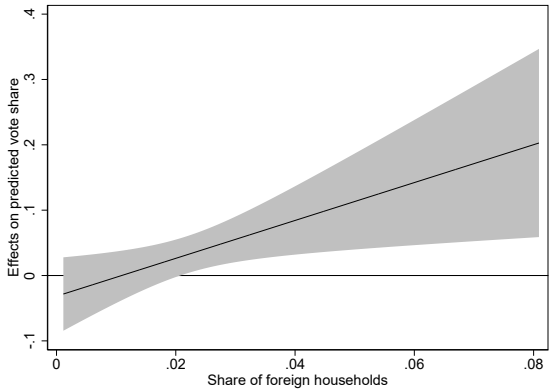
(b) Population density in 2010



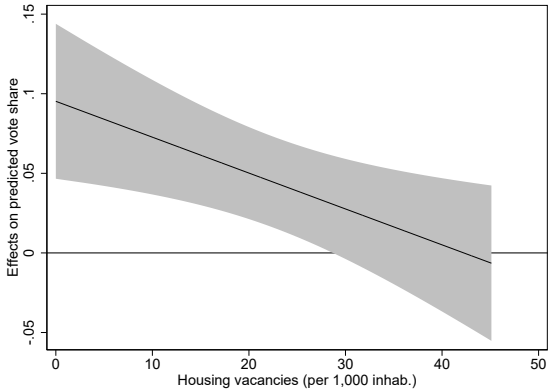
(c) Unemployment rate in 2010



(d) Household income in 2010



(e) Share of foreigners in 2010



(f) Housing vacancies in 2011

Figure 8: Effect of Refugee Inflow on Change in Right-wing Vote Share over Pre-treatment Regional Characteristics

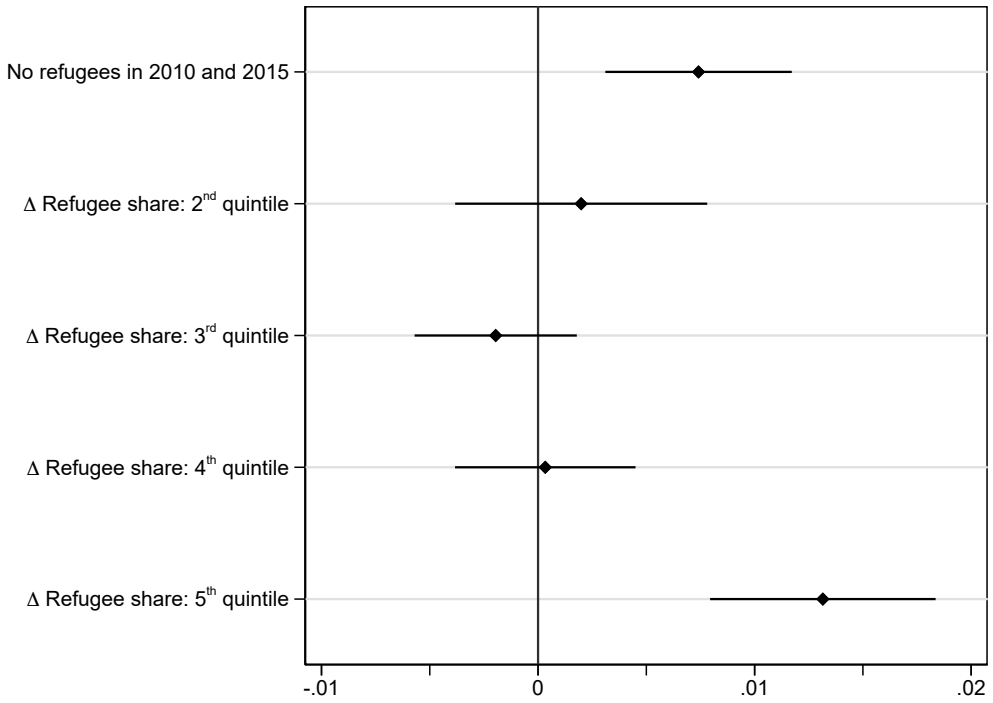


Figure 9: Effect of Refugee Inflow on Change in Right-wing Vote Share
Note: Coefficient estimates with 95%-confidence intervals are shown. Municipalities in the 1^{st} quintile of the distribution of the refugee inflow serve as a reference.

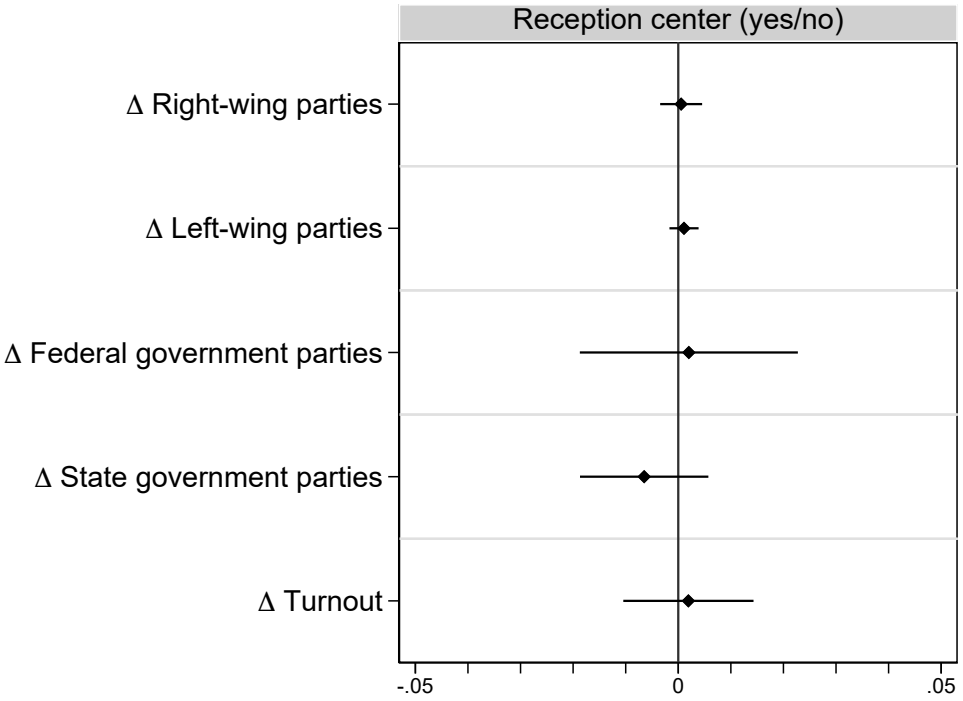


Figure 10: Placebo Test: Reception Center Incidence in 2015 and Change in Vote Shares and Turnout between the 2006 and 2011 Elections

Note: Coefficient estimates with 95%-confidence intervals are shown.

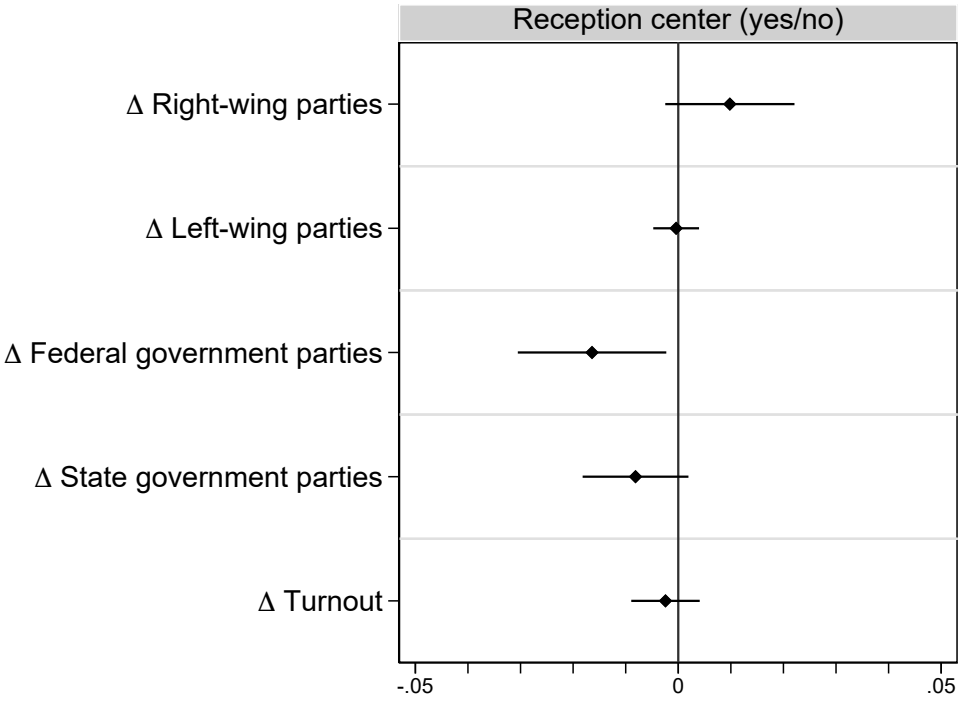


Figure 11: Results of Difference-in-Difference Estimation of Voting Outcomes on Reception Center Incidence

Note: Coefficient estimates with 95%-confidence intervals are shown.

Tables

Table 1: Descriptive Statistics

	2010		2015		Δ 2010-2015	
	Mean	StD	Mean	StD	Mean	StD
Right-wing vote share[a]	0.020	(0.012)	0.145	(0.042)	0.125	(0.035)
Left-wing vote share[a]	0.031	(0.012)	0.029	(0.012)	−0.002	(0.012)
Vote share of federal government parties[a]	0.709	(0.053)	0.677	(0.052)	−0.032	(0.057)
Vote share of state government parties[a]	0.512	(0.071)	0.417	(0.063)	−0.095	(0.041)
Turnout[a]	0.618	(0.067)	0.702	(0.067)	0.084	(0.028)
Refugee share (per 100 inhab.)	0.133	(0.257)	1.165	(1.410)	1.100	(2.758)
Refugee share centralized (per 100 inhab.)	0.012	(0.070)	0.370	(1.169)	0.411	(2.639)
Refugee share decentralized (per 100 inhab.)	0.121	(0.252)	0.795	(0.847)	0.689	(0.844)
Population (in 10,000)[b]	3.311	(5.380)	3.362	(5.510)	0.051	(0.191)
Population density	0.053	(0.054)	–	–	–	–
Unemployment rate[b]	0.078	(0.033)	0.071	(0.031)	−0.007	(0.015)
Income per household (in 1,000 Euros)[b]	41.867	(6.756)	44.952	(7.184)	3.085	(2.466)
Share of foreign households[b]	0.067	(0.047)	0.063	(0.044)	−0.003	(0.028)
Housing vacancies (per 1,000 inhab.)[c]	22.391	(10.889)	–	–	–	–
Observations	2,268		2,268		2,268	

Notes: – [a] Voting results refer to the state elections held in March 2011 and March 2016 in Rhineland-Palatinate. – [b] Control variables are measured in 2010 and 2014. – [c] Control variable is obtained from the 2011 census. – Statistics are weighted by the number of eligible voters in 2011.

Table 2: Network Size and Refugee Inflow

	Refugee share		Centralized refugee share		Decentralized refugee share	
	Coef./StdE	Coef./StdE	Coef./StdE	Coef./StdE	Coef./StdE	Coef./StdE
Migrant share, 2011	0.6916	0.4444	0.5715	0.3413	0.1201	0.1031
	(0.4124)	(0.4042)	(0.3726)	(0.3818)	(0.1570)	(0.1157)
Controls	no	yes	no	yes	no	yes
Adj. R^2	0.002	0.023	0.001	0.029	0.000	0.133
Observations	2,268	2,268	2,268	2,268	2,268	2,268

Notes: – Robust standard errors in parentheses (clustered at county level). – The table shows the estimation results of regressing the change in the share of refugees (in (de-)centralized housing) on the 2011 population share of migrants from the main three source countries of people seeking for asylum in Germany in 2015 (Syria, Afghanistan, and Kosovo/Montenegro/Serbia). – Controls are the same as in Table 4. – Significance levels: * 5%, ** 1%, *** 0.1%. – Estimates are weighted by the number of eligible voters in 2011.

Table 3: Political Power and Refugee Inflow

	Refugee share		Centralized refugee share		Decentralized refugee share	
	Coef./StdE	Coef./StdE	Coef./StdE	Coef./StdE	Coef./StdE	Coef./StdE
A. Most votes						
State government majority in 2011	0.0026	0.0014	0.0031*	0.0011	−0.0006	0.0004
	(0.0014)	(0.0016)	(0.0015)	(0.0013)	(0.0008)	(0.0006)
Controls	no	yes	no	yes	no	yes
Adj. R^2	0.002	0.023	0.003	0.029	0.001	0.136
Observations	2,220	2,220	2,220	2,220	2,220	2,220
B. At least 50% of votes						
State government majority in 2011	0.0013	−0.0012	0.0021	−0.0014	−0.0008	0.0002
	(0.0014)	(0.0012)	(0.0015)	(0.0011)	(0.0008)	(0.0004)
Controls	no	yes	no	yes	no	yes
Adj. R^2	0.000	0.023	0.001	0.030	0.002	0.136
Observations	2,220	2,220	2,220	2,220	2,220	2,220

Notes: – Robust standard errors in parentheses (clustered at county level). – Panel A shows the estimation results of regressing the change in the share of refugees (in (de-)centralized housing) on an indicator that takes value one if the Social Democratic Party of Germany or the Greens won the majority of votes in 2011. Panel B shows the estimation results of regressing the change in the share of refugees (in (de-)centralized housing) on an indicator that takes value one if the Social Democratic Party of Germany and the Greens won at least 50% of all votes in 2011. – Controls are the same as in Table 4. – Significance levels: * 5%, ** 1%, *** 0.1%. – Estimates are weighted by the number of eligible voters in 2011.

Table 4: Refugee Inflow and Right-wing Vote Share

	I	II	III	IV
	Coef./StdE	Coef./StdE	Coef./StdE	Coef./StdE
Δ Refugee share	0.0388	0.0638**	0.0607**	0.0455**
	(0.0297)	(0.0214)	(0.0200)	(0.0141)
Δ Population (in 10,000)	–	–	−0.0333	−0.0515
			(0.0399)	(0.0293)
Δ Unemployment rate	–	–	−0.0938	0.0739
			(0.0570)	(0.0367)
Δ Income per household (in 1,000 Euros)	–	–	−0.0012*	−0.0012**
			(0.0006)	(0.0004)
Δ Share of foreign households	–	–	0.0543	0.0205
			(0.0282)	(0.0231)
Population (in 10,000) in 2010	–	–	–	−0.0017
				(0.0009)
Population density in 2010	–	–	–	0.1219
				(0.0848)
Unemployment rate in 2010	–	–	–	0.2352***
				(0.0595)
Income per household (in 1,000 Euros) in 2010	–	–	–	−0.0005*
				(0.0002)
Share of foreign households in 2010	–	–	–	−0.0056
				(0.0235)
Housing vacancies (per 1,000 inhab.) in 2011	–	–	–	−0.0002*
				(0.0001)
Constant	0.1251***	0.0946***	0.1129***	0.1326***
	(0.0048)	(0.0002)	(0.0196)	(0.0209)
County-specific time trends	no	yes	yes	yes
Adj. R^2	0.000	0.586	0.595	0.631
Observations	2,268	2,268	2,268	2,268

Notes: – Robust standard errors in parentheses (clustered at county level). – The dependent variable is the change in the right-wing vote share between the state elections held in March 2011 and March 2016 in Rhineland-Palatinate. – Significance levels: * 5%, ** 1%, *** 0.1%. – Estimates are weighted by the number of eligible voters in 2011.

Table 5: Refugee Inflow, Vote Share of Other Parties, and Turnout

	Left-wing parties Coef./StdE	**Federal gov. parties** Coef./StdE	**State gov. parties** Coef./StdE	**Turnout** Coef./StdE
Δ Refugee share	−0.0051	−0.0504**	−0.0179	0.0374
	(0.0046)	(0.0171)	(0.0123)	(0.0195)
Δ Population (in 10,000)	0.0326**	0.0544	0.0374	−0.0350*
	(0.0112)	(0.0355)	(0.0237)	(0.0162)
Δ Unemployment rate	0.0162	−0.1219	−0.0805	−0.0913
	(0.0243)	(0.0611)	(0.0650)	(0.0477)
Δ Income per household (in 1,000 Euros)	0.0002	0.0019***	0.0006	−0.0005
	(0.0002)	(0.0003)	(0.0005)	(0.0003)
Δ Share of foreign households	0.0038	−0.0032	−0.0006	0.0128
	(0.0084)	(0.0228)	(0.0321)	(0.0239)
Population (in 10,000) in 2010	0.0003	0.0053*	0.0012	−0.0021**
	(0.0007)	(0.0020)	(0.0011)	(0.0007)
Population density in 2010	0.0459*	−0.2705*	−0.0855	0.0565
	(0.0216)	(0.1020)	(0.0869)	(0.0513)
Unemployment rate in 2010	−0.0001	−0.3176**	−0.1375*	−0.0487
	(0.0234)	(0.0903)	(0.0591)	(0.0476)
Income per household (in 1,000 Euros) in 2010	0.0001	0.0012**	0.0003	−0.0002
	(0.0001)	(0.0004)	(0.0002)	(0.0002)
Share of foreign households in 2010	0.0121	0.0103	0.0393	0.0256
	(0.0093)	(0.0290)	(0.0336)	(0.0198)
Housing vacancies (per 1,000 inhab.) in 2011	0.0001	−0.0000	0.0001	−0.0004***
	(0.0000)	(0.0001)	(0.0001)	(0.0001)
Constant	−0.0339***	−0.0469	−0.1005***	0.1957***
	(0.0071)	(0.0382)	(0.0155)	(0.0135)
County-specific time trends	yes	yes	yes	yes
Adj. R^2	0.326	0.671	0.523	0.352
Observations	2,268	2,268	2,268	2,268

Notes: – Robust standard errors in parentheses (clustered at county level). – The dependent variables are the changes in vote shares and turnout between the state elections held in March 2011 and March 2016 in Rhineland-Palatinate. – Significance levels: * 5%, ** 1%, *** 0.1%. – Estimates are weighted by the number of eligible voters in 2011.

Table 6: Refugee Inflow by Type of Housing and Right-wing Vote Share

	I Coef./StdE	**II** Coef./StdE	**III** Coef./StdE	**IV** Oster bounds
Δ Refugee share centralized	0.0561**	0.0540**	0.0522***	[0.0362;0.0522;]
	(0.0176)	(0.0163)	(0.0135)	
Δ Refugee share decentralized	0.1397	0.1271	−0.0251	[-0.0251;-0.594]
	(0.0819)	(0.0801)	(0.0656)	
County-specific time trends	yes	yes	yes	–
Time varying controls	no	yes	yes	–
Pre-treatment controls	no	no	yes	–
Adj. R^2	0.586	0.595	0.631	–
Observations	2,268	2,268	2,268	–

Notes: – Robust standard errors in parentheses (clustered at county level). – The dependent variable is the change in the right-wing vote share between the state elections held in March 2011 and March 2016 in Rhineland-Palatinate. – Significance levels: * 5%, ** 1%, *** 0.1%. – Estimates are weighted by the number of eligible voters in 2011 – Column IV reports bias-adjusted effects of the refugee inflow based on the Oster (2019) approach. The bounding values are calculated under the assumption that selection on the observed controls is proportional to the selection on the unobserved controls (i.e., $\delta = 1$), setting $R_{max} = 1.3\tilde{R}$. County-specific time trends are included in both the controlled (column III) and the uncontrolled model (column I).

Table 7: Refugee Inflow by Type of Housing: Municipalities with and without Reception Centers

	All municipalities		Municipalities without reception center	
	Coef./StdE	Coef./StdE	Coef./StdE	Coef./StdE
Δ Refugee share	0.0455**	–	−0.0357	–
	(0.0141)		(0.0622)	
Δ Refugee share centralized	–	0.0522***	–	−0.0823
		(0.0135)		(0.1957)
Δ Refugee share decentralized	–	−0.0251	–	−0.0330
		(0.0656)		(0.0633)
Adj. R^2	0.631	0.631	0.561	0.561
Observations	2,268	2,268	2,247	2,247

Notes: – Robust standard errors in parentheses (clustered at county level). – The dependent variable is the change in the vote share of right-wing populist parties between the state elections held in March 2011 and March 2016 in Rhineland-Palatinate. – Controls are the same as in Table 4, and column I replicates the baseline results shown in column IV of Table 4. – Significance levels: * 5%, ** 1%, *** 0.1%. – Estimates are weighted by the number of eligible voters in 2011.

Table 8: Placebo Test: Change in Right-wing Vote Share between the 2006 and 2011 Elections

	All municipalities		Municipalities without reception center	
	Coef./StdE	Coef./StdE	Coef./StdE	Coef./StdE
Δ Refugee share	0.007	–	0.026	–
	(0.006)		(0.030)	
Δ Refugee share centralized	–	0.005	–	0.027
		(0.005)		(0.072)
Δ Refugee share decentralized	–	0.030	–	0.026
		(0.032)		(0.031)
Adj. R^2	0.358	0.358	0.306	0.305
Observations	2,266	2,266	2,245	2,245

Notes: – Robust standard errors in parentheses (clustered at county level). – The dependent variable is the change in the vote share of right-wing populist parties between the state elections held in March 2006 and March 2011 in Rhineland-Palatinate. – Control variables are the same as in Table 4, but measured in 2005 and as changes from 2005 to 2009, respectively. An exception are housing vacancies (per 1,000 inhabitants), which are obtained from the 2011 census. – Significance levels: * 5%, ** 1%, *** 0.1%. – Estimates are weighted by the number of eligible voters in 2011.

Table 9: Lagged Dependent Variable Model: Right-wing Vote Share in the 2016 Elections

	All municipalities		Municipalities without reception center	
	Coef./StdE	Coef./StdE	Coef./StdE	Coef./StdE
Refugee share in 2015	0.049**	–	−0.003	–
	(0.014)		(0.069)	
Refugee share centralized in 2015	–	0.052***	–	−0.025
		(0.014)		(0.166)
Refugee share decentralized in 2015	–	0.015	–	−0.001
		(0.074)		(0.072)
Vote share of right-wing parties in 2011	1.552***	1.551***	1.529***	1.529***
	(0.133)	(0.133)	(0.127)	(0.128)
Adj. R^2	0.753	0.753	0.713	0.713
Observations	2,268	2,268	2,247	2,247

Notes: – Robust standard errors in parentheses (clustered at county level). – The dependent variable is the vote share of right-wing populist parties in the state elections held in March 2016 in Rhineland-Palatinate. – Control variables are the same as in Table 4, but measured in 2014. An exception are housing vacancies (per 1,000 inhabitants), which are obtained from the 2011 census. – Significance levels: * 5%, ** 1%, *** 0.1%. – Estimates are weighted by the number of eligible voters in 2011.

Table 10: Regional Spillover Effects

	All municipalities		Municipalities without reception center	
	Coef./StdE	Coef./StdE	Coef./StdE	Coef./StdE
A. Spatial effects				
Δ Refugee share	0.179***	–	−0.135	–
	(0.046)		(0.171)	
Δ Refugee share centralized	–	0.198***	–	0.138
		(0.047)		(0.678)
Δ Refugee share decentralized	–	−0.143	–	−0.146
		(0.184)		(0.179)
Pseudo R^2	0.292	0.293	0.256	0.276
Observations	2,268	2,268	2,247	2,247
B. Estimation at higher administrative unit				
Δ Refugee share	0.221*	–	0.014	–
	(0.090)		(0.408)	
Δ Refugee share centralized	–	0.237*	–	−0.710
		(0.100)		(0.834)
Δ Refugee share decentralized	–	0.100	–	0.030
		(0.344)		(0.412)
Adj. R^2	0.832	0.830	0.765	0.764
Observations	162	162	157	157

Notes: – Robust standard errors in parentheses (clustered at county level). – Panel A shows the estimation results of a spatial regression that allows for spillover effects of refugee inflows in adjacent municipalities. Panel B shows the estimation results when aggregating the data to the next higher administrative unit (so-called *Verbandsgemeinden*). – Control variables are the same as in Table 5. – Significance levels: * 5%, ** 1%, *** 0.1%. – Estimates are weighted by the number of eligible voters in 2011.

Table 11: Further Robustness Checks

	All municipalities		Municipalities without reception center	
	Coef./StdE	Coef./StdE	Coef./StdE	Coef./StdE
A. Exclude municipalities without refugees				
Δ Refugee share	0.056***	–	0.089	–
	(0.015)		(0.080)	
Δ Refugee share centralized	–	0.053***	–	−0.036
		(0.013)		(0.185)
Δ Refugee share decentralized	–	0.104	–	0.096
		(0.085)		(0.084)
Adj. R^2	0.727	0.727	0.656	0.656
Observations	1,034	1,034	1,013	1,013
B. Exclude AfD votes in 2016				
Δ Refugee share	−0.0030	–	0.0302	–
	(0.0045)		(0.0331)	
Δ Refugee share centralized	–	−0.0057	–	0.0949
		(0.0036)		(0.0855)
Δ Refugee share decentralized	–	0.0250	–	0.0264
		(0.0347)		(0.0351)
Adj. R^2	0.254	0.254	0.229	0.229
Observations	2,268	2,268	2,247	2,247
C. Use right-wing vote share in the 2013 federal election as baseline				
Δ Refugee share	0.046**	–	−0.090	–
	(0.014)		(0.069)	
Δ Refugee share centralized	–	0.058**	–	−0.024
		(0.017)		(0.171)
Δ Refugee share decentralized	–	−0.083	–	−0.094
		(0.075)		(0.071)
Adj. R^2	0.581	0.582	0.527	0.526
Observations	2,268	2,268	2,247	2,247
D. Effects on 2017 federal election				
Δ Refugee share	0.0156	–	0.1018	–
	(0.0130)		(0.0703)	
Δ Refugee share centralized	–	0.0087	–	0.1324
		(0.0106)		(0.2896)
Δ Refugee share decentralized	–	0.0885	–	0.1000
		(0.0693)		(0.0679)
Adj. R^2	0.611	0.611	0.574	0.573
Observations	2,268	2,268	2,247	2,247

Notes: – Robust standard errors in parentheses (clustered at county level). – Panel A shows the estimation results when excluding municipalities that did not host refugees in both 2010 and 2015. Panel B shows the estimation results when votes for the AfD are not considered in the 2016 right-wing vote share. Panel C shows the estimation results of regressing the change in the right-wing vote share between the federal elections held in September 2013 and the state parliamentary election in March 2016 on the 2015 refugee inflow. – Panel D shows the estimation results of regressing the change in the right-wing vote share between the federal elections held in September 2013 and 2017 on the 2015 refugee inflow. Votes for the AfD are not considered in the 2013 right-wing vote share. The results are, however, robust to including votes for the AfD in the 2013 right-wing vote share. – Control variables are the same as in Table 5. – Significance levels: * 5%, ** 1%, *** 0.1%. – Estimates are weighted by the number of eligible voters in 2011.

Appendix A

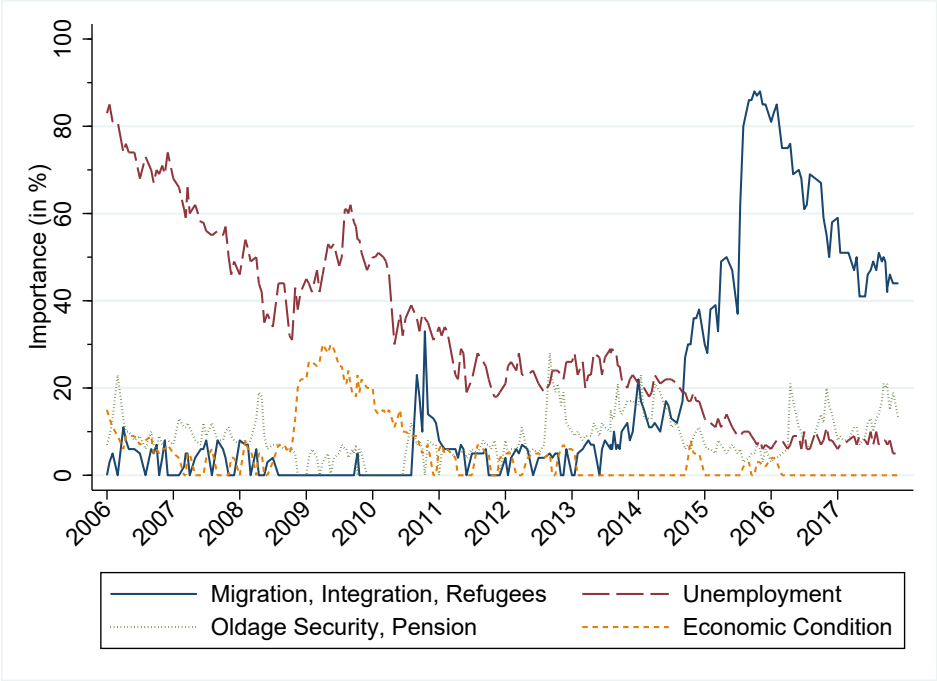


Figure A1: Most Important Problems in Germany

Note: Survey participants were asked to give up to two answers to the following question: "What is currently the most important problem in Germany?" (Forschungsgruppe Wahlen, 2019).

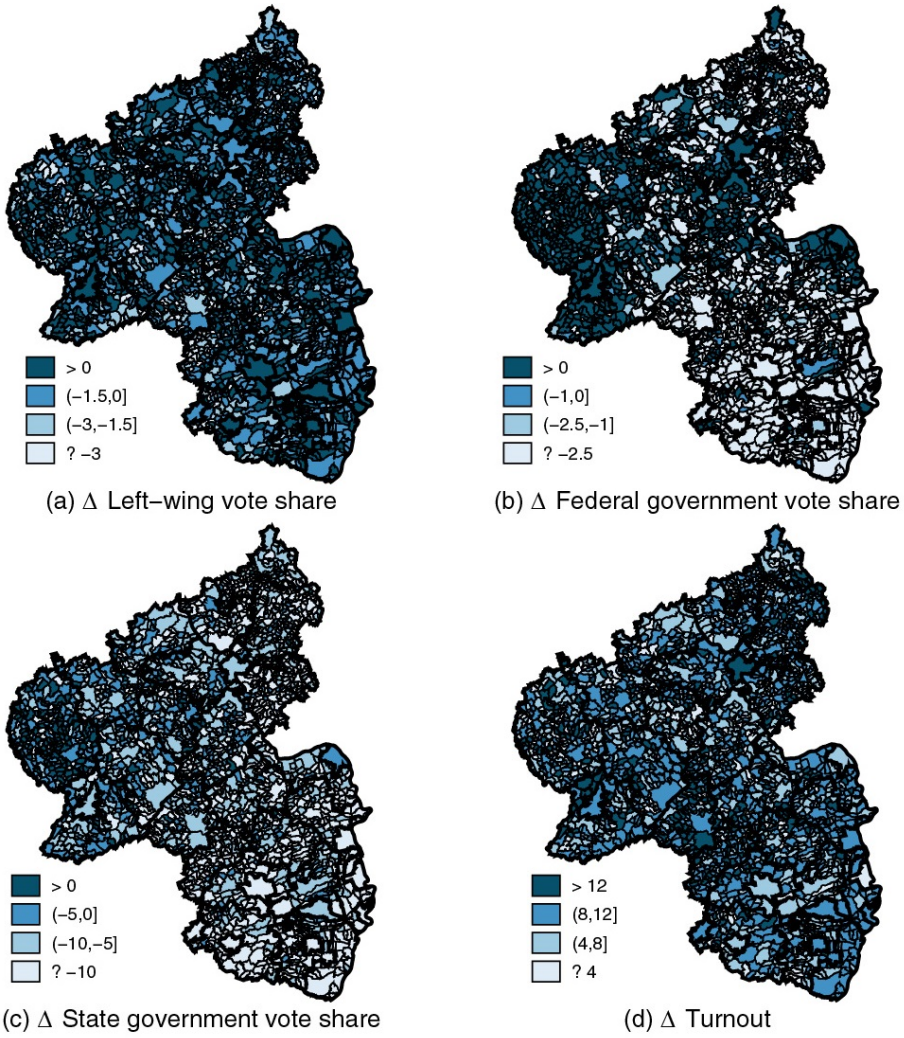


Figure A2: Change in Vote Shares of Different Parties between 2011 and 2016

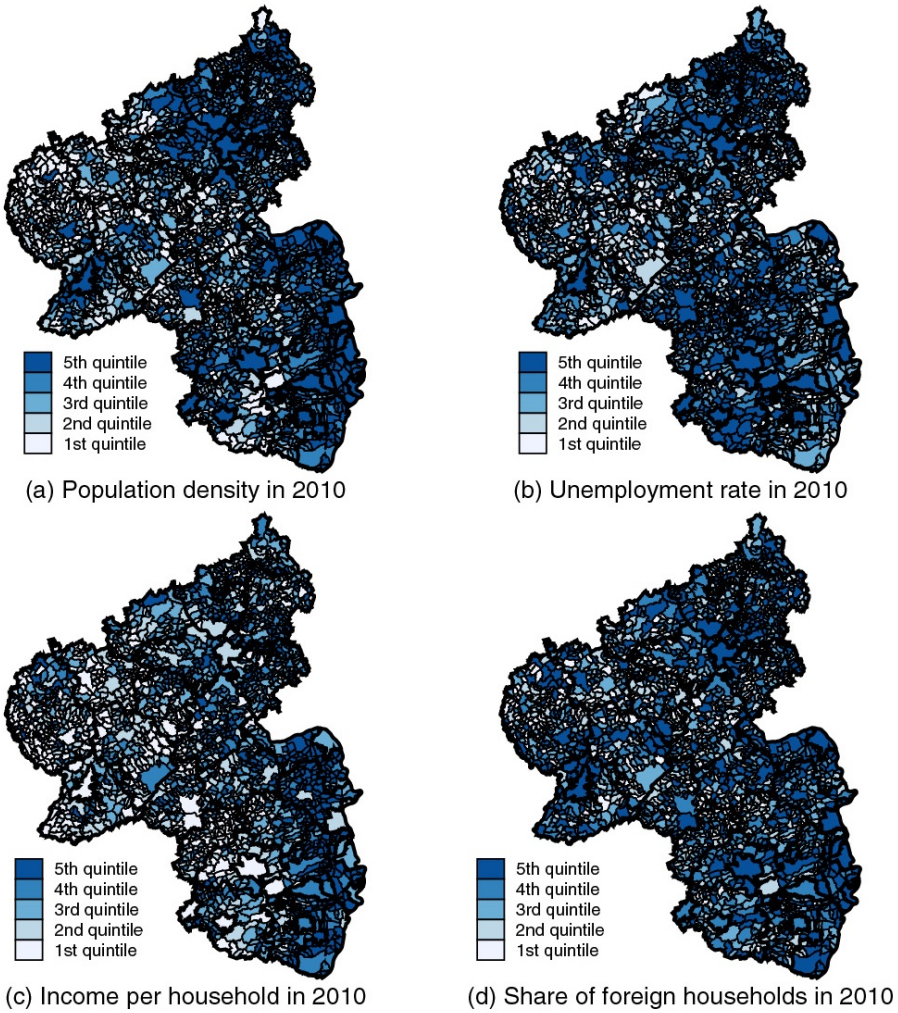
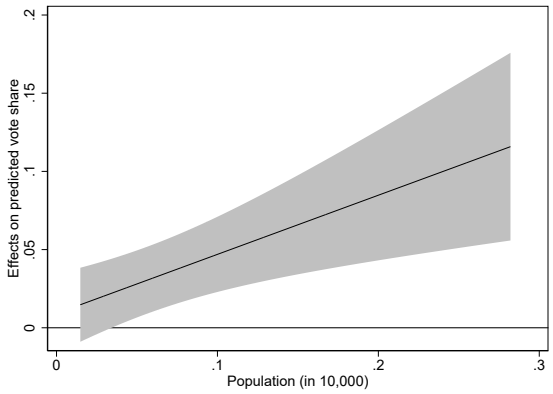
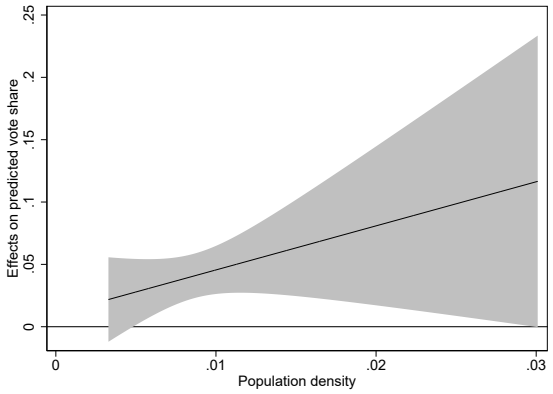


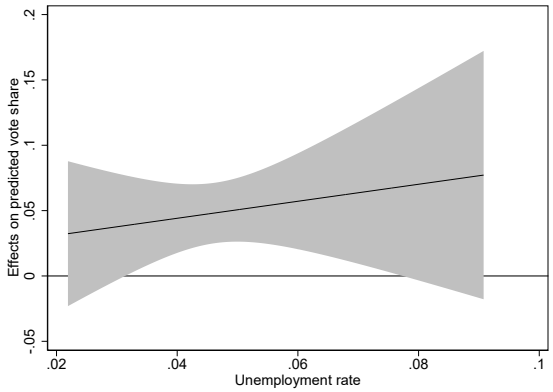
Figure A3: Regional Characteristics in 2010



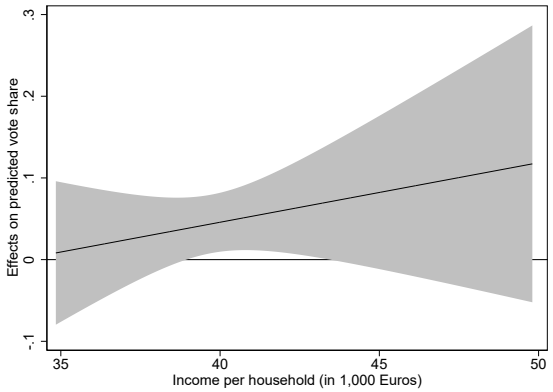
(a) Population in 2010



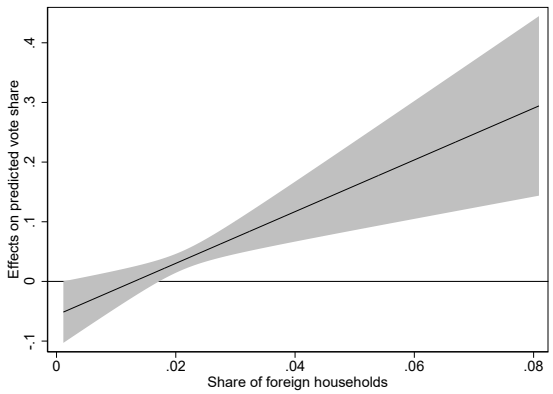
(b) Population density in 2010



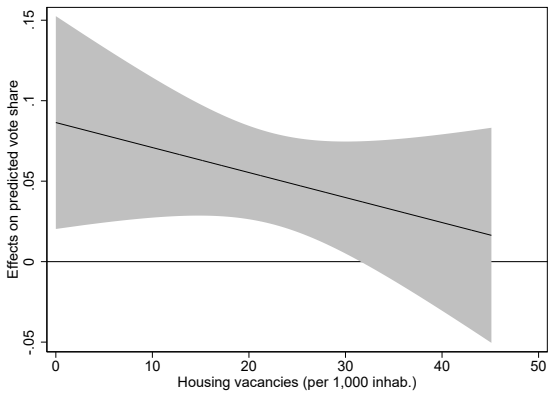
(c) Unemployment rate in 2010



(d) Household income in 2010

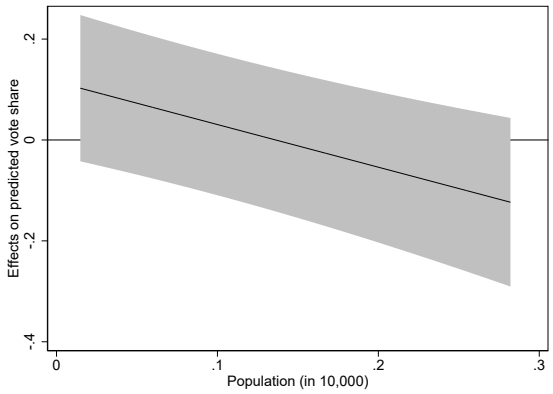


(e) Share of foreigners in 2010

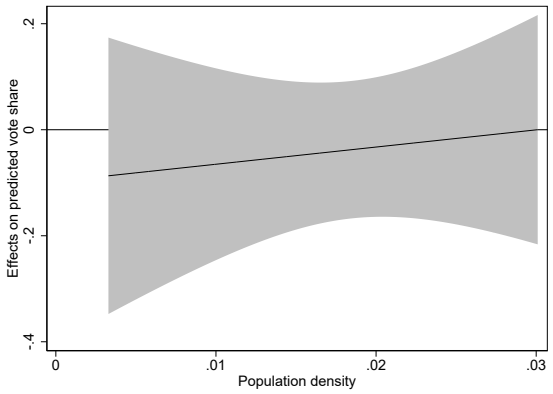


(f) Housing vacancies in 2011

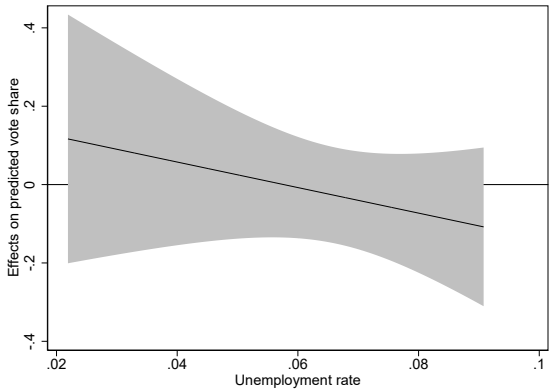
Figure A4: Effect of Change in Refugee Share in Centralized Housing on Change in Right-wing Vote Share over Pre-treatment Regional Characteristics



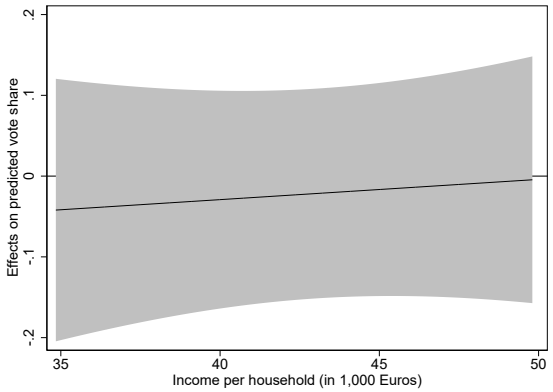
(a) Population in 2010



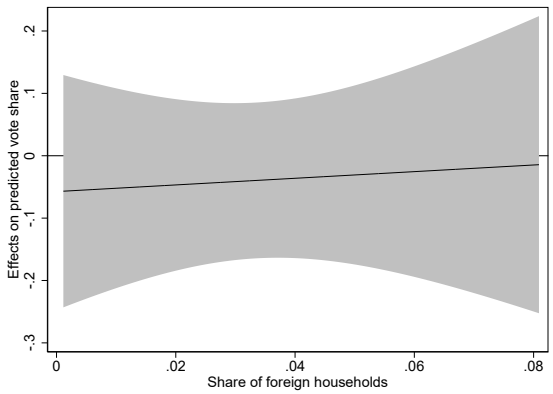
(b) Population density in 2010



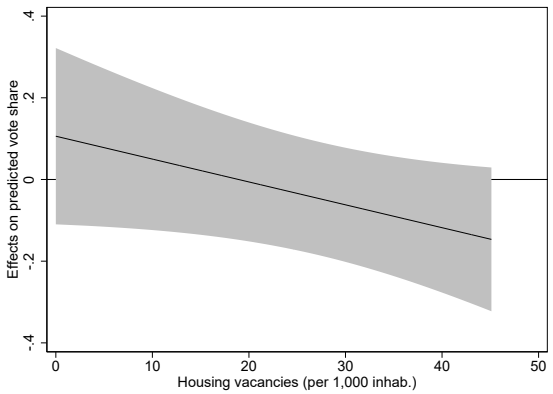
(c) Unemployment rate in 2010



(d) Household income in 2010



(e) Share of foreigners in 2010



(f) Housing vacancies in 2011

Figure A5: Effect of Change in Refugee Share in Decentralized Housing on Change in Right-wing Vote Share over Pre-treatment Regional Characteristics

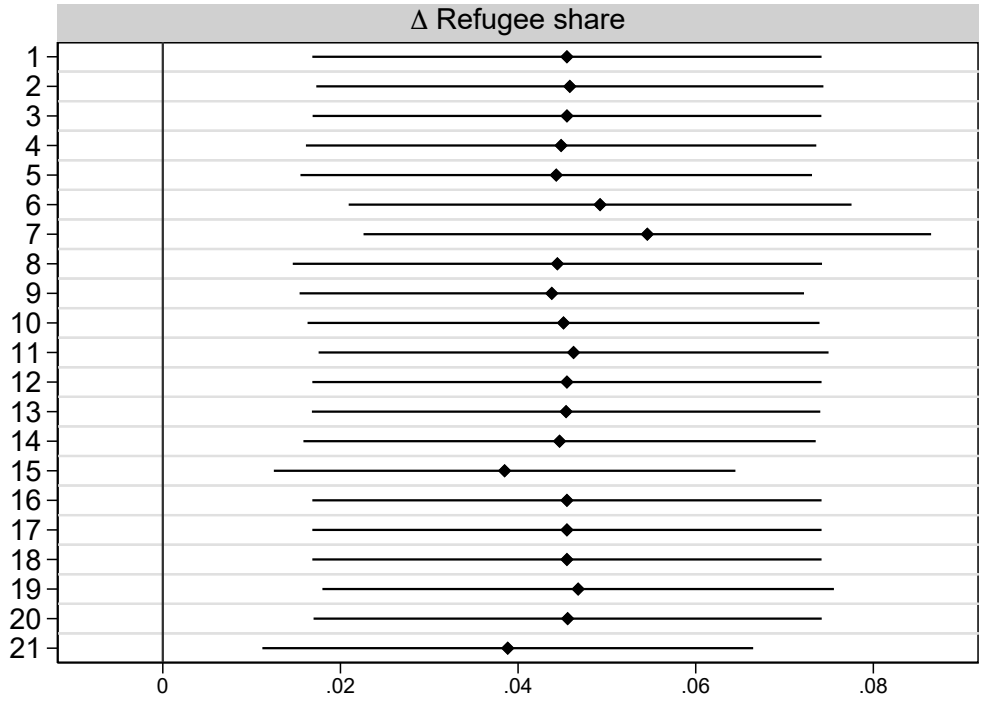


Figure A6: Effect of Change in Refugee Share on Change in Right-wing Vote Share – Excluding One Municipality with Reception Center at a Time

Note: Standardized beta coefficients with 95%-confidence intervals are shown.

Table A1: Refugee Inflow by Type of Housing, Vote Shares, and Turnout

	Left-wing parties Coef./StdE	**Federal gov. parties** Coef./StdE	**State gov. parties** Coef./StdE	**Turnout** Coef./StdE
A. All municipalities				
Δ Refugee share centralized	−0.0105	−0.0605***	−0.0188	0.0430*
	(0.0068)	(0.0157)	(0.0108)	(0.0166)
Δ Refugee share decentralized	0.0520*	0.0557	−0.0086	−0.0218
	(0.0241)	(0.1234)	(0.0741)	(0.1108)
Adj. R^2	0.328	0.671	0.522	0.352
Observations	2,268	2,268	2,268	2,268
B. Municipalities without reception centers				
Δ Refugee share centralized	−0.0686	−0.3485	0.1606	0.0498
	(0.0849)	(0.3621)	(0.4545)	(0.3665)
Δ Refugee share decentralized	0.0564*	0.0900	0.0094	−0.0094
	(0.0246)	(0.1174)	(0.0771)	(0.1140)
Adj. R^2	0.115	0.586	0.392	0.248
Observations	2,247	2,247	2,247	2,247

Notes: – Robust standard errors in parentheses (clustered at county level). – The dependent variables are the changes in vote shares and turnout between the state elections held in March 2011 and March 2016 in Rhineland-Palatinate. – Controls are the same as in Table 4. – Significance levels: * 5%, ** 1%, *** 0.1%. – Estimates are weighted by the number of eligible voters in 2011.

Table A2: Placebo Test: Change in Vote Shares and Turnout between the 2006 and 2011 Elections

	All municipalities		Municipalities without reception center	
	Coef./StdE	Coef./StdE	Coef./StdE	Coef./StdE
A. Left-wing parties				
Δ Refugee share	0.010*	–	0.017	–
	(0.004)		(0.032)	
Δ Refugee share centralized	–	0.010**	–	0.149
		(0.004)		(0.124)
Δ Refugee share decentralized	–	0.009	–	0.009
		(0.030)		(0.032)
Adj. R^2	0.303	0.303	0.287	0.287
Observations	2,266	2,266	2,245	2,245
B. Federal government parties				
Δ Refugee share	0.039	–	−0.034	–
	(0.029)		(0.086)	
Δ Refugee share centralized	–	0.048	–	0.192
		(0.024)		(0.342)
Δ Refugee share decentralized	–	−0.057	–	−0.048
		(0.096)		(0.085)
Adj. R^2	0.609	0.609	0.471	0.471
Observations	2,266	2,266	2,245	2,245
C. State government parties				
Δ Refugee share	0.008	–	0.025	–
	(0.020)		(0.075)	
Δ Refugee share centralized	–	0.003	–	−0.324
		(0.020)		(0.489)
Δ Refugee share decentralized	–	0.061	–	0.045
		(0.071)		(0.074)
Adj. R^2	0.328	0.327	0.289	0.289
Observations	2,266	2,266	2,245	2,245
D. Turnout				
Δ Refugee share	−0.024	–	−0.139	–
	(0.019)		(0.096)	
Δ Refugee share centralized	–	−0.015	–	−0.607
		(0.014)		(0.487)
Δ Refugee share decentralized	–	−0.121	–	−0.112
		(0.102)		(0.098)
Adj. R^2	0.195	0.196	0.182	0.183
Observations	2,266	2,266	2,245	2,245

Notes: – Robust standard errors in parentheses (clustered at county level). – The dependent variables are the changes in vote shares and turnout between the state elections held in March 2006 and March 2011 in Rhineland-Palatinate. – Control variables are the same as in Table 5, but measured in 2005 and as changes from 2005 to 2009, respectively. An exception are housing vacancies (per 1,000 inhabitants), which are obtained from the 2011 census. – Significance levels: * 5%, ** 1%, *** 0.1%. – Estimates are weighted by the number of eligible voters in 2011.

Table A3: Lagged Dependent Variable Model: Vote Shares and Turnout in the 2016 Elections

	All municipalities		Municipalities without reception center	
	Coef./StdE	Coef./StdE	Coef./StdE	Coef./StdE
A. Left-wing parties				
Refugee share in 2015	0.002	–	0.025	–
	(0.005)		(0.016)	
Refugee share centralized in 2015	–	−0.000	–	0.070
		(0.004)		(0.068)
Refugee share decentralized in 2015	–	0.022	–	0.022
		(0.018)		(0.016)
Vote share of left-wing parties in 2011	0.245***	0.246***	0.241***	0.241***
	(0.026)	(0.026)	(0.027)	(0.026)
Adj. R^2	0.659	0.659	0.505	0.505
Observations	2,268	2,268	2,247	2,247
B. Federal government parties				
Refugee share in 2015	−0.055***	–	0.021	–
	(0.014)		(0.072)	
Refugee share centralized in 2015	–	−0.061***	–	−0.045
		(0.015)		(0.275)
Refugee share decentralized in 2015	–	−0.001	–	0.026
		(0.073)		(0.071)
Vote share of federal government parties in 2011	0.432***	0.432***	0.439***	0.439***
	(0.028)	(0.028)	(0.027)	(0.027)
Adj. R^2	0.739	0.739	0.724	0.724
Observations	2,268	2,268	2,247	2,247
C. State government parties				
Refugee share in 2015	−0.025	–	−0.016	–
	(0.014)		(0.072)	
Refugee share centralized in 2015	–	−0.025	–	0.153
		(0.013)		(0.383)
Refugee share decentralized in 2015	–	−0.034	–	−0.028
		(0.066)		(0.068)
Vote share of state government parties in 2011	0.714***	0.714***	0.711***	0.711***
	(0.012)	(0.012)	(0.012)	(0.012)
Adj. R^2	0.860	0.860	0.817	0.817
Observations	2,268	2,268	2,247	2,247
D. Turnout				
Refugee share in 2015	−0.011	–	−0.147*	–
	(0.032)		(0.059)	
Refugee share centralized in 2015	–	0.005	–	−0.074
		(0.025)		(0.155)
Refugee share decentralized in 2015	–	−0.169*	–	−0.152*
		(0.062)		(0.065)
Turnout in 2011	0.691***	0.689***	0.679***	0.679***
	(0.019)	(0.019)	(0.020)	(0.020)
Adj. R^2	0.916	0.917	0.911	0.911
Observations	2,268	2,268	2,247	2,247

Notes: – Robust standard errors in parentheses (clustered at county level). – The dependent variables are the vote shares and turnout in the state elections held in March 2016 in Rhineland-Palatinate. – Control variables are the same as in Table 5, but measured in 2014. An exception are housing vacancies (per 1,000 inhabitants), which are obtained from the 2011 census. – Significance levels: * 5%, ** 1%, *** 0.1%. – Estimates are weighted by the number of eligible voters in 2011.

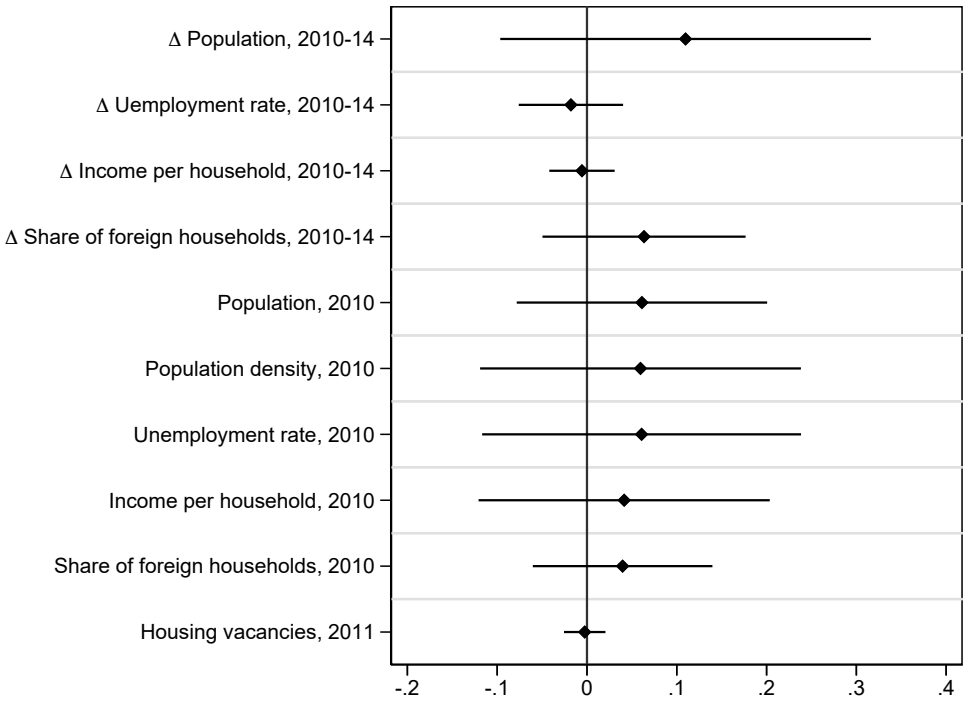


Figure A7: Balancing Test: Correlates of Share of Refugees in Reception Centers

Note: Standardized beta coefficients with 95%-confidence intervals are shown.

Appendix B

Statistic on Recipients of Regular Asylum Seekers' Benefits

The Statistic on Recipients of Regular Asylum Seekers' Benefits (SRRAS) is based on administrative records for the entire universe of individuals who seek refugee status in Germany and receive some kind of regular financial or other support from public authorities under the Act on Benefits for Asylum Seekers (AsylbLG). By covering the entire (end-of-year) population of individuals who seek asylum in Germany, the SRRAS has several advantages over alternative data sources. Especially, as foreigners are entitled to benefits already when they informally register as asylum seekers upon arrival (see Section 2.2), the data does not suffer from the severe under-counting of refugees affecting the 2015 counts of the Central Register of Foreigners (*Ausländerzentralregister*, AZR), which only covers refugees who have already filed their formal application with the BAMF (Federal Statistical Office, 2020). In fact, nearly half of all refugee inflows in 2015 recorded in the EASY-system remained unrecorded in the AZR data. This is also apparent from Table B1 below, which compares the (end-of-year) number of people who seek for asylum in Germany (as recorded in the SRRAS) with the number of formal asylum applications filed in 2015. A second feature of the SRRAS is that it is the only data source that contains information on refugee populations at the municipal level and on their type of accommodation. Although the SRRAS includes information on refugees' socio-demographic characteristics, data protection regulations prohibit a further stratification of refugee statistics at the regional level. Table B2 provides information on the key socio-demographic characteristics of the recipients of asylum seekers' benefits in 2015 in Germany and Rhineland-Palatinate, respectively.

Table B1: Asylum Seekers and Asylum Applications in 2015

	Germany	Rhineland-Palatinate	%
(i) EASY registrations & quota (Koenigsstein key)	1,091,894[a]	52,846	4.84%
(ii) Recipients of regular asylum seekers' benefits (SRRAS)	974,506	49,475	5.08%
(iii) Asylum applications	441,899	17,625	3.99%
Deviation (iii)-(ii) (in %)	-54.65%	-64.38%	–

Sources: BAMF (2016), Federal Statistical Office (2016), Statistical Offices of the Federal States (2020). Notes: – [a] Refers to the uncorrected number of registrations of asylum seekers in 2015. As the EASY data contained multiple records of the same person and records of persons who in the end did not file for asylum in Germany but continued their journey to other countries, the official number of asylum seekers arriving in Germany was later corrected to 890,000 (BMI, 2016).

Table B2: Composition of Asylum Seekers

	Germany	Rhineland-Palatinate
Gender		
Male	65.22%	65.48%
Age		
Age $<$ 18	29.50%	30.83%
Age 18-24	24.69%	24.18%
Age 25-64	45.17%	44.31%
Age $>$ 64	0.64%	0.69%
Citizenship		
Syria	31.61%	–
Afghanistan	11.75%	–
Other Asia	19.89%	–
Kosovo, Montenegro, Serbia	8.48%	–
Other Europe	13.26%	–
Africa	12.95%	–
Other countries or unknown	2.06%	–

Sources: Federal Statistical Office (2016), Statistical Offices of the Federal States (2020). Notes: – Information based on SRRAS data on all recipients of regular asylum seekers' benefits in 2015. Information on the country of citizenship is only published at the federal level but not at the level of the German federal states.