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Refugees welcome, but not in my backyard? The impact of immigration on right-wing voting: evidence from Germany

Abstract

This article studies whether immigration in voter's neighborhoods is a driving factor of the rise of Germany's major right-wing party *Alternative fuer Deutschland* (AFD) and the decline of Angela Merkel's center ruling party the *Christian Democratic Union* (CDU). We use the 2015 refugee crisis as a natural experiment to study the short-run impact of refugee presence on the voting behavior in German municipalities. This is the first study to use a spatial econometric framework combining small-scale immigration data, election data, and a set of socioeconomic factors. Our main finding states that the local immigration boosted AFD votes but did not affect CDU votes directly. Instead, in regions that perceived immigration indirectly, that is in neighboring municipalities, the CDU gained fewer votes.

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1 Introduction

In recent years, the world has faced the second largest refugee movement since World War II. The increase in immigration is largely due to the high number of refugees who escape from the Syrian civil war and an increasingly unstable Middle East.[1] Immigration to Europe, and in particular to Germany, was further fostered in the autumn of 2015 when German Chancellor Angela Merkel granted permission to Syrian refugees to move from the EU border to Germany.[2] As a result, the total number of registered asylum seekers in Germany reached 1.1 million by the end of 2015 (BAMF, 2016). The refugee influx came suddenly and left little room for an elaborate public debate, which could have illuminated the chances and potential risks of the arriving immigrants. Throughout the critical year 2015, the majority of politicians and the mainstream media followed Merkel's refugee-friendly stance and ignored the potential negative aspects of immigration which fueled the popularity of the right specter (Haller, 2017). Merkel's ruling center party, the *Christian Democratic Union* (CDU), unilaterally promoted the advantages of immigration and downplayed the potential risks and economic burdens caused by the refugee influx. Shortly after the immigration influx, a state election took place in spring 2016. The election acted as an evaluation of the immigration policy from the previous year and the refugee crisis was the major election topic in 2016. Angela Merkel was the tragic protagonist of the election. Her party lost one-quarter of votes while Germany's major right-wing party, the *Alternative fuer Deutschland* (AFD), tripled their votes and became the third largest party in the state parliament.

The election outcome of 2016 evokes the research question for this article. In general, we are interested in what degree the election outcome was caused by local refugee presence. Did the presence of local refugees induce a rise in AFD votes and a contraction in CDU votes? To be precise, we study the micro-level association between the density of refugee accommodations and the local election outcomes for the AFD and CDU parties at the municipality level. Our research question contributes to the rising interest in the influence of immigration on election outcomes. The refugee influx in 2015 acts as an ideal natural experiment to study the effect of a sudden immigration shock on short-run voting behavior. The event is similar to other famous immigration shocks, such as the 1980 Marial Boatlift in the sense that a large number of immigrants from one predominant ethnic group migrate to a certain location in a short period of time. In the present example, the predominant ethnic group, which accounts for 35.9% of the total immigration in 2015, were Syrians (BAMF, 2016). The refugee crisis is a unique natural experiment for two reasons. First, within a year, more than one million immigrants arrived in Germany, which is the highest immigration number to a single European country in recent history. The sheer mass of people required quick allocation and housing solutions. The housing market did not provide the necessary volume of accommodations at a sufficiently low price. Since vacancies were scarce and urgently needed, new refugee shelters were built, and existing vacancies were converted to refugee accommodations. The refugee allocation was managed

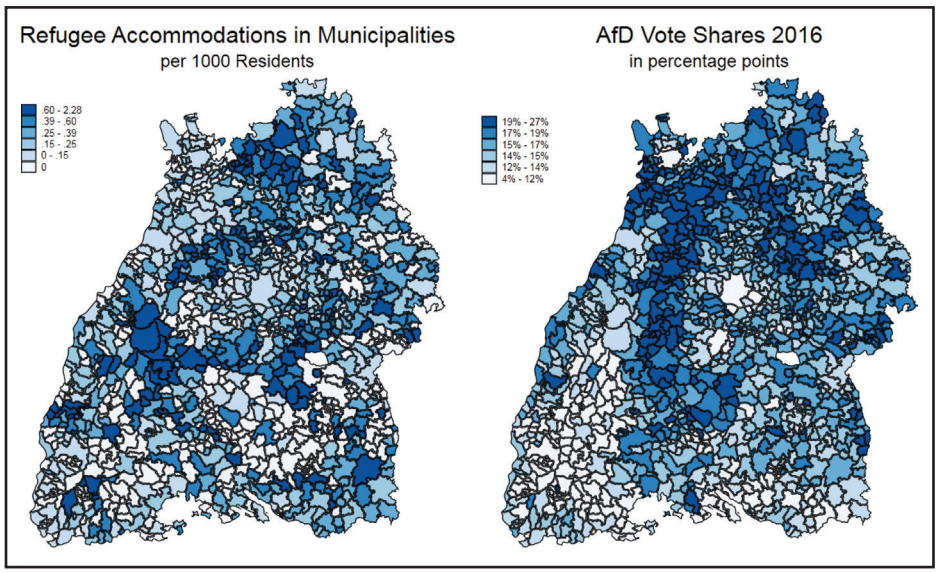
1 For the sake of simplicity, we will not distinguish whether an asylum seeker is already a registered refugee, is still in the registration process, or has not been registered yet but claims to receive refugee status at some time. Since the registration of asylum seekers is an ongoing process, we will refer to all three groups as refugees.

2 Merkel allowed refugees to travel from Hungary to Germany by train over increasing tensions in Hungary. According to the then German Minister of the Interior, Thomas de Maizière, Merkel gave order to the border police on 4 September 2015 to let refugees pass. This decision is a violation of the Dublin regulation which obliges asylum seekers to register at the borders of the EU.

by the German Government, which followed an allocation scheme embedded in the German legislature.[3] This situation creates a quasi-experimental setting because most of the contemporary refugee accommodations were either non-existent or served another purpose before the immigration influx in 2015. Furthermore, the location of refugee accommodations and the allocation mechanism are well documented. Second, the refugee crisis was the main topic in German media during 2015/2016 and at the center of political debate during the spring elections of 2016. Hence, the ensuing election acts as an evaluation of the refugee influx which is considered the major factor at the ballot box during the 2016 election (Haller, 2017). Although immigration and the refugee crisis were still subject to discussion in later elections, the issue was most important during the spring elections of 2016, shortly after the refugee crisis peaked.

Figure 1 illustrates the uneven distribution of refugee accommodations and the AFD vote shares in the 2016 state election for 1,101 municipalities in the German state of Baden-Wuerttemberg (BW). Sixty-one percent of the municipalities accommodate refugees, while 39% do not accommodate refugees. Our identification strategy exploits the regional variation of refugee settlement, voting behavior, and socioeconomic differences among the municipalities in the state of BW. We use a spatial econometric framework, which allows modeling spillover effects among the regions and reduces estimation bias. The framework is able to model two channels through which the presence of refugees can influence election outcomes directly and indirectly. We distinguish between the direct presence of refugees, that is, the backyard effect, and the indirect presence of refugee, that is, the neighborhood effect. The backyard effect analyzes how the number of refugee accommodations (per 1,000 residents) within a municipality affects the election outcome, while the neighborhood effect describes how the number of refugee accommodations in neighboring municipalities affects the election outcome.

Figure 1 The number of refugee accommodations per 1,000 residents (left), and the AfD vote shares in 2016 in Baden-Wuerttemberg, that is, BW (right).



3 The distribution among German counties follows a distribution scheme, namely, the *Koenigssteiner Schluessel*, which directs more refugees to higher populated federal states with higher tax incomes. However, the scheme does not apply to municipalities within the states, which results in an increasingly uneven distribution.

Both effects are measures for the degree of refugee presence through physical distance. While the first effect reflects direct proximity, the second effect measures the influence of refugees in neighboring municipalities, which are further away but still close enough to be perceivable for voters. Although there is a rising number of literature that studies the influence of immigration on voting behavior, to the best of our knowledge, there is no paper that investigates how the physical presence of immigrants affects voting behavior directly and indirectly.

1.1 Immigration and voting behavior

Recent literature shows mixed evidence for the effects of immigration on voting behavior. A significant share finds a positive relationship between right-wing voting and immigration (Barone et al., 2016; Halla et al., 2017; Otto and Steinhardt, 2014). Barone et al. (2016) exploited municipality-level data using an IV estimation strategy to analyze the impact of immigrants on the center-right and center-left parties in Italy. They concluded that immigration causes an increase in votes for the center-right coalition. This result is accompanied by a loss of votes for center and center-left parties as well as lower turnout rates. Halla et al. (2017) studied the influence of immigration on Austria's major right-wing party (FPOE). They found significantly higher vote shares for FPOE in regions with higher migration inflows. They argued that voters are concerned about the labor market effects as well as a decline in the quality of their neighborhood caused by immigration. Some studies find either no relationship or a negative relationship between right-wing parties and immigration (Gehrsitz and Ungerer, 2017; Steinmayr, 2016; Dustmann et al., 2016). The studies by Gehrsitz and Ungerer (2017) and Steinmayr (2016) focus on the 2016 refugee crisis as well. Gehrsitz and Ungerer analyze the short-run effects of refugee exposure on AFD vote shares in Germany using county-level data. Their analysis suggests that regions with higher refugee presence had no significantly different AFD vote shares than regions with lower refugee presence. Although using county-level data is common practice in political geography, it allows vague conclusions about micro-level exposure to refugees due to aggregation bias.[4] Steinmayr (2016) deals with this bias by using municipality level data from the 2015 federal state elections in Austria. He uses an IV approach and defines preexisting group accommodations as an instrument for refugee presence. Steinmayr's findings suggest that municipalities, which hosted more refugees, exhibited lower vote shares for Austria's major right-wing party.[5] These results are in contrast with the anti-immigration surge in Austria at the macro level. He argues that micro exposure to refugees increases the sympathy for refugees and therefore dampens local right-wing voting. However, the results are in line with the contact hypothesis which states that the interaction between members from different (racial) groups can reduce prejudice and discrimination (Allport, 1954; Dixon et al., 2005; Ellison et al., 2011). Although the IV approach is a useful tool to reduce endogeneity, Steinmayr's instrument is potentially flawed because group accommodations have a limited ability to represent the true refugee presence. One innovation in our article is the interaction between spatially distributed variables. While most of the literature makes a commendable effort to discuss potential endogeneity between immigration and voting behavior, the majority ignores the spatial dimension. Figure 1 shows how regions with

4 For further information, see: "Modifiable area unit problem" (MAUP).

5 The major Austrian right-wing party is the *Freedom of Austria* (FPOE) party.

high AFD vote shares are located in a circle-like shape around the Stuttgart metropolitan area. Hence, it is evident that AFD vote shares are not randomly distributed. Ignoring this fact is another source of bias. We tackle the shortcomings of the literature in three ways: First, we use municipality level data which is finer scaled than county-level data. Second, we use factually recorded refugee settlement data, that is, refugee accommodation locations, instead of proxy variables. Third, we implement a spatial econometric framework which accounts for biased estimates that result from misspecification of the spatial structure.

1.2 **Socioeconomic environment and voting behavior**

Several studies show that immigration is not the sole cause for the rise of right-wing parties and political polarization. Demographic differences, such as race, gender, and age, as well as economic prosperity measures, such as income and unemployment, crystallize as important factors for the decision at the ballot box. According to the Kramer model (Kramer, 1971; Kiewiet and Udell, 1998), high income and low unemployment increase the chance of re-election of the ruling party. Hersh and Nall (2016) argued that voting behavior in the US is a function of income as well as ethnic and racial heterogeneity. Furthermore, they concluded that partisanship is stronger in regions with higher cultural diversity. Noelle-Neumann (1980) explained that individuals with socially and economically unprivileged background, that is, individuals with low income or unemployed, are more likely to elect opposition parties. McCarty, Poole and Rosenthal (2006) argued that political polarization coincides with income inequality in the US. Garand (2010) argued that both major US parties', that is the Democrats' and the Republicans', ideological positions are more polarized during times of higher inequality in the US. Hence, the ideological positions of parties are a function of state-income inequality. Funke et al. (2016) studied political extremism after financial crises for different European countries during the period between 1870 and 2014. They argued that right-wing parties increased their vote share significantly after financial crises while government majorities shrank. Financial crises induce a reallocation of wealth which can disrupt political ideology. Han (2016) analyzed the links between income and voter support for radical right-wing parties in Western Europe. He concluded that individuals with lower income are more likely to vote for radical right-wing parties. Furthermore, he found a positive, yet weakly significant link between right-wing voting and unemployment. Krieckhaus et al. (2014) studied the effect of higher income disparity on the support for democracy in general. They described opposing forces, which can either increase or decrease the support for democratic parties. On the one hand, increasing income inequality could strengthen the support for democratic parties as democracies can work as an income redistribution mechanism. On the other hand, they argued that inequality can induce a "political disillusion" which leads to dissatisfaction and ultimately passes voters into the hands of right-wing parties. They inspected 40 democracies and found that increased inequality reduces the acceptance of democracy among all social classes. Dahlberg et al. (2012) studied the relationship between increased immigration and preference for wealth redistribution in Sweden. They found a significant negative influence of immigration on the support for redistribution. This effect is particularly strong among high-income earners. Hence, high-income earners are more likely to oppose financial support for refugees as well. Following the literature, we include

a set of socioeconomic control variables to account for political preferences among various social milieus.

2 Background and data

For a better understanding, it is useful to shed some light on the political landscape in Germany. In 2016, five state elections took place in Germany, particularly in BW, Berlin, Mecklenburg-Western Pomerania, Rhineland-Palatinate, and Saxony-Anhalt. Due to incomplete or insufficient data regarding the latter four states, we restrict the analysis to the largest of the five states, namely, BW. The state has a population of 10.9 million which corresponds to 13% of the total German population. BW is divided into 1,101 municipalities with an average of 9,900 residents per municipality. For the analysis, we chose the election year 2016 due to its temporal closeness to the refugee crisis.[6] Since the election took place during the spring of 2016, the preceding refugee crisis is considered an immediate policy evaluation (Haller, 2017). The majority of all votes were split among four parties. The *Green Party* (30.3%), the conservative CDU (27%), the right-wing AFD (15.1%), and the *Social Democrats* (SPD, 12.7%).[7] These four parties gathered 85% of all votes which makes them the key parties in the election. During the refugee crisis, Angela Merkel of CDU stood out politically as the main proponent of immigration and the leader of the ruling coalition. The CDU party was the main loser in the 2016 election because they lost 12 percentage points. The Green Party in BW is the ruling party but not a ruling party in parliament. Although the Green Party won the 2016 election in BW, it is not accountable for the refugee crisis at the federal level where it acts as an opposition party. The right-wing AFD party is a successful newcomer that was founded in 2013. Within three years, the party tripled its votes and became the third largest party in the 2016 state election. In comparison to the other parties, the AFD openly opposed the long-term settlement of refugees in Germany. The Greens and SPD either supported Angela Merkel's immigration-friendly policy or remained vague in their political positions throughout 2015 and spring of 2016. As a conclusion, we focus on two parties of interest: Angela Merkel's CDU and the right-wing AFD party. Both parties were in the spotlight throughout the crisis with the AFD acting as Germany's major anti-immigration party and the CDU being the ruling party and holding responsibility for the crisis. Recent literature shows that in the 2016 elections the AFD and CDU party were the key players in the immigration debate (Haller, 2017).[8]

For our analysis, we require three categories of data: election data, socioeconomic data, and refugee settlement data at the municipality level. Table 1 gives a variable overview. First, voting data was made available by the Federal Statistical Office of Baden-Wuerttemberg (FSOBW, 2016). We measure the election outcome for each party in percentage points per municipality. Furthermore, we include the vote share of the 2013 election to control for previous election outcomes. This is important because refugees were not a political topic during the 2013 election. We also account for the election turnout rate from the previous state election in 2013 because the refugee crisis might have mobilized nonvoters from 2013 which participated

6 The state election in Baden-Wuerttemberg was held on 13 March 2016.

7 The Green Party is the ruling party in Baden-Wuerttemberg. It was an opposition party in the German parliament at the date of the state election.

8 We have tested this hypothesis and found no significant impact of refugee presence on the green party as well as the social democrat party election outcomes.

Table 1 Variable overview and descriptive statistics

Variable	Description	Mean	SD
Refhome	Refugee accommodations per 1,000 residents	0.26	0.35
Policy variables			
AFD 16	Vote share of the AFD party in state election 2016 in percentage points	15.35	3.69
CDU 16	Vote share of the CDU party in state election 2016 in percentage points	31.10	7.15
AFD 13	Vote share of the AFD party in parliamentary election 2013 in percentage points	5.21	1.35
CDU 13	Vote share of the CDU party in parliamentary election 2013 in percentage points	50.18	6.87
Turnout rate	Turnout rate in the parliamentary election in 2013 in percentage points	71.93	4.93
Socioeconomic controls			
GDP	Gross domestic product per 1,000 residents (in €)	35.57	7.16
Unemployment	Unemployment rate in percentage points	3.74	0.53
Mean age	Mean age of the population	43.53	1.64
Males	Male population per 1,000 residents	495.10	12.01
Married	Married population per 1,000 residents	486.09	23.30
Population density	The number of residents per hectare	3.24	3.45
Migrant background	German citizens with migrant background per 1,000 residents	160.45	42.07
Low education	Highest degree = Basic education (second step) per 1,000 residents	337.87	35.71

N = 1,101.

in the 2016 election. Second, the FSOBW and the Federal Institute for Employment Research provided socioeconomic data. We include a set of socioeconomic control variables to account for voting differences among social groups. The main variables are GDP per municipality, the unemployment rate, mean age, gender, marital status, the share of residents with immigration background, and the share of residents with basic education. We also include the population density per hectare to distinguish between rural and urban voting preferences.

Third, the Ministry of Social Policy and Integration provided refugee settlement data. We measure the impact of refugee presence on the election outcome in terms of refugee accommodations per 1,000 residents. Because this is a crucial variable for our analysis, we describe the identification strategy in detail. The record date for the inventory of refugee accommodations is March 2016, shortly before the state election. We do not distinguish between newly built refugee shelters and existing buildings that have been turned into refugee accommodations. A potentially more precise measure for refugee presence could be the absolute number of refugees per accommodation. This type of data is not at our disposal, so we cannot distinguish the capacity among the accommodations. This might induce some inaccuracy caused by an underrepresentation of large accommodations which host many refugees and an overrepresentation of regular accommodations which host fewer refugees. Nevertheless, the number of refugee accommodations is a fairly good measure for refugee presence. This is due to the

fact that refugees are allocated to municipalities based on an allocation scheme which defines the population of the municipalities as the driving allocation factor. The detailed allocation scheme is defined in the Law on the Admission of Refugees (*FlüAG*).[9] Simply put, the more residents a municipality has, the more refugees will be allocated to this municipality. This means that the correlation between the number of residents and the number of refugees is expected to be high. Because there are some exceptions to the allocation scheme, we don't expect a perfect correlation.[10] In our data, we find a correlation of $r = 0.70$ between the number of residents and the number of refugee accommodations. Since the number of refugee accommodations is highly correlated with the number of residents, we assume that refugee accommodations are a good proxy for the true refugee presence. We standardize the refugee accommodations per 1,000 residents which results in the main refugee presence variable *refhome*. By standardizing the variable we avoid nonrandomness caused by population.

Although panel data is a more elegant way to deal with endogeneity, there are two reasons why we choose a cross-section approach. First, the AFD party became an anti-immigration party in recent years. It evolved from a Euro-sceptic party, which focused on European economic policy, to a right-wing party with a restrictive stance toward immigration. In other words, voters who oppose immigration did not necessarily vote for the AFD party in 2013. Against this backdrop, it is unreasonable to compare election outcomes from 2013 and 2016. Second, the party was established in 2013 and participated only in two federal elections, that is, 2013 and 2017. As for the state elections, the party participated in only one election cycle in 2016. Due to the recent transition in AFD's political agenda and the lack of election periods, we choose a cross-section approach.

3 Model and empirical implementation

Using municipality level data, we build a simple model where the vote share for a political party depends on the number of refugee accommodations per 1,000 residents ($refhome_i$) and a set of policy and socioeconomic control variables (X_i). We exploit the variation among $i = 1, 2, \ldots, N$ municipalities. Parameter α_1 represents the marginal effect of direct refugee presence, that is, the backyard effect. For a particular draw from the population, we formulate the following model.

$$vote\ share_i = \alpha_1 refhome_i + \beta X_i + u_i \tag{1}$$

For the sake of simplicity, we summarize the policy variables and the socioeconomic control variables in matrix X_i which includes k independent variables. The corresponding coefficient vector is β. For the sake of clarity, and to highlight the backyard effect, we separate the refugee presence variable ($refhome_i$) from the sum of independent variables.

Since all the data have a spatial context, that is, all variables are attributes of spatial units, we must account for spatial spillovers among the variables. Ignoring a spatial structure by assuming randomness will lead to biased and inefficient coefficients (Anselin, 1988). This makes spatial econometric techniques necessary for estimation. Nonrandomness in space can occur when, for instance, right-wing voting concentrates in a certain neighborhood resulting

9 In German: *Flüchtlingsaufnahmegesetz*.

10 We discuss the detailed allocation scheme in section four.

in right-wing voting clusters. Another advantage of spatial models is the analysis of the neighborhood effect itself. One motivation for the neighborhood effect stems from the literature review, since immigration to certain regions can improve election outcomes for right-wing parties. However, none of the literature has measured how immigration to neighboring regions affects the voting behavior. Spatial econometric models allow to distinguish between the number of refugees per 1,000 residents in a municipality, that is, the backyard effect, and the number of refugees per 1,000 residents in neighboring municipalities, that is, the neighborhood effect. We are not only interested in the backyard effect on the voting outcome but also in the neighborhood effect. Before we define the latter effect, we require a plausible definition of neighborhood. The most common way to implement a neighborhood structure in the sense of spatial econometrics is the spatial weight matrix (Drukker et al. 2013a). The spatial weight matrix defines which spatial entities are neighbors. A common way to define a neighborhood is a common border between two geographical units. If two municipalities i and j share a common border, the single element of the matrix w_{ij} takes a value of one or zero otherwise. The binary neighborhood relations among all spatial entities form a neighborhood structure which is defined in a contiguous spatial weight matrix W.

$$W = \begin{pmatrix} w_{11} & w_{12} & \cdots & w_{1n} \\ w_{21} & w_{ij} & \cdots & w_{2n} \\ \vdots & \vdots & \ddots & \vdots \\ w_{n1} & w_{n2} & \cdots & w_{nn} \end{pmatrix} \tag{2}$$

With

$$w_{ij} = \begin{cases} 1 & if\ i\ is\ neighbour\ to\ j \\ 0 & otherwise \end{cases} \tag{3}$$

The contiguous spatial weight matrix W is an NxN matrix where the number of rows and columns corresponds to the total number of municipalities in our sample (N = 1,101). We define the diagonal elements of the matrix as zero. There are many possible definitions of neighborhood; however, we use the common border contiguity definition.[11] Wang et al. (2013) argued that variations in the spatial weight matrix setting do not significantly change parameter estimation. For the sake of simplicity, we follow this argument and restrict the model to one type of neighborhood structure.

The spatial weight matrix is the starting point for most spatial econometric models. An in-depth overview of spatial econometric models is provided by Anselin (1988), Elhorst (2010), and LeSage and Pace (2009). There are three ways to implement a spatial structure (or spatial lag) into an econometric model, namely, the spatial weight matrix in the dependent variable, in the independent variable, and in the error term. Implementation all three types of spatial lag is not feasible and leads to misspecification (Elhorst, 2010). Simply put, a maximum of two types of spatial interactions can be incorporated otherwise the estimation is not identified. LeSage and Pace (2009) argued that implementing spatial structure in the dependent and independent variables is the best way to avoid endogeneity. Ignoring spatial structure in the error term is the lesser evil because it does not affect consistency. However, modeling spatial structure in

11 For example, w_{ij} can take the value of one, if two locations lie within a certain distance to another. Any other boundary measure can be taken as well. Another method is the implementation of an inverse distance, so that the neighbourhood is measured in terms of distance rather than connectivity.

the error term can improve estimation efficiency. LeSage and Pace (2009) suggested estimating the Spatial Durbin Model (SDM) with spatial structures in the dependent and independent variables to minimize potential endogeneity. For our application, we define the SDM model as follows.

$$vote\ share_i = \alpha_1 refhome_i + \alpha_2 \sum_{j=1}^{N} w_{ij} refhome_j + \lambda \sum_{j=1}^{N} w_{ij} voteshare_j + \beta X_i + \sum_{j=1}^{N} w_{ij} X_j \theta + u_i \quad (4)$$

Following the literature, first, we implement a spatial lag in the dependent variable which is expressed by $\sum_{j=1}^{N} w_{ij} voteshare_j$. The corresponding spatial autoregressive parameter λ can be interpreted as the average effect of neighboring vote shares on the vote share in municipality *i*. Note that λ is a scalar. When λ is positive, a high vote share for a party in municipality *i* reinforces the vote share for the same party in neighboring municipality *–i*. λ is also positive, when a low vote share further weakens the vote share for the same party in neighboring municipalities. In other words, a positive λ represents the degree of spatial clustering of similar values in the dependent variable at nearby locations.[12] Second, we incorporate spatial structure in the exogenous variables in two ways: (a) through $\alpha_2 \sum_{j=1}^{N} w_{ij} refhome_j$ and (b) $\sum_{j=1}^{N} w_{ij} X_j \theta$. The corresponding parameter α_2 represents the neighborhood effect. It measures the average effect of neighboring refugee accommodations (per 1,000 residents) on the vote share in the initial community. Parameter vector θ measures the average influence of neighboring independent variables on the initial community. The error term is denoted by u_i. If there is no spatial structure in the independent variables, the scalar α_2 and vector θ are insignificant. If this is the case, the Kelejian-Prucha Model (KPM) can improve estimation efficiency. The KPM model omits the spatial structure in the independent variables but adds a spatial structure to the error term. The KPM model is defined as follows:

$$vote\ share_i = \alpha_1\ refhome_i + \lambda \sum_{j=1}^{N} w_{ij} voteshare_j + \beta X_i + u_i$$

With

$$u_i = \rho \sum_{j=1}^{N} w_{ij} u_j + \varepsilon_i \quad (5)$$

Note that the KPM model does not include the neighborhood effect. ρ can be interpreted as a spatial heterogeneity parameter which gathers spatial variation in the error term. It improves the efficiency and can be considered a nuisance parameter. ε_i is an i.i.d. noise term. If there is no structure in the independent variable, but a spatial structure prevails in the dependent variables as well as the error term, the most efficient and consistent model is the Spatial Durbin Error Model (SDE).

$$vote\ share_i = \alpha_1 refhome_i + \alpha_2 \sum_{j=1}^{N} w_{ij} refhome_j + \beta X_i + \sum_{j=1}^{N} w_{ij} X_j \theta + u_i$$

With

12 The case of a negative λ is a rather exotic and less common case.

$$u_i = \rho \sum_{j=1}^{N} w_{ij} u_j + \varepsilon_i \tag{6}$$

For our application, the SDE model proves useful for the CDU party because we do not find significant vote share clustering for the CDU party. For the model selection, we follow the procedure proposed by the literature and estimate three models for each party. First, we estimate a simple OLS model from Eq. (1) without any spatial interactions for both parties. Second, we estimate the SDM model from Eq. (4) for the parties to check the existence of the neighborhood effect. As for the third model, we follow the model selection procedure proposed by LeSage and Pace. We estimate the KPM model from Eq. (5) for the AFD party. Because we do not find significant spatial autocorrelation for CDU vote shares, we estimate Eq. (6) for the CDU party for higher efficiency. For the estimation of the SDM, SDE, and KPM model we use the generalized spatial two-stage least squares estimator (GS2SLS). Ord (1975) and Anselin (1980) provide a detailed description of the GS2SLS estimation procedure. Kelejian and Prucha (1998) provide a detailed example of the GS2SLS estimator for the KPM model. Since we use STATA 14, we follow the estimation procedure proposed by Drukker et al. (2013b).

4 Refugee allocation and endogeneity

In this section, we highlight how the German government handles refugee allocation and how we account for non-randomness in the estimation. There is some potential for endogeneity primarily because refugee allocation is not a random process and depends on various factors itself. The asylum seeker management is a top-to-bottom system. This means that the allocation starts at the highest administrative level (federal states) is then followed by the allocation among counties, and ends at the lowest administrative level (municipalities). Note that the allocation of refugees follows different schemes depending on the administrative level. For instance, the allocation regime among states differs from the allocation among municipalities. In practice, every asylum seeker picked up at the German border undergoes a quick check by the border police followed by a registration in a federal asylum seeker database (EASY-System). The EASY-System assigns a number of refugees to each of the 16 states based on a quota, namely, the "*Koenigssteiner Schluessel*." The quota allocates refugees based on the state's population and tax revenues and ensures a rather balanced distribution of the burden.[13] Refugees assigned to a certain state are sent to one of the large-scale initial entry centers (IEC) within the state, where the majority of the paperwork takes place. IECs are large facilities that provide short-term housing for several thousand refugees. They serve as temporary accommodations for the duration of the asylum admission. After successful registration at the IEC, the refugees are assigned to a county (*Landkreis*) within the same state based on the same quota. Finally, the authorities within the counties allocate the refugees to the municipalities, which ultimately provide long-term accommodation. Since we study municipality level data, we are mostly interested in the final step of the allocation procedure. The allocation among municipalities differs from the allocation among states and counties. The allocation scheme for municipalities is defined in §18 in the Law on the Admission of Refugees (*FlüAG*) and §2 in the executive order from January

13 The distribution rests to one third on the population and two thirds on tax revenues.

2014 (DVO FlüAG).[14] Simply put, the law allocates refugee among municipalities primarily based on the population share of the municipality.[15]

The regulation leaves some room for exceptions because the law allows agreements between the municipalities and the counties which can deviate from the quota. According to the Ministry of Social Policy and Integration, two main factors led to deviations from the population quota. First, municipalities that operate IECs are partially exempt from the FlüAG quota.[16] In fact, they receive up to 50% fewer refugees for long-term accommodation compared to municipalities without an IEC. Due to the small number of IECs in the state, we expect a weak effect at best. At the record date, there were 2,388 regular refugee accommodations and 64 IECs in the state of BW. Nonetheless, the presence of IEC affects the number of refugee accommodations in a municipality negatively. Second, exceptions were made for municipalities without vacant or suitable flats and houses. The immigration influx happened in a short time span and suitable accommodations were scarce. In addition to newly built refugee shelters, house owners received a lucrative rent from the German government for hosting refugees. Consequently, municipalities with high vacancy rates received higher number of refugees, which would be reflected in higher number of refugee accommodations.[17] We assume that the vacancy rate is likely to induce a self-selection bias, which would result in a positive correlation between refugee accommodations and the vacancy rate. Two more factors are considered less important and may affect refugee allocation.[18] Third, the allocation could depend on the political affiliation of the incumbent mayor. For instance, mayors who have a positive attitude toward refugees could agree to accept higher number of refugees, while mayors who are affiliated with the AFD party are likely to accept fewer refugees. Unfortunately, during the refugee crisis and at the date of the election, most mayors were either affiliated with the CDU party or not affiliated with any party. There is not much variation in the affiliation of the mayors. Not a single mayor was affiliated with the AFD party and only a few were affiliated with other parties such as the Greens and Social Democrats. Besides the lack of variation, there are only a few municipalities that accepted a higher number of refugees voluntarily (mostly for publicity reasons) while almost all others were in line with the allocation scheme.[19] Fourth, there might be some influence on allocation caused by the generated tax revenues of the municipalities. This is because the allocation among counties is based on tax revenues, which could also affect the allocation on the municipality level. To account for the population-based quota, we standardize the number of refugee accommodations per 1,000 residents. Note that the number of refugee accommodations and the number of residents exhibits a correlation of $r = 0.70$. Hence, by standardizing refugee accommodations by the population, we account for the chief cause of non-randomness in the allocation procedure. To account for the four remaining factors, we run a regression where the number of refugee accommodations per 1,000 residents is a function of the vacancy rate, the political affiliation of a mayor, the absolute number of IECs, and the GDP. Since tax revenue data is not available for the majority of the municipalities, we

14 In German: *Flüchtlingsaufnahmegesetz*.

15 The corresponding county acts as a reference value for the calculation of the population share.

16 This regulation ensures that municipalities which operate IECs are not overburdened.

17 Note that existing houses and apartments which host refugees are also considered refugee accommodations.

18 The Ministry of Social Policy and Integration considered both factors as practically irrelevant.

19 According to the Ministry of Social Policy and Integration less than ten municipalities deviated from the quota due to the political affiliation of the mayor.

Table 2 Determinants of refugee allocation

Dependent variable: Refugee accommodations per 1,000 residents	
Initial entry centers	−0.027*** (−4.33)
GDP	0.001 (1.25)
Vacancy rate	3.977*** (4.43)
Mayor dummy (CDU)	−0.020 (−0.84)
R^2	0.034
N = 1,101	

Note: Parentheses represent the *t*-values.
***1%, **5%, and *10% level of significance.

use the regional GDP as a proxy for tax income. The vacancy rate is defined as the share of vacant flats per municipality. To account for the political affiliation, we include a dummy variable that takes the value one if the mayor affiliates to the CDU party. The regression in Table 2 shows that the standardized number of refugee accommodations correlates with the number of IECs and the vacancy rate. Both coefficients are significant and the magnitudes are in line with the official allocation procedures of the ministry. IECs are negatively correlated with the number of refugee accommodations per 1,000 residents while the vacancy rate is positively correlated. The estimation also confirms that political affiliation and the GDP are practically irrelevant for refugee allocation on the municipality level.

Regarding the overall regression, a low $R^2 = 3.4\%$ confirms that the explanatory power of the model is weak. In other words, the refugee allocation is not completely random but the degree of non-randomness is weak at best. This result is perfectly in line with the official statements on the allocation procedures: municipality population was the main factor for refugee allocation, while some municipalities were slightly affected by the number of IECs and the vacancy rate, due to the exception rules. The GDP and the political affiliation of the mayor are practically irrelevant. Although our estimates suggest that the bias caused by non-randomness is minimal, we control for the bias by adding the predicted values of the estimation from Table 2 as a regressor ($\hat{y}$) to the estimates in the following chapter.

5 Results

This article aims to study how immigration in voter's neighborhoods affected the election outcome of the right-wing AFD party and Angela Merkel's CDU party. We measure the influence of refugee immigration through two effects: the backyard effect, that is, the number of refugee accommodations per 1,000 residents, and the neighborhood effect, that is, the number of refugee accommodations per 1,000 residents in neighboring municipalities. The coefficients α_1 and α_2 represent the magnitude and direction of both effects respectively. The estimates for the AFD party are summarized in Table 3.

Regarding the first coefficient α_1, we find strong evidence for the backyard effect on AFD vote shares. All three models indicate a positive influence of refugee presence on AFD vote shares. The magnitude of the coefficients varies slightly between 0.59 and 0.67. The direction of the effect is clear: A higher refugee presence significantly boosts AFD vote shares. To be precise, one additional refugee accommodation per 1,000 residents increases the AFD vote share

Table 3 Vote share estimates for the AFD in the year 2016 (in percentage points)

Dependent variable: AFD vote share in 2016	**OLS**	**SDM**	**KPM**
(1) Refugee variables			
Backyard effect (α_1)	0.667** (2.47)	0.594** (2.27)	0.678*** (2.99)
Neighborhood effect (α_2)	–	0.046 (0.06)	–
(2) Socioeconomic variables			
AFD 13	1.087*** (12.05)	1.033*** (15.41)	0.878*** (13.26)
Turnout rate	−0.179*** (−7.14)	−0.170*** (−8.53)	−0.151*** (−8.34)
GDP	0.035*** (2.85)	0.024 (1.66)	0.024 (1.55)
Unemployment	1.234*** (7.47)	1.094*** (6.12)	0.938*** (4.80)
Mean age	−0.472*** (−6.32)	−0.456*** (−7.64)	−0.415*** (−7.41)
Males	0.005 (0.41)	0.008 (0.92)	−0.001 (−0.13)
Married	0.037*** (7.23)	0.039*** (9.60)	0.038*** (9.81)
Population density	0.078*** (2.81)	0.066** (2.04)	0.102*** (3.02)
Migrant background	0.002 (0.96)	0.002 (0.96)	0.003 (1.39)
Low education	0.012*** (4.43)	0.012*** (4.04)	0.012*** (3.84)
(3) Spatial parameters			
λ	–	0.010*** (3.70)	0.007*** (3.10)
θ	–	–	–
ρ	–	–	0.094*** (20.77)
$\hat{y}$	5.521*** (2.93)	5.170*** (3.52)	4.377*** (3.21)
R^2	0.42	–	–

Note: Parentheses represent the *t*-values.
***1%, **5%, and *10% level of significance.

by 0.6 percentage points on average.[20] We find a positive and significant spatial autoregressive structure in the dependent variable, which justifies the use of spatial econometric models. Both spatial models, SDM and KPM, indicate that AFD vote shares spatially clustered in certain regions. In other words, voters with AFD preference are likely to live in nearby municipalities. With regard to the second coefficient (α_2) we find no evidence for the neighborhood effect on AFD vote shares. When it comes to the CDU (Table 4), we do not find convincing evidence for the backyard effect. Although α_1 is negative in all models, it is only significant in the OLS model. The OLS specification does not consider spatial interactions, so its coefficient is likely biased and less efficient compared to the other specifications in the table. Hence, refugee presence does not have a direct negative influence on the CDU vote shares. However, we find some evidence for the neighborhood effect. The SDM and SDE models confirm that refugee presence in neighboring municipalities negatively affects the CDU election outcome. In addition, we have also conducted several robustness checks by including and excluding various regressors. In all of our variations, the direction and significance of both refugee effects remain unchanged and the coefficients vary slightly. Overall, we conclude that the influence of the immigration shock is rather robust for both parties. The backyard effect was beneficiary for the AFD party in the 2016 elections while the neighborhood effect was disadvantageous to the CDU party.

20 The true coefficients in the SDM and KPM model will vary slightly since we have to account for a positive autoregressive structure ($\lambda = 0.007 - 0.010$) in the dependent variable.

Table 4 Vote share estimates for the CDU in the year 2016 (in percentage points)

Dependent variable: CDU vote share in 2016	**OLS**	**SDM**	**SDE**
(1) Refugee variables			
Backyard effect (α_1)	−0.604* (−1.91)	−0.334 (−1.14)	−0.113 (−0.43)
Neighborhood effect (α_2)	–	−0.187** (−2.22)	−0.184** (−2.08)
(2) Socioeconomic variables			
CDU 13	0.934*** (36.90)	0.925*** (52.75)	0.910*** (49.63)
Turnout rate	0.094*** (3.40)	0.096*** (4.33)	0.111*** (5.25)
GDP	−0.069*** (−5.29)	−0.063*** (−3.95)	−0.037** (−2.01)
Unemployment	−0.016 (−0.09)	0.000 (0.00)	0.122 (0.54)
Mean age	−0.046 (−0.49)	−0.045 (−0.67)	0.034 (0.52)
Males	−0.014 (−1.08)	−0.014 (−1.49)	0.003 (0.30)
Married	−0.025*** (−4.73)	−0.026*** (−5.71)	−0.024*** (5.24)
Population density	−0.053* (−1.64)	−0.042 (−1.15)	0.015 (0.37)
Migrant background	0.001 (0.29)	0.001 (0.36)	0.004 (1.47)
Low education	−0.002 (−0.50)	−0.000 (−0.02)	0.007* (1.91)
(3) Spatial parameters			
λ	–	−0.000 (−0.03)	–
θ	–	–	–
ρ	–	–	0.088*** (16.37)
$\hat{y}$	3.471* (1.69)	3.802** (2.31)	0.425 (0.27)
R^2	0.81	–	–

Note: Parentheses represent the *t*-values.
***1%, **5%, and *10% level of significance.

Regarding other policy variables, we find a strong positive correlation between the 2013 election outcome and the 2016 election outcome for both parties. Regions that had a high vote share for either party in the previous election have a similarly high vote share for the same party in the recent election. This indicates some regional and temporal stickiness of party preferences. For both parties, the control variables for the previous election, *AFD 13* and *CDU 13*, exhibit the highest *t*-values among all variables. The previous election is the driving force for the high coefficient of determination for the CDU party. It explains nearly 80% of the CDU vote share in 2016. Regarding the election turnout, we find that AFD voting is more pronounced in regions with traditionally high voting abstinence. In 2016, the AFD gained more votes in regions that had a low turnout rate in the 2013 election. On the contrary, CDU vote shares are higher in regions with low voting abstinence. This result indicates that right-wing voting is an attractive option in regions with traditionally higher voting abstinence. The AFD is often considered a "catch all" party for protest voters. One alternative for protest voting is voting abstinence. Hence, it is possible that the party mobilized a significant share of nonvoters from 2013, which voted for the AFD party in 2016.

We find some interesting links between the socioeconomic environment and the election outcome. Our results show that right-wing voting is closely related to unemployment. This result is supported by the aforementioned literature. Among all models, the unemployment rate is positively correlated with AFD vote shares at the highest significance level.

Unemployment has also a relatively high coefficient. On average, one additional percentage point in the unemployment rate increases the AFD vote share by 0.87 to 1.08 percentage points. With regard to the municipality output, we find no significant relationship between regional GDP an AFD votes. Although GDP has a positive effect on AFD vote shares in the standard model, the OLS estimator is likely biased (again), since it does not implement spatial structures. The better fitting models, SDM and KPM, show no significant influence of GDP on AFD vote shares. In contrast, the CDU party is unaffected by regional variation in unemployment. However, it exhibits significantly lower vote shares in wealthier regions with high GDP. Regarding other demographic factors, our estimates show that the AFD party obtained more votes in municipalities with a certain demographic milieu. The AFD party was more successful in municipalities with younger age, a higher share of married couples, and a lower level of education. Moreover, the AFD received more votes in regions with higher population density. Surprisingly, the AFD election outcome is unaffected by the share of residents with immigration background. This group consists of people who live in Germany for a longer period of time, and hold German citizenship which makes them entitled to vote. Due to the anti-immigration rhetoric of the AFD party, one could expect that Germans with migration background might averse the party's position and vote against it, which would result in fewer AFD votes. There is some evidence that refutes this presumption and indicates that some migrants might be strong proponents of the AFD party.[21] Unfortunately, since we use aggregated data, our setup does not allow conclusions on individual voting behavior. Hence, the stance of migrants with a German passport toward the AFD remains unanswered and leaves space for further research.

With regard to the CDU vote shares, there is no clear-cut demographic environment. The only significant demographic variable is the density of married people which is negatively correlated with CDU vote shares. Variation in age, gender, migration background, and population density does not affect the CDU election outcome significantly. We find some evidence for a positive correlation between a low education level and CDU votes in the SDE model. Overall, the results for the CDU party are a little surprising, since the CDU is Germany's center party which attracts voters from various social groups. We also do not find a spatial clustering for the CDU vote shares in 2016, which indicates that CDU voters do not cluster in certain regions. Finally, some remarks on the spatial model parameters. The Moran's I test for spatial autocorrelation finds significant spatial autocorrelation in some of the independent variables as well as the error term. In addition, we find a positive autocorrelation of the dependent variable for the AFD party. Our estimates confirm the existence of spatial autocorrelation. Hence, we conclude that the OLS model is the weakest performing model among the estimates and all estimated spatial models are more consistent and efficient.

5.1 **Robustness checks**

We run a set of placebo regressions as an additional measure to check for a potential causal relationship between refugee presence and the election outcome. We replace the dependent variable for each party, that is, the vote shares in the 2016 election, by the vote shares from the 2013 election. Since the refugee crisis was not a political issue in 2013, the placebo regressions

21 An atricle in *Foreign Policy* highlights this issue, "Immigrants Are Big Fans of Germany's Anti-Immigrant Party" from 15.01.2020.

Table 5 Placebo regression for the AFD vote shares in the year 2013 in percentage points

Dependent variable: AFD '13 vote share	**OLS**	**SDM**	**KPM**
(1) Refugee variables			
Backyard effect (α_1) (*refhome*)	0.120 (1.11)	0.138 (1.29)	0.184* (1.85)
Neighborhood effect (α_2) (*Wrefhome*)	–	−0.018 (−0.58)	–
R^2	0.30	–	–

Note: Parentheses represent the *t*-values.
***1%, **5%, and *10% level of significance.

Table 6 Placebo regression for the CDU vote shares in the year 2013 in percentage points

Dependent variable: CDU '13 vote share	**OLS**	**SDM**	**SDE**
(1) Refugee variables			
Backyard effect (α_1) (*refhome*)	−0.162 (−0.45)	−0.066 (−0.25)	−0.629*** (−2.54)
Neighborhood effect (α_2) (*Wrefhome*)	–	−0.062 (−0.79)	0.019 (0.24)
R^2	0.83	–	–

Note: Parentheses represent the *t*-values.
***1%, **5%, and *10% level of significance.

should show no significant influence of refugee presence on the election outcome of 2013. In the placebo specifications, we use the 2013 vote share as the dependent variable, and the 2016 vote share as a regressor, while all other variables remain untouched. Table 5 shows the simplified results of the placebo regression for the AFD party.

In the OLS and SDM specification, the coefficient for the backyard effect is insignificant. In other words, direct refugee presence does not affect the election outcome of the AFD party in 2013. On the other hand, the KPM model shows a weakly significant positive backyard effect on the election outcome of the AFD party. It is very likely, that the effect in the KPM model is due to a misspecification of the spatial structure. The KPM model ignores the (significant) effect of spatial interaction in the regressors, which leads to biased coefficient estimates. Apart from the (potentially biased) KPM specification, the results of the first placebo regression are in line with our expectations. There is no evidence, that refugee presence affected the 2013 AFD vote shares.

The results for the CDU party are summarized in Table 6. Similar to the regression in Table 4, there is no significant effect of direct refugee presence (backyard effect) on the CDU vote shares in the placebo specification of the OLS and the SDM model. The neighborhood effect is also insignificant in all specifications. Hence, the neighboring effect does not affect the 2013 election outcome, while it potentially affects the 2016 election outcome of the CDU party. In the placebo specification of the SDE model, there is a significant negative backyard effect on the CDU vote shares, which is not present in the main regression in Table 4. It is very likely that misspecification also caused this effect. This is due to the fact, that there is no spatial autocorrelation for the CDU vote shares in 2016, while there is significant positive spatial autocorrelation for the 2013 CDU vote shares. The bias in the SDE model results from is significant positive spatial autocorrelation in the dependent variable, which the SDE specification neglects. In other words, the SDE model is appropriate for the 2016 election, but it is not appropriate for the 2013 election. Still, the placebo regressions are very useful, because they

illustrate that simply swapping the election years leads to insignificant estimates for the best fitting model, that is, the SDM. Overall, the placebo regressions support the hypothesis, that refugee presence affected the election outcome of the AFD party and CDU party.

6 Conclusion and discussion

This article studies the short-run impact of immigration on right-wing voting behavior. We use the refugee crisis from 2015/2016 as a natural experiment to study the influence of a large and unexpected immigration influx on the voting behavior in German municipalities during the 2016 election. We model the influence of immigration, directly and indirectly, through two channels, that is, the backyard effect and the neighborhood effect. The former effect describes the impact of the number of refugee accommodations per 1,000 residents on the election outcome while the latter effect describes the impact of refugee accommodations per 1,000 residents in neighboring municipalities. Our estimates for the right-wing AFD party are straightforward—the party benefits from the immigration influx since the backyard effect is positive and significant across all models. We find no evidence for the neighborhood effect on AFD vote shares. Our results support the hypothesis that a significant share of the population opposed refugee settlement in their home municipality by voting for the right-wing AFD party. We suppose that voters in municipalities with larger numbers of refugee settlements found the AFD party program more appealing since it opposes refugee settlement in Germany and criticizes Merkel's refugee policy. With regard to the massive loss of the CDU party in the election, it is surprising that local refugee presence did not directly affect CDU vote shares. Hence, other factors have caused the decline of Angela Merkel's CDU. According to Haller (2017), the media coverage about the refugee crisis was one major factor that caused CDU vote shares to plummet. He argues that the subjective perception through media consumption was rather important to form an opinion about the matter and stimulated disagreement with the refugee-welcoming policy of the CDU. We do not prove Haller's argument in our work, however, it is a potential extension to our work in the future. Although we do not find evidence for the backyard effect on CDU votes, we do find some evidence that the neighborhood effect negatively affects CDU vote shares. This is an interesting result because it implies that direct exposure to immigration does not decrease CDU votes while indirect exposure does. The contact hypothesis might partly explain this observation. The hypothesis states that social interaction with immigrants can reduce prejudice and hostility. Having few migrants in the "backyard" while having many immigrants in the "neighborhood" describes a situation where social interaction between natives and immigrants is potentially limited. Note that AFD and CDU voters are two different population segments. Contrary to AFD voters, CDU advocates could be more open to intercultural contact with refugees, which could reflect in an insignificant backyard effect but a significant neighborhood effect. According to the contact hypothesis, intercultural contact can induce empathy and acceptance among different cultural groups. This would explain the insignificant backyard effect and the significant negative neighborhood effect on the CDU. In other words, CDU advocates, who experience refugee presence in their hometown, also have a higher chance to become familiar with refugees and develop empathy and tolerance, while refugee presence in neighboring municipalities physically limits intercultural contact. This would ultimately explain why the CDU received fewer votes in regions which neighbor

municipalities with many refugee accommodations. This behavior is also in line with the CDU party programmer of 2016, which has a tolerant and integrative stance toward refugees. Furthermore, we find that CDU obtained more votes in regions that had higher turnout rates in the previous elections. In contrast, the right-wing AFD was more successful in regions, which had low turnout rates in the previous election. This indicates that the AFD party was more attractive in regions that previously had higher voting abstinence. Another interesting result is the spatial clustering of AFD voters. The SDM and KPM models show that regions with high AFD vote-shares at the 2016 election are likely to be neighbor to other regions which prefer the AFD likewise. This is an interesting observation because it raises the question of why right-wing voting is spatially clustered. There seems to be some sort of "contagion effect" of right-wing voting among neighboring municipalities. This result leaves some space for further research. However, one potential explanation could be the public perceptibility of the AFD in regions where the AFD is strong. Regions with higher AFD vote shares have more AFD supporters and therefore, more financial means and manpower. This allows more party advertisements and a professional structure. Since the AFD party is a new party, it is all the more important to make a professional impression on voters, which is easier achievable with solid party funding. We assume that the "professional" AFD presence is perceived in the neighborhood which attracts voters in neighboring municipalities. It would be interesting to study the role of party funding on election results in a spatial context to check this hypothesis.

The analysis of the socioeconomic environment shows that unemployment is a major driving factor for right-wing voting. The AFD benefitted in regions with higher unemployment rates. A large share of the literature on that matter points out that right-wing voting is often reinforced by a high unemployment rate. With regard to the demographic factors, we find strong evidence for AFD support in municipalities with high degrees of married couples, low education, and lower mean age. In light of German history, a recent study shows that political extremism is the second largest concern among Germans in 2015 (RAV, 2016). We presume that the fear of political extremism is pronounced more strongly among older voters. Hence, older generations might be less willing to vote for right-wing parties. Another surprising result is the seemingly indifferent stance toward right-wing voting in regions with many Germans with immigration background. We cannot say whether immigrants in Germany have the same stance toward "new" immigrants as native Germans do or whether native Germans' voting behavior is not affected by the presence of Germans with immigration background. As a conclusion, the finely scaled spatial methodology proofed to be useful to study the influence of local immigration shocks and local socioeconomic conditions on voting behavior since it outperformed the non-spatial model. It could serve as a useful template for future policy evaluations of various local shocks and spatial clustering of voting behavior.

References

Allport, G. W. (1954): The Nature of Prejudice. Reading, MA: Addison-Wesley Publishing Company.

Anselin, L. (1980): Estimation Methods for Spatial Autoregressive Structures. Regional Science Dissertation and Monograph Series. Ithaca, NY: Cornell University.

Anselin, L. (1988): Spatial Econometrics: Methods and Models. Dordrecht: Kluwer Academic Publishers.

BAMF (2016): Migration Report 2015. Nuremberg: Federal Office for Migration and Refugees (BAMF).

Barone, G.; A. D'Ignazio; G. De Blasio; P. Natichhioni (2016): Mr. Rossi, Mr. Hu and Politics. The Role of Immigration in Shaping Natives' Voting 2Behaviour. Journal of Public Economics 136, 1-13.

Dahlberg, M.; K. Edmark; H. Lundqvist (2012): Ethnic Diversity and Preference for Redistribution. Journal of Political Economy 120(1), 41-76.

Dixon, J.; K. Durrheim; C. Tredoux (2005): Beyond the Optimal Contact Strategy: A Reality Check for the Contact Hypothesis. American Psychologist 60(7), 697-711.

Drukker, D.M.; H. Peng; I. R. Pruch (2013a): Creating and Managing Spatial-Weighting Matrices with the Spmat Command. The Stata Journal 13(2), 242-286.

Drukker, D. M.; I. R. Prucha; R. Raciborski (2013b): Maximum Likelihood and Generalized Spatial Two-Stage Least-Squares Estimators for A Spatial-Autoregressive Model with Spatial-Autoregressive Disturbances. The Stata Journal 13(2), 221-241.

Dustmann, C.; K. Vasiljeva; A. P. Damm (2016): Refugee Migration and Electoral Outcomes. The Rockwool Foundation Research. Study Paper No. 111.

Elhorst, J. P. (2010): Applied Spatial Econometrics: Raising the Bar. Spatial Economic Analysis 5(1), 9-28.

Ellison, C. G.; H. Shin; D. L. Leal (2011): The Contact Hypothesis and Attitudes Toward Latinos in the United States. Social Science Quarterly 92(4), 938-958.

FSOBW (2016): Statistisches Monatsheft Baden-Wuerrtemberg. Stuttgart, Federal Statistical Office of Baden-Wuerttemberg 4.

Funke, M.; M. Schularick; C. Trebesch (2016): Going to Extremes: Politics after Financial Crises, 1870-2014. European Economic Review 88, 227-260.

Garand, J. C. (2010): Income Inequality, Party Polarization, and Roll-Call Voting in the U.S. Senate. The Journal of Politics 72(4), 1109-1128.

Gehrsitz, M.; M. Ungerer (2017): Jobs, Crime, and Votes: A Short-run Evaluation of the Refugee Crisis in Germany. Institute of Labor Economics (IZA) Discussion Paper Series: 10494.

Halla, M.; A. F. Wagner; J. Zweimüller (2017): Immigration and Voting for the Far Right. Journal of the European Economic Association 15(6), 1341-1385.

Haller, M. (2017): Die „Flüchtlingskrise" in den Medien". Frankfurt: Otto Brenner Foundation.

Han, K. J. (2016): Income Inequality and Voting for Radical Right-Wing Parties. Electoral Studies 42, 54-64.

Hersh, E. D.; C. Nall (2016): The Primacy of Race in the Geography of Income-Based Voting: New Evidence from Public Voting Records. American Journal of Political Science 60(2), 289-303.

Kelejian, H. H.; I. R. Prucha (1998): A Generalized Spatial Two-Stage Least Squares Procedure for Estimating a Spatial Autoregressive Model with Autoregressive Disturbances. The Journal of Real Estate Finance and Economics 17, 99-121.

Kiewiet, D. R.; M. Udell (1998): Twenty-Five Years after Kramer: An Assessment of Economic Retrospective Voting based upon Improved Estimates of Income and Unemployment. Economics and Politics 10, 219-248.

Kramer, G. H. (1971): Short-Term Fluctuations in U.S. Voting Behavior, 1896–1964. American Political Science Review 65(1), 131-143.

Krieckhaus, J.; B. Son; N. M. Bellinger; J. M. Wells (2014): Economic Inequality and Democratic Support. Journal of Politics 76(1), 139-151.

LeSage, J.; R. K. Pace (2009): Introduction to Spatial Econometrics. Boca Raton, LLC: Taylor & Francis Group.

McCarty, N.; K. T. Poole; H. Rosenthal (2006): Polarized America: The Dance of Ideology and Unequal Riches. Cambridge, MA: MIT Press.

Noelle-Neumann, E. (1980): Die Schweigespiralle. Öffentliche Meinung – unsere soziale Haut. Munich: Langen Mueller.

Ord, K. (1975): Estimation Methods for Models of Spatial Interaction. Journal of the American Statistical Association 70(349), 120-126.

Otto, A. H.; M. F. Steinhardt (2014): Immigration and Election Out-Comes-Evidence from City Districts in Hamburg. Regional Science and Urban Economics 45, 67-79.

RAV (2016): Die Ängste der Deutschen 2015. Wiesbaden: R+V Versicherung.

Steinmayr, A. (2016): Exposure to Refugees and Voting for the Far-Right: (Unexpected) Results from Austria. Institute of Labor Economics (IZA) Discussion Paper Series: 9790.

Wang, Y.; K. M. Kockelmann; X. C. Wang (2013): The Impact of Weight Matrices on Parameter Estimation and Inference: A Case Study of Binary Response Using Land-Use Data. Journal of Transport and Land Use 6(3), 75-85.