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The socio-spatial distribution of migrants in German cities between 2014 and 2017

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ABSTRACT

In recent years, Germany has taken in large numbers of immigrants. We look at the places where those migrants have settled in German cities. Our focus is on their socio-spatial distribution: To what extent is the social structure of neighbourhoods associated with the influx of migrants into those neighbourhoods? Our analysis draws on data on 86 large and medium-sized German cities with a total of 3770 neighbourhoods. Using linear (multi-level) regression models, we analyze the relation between the evolution of the proportion of foreigners in these neighbourhoods between 2014 and 2017 and the neighbourhoods' social structure in 2014. We find that the proportion of foreigners has increased much more strongly in the most socially disadvantaged neighbourhoods – especially in East Germany. A detailed examination of the individual cities reveals pronounced geographical disparities. The differences between the cities may be partially explained by vacancy rates and municipal tax revenues.

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Introduction

Among OECD countries, Germany is the second largest single destination for migrants after the United States (OECD 2019). Where do the people who migrated to Germany in recent years live? Immigrants' sorting across different types of neighbourhoods has implications for their life chances – not just in Germany, but in all immigrant-receiving countries. International research on neighbourhood effects has shown how place of residence may affect educational attainment, career prospects, and health (see e.g. Chetty, Hendren, and Katz 2016; Farwick 2012, 389f; Galster 2012).

Various theoretical models serve to explain the spatial sorting of migrants. They either focus on economic resources, discrimination, or self-selection. Refugees¹ and other migrant groups generally tend to be socioeconomically weak groups in the period immediately after their arrival (Grabka, Goebel, and Liebig 2019). Previous studies on Germany found that migrants more often live in lower-quality neighbourhoods (e.g. measured by purchasing power) compared to Germans (Drever 2004; Lersch 2013, 1025). Even when controlling for socioeconomic status, certain ethnic groups move to neighbourhoods of lower quality (Lersch 2013) and live more segregated (Janßen and Schroedter 2007; Sager 2012). The remaining differences might be explained by discrimination in the housing market or migrants' specific preferences. The data

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that we use do not allow us to empirically test the three mechanisms. But from the theoretical models, we can derive the expectation that, within German cities, migrants move into deprived neighbourhoods more often.

Whereas there are various theoretical perspectives, they do not systematically include contextual factors at the neighbourhood and city level. All individual actors on the supply and demand side of the housing market make their decisions in the economic, political, social, and demographic context they live in (cf. van Kempen and Özüekren 1998, 1644). This varies from neighbourhood to neighbourhood and from city to city. Therefore, we examine whether various characteristics at the neighbourhood and city level are important for the socio-spatial distribution of migrants in German cities.

In this article, we have two goals. The first is to describe the socio-spatial distribution of migrants in major German cities: How is the social structure of neighbourhoods associated with the influx of migrants into those neighbourhoods? The second goal is to identify differences between the cities and to analyze which contextual factors account for these differences.

In total, we study the distribution of immigrants between 2014 and 2017 in 86 large and medium-sized German cities with 3770 neighbourhoods to ensure that the analysis was as broad as possible. The data originate from the inner-city spatial monitoring project (*Innerstädtische Raumbeobachtung*, IRB) of the Federal Institute for Research on Building, Urban Affairs and Spatial Development. Additionally, we rely on data that were directly delivered by some cities. We operationalize immigrants as foreigners, based on information on people's nationality. Using linear (multi-level) regression models, we analyze the relation between the evolution of the proportion of foreigners in the neighbourhoods between 2014 and 2017 and the neighbourhoods' social structure in 2014.

Results show that the proportion of foreigners rose most sharply in the socially deprived neighbourhoods – especially in Eastern German cities. Taking a closer look at the individual 86 cities, we observe a strong association between the evolution of the proportion of foreigners and the social structure of neighbourhoods primarily in the geographical east, north, and west of Germany. Vacancy rates and municipal tax revenues, two city-specific context features, partly account for the differences. In the conclusion, we discuss the implications of our results for the integration of immigrants.

Migration to Germany

The most important migrant groups

Migration to Germany in 2015 was marked by a disproportionately high rate of forced migration (BAMF 2019, 124). In that year, about 890,000 persons came to Germany seeking protection; that number dropped to about 280,000 in 2016 and to 186,644 in 2017 (BAMF 2019, 6). The influx of people in need of protection is reflected in the number of asylum applications: In 2014, 173,072 first-time applications were made; that number reached 441,899 in 2015 and 722,370 in 2016 (see Table 1). In 2017, the number of first-time asylum applications dropped sharply to 198,317.

Table 1. The most important migrant groups to Germany 2014–2017.

Year	Intra-EU migration	Asylum applicants (First-time applicants)	Family reunion	Foreign students (First-year university students)	Labour migration pursuant to §§ 18–21 AufenthG
2014	809,807	173,072	63,677	92,916	37,283
2015	846,039	441,899	82,440	99,087	38,836
2016	796,522	722,370	105,551	101,294	50,964
2017	777,750	198,317	114,861	104,940	60,882

Source: BAMF (2019, 83).

In the years before and after 2015, migration to Germany was marked primarily by the intra-EU migration of EU citizens. As shown in Table 1, about 780,000–850,000 EU citizens came to Germany in the years 2014–2017, respectively. Other important migrant groups comprise those who come for family reunion, foreign students, and labour migration.

Aside from inward migration, outward migration is the second relevant factor for migration in Germany. Figure 1 shows the net migration rates for the most frequent countries of origin and countries of destination in the years 2015–2017. In this period, net migration was highest for Syria. Aside from other asylum countries of origin such as Afghanistan and Iraq, notable net migration gains were registered for the EU members Romania, Poland, Croatia, and Bulgaria. In addition, Germany saw positive net migration from the southern EU members Italy, Greece, and Spain.

The housing situation of migrants

Where and how refugees live in Germany is determined by the general legal regulations, at least in the beginning (Baier and Siebert 2018, 3; cf. BBSR 2017). Initial assignment to federal states and municipalities is random with regard to individual characteristics (Wiedner, Schaeffer, and Carol 2022, 7 online supplement). Upon their arrival, refugees are registered and distributed across the individual German states according to the so-called ‘Königstein ratio’ (BAMF 2016, 8f). In the 16 states, they are assigned to central (initial) reception centres (*(Erst-)Aufnahmeeinrichtungen*) – that is, collective housing facilities administered by the state governments. Asylum seekers and asylum applicants in the asylum process are required to live there for up to six months.

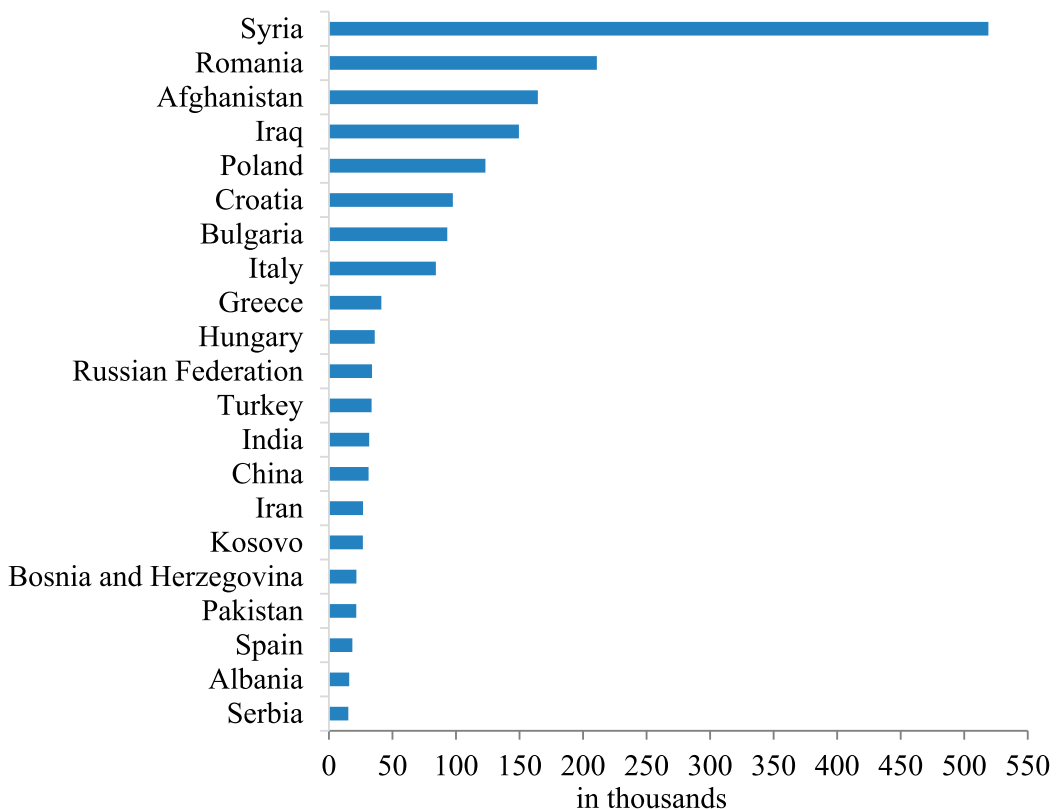


Figure 1. Net migration rates for the most frequent countries of origin and destination, 2015–2017 (totalized).

Sources: BMI (2016, 34); BAMF (2019, 54f).

Subsequently, refugees are distributed across the municipalities within the states. The Asylum Act stipulates that they be housed in collective housing facilities (*Gemeinschaftsunterkünfte*), but it is also possible to provide decentralized housing (*dezentrale Unterbringung*) in apartments. Once one of the four protective statuses (entitlement to asylum, refugee protection, subsidiary protection, or national ban on deportation) is granted, recognized individuals are no longer required to live in collective housing. In 2016, 67 percent of refugees with granted protective status lived in decentralized housing (Baier and Siegert 2018, 5). Furthermore, they become subject to the Social Security Code (SGB II, SGB XII), provided they are entitled to receive social insurance benefits (BBSR 2017, 21).²

If their request for asylum was granted, recognized individuals are free to find housing on their own (BBSR 2017, 21). However, if they receive social insurance benefits, the so-called in-state residence requirement (*Wohnsitzauflage*) applies:

Beginning with the awarding of protective status or the issuing of a residence permit, the individuals in question must remain registered for three years in the same state that was responsible for their asylum process. The competent authorities are entitled to assign these individuals to a specific place of residence within six months or to legally require them to not take up residence at a given place. (BAMF 2019, 20, our translation)

This residence policy, which came into force as part of the Integration Act, applies with retroactive effect to all individuals who were granted protective status since the beginning of 2016. The goal of the policy is to foster integration ‘by counteracting obstacles to integration such as emerging segregation as a result of increased migration to metropolitan areas’ (BAMF 2019, 20, our translation). The state governments have used their right to specify the in-state residence policy to varying degrees (BAMF 2019, 21; BBSR 2017, 21f). Research has found that, when residence restrictions expire, most refugees with protective status stay in the municipalities where they were initially placed (Carol, Schaeffer, and Wiedner 2022, 19).

Aside from the in-state residence requirement, individuals with approved protection status receiving social insurance benefits need to satisfy a second requirement: Their rent must comply with the appropriateness criteria of the cost of housing (*Kosten der Unterkunft*, KdU) defined by the municipality (BBSR 2017, 51, 6, 77). Suitable housing is rarely available throughout the city. In tense housing markets, choices are small, whereas competition for affordable housing with other low-income groups is strong. The Federal Institute for Research on Building, Urban Affairs and Spatial Development conducted a survey on the integration of refugees in the regular housing market. Based on interviews in the ten case study communities, the authors conclude ‘that neighbourhoods with a high concentration of affordable housing are predestined for an above-average influx of refugees’ (BBSR 2017, 74, our translation).

During the first time after their arrival in Germany, migrants are a socioeconomically disadvantaged group (Grabka, Goebel, and Liebig 2019). This applies in particular to refugees. Although migrants from EU countries are much more likely to have jobs and much less likely to be unemployed than individuals from non-European asylum countries of origin, they are much more likely than Germans to belong to the group of workers performing simple tasks (Fachstelle Einwanderung 2017, 4, 8). This is especially true of workers from Bulgaria and Romania, 50 percent of whom take on simple tasks. But the numbers are similar for workers from the Eastern European countries that joined the EU in 2004 (e.g. Poland), of whom 45 percent perform simple tasks in Germany. This is why it is reasonable to expect migrants to settle primarily in neighbourhoods where rents are low – that is, in areas inhabited by low-income groups.

Theoretical framework

In this article, we study the neighbourhoods that migrants moved into in the recent past. Neighbourhood quality can be determined along two dimensions which cover the composition of its

population on the one hand or the built environment, environmental conditions, and infrastructure on the other hand (cf. Lersch 2014, 57): The first dimension is measured using indicators of socio-economic or ethnic composition, e.g. the share of poor residents or of ethnic minorities. The second dimension is reflected in indicators such as building density, environmental pollution, and the existence of various services.

Research on the residential mobility of ethnic minorities relies on three different theoretical models for explaining neighbourhood outcomes (Lersch 2013, 1014f; 2014, 61f; Schaake, Burgers, and Mulder 2010, 595f): 'The main question in these theories is whether differences in residential behavior among ethnic groups are caused by financial constraints, by barriers in the housing market or by cultural differences' (Schaake, Burgers, and Mulder 2010, 595).

The *spatial assimilation model* understands the spatial distribution of ethnic minorities as reflecting their 'assimilation' to the majority (Alba and Logan 1993, 1390): As ethnic minorities' socioeconomic status rises and their 'acculturation' increases, it is assumed that, over time, they will show similar mobility patterns to the majority population (Schaake, Burgers, and Mulder 2010, 595). Time is a central part of the model as 'assimilation' is a longer-term process (cf. Vogiazides 2018, 1f). Our study, by contrast, covers a relatively short period of time. Nevertheless, the spatial assimilation model is important for our research because it assumes that newly immigrated individuals are sorted into disadvantaged neighbourhoods.

However, empirical evidence shows that individuals' socioeconomic status does not account for all differences in the residential location of ethnic minority and majority populations (Schaake, Burgers, and Mulder 2014, 513f). In particular, black people in the US are less able to convert their human capital into higher quality living conditions than other minorities (South, Crowder, and Chavez 2005, 876). Research on Germany has found that, controlling for socioeconomic status, Turkish households are less likely than German households to improve their neighbourhood situation when moving; households with any other ethnic background showed no significant differences compared to the native population (Lersch 2013, 1011). Studies that focus on ethnic segregation in Germany rather than neighbourhood quality point in a similar direction: Even after controlling for socioeconomic status, migrants often are more segregated (Janßen and Schroedter 2007; Sager 2012). Because of the limited explanatory power of the spatial assimilation model, two alternative theoretical perspectives have been developed (Schaake, Burgers, and Mulder 2014, 514).

The *place stratification model* highlights structural constraints for ethnic minorities when choosing their place of residence (Schaake, Burgers, and Mulder 2010, 595). 'The model posits that places are ordered hierarchically and consequently are associated with more or less favorable life chances and quality of life for the people who reside in them' (Alba and Logan 1993, 1391). Basically, all individuals are assumed to have preferences to live in 'better' neighbourhoods (Lersch 2014, 59). However, migrant households are not able to realize them to the same extent as native households, even if they have similar economic resources (Lersch 2013, 1015). This is attributed to discrimination in the housing market, for instance, by landlords or housing policies (Schaake, Burgers, and Mulder 2010, 595; South and Crowder 1997, 1047). Through such practices, advantaged groups limit access to 'better' neighbourhoods by disadvantaged groups, such as specific ethnic minorities (Alba and Logan 1993, 1391; Lersch 2013, 1015). This results in an allocation of residences according to the relative position of ethnic minorities in a society. Contrary to the predictions of the spatial assimilation model, they are not able to convert growing individual resources, such as income and education, into favourable living conditions to the same extent as the native population.

From these two models, we can derive expectations on the socio-spatial distribution of migrants in German cities. It is well known that individuals who migrated to Germany are likely to be socio-economically disadvantaged – at least at upon their arrival (cf. Grabka, Goebel, and Liebig 2019). But even without this information, we would expect this group to move into low-income neighbourhoods more frequently.

The *ethnic enclave model*, in contrast to the aforementioned perspectives, assumes a preference among migrants to live in co-ethnic neighbourhoods. At the beginning, spatial concentration is more a necessity, but later on it offers certain amenities and support, like access to the ethnic economy and close social relationships (Hanhoerster 2015; Lersch 2014, 61; Schaake, Burgers, and Mulder 2010, 595). In turn, migrants might accept a lower neighbourhood quality with respect to the built environment, even if they have the economic means to move away. Accordingly, a high concentration of foreigners would be found in neighbourhoods already inhabited by other persons of the same ethnicity.

What is missing in all models is an explicit conceptualization of contextual features. Individual characteristics have been theorized to be decisive for residential mobility, although discrimination in the housing market plays a central role in the place stratification model (cf. South and Crowder 1997, 1049). Factors at the neighbourhood or city level are not systematically included in the three models although they may affect the residential mobility of different groups of the population. This is why we combine explanatory factors at the micro level with contextual factors at the macro level (cf. Jähnen and Helbig 2023, 737ff): At the micro level, on the demand side of the housing market migrant households compete for housing with other households, each with specific preferences and resources (cf. Häußermann and Siebel 2004, 155ff). Their counterparts on the supply side are actors such as investors and landlords, who decide on the creation and distribution of housing. All of these actors make their decisions in the economic, political, social, demographic, and morphologic³ context at the local and national level (cf. van Kempen and Özüekren 1998, 1644). In our analysis, we take account of contextual factors at the neighbourhood and city level and test whether these factors moderate the relationship between the influx of migrants into a neighbourhood and its social composition.

At the neighbourhood level, we examine to what extent socio-demographic characteristics of a neighbourhood are related to the socio-spatial distribution of migrants in German cities. On the one hand, we look at the development of the neighbourhoods' population over a longer time span. We assume that migrants settled foremost in those neighbourhoods that have seen a strong population decline. This is only possible, of course, as long as vacant housing units are not demolished. Accommodating refugees in neighbourhoods with high vacancy rates could have fostered an uneven socio-spatial distribution of migrants, especially in Eastern German cities. In the years prior to the influx of refugees beginning in 2015, population declines were especially pronounced in some socially disadvantaged East German neighbourhoods consisting mainly of prefabricated high-rise apartment buildings made of concrete slabs, known in Germany as *Plattenbauten* (see Helbig and Jähnen 2019a). These areas are characterized by a particularly unfavourable social structure. On the other hand, we include the ethnic composition of a neighbourhood's population based on the ethnic enclave model.

At the city level, we build on recent research that investigates the role of contextual factors for location choices among refugees in Germany. Two studies, based on different datasets, find that mobile refugees frequently move to counties (*Kreise*) characterized by high unemployment (Carol, Schaeffer, and Wiedner 2022, 20; Weber 2022, 37ff). The researchers suspect that the driving force behind this finding is the availability of affordable housing. Such housing is more likely to be found in economically weak areas. We look at available housing and cities' income level separately by interacting the socio-spatial distribution of migrants with vacancy rates and municipal tax revenues. Both of these economic-political factors reflect the extent to which the distribution of migrants can be traced to market processes or the extent to which the local government has any power to intervene in the housing market. High vacancy rates are found primarily in areas inhabited by those who cannot afford housing elsewhere or who have no access to housing elsewhere because of discrimination. Tax revenue indicates the extent to which the municipality has the financial resources to apply active housing policies. Such policy instruments at the local level include, among others, introducing models of social land use (like Munich's *Sozialgerechte Bodennutzung* which requires investors to designate 60 percent of new housing as social housing), granting

leaseholds instead of selling land, promoting social housing, and the remunicipalization of housing stock (Egner et al. 2018).

Data and methods

The necessary data to conduct small-scale socio-spatial analyses is difficult to source in Germany: There is no database that covers all cities over time, which makes it necessary to combine data sources. Moreover, as official data on income are not available, research typically relies on poverty indicators. For our analysis, we use data collected by the inner-city spatial monitoring project (*Innerstädtische Raumbewachung*, IRB) of the Federal Institute for Research on Building, Urban Affairs and Spatial Development (BBSR) within the Federal Office for Building and Regional Planning (BBR) (Source: Innerstädtische Raumbewachung of the BBSR; data base: municipal statistics of the IRB cities / statistics of the Federal Employment Agency). This dataset contains data on 56 German cities. Furthermore, we contacted numerous⁴ German cities that do not participate in IRB and asked for similar information. As a result, we were able to include an additional 30 cities in our analyses. Even though Ulm and Gelsenkirchen are both part of IRB, we still used a separate data package sent to us by the city governments because the IRB data do not cover the entire period of analysis. We also used a separate data package for Rostock. Whereas the IRB data only cover 20 larger neighbourhoods, the city of Rostock provided us with data that include information for all 52 smaller neighbourhoods. Concerning Muenster, the IRB does not contain all the necessary data for our analyses. Therefore, we have recoded data for the city (source: Stadt Münster 2018). See Figure 3 for a complete overview of the cities we used. In the case of Bonn, we only had access to data on the proportion of foreign residents up until 2016 at the time the study was conducted. That is why all computations for Bonn are only made for the years 2014–2016. For all other cities, we could use data for the period 2014–2017. In total, we have information on 86 cities with 3770 districts (*Stadtteile*), which are our proxy for neighbourhoods. Most cities are large (minimum 100,000 inhabitants), but a few are medium-sized ones. On average, 6863 individuals live in the neighbourhoods in our compiled city sample (mode 5229, minimum 4, maximum 88,094), but population numbers differ between and within the cities.

Dependent variable

Our dependent variable measures the *development of the proportion of foreigners* in each neighbourhood from 2014 to 2017 in percentage points. To construct it, we use the data on persons without German citizenship.⁵ By focusing on changes in the proportion of non-German nationals, we are mostly looking at those foreigners who arrived in Germany during the period of analysis. Observing a four-year period until 2017 should help eliminate the effect of potential outliers caused by initial reception centres, for example. Measuring changes in percentage points makes sense because the baseline proportion of foreigners would otherwise distort the results. East German cities in particular would show extremely high percentage growth rates. Growth in percentage points is insensitive to the baseline level. We do not assume that the baseline level itself affects the socio-spatial distribution of foreigners. Following the ethnic enclave model, one could expect such an effect. However, it is not the proportion of foreign persons that is decisive, but the proportion of co-ethnic persons. In Germany, migrants typically live in multi-ethnic neighbourhoods (Schönwälder and Söhn 2009, 1447). Especially for many recent migrants from countries like Syria and Afghanistan and from many EU countries there are no existing ethnic enclaves.

Looking at non-German nationals enables us to track the neighbourhoods in which the proportion of foreigners has risen in recent years. Intra-EU migration follows principles different from those that apply to refugees from Asia and Africa. The category ‘foreigners’ thus captures both these intra-European migrants (from EU and non-EU countries) and refugees from other continents who came to Germany in large numbers in 2015, 2016, and 2017. First, we cannot rule out

the possibility that persons entering Germany from other European countries have different socio-demographic characteristics than refugees from non-European countries. Second, we must expect the proportion of European immigrants to vary substantially between cities and regions within Germany. The likelihood of encountering intra-EU migrants might be much higher in the economically prosperous cities in southern Germany than in East German cities.

To avoid drawing false conclusions from only looking at foreigners, in a series of sensitivity analyses, we use additional information on where these foreigners come from in order to identify refugees: For 43 cities, we have information on the full period from 2014 to 2017; for 27 cities, we only have information for the period from 2015 to 2017. Data for these 70 cities identify foreigners' country group rather than their exact country of origin (nationality). We selected Africa, the Near East (excluding Turkey and the former CIS countries), and South Asia to capture persons who are citizens of the most important non-European countries of origin among those applying for asylum in Germany in 2015 and 2016. These *asylum countries of origin* include Afghanistan, Eritrea, Iraq, Iran, Nigeria, Pakistan, Somalia, and Syria (cf. BAMF 2018, 21).

Independent variables at the neighbourhood level

We measure neighbourhood quality via the socio-economic composition of its population: The key independent variable is neighbourhood social structure. As in Helbig and Jähnen (2018), this is measured based on the *proportion of welfare recipients* who are either long-term unemployed or who earn so little that they additionally receive benefits (recipients of benefits pursuant to Book II of the German Social Security Code / persons aged below 65 * 100). To be able to show non-linear connections between the development of the proportion of foreigners and the proportion of welfare recipients, we divided the neighbourhoods in each city into quintiles of the distribution of the proportion of welfare recipients. This means all neighbourhoods were sorted according to the category they belong to in their relative position based on the proportion of welfare recipients in each city:

- bottom 20 percent (Quintile 1: most favourable social structure),
- 21–40 percent (Quintile 2: favourable social structure),
- 41–60 percent (Quintile 3: medium social structure),
- 61–80 percent (Quintile 4: unfavourable social structure), or
- 81–100 percent (Quintile 5: most unfavourable social structure).

By splitting the proportion of welfare recipients into city-specific quintiles, we also address the large variation in this variable between cities. Descriptive statistics on the variation in the proportion of welfare recipients by quintile are presented in Table A1 in the Appendix. In one text section, we also break down neighbourhoods into deciles to better capture variations within the quintiles. To operationalize the neighbourhood social structure, we use the 2014 proportions of welfare recipients, which represent the social situation of the neighbourhoods prior to the increased influx of refugees. Changes in the proportion of welfare recipients in the years after 2014 can be neglected for our purposes.

In addition, we include two socio-demographic context features at the neighbourhood level that might moderate the relationship between neighbourhood social structure and the influx of migrants. First, there is the annual percentage *change in a neighbourhood's population* between 2005 and 2014. This variable serves as a proxy for vacant housing that is available in a given neighbourhood. This, however, is difficult to measure at the neighbourhood level. If the population in a given neighbourhood has remained constant or has grown, then this should not have had a relevant impact on the accommodation of refugees and other migrants. The least one can say is that no vacancies were created as a result of population trends. Neighbourhoods with a constant or growing population therefore serve as the reference category in this case. Moreover, we code two 'shrinking categories': If the population in a neighbourhood declined by one percent or less (just under 30% of

all neighbourhoods), we code this as ‘shrinking population’. If the population declined by more than one percent per year (about 6% of all neighbourhoods), we code this as ‘strongly shrinking population’.

Second, the ethnic enclave model specifies another aspect concerning the distribution of foreigners: It assumes that individuals with a migration background prefer settling in close physical proximity to persons of the same ethnicity (Schaake, Burgers, and Mulder 2010). To measure this mechanism empirically, researchers would have to look at groups with the same ethnicity and language. Whether, and if so to what extent, migrants in German cities choose neighbourhoods with persons of the same ethnicity or are assigned to such neighbourhoods by the authorities can only be illuminated in studies of individual cities or in qualitative surveys. Although we do have some data on the origin of foreigners in some German cities, that data is not comprehensive enough to allow for coding meaningful groups of origin. That said, in our analyses we do control for the *proportion of foreigners* in the neighbourhoods in the starting year 2014.

Independent variables at the city level

The second goal of our article is to explain city differences in the relationship between the development of the proportion of foreigners and neighbourhood social structure. To do so, we use two structural economic-political characteristics common to all cities as our independent variables: vacancy rates and tax revenues in 2014.

One important variable when it comes to the spatial distribution of population groups such as foreigners is the availability of vacant housing. We measure this by looking at the 2014 *vacancy rates* in the 86 cities. We are grateful to the BBSR for providing us with the data on vacancy rates they have continued to collect based on the 2011 census data, taking account of supply and demand indicators and of assumptions about exit rates and household sizes. This data must be understood as a rough analytical estimate. Vacancy rates are available exclusively at the county level. For those cities in our sample that are part of a larger administrative county, we used the vacancy rates of the respective county. Even if no such information is available, we can still expect vacant housing to be concentrated in places where people prefer not to live. It is precisely such areas that should be marked by lower rents and a concentration of residents from low-income groups. Accordingly, we expect the association between an increase in the proportion of foreigners and neighbourhood social structure to be more pronounced where vacancy rates in the city are high. But the opposite could also be argued: that rents tend to be lower and the spatial concentration of disadvantaged groups is less pronounced in relaxed housing markets (with high vacancy rates). This is supported by the empirical finding that socio-economic segregation has risen less in German cities with high vacancy rates compared to lower ones (Helbig and Jähnen 2018, 94). Thus, with respect to vacancy rates, we can derive competing hypotheses.

The second structural characteristic we use is *tax revenue* in 2014. It provides an indication of the cities’ income levels. Municipal housing policy can use various instruments to promote a more even distribution of disadvantaged groups across neighbourhoods. An important prerequisite for using these instruments is the availability of funds, alongside with know-how and political will (Egner et al. 2018, 146). To measure the financial situation of German municipalities, we looked at local tax revenue⁶, drawing on data from the BBSR database ‘Indicators and Maps on Spatial and Urban Development’ (*Indikatoren und Karten zur Raum- und Stadtentwicklung*, INKAR). Our analysis of tax revenue reveals sharp differences between East and West as well as between North and South. In our sample, annual local tax revenue ranges from €420 per resident in Görlitz to almost €1800 per resident in Frankfurt am Main. The higher the municipal tax revenue, the greater the capacity to implement housing policies and thereby mitigate the spatial concentration of disadvantaged groups should be.

As a control variable, we use the cities’ *population*. To this end, we logarithmized the population figures in order to be able to compare cities of various sizes in a meaningful way.⁷

To find out whether the relation between the rising proportion of foreigners and neighbourhood social structure is moderated by the structural characteristics outlined above, we test each of the quintiles of social structure in terms of whether the structural characteristics are related to the increase in the proportion of foreigners.

Method

In a first step, we use *linear multi-level regression models* to analyze the association between the increase in the proportion of foreigners from 2014 to 2017 and neighbourhood social structure. This is reasonable to control for differences in the proportion of welfare recipients between the cities. The approach is also appropriate, because neighbourhoods are nested in cities. One problem when studying units within the city is the varying size of the respective neighbourhoods. In a city with neighbourhoods of widely varying size, this approach may produce distorted results. For example, if two neighbourhoods belong to the ‘most unfavourable social structure’ category (high proportion of welfare recipients), but one has only 500 residents whereas the other has 5000, then changes in the proportion of foreigners will be included in equal measure for both neighbourhoods although the changes in the latter should be weighted ten times more than those in the former. That is why we use the number of residents in the neighbourhoods as weights at the lower level (neighbourhoods) of the multi-level analysis. We do not weight population at the city level, however. If we did so, larger cities such as Berlin and Hamburg would ‘dominate’ our results, whereas the results from smaller cities would hardly figure in the common models. In other words, all cities are included in equal measure in our computations.

In a second step, we look at differences between the 86 cities in our sample: We illustrate graphically how strong the relationship between the increase in the proportion of foreigners and neighbourhood social structure is, based on *linear regression*.

The third step is dedicated to testing whether these city differences may be traced back to economic-political characteristics: How do contextual factors at the city level account for the uneven socio-spatial distribution of foreigners? For this purpose, we calculate *linear multi-level regression models by quintiles* of the welfare recipients’ distribution.

Results

Where do migrants live in German cities?

Where do migrants who came to Germany mainly in 2015 but also in 2016 and 2017 live? [Table 2](#) displays the results of linear multi-level regression models on changes in the proportion of foreigners from 2014 to 2017 in the neighbourhoods of 86 German cities. When looking at Model 0, the variance components at the city and neighbourhood level are of major interest. Using the intra-class correlation, we can calculate which part of the variance in our dependent variable is located at the city level. The intra-class correlation in this model is 11 percent,⁸ meaning that 11 percent of the whole variance in the development of the proportion of foreigners lie at the city level. This is the share that can maximally be explained by city level factors.

Model 1 shows how much the proportion of foreigners increased in each neighbourhood (in percentage points) depending on its social structure. For this purpose, all neighbourhoods were coded in quintiles based on the proportion of welfare recipients, with the medium social structure in quintile 3 serving as the reference category. As the constant in M1 shows, the proportion of foreigners in these areas increased by 2.3 percentage points between 2014 and 2017. In neighbourhoods with the most favourable social structure (quintile 1), the proportion of foreigners rose by about 1.4 percentage points, meaning the increase was 0.9 percentage points smaller. Neighbourhoods with favourable social structures (quintile 2) also saw a significantly smaller increase in the proportion of foreign residents than those in the reference category. At the opposite end, the proportions of foreigners increased much more strongly in neighbourhoods with an unfavourable social structure

Table 2. Linear multi-level regression to explain changes in the proportion of foreigners in the neighbourhoods of 86 German cities from 2014 to 2017, including neighbourhood level factors (weighted by neighbourhood size).

	M0	M1	M2
Proportion of welfare recipients in quintiles, Reference: 3rd quintile			
Quintile 1 (most favourable social structure)		-0.90** (0.11)	-1.12** (0.15)
Quintile 2		-0.50** (0.09)	-0.60** (0.10)
Quintile 4		0.68** (0.12)	0.79** (0.10)
Quintile 5 (most unfavourable social structure)		1.73** (0.31)	2.07** (0.22)
Population changes, Reference: at least stable development			
Shrinking population (below 0 to -1% per year)			0.08 (0.12)
Strongly shrinking population (more than -1% per year)			0.75* (0.30)
Proportion of foreign residents in 2014 (centred)			-0.04* (0.02)
Constant	2.72 (0.09)	2.33 (0.11)	2.26 (0.15)
Variance city level	0.61 (0.96)	0.58 (0.08)	0.53 (0.08)
Variance neighbourhood level	4.94 (0.61)	4.13 (0.05)	4.06 (0.05)
Number of cases	3770	3770	3770

Note: * $p < 0.05$; ** $p < 0.01$; standard errors in parentheses. M1 and M2 controlled for East vs. West Germany.

(quintile 4) and the most unfavourable structure (quintile 5) – those in quintile 5 even saw an increase by about 4 percentage points; that is, 1.7 percentage points more than those in the reference category. Between 2014 and 2017, the proportion of foreign residents thus increased three times as much in neighbourhoods with the most unfavourable social structures as it did in neighbourhoods with the most favourable social structures.

In Model 2, we additionally controlled for population trends in the neighbourhoods and the proportion of foreigners in the neighbourhoods. The results show that minor population declines in recent years are not associated with changes in the proportions of foreign residents. Neighbourhoods with sharp population declines prior to 2014 saw stronger increases in the proportion of foreigners after 2014 than neighbourhoods with a constant or growing population. Vacant apartments and buildings may have been used to house refugees.

In contrast to what the ethnic enclave model implies, the proportion of foreigners increased more heavily after 2014 in areas that had smaller populations of foreign residents in 2014.⁹ But that is hardly surprising given that co-ethnic enclaves did not exist for the new immigrants from asylum countries of origin such as Syria and Afghanistan. If at all, such enclaves may have been available for intra-EU migrants from Romania and Poland.

For M2, the proportion of explained variance can be calculated using the R^2 approach proposed by Snijders and Bosker (1999, 101ff): At the neighbourhood level, we obtain an R^2 of 0.17,¹⁰ indicating that 17 percent of the differences in the changing proportion of foreigners are explained by our independent variables at the neighbourhood level.

Additional models (not presented here) reveal that the association between the increase in the proportion of foreigners and neighbourhood social structure is much more pronounced in East German cities than it is in West German cities.

A more detailed representation of that finding is shown in Figure 2 based on the deciles of neighbourhood social structure. The proportions of foreigners in the West German cities evolved in a relatively linear fashion along with the proportion of welfare recipients. The overall gradient of the function is relatively moderate. It is only between the 9th and 10th decile that the gradient is somewhat higher than in the rest of the curve.

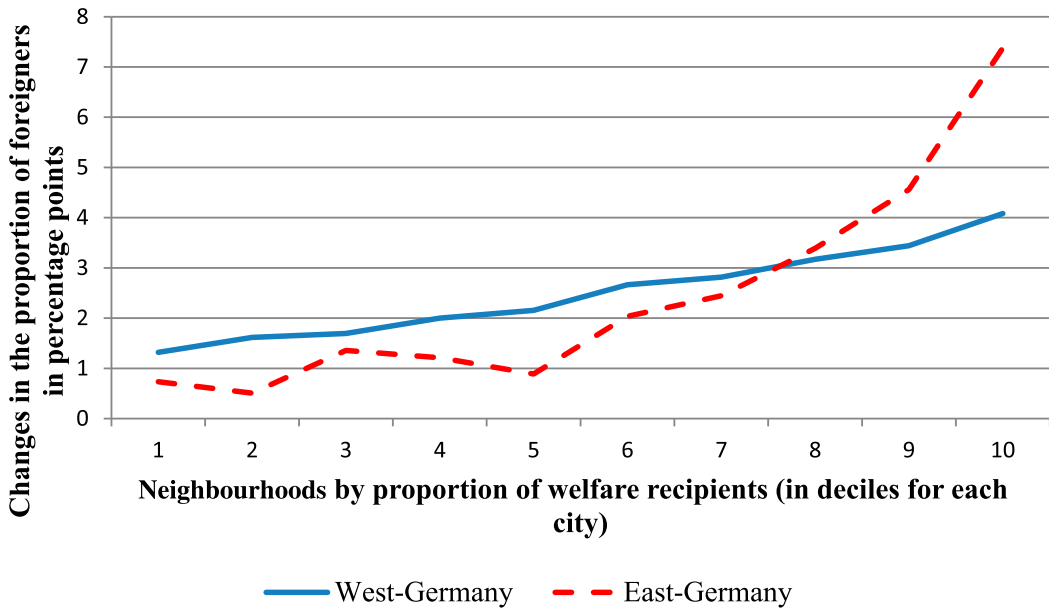


Figure 2. Changes in the proportion of foreigners in West and East German neighbourhoods from 2014 to 2017 by proportion of welfare recipients in each neighbourhood.

Note: The results shown in the figure are based on a linear multi-level regression equivalent to Model 1 in Table 2.

In the East German cities, the total increase in the proportion of foreign residents is moderate up until the 5th decile of the proportion of welfare recipients; overall, the proportion of foreigners is consistently below the West German levels. Beginning with the 6th decile, however, the development in the East German cities looks more like an exponential function. With each decile, there is a sharper increase in the proportion of foreign residents. Towards the 10th decile, the spike is particularly notable. Overall, the range among East German cities between the 1st and 10th deciles is 6.6 percentage points, compared to ‘only’ 2.8 percentage points in West German cities.

Differences between individual cities

As the differences between East and West Germany suggest, the relationship between a neighbourhood’s social structure and the evolution of the proportion of foreign residents varies from city to city. On the one hand, there are cities in which no association exists between the increase in the proportion of foreigners and neighbourhood social structure. On the other hand, there are cities in which these two variables are strongly associated. The problem when asking about *how strongly they are associated* is that it is difficult to define suitable criteria for measuring the strength of a relation between two variables. There are statistical measures that allow for a decent representation of the strength of the association (e.g. Cohen’s *d*) – regardless of whether a city has 8 neighbourhoods (e.g. Wismar) or 447 (Berlin). However, the accuracy of statistical estimates generally increases with the number of cases considered, that is, with the number of neighbourhoods. In a city with 447 neighbourhoods, it is safe to assume that a relatively small association between the two key variables is statistically significant rather than coincidental. In a city with no more than 8 neighbourhoods, by contrast, a relatively strong association does not automatically have to be statistically significant; it may just as well be coincidental.

Figure 3 illustrates whether we found no correlation, a moderate correlation, or a strong correlation between the two variables in each of the cities considered. We defined a strong correlation as

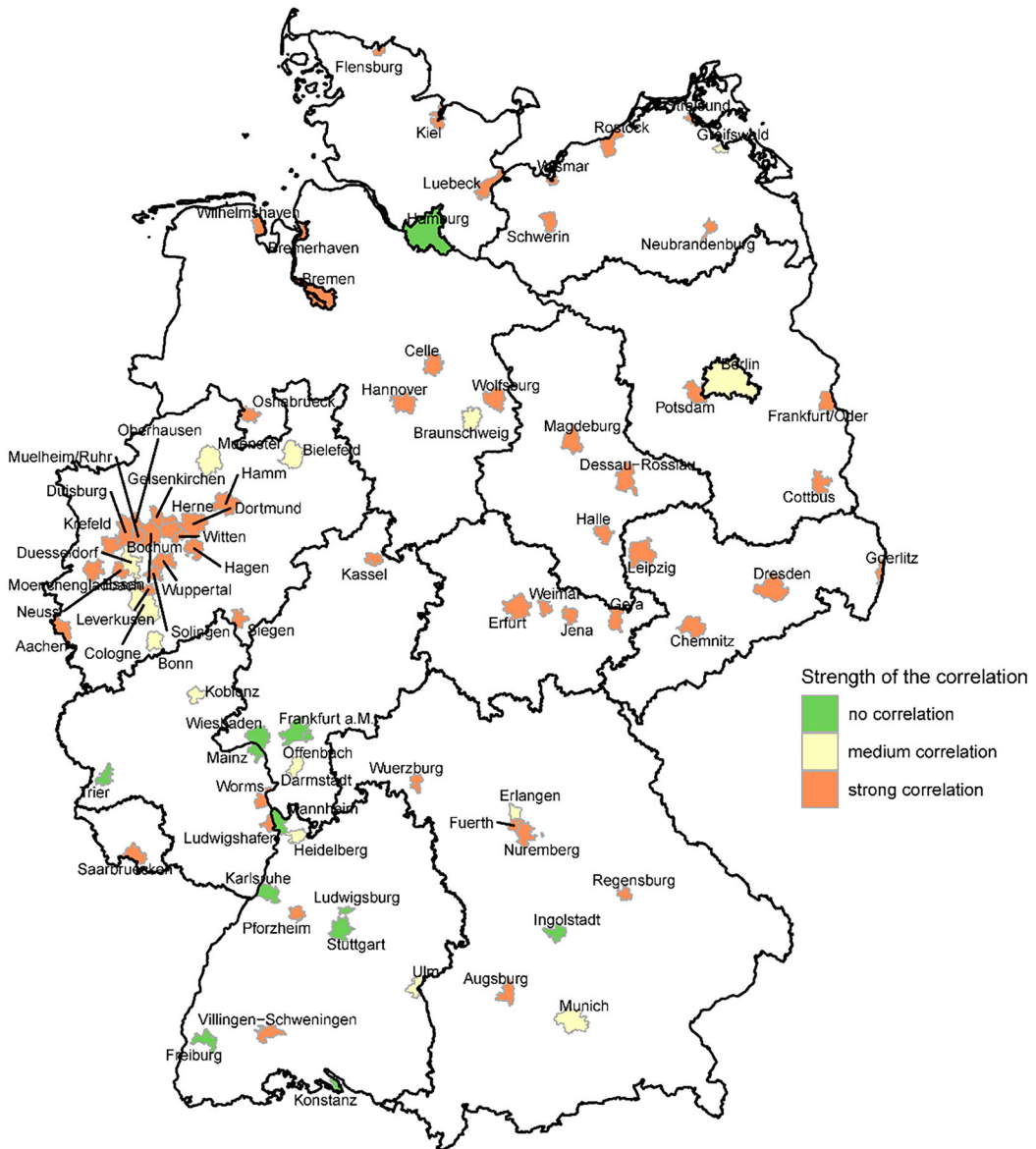


Figure 3. Linear correlation between the development of the proportion of foreigners 2014–2017 and neighbourhood social structure in 2014.

Note: Results of a linear regression, weighted by number of residents in each neighbourhood.

having a standardized regression coefficient (beta) of 0.5 and higher. This is equivalent to an R^2 of 25 percent in a univariate regression. Because of the small number of neighbourhoods in some cities, we chose a combination of effect size and significance for a beta below 0.5: A moderate correlation is defined as having a beta of less than 0.5 and a statistically significant result (minimum $p < 0.10$). We defined no correlation as meaning that beta is smaller than 0.5 and that the correlation is not statistically significant ($p < 0.10$).

Based on these definitions, there are 13 cities in which we find no correlation between the increase in the proportion of foreigners and neighbourhood social structure between 2014 and 2017. A moderate correlation exists in 14 cities, and we find a strong correlation in 59 cities.

One notable finding is that, of all cities north of the Main river, Hamburg is the only one in which there is no correlation between the increase in the proportion of foreigners and neighbourhood social structure between 2014 and 2017. All other cities without such a correlation are situated along the Main river or south of it. Looking at the 27 cities south of the Main, the analysis only shows a strong link between the two variables in 10 cities. North of the Main, by contrast, a strong correlation can be observed in 49 of 59 cities. Of all cities in East Germany – with the exception of Berlin – Greifswald is the only one where there is a moderate correlation; in all other East German cities, there is a strong correlation. Similar results emerge for the cities in the Ruhr area and those in northern Germany (except for Hamburg and Braunschweig). Another cluster can be observed among cities along the Rhine river (Duesseldorf, Cologne, Bonn, and Koblenz), where we find ‘only’ a moderate correlation between the variables.

In other words, surprisingly clear patterns emerge for the correlation between neighbourhood social structure and increases in the proportion of foreign residents. In the South and along the Rhine river (up to Duesseldorf), we find many cities in which the two variables are moderately correlated or not correlated at all. In the North (except Hamburg), the West (especially in the Ruhr area), and the East, by contrast, a strong correlation is present in nearly all cities.

What explains the differences between the cities?

As outlined above, the 86 German cities vary enormously when it comes to the relation between neighbourhood social structure and the development of the proportion of foreign residents. In this section, we will look at some of the structural characteristics of these cities to find out whether they are associated with the uneven socio-spatial distribution of foreigners from 2014 to 2017 and may thus help explain the variance in the increase of the proportion of foreigners in relation to neighbourhood social structure. The structural characteristics we consider are municipal tax revenues, vacancy rates, and – as a control variable – population in 2014.

For Table 3, we computed how the structural characteristics are associated with the increase in the proportion of foreigners in each of the quintiles. These models require fewer statistical resources, are easier to interpret and deliver the same results as models involving interaction terms between individual quintiles and structural characteristics. In quintiles 1 and 3 (M1 and M3), the proportion of foreigners in cities with high vacancy rates has risen less sharply than in cities with low vacancy rates. At the opposite end, results for the 5th quintile (M5) show that the proportion of foreigners has risen more strongly in cities with rising vacancy rates.

Table 3. Linear multi-level regression to explain changes in the proportion of foreigners from 2014 to 2017 in the neighbourhoods of 86 German cities, including city level factors, by quintiles of the proportion of welfare recipients (weighted by neighbourhood size).

	M1 Quintile 1 (+)	M2 Quintile 2	M3 Quintile 3	M4 Quintile 4	M5 Quintile 5 (–)
Vacancy rate in %	–0.13** (0.03)	–0.12 (0.07)	–0.08** (0.03)	0.01 (0.06)	0.15* (0.07)
Tax revenue per resident/100	0.08* (0.04)	0.03 (0.07)	–0.01 (0.05)	–0.04 (0.06)	–0.25* (0.10)
Population (logarithmized)	–0.14 (0.11)	–0.08 (0.13)	0.04 (0.12)	0.12 (0.17)	–0.04 (0.23)
Constant	2.50 (1.52)	2.48 (1.92)	2.01 (1.64)	1.83 (2.31)	6.40 (3.30)
Variance city level	0.44 (0.10)	1.16 (0.12)	0.90 (0.07)	1.44 (0.10)	2.60 (0.11)
Variance neighbourhood level	2.92 (0.13)	2.99 (0.14)	2.48 (0.08)	3.03 (0.09)	4.92 (0.06)
Number of cases	788	753	756	753	720

Note: * $p < 0.05$; ** $p < 0.01$; standard errors in parentheses. All models controlled for the 2014 proportion of foreigners in each neighbourhood.

Tax revenues emerge as an important factor for the socio-spatial distribution of foreigners in the regression by quintiles. In cities with high tax revenues, the proportion of foreigners in neighbourhoods with the most favourable social structure (quintile 1) has increased more strongly than in cities with lower tax revenues. At the opposite end, the proportion of foreigners in neighbourhoods with the least favourable social structure (quintile 5) has increased less strongly than in cities with low tax revenues. If high tax revenue is taken to mean that municipal authorities have the resources to take action in terms of an active housing policy, the implication would be that municipalities that did have the financial resources to take action were more successful in limiting the proportion of foreigners in socially disadvantaged areas. For refugees, this may apply to the location of both decentralized housing and collective housing facilities.

A city's population is not systematically related to the socio-spatial distribution of foreign residents.

Overall, our results suggest that the uneven socio-spatial distribution of foreigners in German cities depends on two structural characteristics: vacancy rates and tax revenues. If the socio-spatial distribution of migrants is governed primarily by vacancy rates, as our results suggest, then what is at work here are market principles. High vacancy rates are found primarily in areas inhabited by those who hardly have any choice where to live – either because their income is very low or because of discrimination. It is especially in cities with high vacancy rates that the proportion of foreigners living in neighbourhoods with the most unfavourable social structure has seen a sharp increase. This suggests that migrants primarily found housing in neighbourhoods marked by high vacancy rates and low rents. As a result, the concentration of economically weaker groups in undesirable areas was further exacerbated. Tax revenue is also a reflection of the extent to which the municipality has access to the financial resources to actively manage the housing market in the first place. The fact that the uneven socio-spatial distribution of foreigners is least pronounced in those cities that benefit from higher tax revenue could hence be interpreted to mean that such municipalities can play a more active role on the housing market.

Sensitivity analyses

In the analyses above, we look at the heterogeneous group of foreigners as a whole due to the data available. To assess the extent to which the results for the uneven socio-spatial distribution of all foreigners differ from those for refugees, we compute how both variables are associated with the proportion of welfare recipients in each of the 70 cities that provide information on foreigners' origins. To be able to compare the results of the two univariate regressions, we consider the standardized regression coefficient (beta) in each case. We calculate beta coefficients for the association between the proportion of welfare recipients in the neighbourhoods and the increase in the proportion of foreigners from 2014/2015 to 2017, and for the association between the proportion of welfare recipients in the neighbourhoods and the increase in the proportion of foreigners who are citizens of the asylum countries of origin from 2014/2015 to 2017 (results not shown). Notwithstanding differences in some cities, we generally observe very strong similarity in the uneven socio-spatial distribution of all foreigners and the uneven socio-spatial distribution of the main groups of refugees. This means the statements we make about foreigners apply to a high degree to the subgroup of citizens from asylum countries of origin.

For further sensitivity analyses, we perform the same calculations as in [Tables 2 and 3](#) on the sample of 43 cities that have information on the origin of foreigners from 2014 to 2017. [Table A2](#) in the Appendix reports estimates from linear multi-level regression models predicting changes in the proportion of foreigners for three groups: all foreigners (M1 and M2), those from asylum countries of origin (M3 and M4), and those who are not from asylum countries of origin (M5 and M6). Overall, we obtain the same results for foreigners in the smaller sample as in the full sample (cf. [Table 2](#)); the only notable difference is that effects for population changes and the proportion of foreign residents are no longer significant but still go in the same direction (M2).

When comparing M3 and M5, it is clear that the effects for the proportion of welfare recipients are much more driven by individuals from asylum countries of origin. While estimates for the quintiles differ between M3 and M5, they are more similar in M4 and M6: The inclusion of contextual factors at the neighbourhood level seems to matter less for foreigners from asylum countries of origin than for those who are not from asylum countries of origin.

For the smaller sample, we also calculate how city level factors are associated with changes in the proportion of foreigners in each quintile separately for the three groups: all foreigners (Table A3a), those from asylum countries of origin (Table A3b), and those who are not from asylum countries of origin (Table A3c). Table A3a shows more pronounced effects for vacancy rate on both ends of the distribution of welfare recipients in the smaller sample compared to the full sample (cf. Table 3). Tax revenue loses its significance in neighbourhoods with the most favourable social structure (M1), but it is similarly important in neighbourhoods with the most unfavourable social structure (M5). Table A3b, which focuses on foreigners from asylum countries of origin, reports similar results to those for all foreigners in the full and in the smaller samples; the key difference is that tax revenue has more effects. In contrast, there are hardly any effects in Table A3c on foreigners who are not from asylum countries of origin. In sum, these sensitivity analyses for the sample of 43 cities strengthen the argument that our results are mainly driven by the group of refugees.

Conclusion

In this study, we have investigated how the social structure of neighbourhoods is related to the influx of migrants into those neighbourhoods for a sample of 86 German cities between 2014 and 2017. Moreover, we were interested in how the individual cities differ in this respect. The analyses show that the proportion of foreigners has grown most substantially in socially disadvantaged neighbourhoods – especially in East Germany. This finding is in line with the spatial assimilation model, which expects migrants who have just arrived to settle in deprived neighbourhoods. Looking at the individual cities, we observe the following: Most of the cities in which neighbourhood social structure and the increase in the proportion of foreign residents were strongly correlated are located in the east, north, and west of Germany. The differences may be partially explained by vacancy rates and municipal tax revenues, two contextual factors at the city level.

Upon their arrival in Germany, many migrants initially belong to the group of low-income persons. Refugees with an open protective status face particularly uncertain prospects regarding their permission to stay in the country and do not have access to the German labour market. Although they do get unrestricted labour market access after their request for asylum status, refugee status, or subsidiary protection has been granted, the educational credentials and qualifications of refugees are frequently devalued on the German labour market. And it is not only refugees who are short of financial means. Immigrants from EU countries, even though they are much more likely to be employed and much less likely to be unemployed than individuals from non-European asylum countries of origin, are still much more likely than Germans to belong to the group of workers performing simple tasks (Fachstelle Einwanderung 2017, 4, 8). In line with the principles of the market (including possible discrimination by landlords) and the cost of housing (KdU) policy, these newly arrived, mostly low-income individuals settled in exactly the same neighbourhoods as many low-income migrants and non-migrants before them. As a result, the spatial concentration of poverty is exacerbated. In 2014, more than a quarter of poor individuals would have had to move in order to reach an even distribution of this population group in German cities (Helbig and Jähnen 2018, 28).

Our findings suggest that many cities in eastern, northern, and western Germany have neighbourhoods with a high concentration of housing that can only be let for (very) low rents, if at all. These properties are a financial burden to the owners, whether public or private, especially if they are empty. Even if most municipalities do strive for an even distribution of refugees (BBSR 2017, 70), housing them in vacant, hard-to-market apartments certainly is an economically

appealing option in the short term. After all, from the landlord's point of view, a rented property is almost always better than a vacant property. These market mechanisms apparently played a major role in the recent influx of foreigners to German cities – an indication that many municipalities are currently not in a position to pursue active housing policies and hence social policies. If government authorities no longer own any, or hardly any, residential properties or allocation rights in 'better' neighbourhoods, they are no longer able to counteract the 'laws of the market'. Especially in the poorer municipalities in eastern, northern, and western Germany, the strong concentration of low-income people (with or without a German passport) in certain neighbourhoods reflects a concentration of these populations in housing units that many residents in the respective city consider unattractive and that are marked by disproportionately high vacancy rates. It is precisely these areas that received a large share of the migrants that arrived in Germany between 2014 and 2017. But they were not relegated to these neighbourhoods because of their nationality: Other population groups with low incomes or wealth would presumably have seen a similar distribution in German cities as the foreign immigrants of the years 2014–2017.

Paradoxically, the association between neighbourhood social structure and the increase in the proportion of foreigners was absent or was much weaker, in those cities that have been the focus of recent public debates over housing policy problems in Germany: Munich, Stuttgart, Frankfurt am Main, Hamburg, Cologne, and Berlin not only have a general shortage of housing but more importantly a shortage of affordable housing (cf. Holm et al. 2018). Some researchers assume an inhibitory effect of tense housing markets on poverty segregation (Großmann et al. 2015; ILS and Strohmeier 2003, 9). The present study provides further empirical evidence to support this assumption.

The much-discussed East/West divide in economic power is accompanied more and more by a North/South divide. This means the economically weaker cities in the eastern, northern, and western parts of the country are facing another social challenge: the increasingly uneven distribution of disadvantaged populations within urban space, further exacerbated by the influx of foreign immigrants in the years 2014–2017. For example, 27 of the 29 cities that saw a notable rise in socio-economic segregation from 2014 to 2017 (by one or more percentage points, see Helbig and Jähnen [2019b, 52ff]) are among those for which we observed a strong correlation between the increase in the proportion of foreign residents and neighbourhood social structure. Neighbourhoods marked by poverty are especially likely to emerge where local and state governments do not have the financial resources to counteract this concentration. The trends described here also present a growing challenge with respect to the constitutional goal of creating equal living conditions throughout Germany.

In many neighbourhoods marked by poverty, the situation has escalated to a point (Helbig and Jähnen 2019b) where it becomes increasingly difficult to stop the downward trend by means of housing policies and social planning. As a consequence, the potentially negative effects of disadvantaged neighbourhoods on educational attainment, labor market prospects, and health outcomes receive more and more attention (cf. Chetty, Hendren, and Katz 2016; Farwick 2012, 389f; Galster 2012). It is safe to assume that there are many persons (both parents and children) with high educational aspirations and a desire for social mobility among the immigrant population in Germany. Realizing that social mobility would certainly be easier in socially mixed or even privileged neighbourhoods.

Referring to neighbourhoods with a high concentration of poor foreigners as 'arrival neighbourhoods' that may serve as stepping-stones to integration and opportunity, as Bernt and Hausmann (2019, 25) have done with a nod to Saunders (2011), is worth discussing. Many of these 'arrival neighbourhoods' are marked by a diverse range of social challenges that impede rather than facilitate integration. Given their past problems with integrating guest workers and their descendants, one would expect Germany and other Western European countries in particular to have learned that concentrating socially disadvantaged groups in one place is not a promising setup for successful integration. As a consequence, we agree with the Federal Institute for

Research on Building, Urban Affairs and Spatial Development in their assessment that ‘the neighbourhood where refugees are housed is critically important to their integration into urban society’ (BBSR 2017, 70, our translation). As a rule, municipalities generally do strive for a balanced spatial distribution of refugees. But there is often a wide gulf between ambitions and reality: ‘It is rather rare for collective housing facilities to be established in medium- and high-rent neighbourhoods’. (BBSR 2017, 70, our translation)

The distribution of migrants across municipalities and their integration into society are linked to various conflicting political objectives that are hard to reconcile. With a view to successful integration, it seems reasonable to aim as much as possible for a spatial distribution of refugees and other migrant groups according to the local resources available for integration. From this perspective, it might be better to place fewer migrants in socially disadvantaged areas to ease the burden associated with the task of integration. That, however, would mean that refugees and other migrant groups would more often have to live where housing is scarce and rents are higher, that is, in more affluent neighbourhoods. After all, in many German cities, the only option for recipients of government transfer payments to find affordable housing is in less sought-after areas – where local rents are in line with the so-called cost of housing (KdU) policy, a technical term from German welfare law. It would be difficult to explain to these low-income residents why refugees are not subject to the same housing policies.

Each extreme position results in a potential strain on social relations: Offering migrants housing primarily in more affluent residential areas (integration position) will lead to short-term challenges to social harmony. If migrants are offered housing in accordance with market conditions (market position) – that is, mainly in low-income neighbourhoods – the threats to social harmony will be more medium and long term. The opportunities for upward social mobility are smaller in neighbourhoods with a high concentration of veteran poor residents and newly immigrated, frequently poor people than in neighbourhoods with fewer social problems (cf. Chetty, Hendren, and Katz 2016; Farwick 2001; Wodtke, Harding, and Elwert 2011). The two extreme positions cannot be reconciled with each other. The difficult task, therefore, is to find an appropriate balance between the integration position and the market position. If policymakers fail to act, the situation is most likely to evolve towards the market position.

Notes

1. In Germany, the term *Flüchtling* (‘refugee’) is often used in everyday language as a synonym for people who have been displaced. In legal terms, however, it only applies to individuals recognized as refugees in accordance with the Geneva Refugee Convention (BAMF 2016, 2). The collective term *Schutzsuchende* (literally ‘individuals seeking protection’, hereafter translated as refugees for practical reasons) refers to ‘foreigners who reside in Germany claiming humanitarian reasons’ (StBA 2018, 5, our translation).
2. Until a residence permit is granted, asylum seekers in the asylum process receive benefits pursuant to the Asylum Seekers’ Benefits Act (*Asylbewerberleistungsgesetz*) (Informationsverbund Asyl und Migration 2019).
3. The term refers to physical path dependencies in urban space (Tammaru et al. 2016, 10f).
4. In Helbig and Jähnen (2018), the criterion for inclusion was a population of 100,000 (with a few exceptions). For the present study, we additionally contacted all cities in West Germany with a population of more than 70,000. Given that social divisions (measured by indexes of residential segregation) are even sharper for cities in East Germany, we contacted all East German cities with a population of 40,000 and more.
5. The number of non-German nationals is not the same as the number of migrants (inward/outward). Whereas data on non-German nationals residing in Germany is stock data relating to a specific point in time, figures on inward and outward migration are motion data applying to a period of a time (e.g. one year) (BAMF 2018, 106). Stock data, however, are the result of inward and outward migration.
6. Municipal debt would certainly have been another good measure of political agency. However, data on municipal debt are neither available for the city states in our sample (Berlin, Bremen, and Hamburg) nor for the cities that are part of a larger county.
7. Logarithmization serves to level ‘outliers’ such as the population of Berlin in the range of population figures. Instead of having a range of about 50,000 inhabitants at one end of the spectrum and some 3.5 million inhabitants at the other, this method results in a range of 10.5 to about 15.

8. $0.61/(0.61 + 4.94) = 0.11$.
9. Without controlling for neighbourhood social structure, we observe a positive relationship between the proportion of foreigners in 2014 and the increase in their proportion since 2014. This makes clear that neighbourhood social structure in 2014 is correlated with the proportion of foreign residents in a given neighbourhood.
10. $1 - (4.06 + 0.53)/(4.94 + 0.61) = 0.17$.

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Data availability statement

The data that support the findings of this study are available from the Federal Institute for Research on Building, Urban Affairs and Spatial Development (BBSR) and various city governments. Restrictions apply to the availability of these data, which were used under licence for this study.

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Appendix

Table A1. Variation in the proportion of welfare recipients in the neighbourhoods of 86 German cities by quintile.

Quintiles	Mean	SD	Minimum	Maximum
1.	2.88	1.78	0.18	15.55
2.	6.21	2.96	0.63	19.94
3.	9.70	4.21	1.22	23.03
4.	14.94	5.83	1.73	28.89
5.	24.30	8.92	2.71	49.82

Table A2. Linear multi-level regression to explain changes in the proportion of foreigners in the neighbourhoods of 43 German cities from 2014 to 2017, including neighbourhood level factors (weighted by neighbourhood size).

	All foreigners		Foreigners from asylum countries of origin		Foreigners not from asylum countries of origin	
	M1	M2	M3	M4	M5	M6
Proportion of welfare recipients in quintiles, Reference: 3rd quintile						
Quintile 1 (most favourable social structure)	-0.87** (0.17)	-1.07** (0.23)	-0.62** (0.12)	-0.50** (0.16)	-0.24** (0.09)	-0.57** (0.10)
Quintile 2	-0.69** (0.16)	-0.79** (0.19)	-0.44** (0.13)	-0.39* (0.15)	-0.25** (0.09)	-0.40** (0.08)
Quintile 4	0.63** (0.23)	0.76** (0.20)	0.49** (0.14)	0.40** (0.13)	0.15 (0.11)	0.36** (0.09)
Quintile 5 (most unfavourable social structure)	2.00** (0.35)	2.37** (0.32)	1.64** (0.26)	1.37** (0.25)	0.36* (0.14)	1.00** (0.14)
Population changes, Reference: at least stable development						
Shrinking population (below 0 to -1% per year)		0.07 (0.15)		0.07 (0.12)		0.01 (0.08)
Strongly shrinking population (more than -1% per year)		0.58 (0.48)		0.81 (0.44)		-0.22 (0.14)
Proportion of foreign residents in 2014 (centred)		-0.04 (0.03)		0.02 (0.02)		-0.06** (0.01)
Constant	2.19 (0.15)	2.16 (0.17)	1.25 (0.12)	1.21 (0.13)	0.94 (0.11)	0.95 (0.15)
Variance city level	0.55 (0.10)	0.58 (0.11)	0.45 (0.10)	0.51 (0.10)	0.26 (0.12)	0.53 (0.16)
Variance neighbourhood level	3.35 (0.06)	3.29 (0.06)	1.75 (0.06)	1.72 (0.06)	1.06 (0.06)	0.95 (0.06)
Number of cases	1668	1668	1668	1668	1668	1668

Note: * $p < 0.05$; ** $p < 0.01$; standard errors in parentheses. All models controlled for East vs. West Germany.

Table A3a. Linear multi-level regression to explain changes in the proportion of foreigners from 2014 to 2017 in the neighbourhoods of 43 German cities, including city level factors, by quintiles of the proportion of welfare recipients (weighted by neighbourhood size).

	M1 Quintile 1 (+)	M2 Quintile 2	M3 Quintile 3	M4 Quintile 4	M5 Quintile 5 (-)
Vacancy rate in %	-0.14** (0.05)	-0.27+ (0.15)	-0.10+ (0.06)	0.14 (0.10)	0.40** (0.10)
Tax revenue per resident/100	-0.00 (0.06)	0.10 (0.13)	0.02 (0.07)	-0.05 (0.08)	-0.27* (0.13)
Population (logarithmized)	-0.13 (0.16)	-0.08 (0.29)	0.16 (0.19)	0.06 (0.27)	0.38 (0.34)
Constant	3.36 (1.92)	2.32 (4.63)	0.35 (2.57)	2.08 (3.23)	-0.17 (4.56)
Variance city level	0.38 (0.11)	1.72 (0.14)	0.84 (0.10)	1.32 (0.12)	1.68 (0.11)
Variance neighbourhood level	1.86 (0.15)	2.14 (0.12)	1.97 (0.09)	2.10 (0.08)	3.67 (0.12)
Number of cases	349	332	337	332	318

Note: + $p < 0.10$; * $p < 0.05$; ** $p < 0.01$; standard errors in parentheses. All models controlled for the 2014 proportion of foreigners in each neighbourhood.

Table A3b. Linear multi-level regression to explain changes in the proportion of foreigners from asylum countries of origin from 2014 to 2017 in the neighbourhoods of 43 German cities, including city level factors, by quintiles of the proportion of welfare recipients (weighted by neighbourhood size).

	M1 Quintile 1 (+)	M2 Quintile 2	M3 Quintile 3	M4 Quintile 4	M5 Quintile 5 (-)
Vacancy rate in %	-0.08** (0.03)	-0.08 (0.07)	0.04 (0.11)	0.14+ (0.08)	0.36* (0.15)
Tax revenue per resident/100	-0.05+ (0.02)	0.06 (0.06)	-0.06 (0.08)	-0.15* (0.06)	-0.33* (0.13)
Population (logarithmized)	0.10 (0.08)	0.14 (0.14)	0.03 (0.20)	0.20 (0.21)	0.30 (0.30)
Constant	0.27 (1.10)	-1.34 (2.22)	1.30 (3.19)	-0.03 (2.86)	-0.14 (4.70)
Variance city level	0.09 (0.12)	0.53 (0.15)	0.70 (0.20)	0.66 (0.10)	1.86 (0.13)
Variance neighbourhood level	0.82 (0.19)	1.15 (0.14)	0.90 (0.10)	0.98 (0.09)	1.97 (0.10)
Number of cases	349	332	337	332	318

Note: + $p < 0.10$, * $p < 0.05$; ** $p < 0.01$; standard errors in parentheses. All models controlled for the 2014 proportion of foreigners in each neighbourhood.

Table A3c. Linear multi-level regression to explain changes in the proportion of foreigners who are not from asylum countries of origin from 2014 to 2017 in the neighbourhoods of 43 German cities, including city level factors, by quintiles of the proportion of welfare recipients (weighted by neighbourhood size).

	M1 Quintile 1 (+)	M2 Quintile 2	M3 Quintile 3	M4 Quintile 4	M5 Quintile 5 (-)
Vacancy rate in %	-0.07 (0.06)	-0.19+ (0.11)	-0.14 (0.11)	-0.00 (0.12)	0.04 (0.10)
Tax revenue per resident/100	0.04 (0.06)	0.03 (0.09)	0.08 (0.08)	0.11 (0.08)	0.06 (0.08)
Population (logarithmized)	-0.22 (0.14)	-0.23 (0.19)	0.13 (0.22)	-0.14 (0.23)	0.09 (0.25)
Constant	3.11 (1.94)	3.67 (3.29)	-0.96 (3.25)	2.11 (3.26)	-0.03 (3.39)
Variance city level	0.33 (0.15)	0.76 (0.21)	0.92 (0.14)	1.11 (0.13)	1.00 (0.11)
Variance neighbourhood level	0.64 (0.13)	0.52 (0.10)	0.70 (0.07)	0.73 (0.09)	1.17 (0.12)
Number of cases	349	332	337	332	318

Note: + $p < 0.10$; standard errors in parentheses. All models controlled for the 2014 proportion of foreigners in each neighbourhood.