Did exposure to asylum seeking migration affect the electoral outcome of the 'Alternative für Deutschland' in Berlin? Evidence from the 2019 European elections

Andrea Pettrachin, Lorenzo Gabrielli, Jisu Kim, Sarah Ludwig-Dehm & Steffen Pötzschke

© 2022 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group

Published online: 16 Aug 2022.

Submit your article to this journal ☑

Article views: 482

View related articles ☑

View Crossmark data ☑

Citing articles: 2 View citing articles ☑

Routledge
Taylor & Francis Group

ᵃ OPEN ACCESS | Check for updates

Did exposure to asylum seeking migration affect the electoral outcome of the 'Alternative für Deutschland' in Berlin? Evidence from the 2019 European elections

Andrea Pettrachin [a], Lorenzo Gabrielli[b], Jisu Kim[c,d], Sarah Ludwig-Dehm[e,f] and Steffen Pötzschke[g]

ᵃCollegio Carlo Alberto, Turin, Italy; ᵇIstituto di Scienza e Tecnologie dell'Informazione, National Research Council of Italy, Pisa, Italy; ᶜMax Planck Institute for Demographic Research, Rostock, Germany; ᵈScuola Normale Superiore, Pisa, Italy; ᵉUniversity of Applied Sciences and Arts Western Switzerland (HETSL), Lausanne, Switzerland; ᶠSwiss Centre of Expertise in Life Course Research, University of Geneva, Geneva, Switzerland; ᵍ GESIS - Leibniz Institute for the Social Sciences, Mannheim, Germany

ABSTRACT

This article analyses the impact of exposure to asylum-seeking migration during the European 'refugee crisis' on votes for the far-right *Alternative für Deutschland* at the 2019 European elections in Berlin. While other scholars investigated the relationship between locals' exposure to asylum-seekers and far-right voting, we analyse this relationship at a very small scale (electoral district level), adopting an innovative methodological approach, based on geo-localization techniques and high-resolution spatial statistics. Furthermore, we assess the impact on this relationship of some previously neglected variables. Through spatial regression models, we show that exposure to asylum-seeking migration is negatively correlated with AfD vote shares, which provides support for so-called 'contact theory' and that the relationship is stronger in better-off districts. Remarkably, the relationship is weaker in districts containing bigger reception centres, which suggests that the effects of asylum-seeking migration depend on the perceived contact intensity (and, therefore, a moderating effect of reception centre size). Finally, the effects of districts' socio-economic deprivation on the relationship between exposure to asylum-seeking migration and AfD vote shares is different in districts located in former East and West Berlin, which suggests an effect of socio-cultural history on the relationship between exposure to migration and far-right voting.

1. Introduction

The electoral effects of immigration have become highly relevant in the last decade. The sudden increase in the number of asylum-seekers in the EU between 2014 and 2018[1] and the difficulties experienced by European governments in coping with their reception resulted in important political repercussions. In Germany, the *Alternative für*

Deutschland (AfD), previously an 'outfit party' that 'combined soft euroscepticism with economic liberalism and socially conservative policies', after 2014 transformed into a 'far-right' or 'radical right' party (Arzheimer and Berning 2019, 59), increasingly focusing its discourse and electoral campaigns on immigration, framed as a threat to German's security and identity (Mader and Schoen 2019). These transformations resulted in the AfD, as many other European far-right anti-immigration parties, increasing its electoral support (Arzheimer and Berning 2019). The 2019 European Parliament elections, in particular, were seen by many experts as the ultimate opportunity for the far-right to take over Europe (Ayed 2019) by exploiting the salience of the immigration issue and Europeans' negative attitudes towards immigration, which had become the main motivation for far-right voting in the previous years (Arzheimer and Berning 2019). While the predicted far-right 'surge' ended in a 'ripple' (Walker 2019), far-right parties increased their vote shares in most EU countries. In Germany, the AfD obtained 11 per cent of the votes, resulting the fourth most voted party. In particular, the AfD became the first party in many of the Eastern regions, and in many electoral districts in the Eastern part of Berlin (Bundeswahlleiter 2019), which revealed a deep East–West divide in German politics (Bennhold 2019).

In this context, a key question that is increasingly explored by political scientists is whether exposure to immigrants, and in particular newly arrived asylum-seekers hosted in reception centres, has an impact on electoral support for far-right parties. This paper contributes to this lively debate on the electoral consequences of immigration, highlighting the potential of advanced computational methods in this research field. It does so by looking at the specific case of the far-right *Alternative für Deutschland* (AfD), asking whether exposure to asylum-seekers during the so-called European 'refugee crisis' had an impact on its electoral support in the 2019 European election in Berlin. To answer this question, we apply geo-localization techniques and high-resolution spatial statistics (Drouhot et al., 2022), which uniquely allow us to identify the location of *both* immigrant reception centres and votes for the AfD with a high degree of precision and to measure the spatial presence of asylum-seekers in different ways.

Since 2015, an increasing number of scholars have studied the electoral consequences of immigration, producing contradictory conclusions (Altındağ and Kaushal, 2021; Dinas et al. 2019; Dustmann, Vasiljeva, and Damm 2019; Gessler, Tóth, and Wachs 2019; Otto and Steinhardt 2014; Steinmayr 2016). Some of these recent works have found evidence that exposure to asylum-seekers' reception centres during the 'refugee crisis' increased support for far-right parties (Kenny and Miller 2022; Dinas et al. 2019; Gessler, Tóth, and Wachs 2019; Dustmann, Vasiljeva, and Damm 2019), arguing that these parties successfully converted prevalent negative attitudes to immigration into vote shares (Bansak, Hainmueller, and Hangartner 2016). Other scholars, conversely, have found negative effects of exposure to asylum-seekers' facilities on support for far-right parties in Italy (Gamalerio et al. 2018), Austria (Steinmayr 2016), Finland (Lonsky 2021) and France (Vertier and Viskanic 2018). Their findings support the so-called 'contact hypothesis', according to which intergroup contact can effectively reduce prejudice between majority and minority group members (in this case: locals and asylum-seekers), thus decreasing the votes for far-right parties (Allport 1954).

In addition to assessing the overall impact of exposure to reception facilities on vote shares for the far-right, the existing studies identify several contextual variables that

contribute to influence this main relationship. Many scholars, for instance, focus on how the economic context influences the effect of asylum-seeking immigration on far-right voting, identifying two opposite mechanisms. Bolet (2020) shows that 'under local conditions of material deprivation, measured by the local unemployment rate', the effect of immigration inflows on municipalities' far-right vote share is 'amplified'. Halla, Wagner, and Zweimüller (2017) and Barone et al. (2016) reach similar findings in Austria and Italy, explaining locals' increased hostility towards newcomers in worse-off areas as an effect of an increased labour market competition. Conversely, Lonsky (2021) provides evidence for an opposite effect, arguably due to 'the distributional effect of immigration through transfers and taxes', meaning that in areas characterised by high levels of unskilled immigration *and* a redistributive tax system, 'political support for immigration tends to decrease with individual income' (Otto and Steinhardt 2014, 68).

A few studies explore the influence of pre-existing immigration levels (stocks) on the relationship between recent immigration flows and electoral outcomes. Kenny and Miller (2022), Sørensen (2016), Barone et al. (2016) and Charitopoulou and García-Manglano (2018:, 849) find that (pre-existing) geographic proximity to immigrants tends to dilute negative reactions to more recent migrant flows and far-right voting (in line with the contact hypothesis). Conversely, Dustmann and colleagues (2019) find that larger shares of established migrants within local communities increased the threat natives perceive from recent asylum-seeking flows leading to more opposition to such flows (evidence that supports group conflict theories, see also: Quillian 1995; Lahav 2004).

Few studies also examine noneconomic determinants of individual attitudes on immigration, including into the analysis data on xenophobic feelings (Otto and Steinhardt 2014), religious diversity (Barone et al. 2016) and local increases of foreign children (Otto and Steinhardt 2014; Halla, Wagner, and Zweimüller 2017), which are expected to foster far-right votes due to locals' concerns about compositional changes in kindergartens and schools.

This paper contributes to this ongoing debate on the political consequences of immigration in four main ways.

First, to the best of our knowledge, existing studies analyse the relationship between asylum-seeking flows and voting outcomes at the level of municipalities. Unlike them[2], we focus on a lower level of analysis: the electoral city district (covering an average area of 1.6 square kilometres). While shifting to this lower level of analysis might not be essential for analyses of small rural municipalities, we claim that this is important when testing the contact hypothesis in bigger cities. It has indeed been shown that the relationship between contact with asylum-seekers and far-right voting depends on the level of analysis (e.g. regional vs local; see Della Posta 2013). Schneider-Strawczynski (2020, 4) has similarly argued that this relationship depends on the intensity of contact with migrants, which in bigger cities can be very uneven across neighbourhoods due to the location and size of reception centres. Therefore, we argue that the more aggregated approach adopted by existing studies, i.e. using larger districts or municipalities, is problematic in the case of big cities, since this would assume that the population in different neighbourhoods experiences the same contact or exposure to asylum-seekers, although in reality it might be highly different.

Second, in addition to this focus on the electoral district level, we test the 'contact hypothesis' taking the spatial structure of data into account, thanks to our innovative

methodology. To the best of our knowledge, none of the existing contributions on the electoral effects of migration – which mostly develop regression analyses on data aggregated at the municipal level – takes similar approaches. Unlike these existing works, we do not define our independent variable as the mere share of asylum-seekers in the population (Schneider-Strawczynski 2020; Vertier and Viskanic 2018) or the mere presence of asylum-seekers in the municipality/district (Steinmayr 2016). Instead, we construct it as a spatial exposure variable, which depends on the distance of all reception facilities to the centroid of voting districts and the capacity of reception facilities. To test the relationship between this exposure variable and voting outcomes we use spatial regression models to take the spatial structure of our data into account, generating findings that provide support for the 'contact hypothesis'.

Third, to the best of our knowledge, this is the first study that provides comprehensive evidence of the influence of the size or capacity of reception centres within the same city on the relationship between the exposure to asylum-seeking migration and votes for the far-right. To do so, we rely on data about the capacity of our geolocated reception facilities, showing that bigger reception centres are correlated with less negative effects of exposure on vote shares for the AfD compared to small reception centres. In providing such evidence, we complement findings produced by Schneider-Strawczynski (2020) on how the relationship between far-right voting and exposure to asylum-seekers is influenced by the intensity of contact between asylum-seekers and locals – which is however broadly operationalised by this author as 'the number of places available in refugee centres in a municipality relative to the municipality's population' (p.25). Our contribution also connects with the findings of Genovese and colleagues (2016), showing that the size of reception centres influenced locals' attitudes to immigration in Southern Italy.

Fourth, this paper provides evidence for a possible additional mechanism to explain variations in the relationship between immigration and far-right voting across different contexts. Our research shows that the negative effect of exposure on far-right voting is lower in worse-off districts than in better-off districts, a finding in line with the so-called 'labour market channel'. However, we also identify an additional variable that significantly affects the relationship between exposure to migration and far-right voting, and that is linked to the socio-cultural history of the context analysed: in our case, the former East–West divide in Germany. The socio-cultural history of countries is recognised as a key determinant of public attitudes to immigration (Jeannet and Dražanová 2019; Grasso et al. 2019), and of the electoral support for the far-right (Novotný and Maškarinec 2018; Hainmueller and Hopkins 2014). Jeannet and Dražanová (2019, 1), for instance, show that the political context or climate in which a cohort of individuals came of age[3] – and the 'contextual exposure to principles of *equality* and *tradition*' in such time period – is central to the formulation of a person's attitudes towards immigration later in life. The prevalence of the principle of *equality* typical of liberal democracies, these authors show, affects immigration attitudes in adulthood positively, and the principle of *tradition* typical of non-democratic countries does so negatively. This finding, these scholars point out, might explain the increasing gap in public attitudes to immigration in areas, such as Eastern and Western Europe, which are geographically close but have a different socio-cultural history (Observatory of Public Attitudes to Migration, 2020). Variables related to socio-cultural history have been so far neglected in studies on the electoral effects of immigration which tend to focus on single countries, typically

in Western Europe, or even on single regions within these countries. The unique case of Berlin, due to its peculiar history, represents an ideal setting to assess this underexplored dimension and explore whether the relationship between exposure to asylum-seeking migration and votes for the far-right varies in contexts with a different socio-cultural history, *ceteris paribus*. Our findings indeed point to remarkable differences between East and West Berlin (exposure and AfD vote shares are more strongly correlated in Western districts) which provides evidence for this additional mechanism.

The paper is organised as follows. Section 2 reviews existing theories on the electoral effects of immigration and derives a number of hypotheses. Section 3 describes our setting, our data, and the variables we constructed to analyse our dataset. Section 4 elaborates our findings and Section 5 discusses the theoretical implications of our results.

2. Theory and hypotheses

Several theories have been proposed by scholars to explain the relationship between exposure to migration and locals' voting behaviour. The so-called 'contact theory' (Allport 1954; Enos 2017) builds upon the argument that interaction and contact between different groups – at least under certain conditions – lead to more tolerance and positive perceptions between these groups (Gundelach and Freitag 2014; DeFina and Hannon 2009; Ellison and Powers 1994), and so decreases the votes for far-right parties (Sørensen 2016). In contrast, 'group conflict theory' argues that majority group members feel threatened by the presence of another racial or ethnic group (Lee and Bean 2010), leading to negative attitudes towards migrants and, therefore, to an increase in votes for the anti-immigration far-right (Becker and Fetzer 2016).

Interestingly, focusing specifically on asylum-seeking migration, Schneider-Strawczynski (2020, 4) observes that evidence for group conflict theory is mostly provided by studies that focus on large increases in asylum-seeking inflows, while evidence for contact theory is mostly provided by works focusing on exposure to small-scale asylum-seeking inflows. This suggests that the relationship between electoral outcomes and locals' exposure to asylum-seeking migration is influenced by the intensity of contact between asylum-seekers and the rest of the population, and more specifically by factors such as the number of asylum-seekers, the cultural distance between the two groups, or the media coverage of this topic (*Ibid.*). Cultural distance and media coverage are factors situated at the *macro* level, that do not vary for individuals residing in different parts of Berlin. Conversely, the number of asylum-seekers (also) affects individuals at the *micro* level (Steinmayr 2016): individuals living in neighbourhoods of Berlin hosting (bigger) reception centres were more exposed to asylum-seekers and more likely to have intense contact with them than individuals living in neighbourhoods with no reception centres (or smaller centres). In our study, we rely on data on electoral results at the electoral district level as well as on point data for asylum-seekers' reception centres. We therefore assume that exposure to asylum-seeking migration involves a more intense degree of contact, and hence hypothesise that:

> H1: Exposure to asylum-seeking migration is expected to negatively affect the vote shares for the AfD in Berlin.

How exactly exposure to asylum-seeking migration affects electoral outcomes is also determined by several other contextual factors and many studies have found variables related to the neighbourhood and the larger context that contribute to influence the main relationship. In other words, although, as hypothesised, exposure to asylum-seeking migration might have a negative effect on vote shares for the AfD, individuals might still feel more threatened under some circumstances (Blalock 1957; Quillian 1995). One example is the socio-economic status of the neighbourhood. The conditions under which individuals live might affect how they react to the exposure to asylum-seekers and the presence of asylum-seekers' reception centres. In neighbourhoods characterised by a poor socio-economic situation and higher unemployment natives might feel more threatened by asylum-seekers (Coenders et al. 2008) – e.g. because these are perceived as competitors on the job market or for access to other limited resources, like financial support (Lee and Bean 2010; Putnam 2007) – and, hence, be more likely to vote for far-right parties (see Bolet 2020; Halla, Wagner, and Zweimüller 2017; Barone et al. 2016). Therefore, our second hypothesis states:

> H2: The negative foreseen impact of exposure to asylum-seeking migration on votes for the AfD is expected to be bigger in rich or better-off districts compared to poor or worse-off districts.

In addition to the neighbourhood's socio-economic status, another important variable is the share of immigrants who are already residing within a neighbourhood (Sørensen 2016; Barone et al. 2016). If an immigrant group is already present in a context, any positive effects of the arrival of new groups of asylum-seekers on far-right voting behaviour might be reduced. The presence of many different groups lessens the salience of any single group (Lee and Bean 2010). Therefore, geographic proximity to already settled immigrants tends to dilute negative reactions to more recent migrant flows and far-right voting. This hypothesis is supported by findings provided by Sørensen (2016), Barone et al. (2016) and Charitopoulou and García-Manglano (2018). Sørensen (2016) particularly finds that immigration flows increase support for the far-right only during the initial phase of migration: once the migrant share reaches a certain threshold, additional immigration does not further influence the support for the far-right, because people are directly exposed to immigrants on a daily basis. Barone et al. (2016) reach similar conclusions in the case of big Italian cities. Therefore, our third hypothesis states:

> H3: The negative foreseen impact of exposure to asylum-seeking migration on votes for the AfD is expected to be bigger in districts with a high share of established non-European residents compared to districts with a low share of established non-European residents.

Following Hoxhaj and Zuccotti (2021) – who have studied the effects of the interaction between the concentration of immigrants and neighbourhoods' socioeconomic conditions on attitudes to immigration – we, however, expect this effect hypothesised in H3 to vary depending on the socio-economic status of our districts and to potentially disappear in the most deprived areas.

The specific setting of our study, Berlin, also allows us to introduce another contextual factor into our analysis: the East–West difference. Research shows that the diffuse political context or climate in which a cohort grows up influences their

attitudes towards immigration later in life (Jeannet and Dražanová 2019). Historically, East Berlin and West Berlin have experienced different political systems and contexts, just like Eastern Germany and Western Germany. This suggests that also the attitudes towards immigration of residents in East and West Berlin differ. Studies in fact show an East–West divide in Germany in immigration opinions that has been stable over time (Talò 2017) and that immigration is a much more important determinant of electoral support for the AfD in East Germany than in West Germany (Novotný and Maškarinec 2018). Based on these arguments, our fourth hypothesis states:

> H4: The negative foreseen impact of exposure to asylum-seeking migration on votes for the AfD is expected to be bigger in West Berlin compared to East Berlin.

Given the different salience of the migration issue in contexts with different socio-economic characteristics (Bolet 2020), we, however, also hypothesise that the effect predicted in H4 might vary depending on districts' socio-economic status.

Apart from contextual variables that can influence the relationship between exposure to asylum-seeking migration and vote shares for the AfD, the amount or intensity of exposure is also important to consider. In other words, the link between contact or exposure to asylum-seeking migration and voting for the far-right is not necessarily linear (Blalock 1957). It is possible, for example, that a threshold effect or a tipping point exists, where the negative effect of exposure to asylum-seeking migration on far-right voting lessens or becomes positive. Scholars have argued that the increase of out-group members (in our case: asylum-seekers) can have very different effects depending on the total out-group size (Quillian 1995; DeFina and Hannon 2009). These thresholds or tipping points were found in studies analysing residential mobility (Schelling 1971; Aldén, Hammarstedt, and Neuman 2015) showing that the relationship between exposure to migrants and far-right voting depends on the perceived contact intensity, i.e. on how much contact is perceived as potentially disruptive. A study on attitudes towards immigration in Southern Italy (Genovese, Belgioioso, and Kern 2016) suggests that the capacity of reception centres might characterise this disruptive contact, demonstrating that the bigger the size of reception centres, the stronger their effect on locals' negative attitudes to immigration. We therefore include in our analysis another important variable: the size of reception centres. As explained in Section 3, reception centres in Berlin had very different sizes: some hosted less than 100 asylum-seekers (SPI 2017), others hosted more than 1,000 asylum-seekers. Small centres were typically created using empty flats, while in some big centres, created in former army barracks or other public buildings such as the airport of Tempelhof, asylum-seekers were hosted in emergency shelters (SPI 2017). We hypothesise that the presence of bigger reception centres within electoral districts, because of the disruptive effects of these facilities, might moderate the overall positive effect of exposure to asylum-seeking migration on votes for the AfD in those districts:

> H5: The negative foreseen impact of exposure to asylum-seeking migration on votes for the AfD is expected to be smaller in districts which contain big reception centres within them, compared to districts that contain small reception centres.

3. Data and methods

3.1. Setting

Berlin is the German city that received the highest number of asylum-seekers during the 2014 'refugee crisis' (Juran and Broer 2017). Between 2014 and 2018 the number of asylum-seekers hosted in the city rose from 33,000 to 98,270. Once sent to the city by the national government, asylum-seekers were dispersed by the authorities in reception centres, providing group accommodation for several hundred individuals.[4] Decisions about the location of reception centres were taken by a dedicated administrative unit of the Senate of Berlin, the State Office for Refugee Affairs (*Landesamt für Flüchtlingsangelegenheiten*). Official sources suggest that, besides considerations regarding the quality of proposed housing units and infrastructural aspects, decisions about the location of facilities for asylum-seekers were mainly driven by the immediate availability of suitable buildings (SPI 2017, 15). As a result, some districts of the city hosted several reception centres, while other districts did not host any reception facility (Figure 1, panels a and b). 45 reception facilities were located in East Berlin and 40 in West Berlin. Facilities in the East and West had a similar average capacity.[5] However, the distribution of reception facilities across electoral districts within East and West Berlin was not homogeneous.

Importantly for our analysis, in order to deal with endogeneity and self-selection issues we need to doublecheck whether policymakers took into consideration the local support for the far-right when deciding where to locate reception facilities (regardless of what is reported in official sources). In particular, we need to check whether they decided to disperse asylum-seekers in areas where AfD support was lower, deliberately avoiding putting asylum-seekers where there was pre-existing anti-refugee sentiment. As graphically shown in panel a of Figure 1 – where we have mapped the location of reception centres and the share of votes obtained by the AfD in the 2014 European election[6] (which took place before the so-called 'refugee crisis') – reception facilities seem indeed not to have been located in districts where support for AfD was higher in 2014. To further corroborate these insights, we have compared covariate means between treated and untreated units, i.e. between electoral districts with and without reception facilities. Findings from this analysis are illustrated in Figure 2. The first panel of the figure shows that, on average, support for the AfD in the 2014 elections was slightly higher in treated units compared to untreated ones, which suggests that when locating facilities for asylum-seekers policymakers did not take the pre-existing support for the AfD into account. The second and third panels of Figure 2 show that, on average, the treated and untreated units did not differ in terms of the levels of socio-economic deprivation or the number of established non-European residents (these variables are defined in the next subsection). T-tests confirm that the variables do not significantly differ between treated and untreated units.

While we cannot exclude *a priori* the possibility of other confounding, these considerations lead us to conclude that, presumably, reception centres were distributed across the city on a quasi-random basis, depending on the availability of buildings across the city (a similar assumption is made by other studies e.g. Dustmann, Vasiljeva, and Damm 2019).
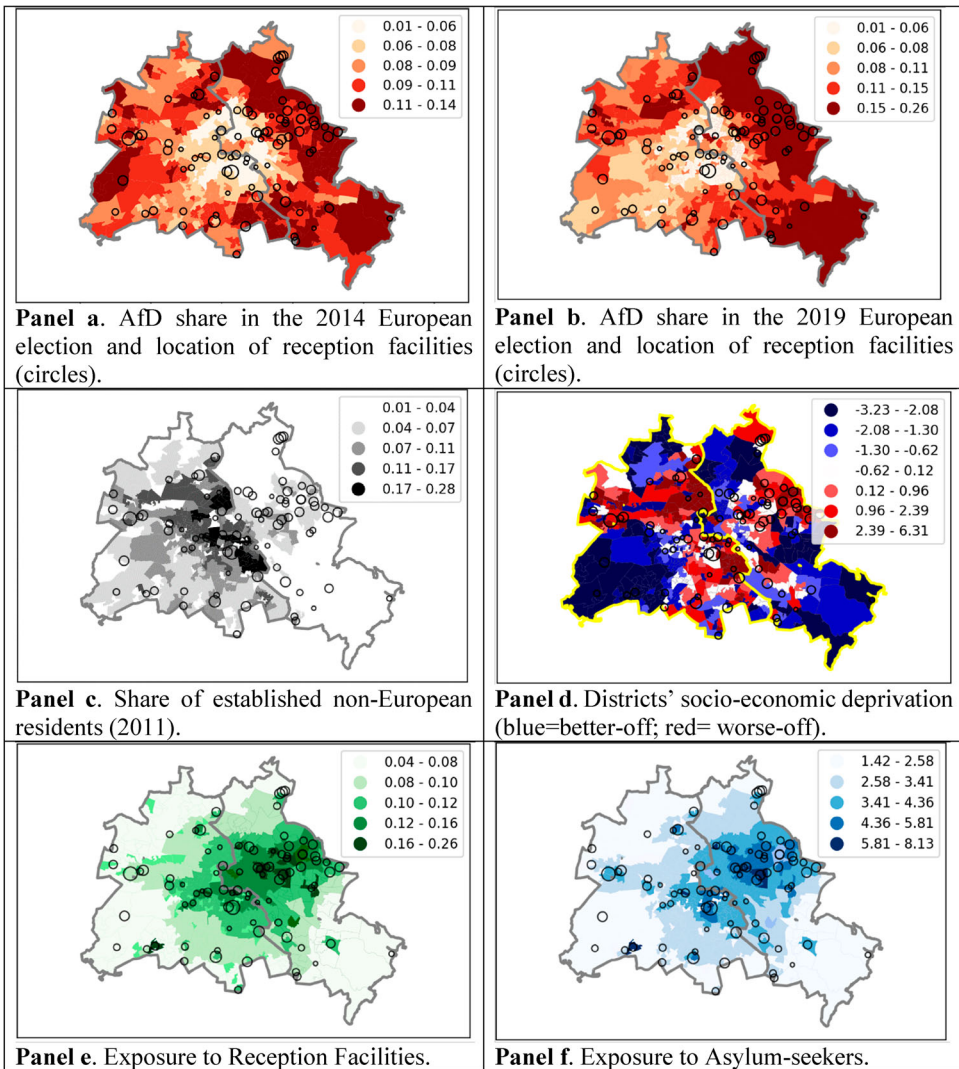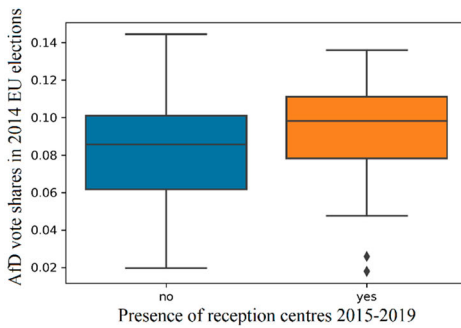
Panel a. AfD share in the 2014 European election and location of reception facilities (circles).

Panel b. AfD share in the 2019 European election and location of reception facilities (circles).

Panel c. Share of established non-European residents (2011).

Panel d. Districts' socio-economic deprivation (blue=better-off; red= worse-off).

Panel e. Exposure to Reception Facilities.

Panel f. Exposure to Asylum-seekers.

Figure 1. Description of Data.

3.2. Data

Our four main data sources are: the results of the 2019 European Parliament elections for Berlin, a list with addresses and information of housing facilities in Berlin (Berlin Hilft 2019), the Data for Integration (D4I) dataset (Alessandrini et al. 2017) and a number of socio-economic data (SenStadtWohn 2019).

Our unit of analysis is the voting district for the 2019 European election or, more precisely, the absentee voting district (henceforth: voting districts), based on the availability of European election results (Amt für Statistik Berlin-Brandenburg 2019). Of the 489 voting districts available, 317 were located in West Berlin and 172 were located in East Berlin. Figure 1, Panel b, illustrates the 489 voting districts, showing that in 2019 the

Panel a. AfD shares of votes in the 2014 European elections.
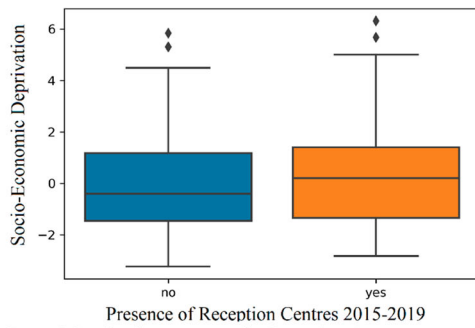
Panel b. Socio-economic Deprivation.
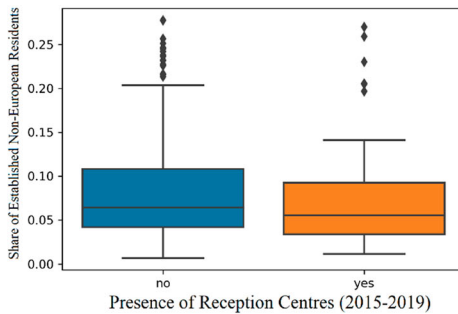
Panel c. Share of Established non-European Residents

Figure 2. Comparison of covariate means.

AfD obtained more votes in Eastern districts (on average: 12.1%) compared to Western districts (on average: 8.3%).

The list of reception centres contains information on 85 facilities, including their specific locations as well as information on their capacity (the smallest centre hosted 89 asylum-seekers, the biggest hosted 1,024 asylum-seekers).[7] To test the accuracy of the data, these have been double-checked with official data for Pankow (Bezirksamt Pankow 2019), one of the districts of Berlin.

The D4I dataset, based on the statistics of the 2011 Census, provides data about the share of non-European residents in 100 metres by 100 metres cells (Alessandrini et al. 2017). These cells have been aggregated in order to derive data about the share of migrant residents in each electoral district. Non-European residents represented 7.9 percent of Berlin's population in 2011. Looking separately at East and West Berlin significant differences emerge. While non-European residents made up only about 4.2 percent of the population in East Berlin, they comprised on average 9.8 percent of the population in West Berlin. Panel c of Figure 1 above shows the percentage of non-European residents in 2011 (henceforth: established non-European residents) across all districts. Districts with high shares of established non-European residents are mostly clustered in areas in central Berlin, with the large majority of them being located in West Berlin.

Finally, we use a number of socio-economic data available at the district level (SenStadtWohn 2019), to construct a variable that describes the socio-economic deprivation

of each district (see next section). As illustrated in Panel d of Figure 1, worse-off districts are concentrated in the central areas of the city in both East and West.

3.3. Variables

3.3.1. Main variables

Our dependent variable is the share of votes for the AfD in the European election in 2019, at the electoral district level.

We are interested in investigating the correlation between these vote shares and the exposure of electoral districts to asylum-seeking migration. Based on the information available, we created two main independent variables to measure this exposure. With the first variable, we measure the *exposure to reception facilities* (EF), which is calculated as follows:

$$EF_i = \sum_{f=1}^{n} \frac{1}{D_f} \qquad (1)$$

where i represents the voting district, f the reception facility, and D_f the distance of the reception facility to the centroid of the voting district. EF_i can be interpreted as the mere exposure within a voting district to all reception facilities in Berlin, irrespective of their size. The higher the value of *EF,* the more exposure a voting district has to reception facilities in the city.

With our second exposure variable we measure the *exposure to asylum-seekers* (EA), which is calculated as follows:

$$EA_i = \sum_{f=1}^{n} \frac{N_f}{D_f} \qquad (2)$$

where i represents the voting district, f the reception facility, N_f the number of asylum-seekers hosted within the reception facility, and D_f the distance of the reception facility to the centroid of the voting district. EA_i can be interpreted as the exposure within a voting district to asylum-seekers hosted in reception centres in Berlin. The value of *EA* for a specific voting district increases if that voting district is close to reception facilities hosting, in total, a high number of asylum-seekers. Therefore, a higher value of *EA* means that a voting district is exposed to a higher number of asylum-seekers hosted in reception centres, while a smaller value means that a voting district has less exposure to asylum-seekers hosted in reception centres in Berlin.

Panels e and f of Figure 1 show the two exposure variables across all districts in Berlin. Looking at the exposure to reception facilities (Panel e), we see that higher values on this variable are clustered towards the central and north-eastern parts of the city. Exposure to asylum-seekers (Panel f) is higher in the centre of Berlin and in a number of districts in East Berlin.

3.3.2. Other variables

We include additional variables in our models to test certain mechanisms that might be of importance in explaining the association between our exposure variables and AfD vote

shares. The first of these variables is the *share of established non-European residents in each district in 2011* ('ENER'), measured as their percentage of the total population within each voting district in 2011. The second variable has been constructed to provide information about the socio-economic deprivation of each district. Using principal component analysis, the *socio-economic deprivation* variable ('SED') integrates four different socio-economic aspects for each voting district: the unemployment rate, the rate of long-term unemployment, the rate of welfare recipients, and the child poverty rate (SenStadtWohn 2019).[8] Third, we include *the region* of each voting district, distinguishing between East and West Berlin. Table A1 in the Appendix shows the descriptive statistics of all variables and Table A2 shows the descriptive statistics by region (East and West Berlin). Fourth, in order to test our final hypothesis, we have introduced another variable, which we call *total capacity*, which measures the number of asylum-seekers hosted in reception centres located within the district or at a maximal distance of 1,000 m from the borders of the district.

3.4. Methods: spatial autoregressive model or spatial lag model

We investigate the effect of our independent variables, exposure to reception facilities EF_i and exposure to asylum-seekers EA_i, to vote shares for the AfD V_i using spatial autoregressive models, which take the following form:

$$V_i = pWS_i + \beta_1 * EF_i + X'\beta_3 + \epsilon_i \tag{3}$$

$$V_i = pWS_i + \beta_1 * EA_i + X'\beta_3 + \epsilon_i \tag{4}$$

where WS_i is the spatially lagged dependent variable and p is the spatial autoregressive parameter representing the effect of neighbourhoods' share of votes on the district's own share of votes. X' is our set of control variables and β_s are the parameters to be estimated. The RMSE[9] is 0.0863 for the model including the *EF* variable, and 0.0862 for the model computed with the *EA* variable. We choose to use the spatial autoregressive model after careful examination of other spatial models. From Figures A1, A2, A3 and A4 in Appendix, which plot model residuals, it is clear that we have clusters of districts showing evidence of spatial autocorrelation. The results of the Moran's I test also reject the null hypothesis that the value is independently normally distributed. Moreover, the result of the Lagrange multiplier diagnostics for spatial dependence shows that the spatial lag model is the suitable spatial regression model to be applied. Additionally to the spatial lag model, we also computed OLS models with robust standard errors. The results obtained with the OLS models are similar to the ones obtained using the spatial lag models.

4. Findings

Tables 1 and 2 show our spatial regression models (the corresponding OLS models are included in Table A3 in the Appendix). Model 1 in Table 1 shows the results of our independent variable 'exposure to reception facilities' (EF), while controlling for several possible confounders. Three different types of coefficients are shown in the table. The direct coefficient reports the effect of each independent variable on the share of votes for the

Table 1. SAR Model 1 (computed with the EF variable). Dependent variable: share of votes for the AfD in the 2019 European Election. N = 489.

	Direct	Indirect	Total
Exposure to reception facilities (EF)	−0.011**	−0.048**	−0.059**
Share of established non-European residents (ENER)	−0.157***	−0.707***	−0.864***
West (East = 0)	−0.007**	−0.034**	−0.041**
Socio-economic deprivation (SED)	0.007***	0.03***	0.037***
AIC			−2483.8
AIC for lm			−1876.3

Sources: European election results for Berlin 2019, reception facility address list, D4I data, socioeconomic data; own calculations. Coefficients, *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

AfD within each district, whereas the indirect coefficient reports the effect of each independent variable on the share of votes for the AfD of the neighbouring districts. Finally, the total coefficient presents the combined impact of each independent variable from within the district and from the neighbouring districts.

The model shows that EF is significant and negatively related to the vote share of AfD in 2019. This means that in districts that were more exposed to reception facilities during the 'refugee crisis' (independently of their size), the AfD on average obtained less votes compared to districts that were less exposed to reception facilities. This finding provides some evidence in support of our hypothesis H1, suggesting that exposure to reception facilities is negatively correlated with the share of votes for the AfD.

Most of the control variables show expected effects in this first model: the AfD obtained less votes in districts located in West Berlin compared to districts located in East Berlin. The districts' socioeconomic deprivation also plays an important role. In districts with a higher socioeconomic deprivation (or 'worse-off' districts), the AfD gained more votes than in 'better-off' districts. Remarkably, the share of established non-European residents in each district also contributes to explain the share of votes obtained by the AfD. The negative coefficient for this variable means that in districts with a higher percentage of established non-European residents, the AfD has obtained less votes compared to districts with a lower percentage of established non-European residents in 2011.

Model 2 in Table 2 shows the results of an alternative model to the one just presented, in which we replaced the exposure to reception facilities (EF) with our second exposure measure, the exposure to asylum-seekers (EA), while controlling for the same possible confounding variables. The total coefficient of the EA (−0.046) is similar to the coefficient of the EF variable in Model 1 (−0.059). The control variables show very similar effects

Table 2. SAR Model 2 (computed with the EA variable). Dependent variable: share of votes for the AfD in the 2019 European Election. N = 489.

	Direct	Indirect	Total
Exposure to asylum-seekers (EA)	−0.008*	−0.038*	−0.046*
Share of established non-European residents (ENER)	−0.172***	−0.801***	−0.973***
West (East = 0)	−0.006*	−0.028*	−0.034*
Socio-economic deprivation (SED)	0.007***	0.032***	0.039***
AIC			−2481.5
AIC for lm			−1856.5

Sources: European election results for Berlin 2019, reception facility address list, D4I data, socioeconomic data; own calculations. Coefficients, *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

and significance as in the first model. Therefore, even when using the EA instead of the EF variable, we find some support for our hypothesis H1.

To test our second, third and fourth hypotheses, we have created five additional models that are shown in Table 3. These new models introduce a number of interactions between our independent variables, in order to provide insights on how the relationship between EA and votes obtained by the AfD in 2019 varies in different contextual conditions (all models have been also computed replacing the variable EA with EF, and they provided very similar findings). These new models provide several interesting insights. To make sense of the interaction effects of the multivariate models, in Figure 3, we have elaborated some simple visualisations of the data points regarding the relationship between our main variables.

First, to test our second hypothesis, in Model 3, we introduce an interaction between our main independent variable – the exposure to asylum-seekers – and the socio-economic deprivation variable. The interaction is statistically significant, meaning that overall, in Berlin, the effect of exposure to asylum-seekers on the votes for the AfD is different depending on the socio-economic status of the districts. Panel a of Figure 3, in which districts with a high or low SED values have been marked with different colours, helps us making sense of the coefficient of the interaction term. It suggests that in better-off districts higher values of exposure are associated with lower shares of votes for the AfD. The trend is much less noticeable or essentially non-existent in the case of worse-off districts. Our findings, therefore, do provide support for our second hypothesis, according to which the negative foreseen impact of exposure to reception centres on votes for the AfD was expected to be bigger in rich or better-off districts compared to poor or worse-off districts.

In model 4, we have included an interaction between the exposure to asylum-seekers (EA) and the share of established non-European residents (ENER), which allows us to explore our third hypothesis. The interaction term is not significant, meaning that overall, in Berlin, the effect of the EA on the vote share for the AfD does not vary depending on the share of established non-European residents. To further corroborate this finding – in line with Hoxhaj and Zuccotti's suggestion that the shares of pre-established migrants might variously affect attitudes on immigration depending on districts' socio-

Table 3. Additional Models (SAR models, the effect reported is the total effect). Dependent variable: share of votes for the AfD in the 2019 European election. N = 489.

|	Model 3	Model 4	Model 5	Model 6	Model 7
Exposure to asylum-seekers (EA)	−0.032	−0.057	−0.044	−0.034	−0.033
Share of established non-European residents (ENER)	−1.024***	−1.253*	−0.022	−0.937***	−0.6555***
West (East = 0)	−0.031*	−0.033*	−0.060***	−0.004	−0.006
Socio-Economic Deprivation (SED)	0.007	0.039***	−0.011	0.039***	−0.056**
EA:SED	0.028***		0.061***		−0.093***
EA:ENER		0.207	−0.345		
EA:SED:ENER			−0.093		
EA:West(East = 0)				−0.027	−0.024
SED:West(East = 0)					0.093***
EA:SED:West(East = 0)					−0.093***
AIC	−2486.8	−2479.7	−2505.5	−2479.9	−2508.8

Sources: European election results for Berlin 2019, reception facility address list, D4I data, socioeconomic data; own calculations; Coefficients, *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.
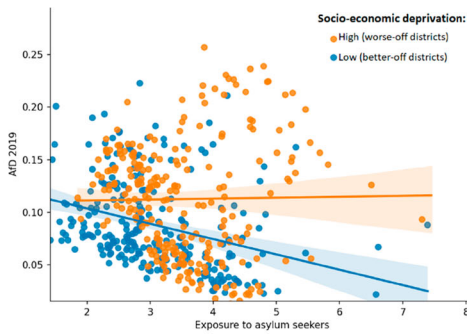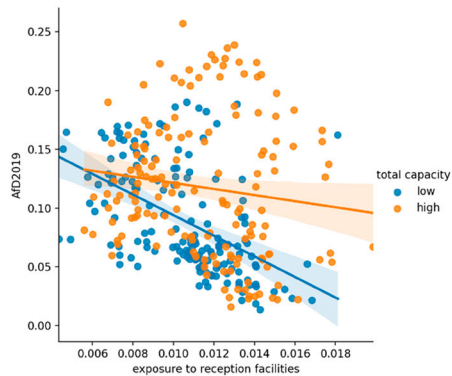
Panel a. Visualisation of interaction between EA and SED (model 3)
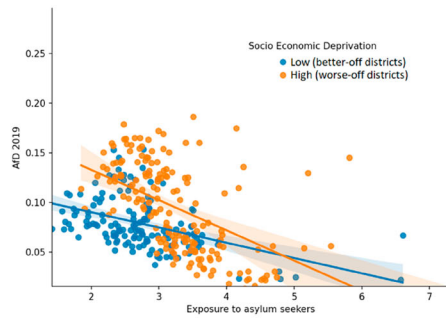
Panel b. Visualisation of interaction between EA and SED (West Berlin only).
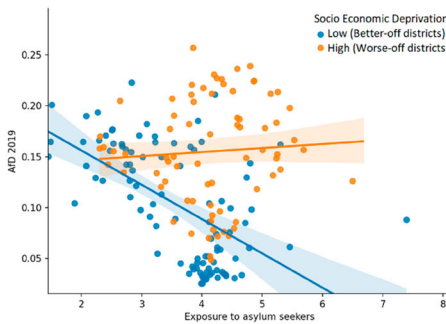
Panel c. Visualisation of interaction between EA and SED (East Berlin only).

Panel d. Visualisation of interaction between EF and total capacity.

Figure 3. Visualisation of data points.

economic status – we have also included a fifth model in which we introduced a triple interaction between EA, ENER and SED, to test whether the ENER variable interacted with the EA and SED variables in a way which influenced the vote shares for the AfD. This interaction term also proved not to be significant. Expectations based on our third hypothesis, therefore, are not supported by our findings.

Models 6 and 7 have been computed to investigate our fourth hypothesis, regarding the effect of the geographical location of districts across the West/East divide on the main relationship between exposure to asylum-seekers and vote shares for the AfD. In model 6 we simply introduced an interaction term between exposure to asylum-seekers and the West/East variable. This interaction term is not statistically significant, meaning that, overall, the correlation between exposure and votes for the AfD does not depend on the geographical location of the districts across East and West Berlin. In Model 7, we introduced a triple interaction between EA, SED and the West/East variable, to test whether the West/East variable interacted with the SED and EA variable in a way that influenced our dependent variable. This interaction term proves to be statistically significant. Model 7, therefore, suggests that the West/East variable interacts with the SED variable in influencing the effect of exposure to asylum-seekers on vote share for the AfD. To make sense of the insights produced by Model 7, we illustrate the

relationship between our main variables in Panels b and c of Figure 3, which shows the trends separately in West and East Berlin. These graphs allow us to better understand the correlation between exposure to asylum-seekers and vote shares for the AfD in better-off and worse-off districts in both East and West Berlin. As can be seen from the figure, the exposure to asylum-seekers shows a negative relationship with the AfD vote shares in West Berlin, independently on the socio-economic status of the district. Conversely, in East Berlin, a negative relationship is evident only in better-off districts. In Eastern worse-off districts, higher values of the exposure to asylum-seekers seem to be correlated with only slightly higher votes for the AfD (the line is almost flat in the graph).

Finally, we focus on our fifth and final hypothesis, according to which the negative foreseen impact of exposure to reception centres on votes for the AfD is expected to be smaller in districts which contain big reception centres within them, compared to districts that contain small reception centres. To test this hypothesis, we have followed a different strategy, compared to the one adopted so far, introducing our additional variable called *total capacity*, which is the number of asylum-seekers hosted within the above-mentioned reception centre, located within or very close to (henceforth: within) the borders of the district. Using our exposure measures alone, indeed, because of the spatial nature of these variables and how they have been constructed, did not allow us to test the existence of threshold effects related to the different sized of reception centres. More specifically, we proceeded as follows. First, we selected those electoral districts with reception centres situated within their borders or within a distance of 1,000 metres from their borders (henceforth: within). 318 of our 489 electoral districts fulfilled this criterion.[10] Second, we computed our main model (with the share of votes for the AfD as the main dependent variable and EF as the main independent variable[11]) with this subset of districts, adding the *total capacity*. The model is presented in Table 4. Crucially, it shows that the interaction between EF and our additional variable total capacity has a positive coefficient and is statistically significant (an additional model was also computed using the EA variable, providing similar results). This means that the effect of EF on vote shares for the AfD depends on the size of reception centres. As shown in panel d of Figure 3, which illustrates the relationship between our variables, our findings provide support for our fifth hypothesis, showing that negative impact of EF on votes for the AfD is smaller in those districts which contain bigger reception centres within them, compared to those districts that contain smaller reception

Table 4. SAR Model 8. Dependent variable: share of votes for the AfD in the 2019 European election. N = 318. (electoral districts with at least one reception centre located within their borders or at max 1,000 metres from their border).

	Direct	Indirect	Total
Exposure to reception facilities (EF)	−0.03862***	−0.0841***	−0.12267***
Share of established non-European residents (ENER)	−0.19909***	−0.43325***	−0.63234***
West (East = 0)	−0.01368***	−0.02977***	−0.04344***
Socio-economic Deprivation (SED)	0.00798***	0.0174***	0.02540***
Total capacity	0.00013***	0.00029***	0.00043***
EF:Total capacity	0.00003***	0.00006***	0.00009***
AIC			−1532.5
AIC for lm			−1228.8

Sources: European election results for Berlin 2019, reception facility address list, D4I data, socioeconomic data; own calculations; Coefficients, *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

centres. In other words, this suggests that the presence of big reception centres located within a district has a moderating effect on the relationship between exposure to asylum-seeking migration and far-right vote shares.

5. Conclusion

This study examines the relation between locals' exposure to asylum-seeking migration (i.e. their exposure to asylum-seekers or to asylum-seekers' reception facilities) during the so-called 'refugee crisis' and vote shares obtained at the district level by the far-right AfD in the 2019 European elections. Unlike previous studies of this type, we examine the relationship between our main variables at the level of electoral districts rather than at the municipality level, developing an innovative methodological approach based on high-resolution spatial statistics and geo-localization techniques (Drouhot et al., 2022). To apply our approach, we used geo-located data about reception centres in Berlin and we created spatial measures of the exposure to asylum-seekers and reception facilities, rather than merely relying on the share of asylum-seekers hosted in a municipality/district, as done by most existing studies. We also used data derived from the D4I dataset about the share of non-European residents in 100 metres by 100 metres cells (Alessandrini et al. 2017).

We find that electoral support for the far-right AfD was lower in electoral districts that were more exposed to asylum-seeking migration during the 'refugee crisis' than in electoral districts that were less exposed to asylum-seeking migration. With this finding we contribute to an ongoing debate on the electoral effects of asylum-seeking immigration to Europe, challenging the conclusions of scholars who found that, especially during the so-called 'refugee crisis', asylum-seeking flows triggered votes for the far-right (Dinas et al. 2019). Instead, we provide support for those works that rather support the 'contact theory', according to which the contact between migrants and the local population alleviates locals' negative attitudes towards migrants themselves and their inclination to vote for anti-immigration parties (Steinmayr 2016). Remarkably, however, we also find that the negative effect of exposure on far-right voting is lowered by the presence of bigger rather than smaller reception centres within a district. This finding is consistent with other works suggesting that the relationship between far-right voting and immigration inflows depends on the type of contact between natives and migrants and, specifically, by how much contact is perceived as potentially disruptive by locals (Quillian 1995; Dustmann, Vasiljeva, and Damm 2019; DeFina and Hannon 2009).

Furthermore, our additional regression models suggest that a number of specific contextual variables influence the relationship between our two main variables. In particular, the above-mentioned negative correlation is distinctive of Western districts and better-off Eastern districts, while in Eastern worse-off districts exposure to asylum-seeking migration is correlated with slightly higher votes for the AfD. Conversely, different to our expectations, no difference is found between districts with a higher or lower share of established non-European residents, meaning that the relationship between exposure to asylum-seeking migration and vote shares for the AfD seems not to be influenced by the share of established European residents.

These findings provide support for the strand of the literature arguing that the relationship between far-right voting and asylum-seeking flows is influenced by the

socio-economic context. In addition to that, however, our study also identifies a so-far underexplored variable which *ceteris paribus* influences the relationship between far-right voting and asylum-seeking flows: the East–West divide, which is a proxy for different socio-cultural histories. The existing literature on the relationship between exposure to migrants and far-right voting has produced very different findings in different countries and most of the existing studies conclude by acknowledging the lack of external validity. Steinmayr (2016), as many others, states that his findings 'do not necessarily contradict previous findings since the differences might be driven by the specific context under study'. While our study does not solve the issue of external validity, our findings point to the importance of including into the analysis specific contextual historical and cultural characteristics, like the democratic tradition of the context analysed, when examining the relationship between immigration and voting patterns. This finding is in line with insights produced by research on individual attitudes to immigration, according to which the political context in which individuals are socialised is a key determinant of their attitudes to immigration later in life (Jeannet and Dražanová 2019; Grasso et al. 2019). Future research might apply experimental approaches to draw more robust conclusions on issues of causality and reverse causality adopting a similar research design.

Finally, our work makes a methodological contribution to the existing literature on the electoral consequences of immigration, revealing the potential of computational approaches using spatial data (see also Zuccotti et al. 2022). Importantly, this paper shows that fine-grained spatial data can provide renewed avenues for the study of the effects of immigration at the local level, which normally has to rely on pre-defined geographies and administrative units (thus countering methodological nationalism) (Drouhot et al., 2022). While we are not able to capture the entire array of possible contacts – e.g. those occurring in public transport – this approach seems better suited to investigate context effects, due to the higher analytical opportunities that it allows (e.g. more precise measures of distance and exposure), especially in big cities with high population density. We invite scholars in this field to further explore our research questions relying on these methods, in other geographical settings and socio-cultural contexts.

Notes

1. Respectively 540,000 and 1.6 million asylum-seekers were living in Germany in 2013 and 2018 [Statistisches Bundesamt (Destatis), 2020].
2. To our best knowledge, only Otto and Steinhardt (2014) focused on the electoral effects of immigration at the city district level. This article, however, does not focus on asylum-seeking migration and examines a very different time period (1987–1998).
3. The scholars define political climate as 'an ensemble of normative principles, beliefs, ideals, and values that prevail in the political zeitgeist and which are reflected in the views of the ruling political elites' (Jeannet and Dražanová 2019, 6).
4. In Germany, asylum-seekers were initially dispersed (based on a fixed proportional system) across the sixteen Federal States. Federal States distributed them across individual facilities (Juran and Broer 2017). Reception centres include the so-called *Erstaufnahmeeinrichtungen,* providing accommodation to newly arrived asylum-seekers for a period of 6 months, and the so-called *Gemeinschaftsunterkünfte,* group housing facilities meant to offer accommodation to asylum-seekers that do not find private accommodation after these six months (SPI 2017). These accommodations, usually run by private enterprises or NGOs, have to

fulfil state-specified quality criteria and are accredited by the State Office for Refugee Affairs (Landesamt für Flüchtlingsangelegenheiten).

5. Average capacity in Berlin: 332 (East Berlin: 335; West Berlin: 329).
6. Some significant changes in the geographies of electoral districts for the European elections between 2014 and 2019 made it impossible for us to conduct our analysis with a focus on the shift in votes for the AfD between the two elections as our main independent variable. In any case, this might have been highly problematic because of the radical changes in both the party's electorate and its electoral programme between the two elections: the AfD, previously an 'outfit' eurosceptic party transformed into a far-right anti-immigration party only after 2014 (Arzheimer and Berning 2019, 59).
7. For more information see berlin-hilft.com.
8. These data are available only until 2016.
9. The Root Mean Squared Error (RMSE) is the standard deviation of the residuals (or the differences between predicted values and observed values). It indicates how close the data is to the line of best fit.
10. In those few cases in which more than one reception centre were located in one electoral district, the sum of their capacities was selected, assuming that two reception centres located very close to each other tend to be perceived by locals as two branches of the same centre.
11. We chose to run this model with the EF variable rather than the EA variable, since the EA variable contained itself some information on the number of asylum-seekers hosted within reception centres which risked distorting our findings due to problems of multicollinearity. OLS models have been also computed and they provide very similar findings.

Acknowledgement

Data availability statement

Data on geo-locations of reception facilities in Berlin is available here: https://doi.org/10.6084/m9.figshare.19983203.v1. Codes are available here: https://github.com/jisukimmmm/Exposure_to_aslym_seeking_migration. Data for Integration (D4I) data is available to all researchers upon request from: https://knowledge4policy.ec.europa.eu/migration-demography/data-integration-d4i_en

Disclosure statement

No potential conflict of interest was reported by the authors.

ORCID

Andrea Pettrachin 🄓 http://orcid.org/0000-0001-7238-9631

References

Aldén, L., M. Hammarstedt, and E. Neuman. 2015. "Ethnic Segregation, Tipping Behavior, and Native Residential Mobility." *International Migration Review* 49 (1): 36–69.

Alessandrini, A., F. Natale, F. Sermi, and M. Vespe. 2017. *High resolution map of migrants in the EU*. JRC Technical Report EUR No.28770.

Allport, G. 1954. *The Nature of Prejudice*. Boston, MA: Beacon Press.

Altındağ, O., and N. Kaushal. 2021. "Do Refugees Impact Voting Behavior in the Host Country? Evidence from Syrian Refugee Inflows to Turkey." *Public Choice*, doi:10.1007/s11127-019-00768-3.

Amt für Statistik Berlin-Brandenburg. 2019. *Berlin-Statistik* 2019. https://www.statistik-berlin-brandenburg.de.

Arzheimer, K., and C. C. Berning. 2019. "How the Alternative for Germany (AfD) and Their Voters Veered to the Radical Right, 2013–2017." *Electoral Studies* 60: 102040–102010.

Ayed, N. 2019. *For Far-Right Populists, EU Election a Battle to "save Europe"*. CBC News. https://www.cbc.ca/news/world/for-far-right-populists-eu-election-a-battle-to-save-europe-1.5134073.

Bansak, K., J. Hainmueller, and D. Hangartner. 2016. "How Economic, Humanitarian, and Religious Concerns Shape European Attitudes Toward Asylum Seekers." *Science* 354 (6309): 217–222. doi:10.1126/science.aag2147.

Barone, G., A. D'Ignazio, G. De Blasio, and P. Naticchioni. 2016. "Mr. Rossi, Mr. Hu and Politics. The Role of Immigration in Shaping Natives' Voting Behavior." *Journal of Public Economics* 136: 1–13. doi:10.1016/j.jpubeco.2016.03.002.

Becker, S. O., and T. Fetzer. 2016. *Does migration cause extreme voting?*. CAGE Working Paper 306.

Bennhold, K. 2019. German Elections Reveal, and Deepen, a New East-West Divide. *The New York Times*. https://www.nytimes.com/2019/08/31/world/europe/east-germany-afd-elections-saxony-brandenburg-merkel.html.

Berlin Hilft. 2019. *Unterkünfte Berlin. Netzwerk Berlin Hilft. Informieren - Vernetzen - Helfen.* http://berlin-hilft.com/unterkuenfte-berlin/.

Bezirksamt Pankow. 2019. *Flüchtlingsunterkünfte in Pankow (Stand November 2018). Politik und Verwaltung. Integration.* https://www.berlin.de/ba-pankow/politik-und-verwaltung/beauftragte/integration/themen/artikel.364348.php.

Blalock, H. M. 1957. "Per Cent Non-White and Discrimination in the South." *American Sociological Review* 22 (6): 677–682. doi:10.2307/2089197.

Bolet, D. 2020. "Local Labour Market Competition and Radical Right Voting: Evidence from France." *European Journal of Political Research* 59 (4): 817–841. doi:10.1111/1475-6765.12378.

Bundeswahlleiter. 2019. *Europawahl* 2019. https://www.bundeswahlleiter.de/europawahlen/2019/ergebnisse/bund-99.html.

Charitopoulou, E., and J. García-Manglano. 2018. "Fear of Small Numbers? Immigrant Population Size and Electoral Support for the Populist Radical Right in Switzerland." *Journal of Ethnic and Migration Studies* 44 (5): 849–869. doi:10.1080/1369183X.2017.1337505.

Coenders, M., M. Lubbers, P. Scheepers, and M. Verkuyten. 2008. "More Than two Decades of Changing Ethnic Attitudes in the Netherlands." *Journal of Social Issues* 64 (2): 269–285. doi:10.1111/j.1540-4560.2008.00561.x.

DeFina, R., and L. Hannon. 2009. "Diversity, Racial Threat, and Metropolitan Housing Segregation." *Social Forces* 88: 373–394.

Della Posta, D. J. 2013. "Competitive Threat, Intergroup Contact, or Both? Immigration and the Dynamics of Front National Voting in France." *Social Forces* 92 (1): 249–273.

Dinas, E., K. Matakos, D. Xefteris, and D. Hangartner. 2019. "Waking Up the Golden Dawn: Does Exposure to the Refugee Crisis Increase Support for Extreme-Right Parties?" *Political Analysis* 27 (2): 244–254. doi:10.1017/pan.2018.48.

Drouhot, L., E. Deutschmann, C. V. Zuccotti, and E. Zagheni. 2022. Computational Approaches to Migration and Integration Research: Promises and Challenges." *Journal of Ethnic and Migration Studies*. doi:10.1080/1369183X.2022.2100542.

Dustmann, C., K. Vasiljeva, and A. P. Damm. 2019. "Refugee Migration and Electoral Outcomes." *The Review of Economic Studies* 86 (5): 2035–2091. doi:10.1093/restud/rdy047.

Ellison, C. G., and D. A. Powers. 1994. "The Contact Hypothesis and Racial Attitudes among Black Americans." *Social Science Quarterly* 75: 385–400.

Enos, R. D. 2017. *The Space Between US: Social Geography and Politics*. University Press: Cambridge.

Gamalerio, M., M. Luca, A. Romarri, and M. Viskanic. 2018. "Finding the Warmth of Other Suns? Refugee Reception, Extreme Votes and Hate Crimes." *SSRN Electronic Journal*, doi:10.2139/ssrn.3277550.

Genovese, F., M. Belgioioso, and F. G. Kern. 2016. *The Political Geography of Migrant Reception and Public Opinion on Immigration: Evidence from Italy*. http://federica-genovese.com/downloads/GBK_itmigr_231017.pdf.

Gessler, T., G. Tóth, and J. Wachs. 2019. "No country for asylum seekers? How short-term exposure to refugees influences attitudes and voting behavior in hungary." *Political Behavior*, doi:10.31235/osf.io/qgpve.

Grasso, M. T., S. Farrall, E. Gray, C. Hay, and W. Jennings. 2019. "Thatcher's Children, Blair's Babies, Political Socialization and Trickle-Down Value Change: An Age, Period and Cohort Analysis." *British Journal of Political Science* 49 (1): 17–36. doi:10.1017/S0007123416000375.

Gundelach, B., and M. Freitag. 2014. "Neighbourhood Diversity and Social Trust: An Empirical Analysis of Interethnic Contact and Group-Specific Effects." *Urban Studies* 51 (6): 1236–1256. doi:10.1177/0042098013495578.

Hainmueller, J., and D. J. Hopkins. 2014. "Public Attitudes Toward Immigration." *Annual Review of Political Science* 17 (1): 225–249. doi:10.1146/annurev-polisci-102512-194818.

Halla, M., A. F. Wagner, and J. Zweimüller. 2017. "Immigration and Voting for the Far Right." *Journal of the European Economic Association* 15 (6): 1341–1385. doi:10.1093/jeea/jvx003.

Hoxhaj, R., and C. V. Zuccotti. 2021. "The Complex Relationship Between Immigrants' Concentration, Socioeconomic Environment and Attitudes Towards Immigrants in Europe." *Ethnic and Racial Studies* 44 (2): 272–292. doi:10.1080/01419870.2020.1730926.

Jeannet, A., and L. Dražanová. 2019. Cast in the same mould: How politics during the impressionable years shapes attitudes towards immigration in later life." *RSCAS Research Paper* N.2019/79.

Juran, S., and P. N. Broer. 2017. "A Profile of Germany's Refugee Populations." *Population and Development Review* 43 (1): 149–157. doi:10.1111/padr.12042.

Kenny, P. D., and C. Miller. 2022. "Does Asylum Seeker Immigration Increase Support for the far Right? Evidence from the United Kingdom, 2000–2015." *Journal of Ethnic and Migration Studies*, doi:10.1080/1369183X.2020.1776596.

Lahav, G. 2004. "Public Opinion Toward Immigration in the European Union." *Comparative Political Studies* 37 (10): 1151–1183. doi:10.1177/0010414004269826.

Lee, J., and F. D. Bean. 2010. *Diversity Paradox: Immigration and the Color Line in Twenty-First Century America*. New York: Russel Sage Foundation.

Lonsky, J. 2021. "Does Immigration Decrease far-Right Popularity? Evidence from Finnish Municipalities." *Journal of Population Economics* 34 (1): 97–139. doi:10.1007/s00148-020-00784-4.

Mader, M., and H. Schoen. 2019. "The European Refugee Crisis, Party Competition, and Voters' Responses in Germany." *West European Politics* 42 (1): 67–90. doi:10.1080/01402382.2018.1490484.

Novotný, L., and P. Maškarinec. 2018. "More to the People, Less to Brussels! Alternative for Germany and the 2014 European Parliament Elections." *Politologicka Revue* 2: 5–21.

Observatory of Public Attitudes to Migration. 2020. https://www.migrationpolicycentre.eu/opam/.

Otto, A. H., and M. F. Steinhardt. 2014. "Immigration and Election Outcomes — Evidence from City Districts in Hamburg." *Regional Science and Urban Economics* 45: 67–79. doi:10.1016/j.regsciurbeco.2014.01.004.

Putnam, R. D. 2007. "E Pluribus Unum: Diversity and Community in the Twenty-First Century The 2006 Johan Skytte Prize Lecture." *Scandinavian Political Studies* 30 (2): 137–174. doi:10.1111/j.1467-9477.2007.00176.x.

Quillian, L. 1995. "Prejudice as a Response to Perceived Group Threat: Population Composition and Anti-Immigrant and Racial Prejudice in Europe." *American Sociological Review* 60 (4): 586–611. doi:10.2307/2096296.

Schelling, T. 1971. "Dynamic Models of Segregation†." *The Journal of Mathematical Sociology* 1 (2): 143–186. doi:10.1080/0022250X.1971.9989794.

Schneider-Strawczynski, S. 2020. *Hosting Refugees and Voting for the Far-Right.* https://halshs.archives-ouvertes.fr/halshs-02982827/document.

Senatsverwaltung für Stadtentwicklung und Wohnen (SenStadtWohn). 2019. Stadtwissen und Daten. https://www.stadtentwicklung.berlin.de/planen/basisdaten_stadtentwicklung/.

Sørensen, R. J. 2016. "After the Immigration Shock: The Causal Effect of Immigration on Electoral Preferences." *Electoral Studies* 44: 1–14. doi:10.1016/j.electstud.2016.06.009.

Sozialpädagogisches Institut Berlin (SPI). 2017. *Häufig gestellte Fragen zu Flucht und Asyl in Berlin.* https://mbt-berlin.de/mbt/publikationen/Broschueren/9-MBT-Berlin-Haeufig-gestellte-Fragen-zu-Flucht-und-Asyl-in-Berlin_2017.pdf.

Statistisches Bundesamt (Destatis). 2020. *Persons Seeking Protection. Table 12521-0110.* Database of the Federal Statistical Office of Germany. https://www.genesis.destatis.de/genesis/online/en.

Steinmayr, A. 2016. *Exposure to Refugees and Voting for the Far-Right: (Unexpected) Results from Austria.* IZA Discussion Paper No.9790. http://ftp.iza.org/dp9790.pdf.

Talò, T. 2017. *Public attitudes to immigration in Germany in the aftermath of the migration crisis.* RSCAS Policy Briefs No.2017/23.

Vertier, P., and M. Viskanic. 2018. *Dismantling the 'jungle': Migrant relocation and extreme voting in France.* https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3170838.

Walker, S. 2019. European_Elections:_Far-Right_"surge"_Ends_in_a_Ripple. *The Guardian.* http://www.theguardian.com/world/2019/may/27/european-elections-far-right-surge-ends-in-a-ripple.

Zuccotti, C. V., J. Lorenz, R. Paolillo, A. R. Sánchez, and S. Serka. 2022. Exploring the Dynamics of Neighborhood Ethnic Segregation with Agent-Based Modelling: An Empirical Application to Bradford." *Journal of Ethnic and Migration Studies.* doi:10.1080/1369183X.2022.2100554.

Appendix

Table A1. Descriptive Statistics of all Variables.

	Value	%	Mean	SD	Min	Max
			Total (N = 489)			
Share of votes for AfD in 2019			0.1	0.051	−0.014	0.257
Exposure to asylum-seekers			3.36	1.24	1.419	20.38
Exposure to reception facilities			0.00	1	−1.682	11.112
Share of established non-European residents			0.079	0.054	0.007	0.277
Socio-economic Deprivation			0	1.954	−3.229	6.313
Total capacity			593	448.137	89	2086
Region	1–West Berlin	64.83				
	2–East Berlin	35.17				

Source: European election results for Berlin 2019, reception facility address list, D4I data, socioeconomic data; own calculations.

Table A2. Descriptive Statistics of all Variables by Region.

	East Berlin (N = 172)				West Berlin (N = 317)			
	Mean	SD	Min	Max	Mean	SD	Min	Max
Share of votes for AfD in 2019	0.126	0.061	0.025	0.257	0.086	0.038	0.014	0.186
Exposure to asylum-seekers	3.96	1.613	1.452	20.38	3.035	0.814	1.419	7.299
Exposure to reception facilities	0.5	1.22	−1.63	11.11	−0.26	0.742	−1.68	3.36
Share of established non-European residents	0.042	0.026	0.007	0.133	0.098	0.056	0.020	0.277
Socio-economic Deprivation	−0.463	1.49	−3.23	3.87	0.251	2.122	−3.12	6.313

Sources: European election results for Berlin 2019, reception facility address list, D4I data, socioeconomic data; own calculations.

Table A3. OLS Models (using different exposure measures).

Variable	Model 1 (Exposure to reception facilities)	Model 2 (Exposure to asylum-seekers)
Exposure to reception facilities (EF)	−0.045*** (−0.033)	
Exposure to asylum-seekers (EA)		−0.033*** (0.0007)
West(East = 0)	−0.031*** (−0.005)	−0.025*** (−0.005)
Share of established non-European residents	−0.568*** (−0.051)	−0.647*** (−0.049)
Socio-economic Deprivation	0.0180*** (−0.001)	0.0189*** (−0.001)
Intercept	−0.042** (−0.033)	0.205*** (−0.009)
R-squared	0.5261	0.5065
	0.5222	0.5025

Sources: European election results for Berlin 2019, reception facility address list, D4I data, socioeconomic data; own calculations; Coefficients, Standard errors in parentheses, *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.
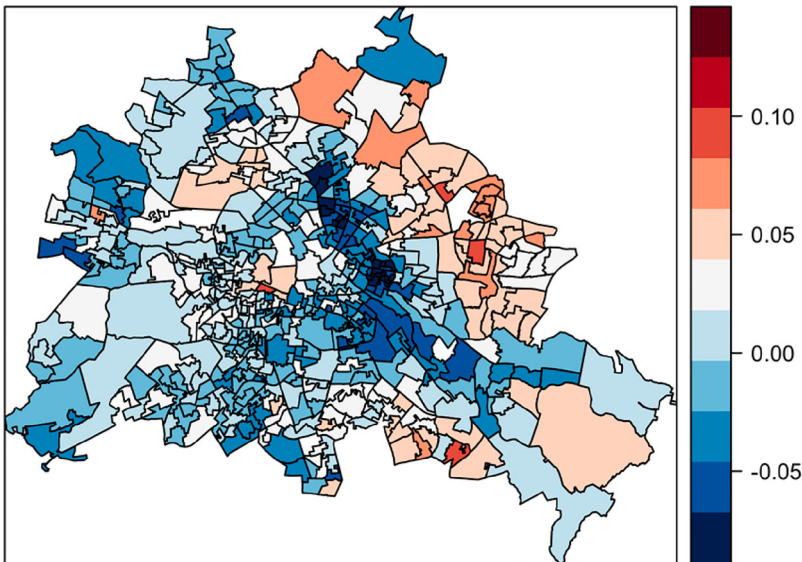

Figure A1. Testing for spatial dependence in the OLS residuals with Exposure to reception facilities: presence of clusters of residuals across different districts in Berlin in the OLS regression model. The colour indicates whether the residual is positive or negative.
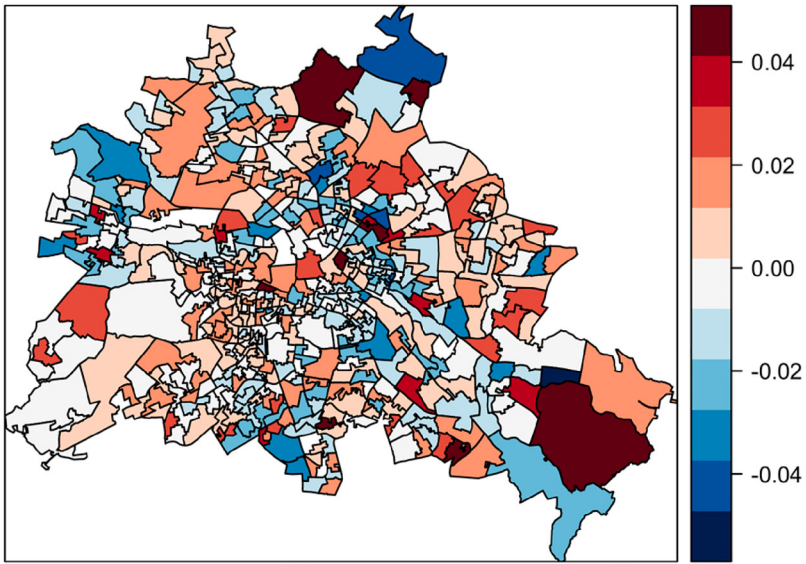
Figure A2. Spatial dependence in the SAR model with Exposure to reception facilities: No clusters of residuals in the SAR model. The colour indicates whether the residual is positive or negative.
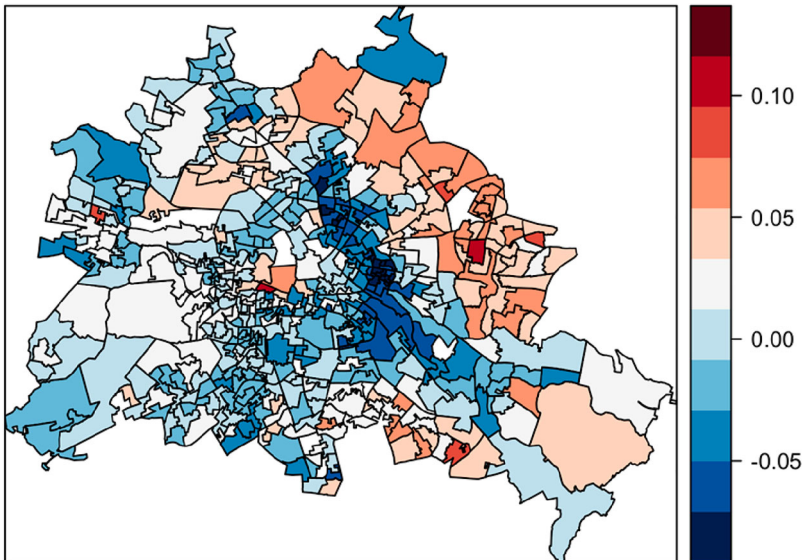

Figure A3. Testing for spatial dependence in the OLS residuals with Exposure to asylum seekers: presence of clusters of residuals across different districts in Berlin in the OLS regression model. The colour indicates whether the residual is positive or negative.
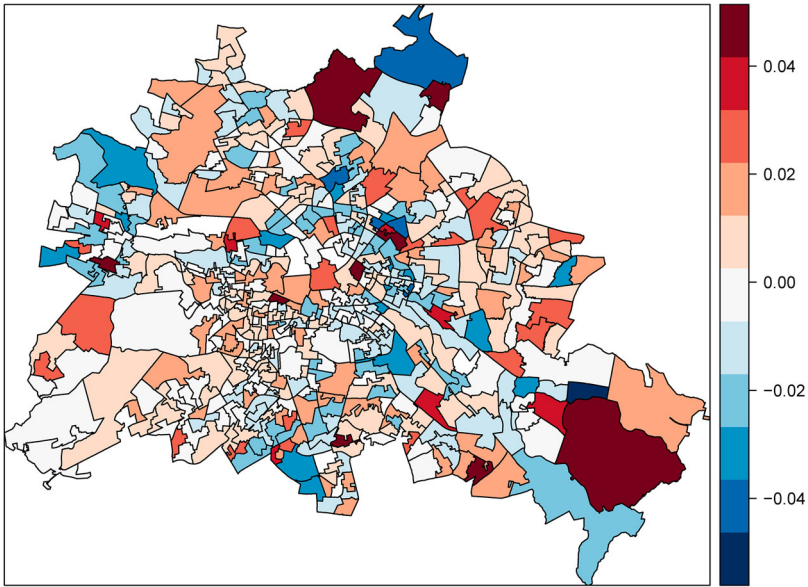
Figure A4. Spatial dependence in the SAR model with Exposure to asylum seekers: No clusters of residuals in the SAR model. The colour indicates whether the residual is positive or negative.