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# Spatial overlap: trade-offs in refugees' residential choices

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## ABSTRACT

Social science research gives rise to what we call the 'refugee mobility puzzle': While restrictions on the freedom of residence limit refugees' socio-economic integration, those who do not face such restrictions often move to areas with high unemployment that similarly hinder their labor market prospects. This study addresses a central element of this puzzle: What draws refugees to high unemployment areas? We propose the spatial overlap hypothesis arguing that refugees in comparatively generous reception systems initially prioritize or are forced to prioritize non-labor-market resources such as affordable housing and proximity to social networks. Thereby they often settle in areas with general economic disadvantage as such areas frequently overlap with said resources. Based on the IAB-BAMF-SOEP Survey of Refugees this study tracks residential histories of more than 2,400 refugee respondents across all German counties and postcodes. Discrete choice models show that preferences for cities, lack of affordable housing, the presence of small, service-oriented companies, and co-ethnic communities explain refugees' gravitation to disadvantaged areas. These results support the spatial overlap hypothesis and suggest that recently approved refugees face trade-offs: area characteristics that are initially attractive tend to spatially overlap with such that likely inhibit longer-term integration prospects.

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Refugees; residential choice; socio-economic integration; restrictions on the freedom of residence; dispersal policies

## Introduction

The number of forcibly displaced people worldwide has increased by over 100% in the past decade, reaching 26 million in 2021, just before the Russian invasion of Ukraine (UNHCR 2023). The administrative processing of asylum claims, the provision of shelter and social services can impose considerable strain on hosting communities (e.g. Boockmann, Klee, and Scheu 2018). Many high-income countries therefore rely on dispersal policies to distribute refugees across their municipalities more evenly. Beyond their role in alleviating immediate administrative and infrastructural bottlenecks, dispersal policies are often intended to prevent ethnic residential segregation and promote refugees' socio-economic integration. §12a of the German Residence Act,

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which describes the residence mandates for accepted refugees, consequently justifies these provisions ‘[t]o promote [refugees’] sustainable integration into the living conditions of the Federal Republic of Germany’ (our translation).

Prior research indeed suggests that refugees tend to settle in areas with high shares of co-ethnics and poor economic prospects in terms of high unemployment rates (Åslund, Östh, and Zenou 2010; Damm 2014; c.f. Mossaad et al. 2020; Zorlu and Mulder 2008). At the same time, however, recent policy evaluations suggest that dispersal programs and restrictions on the freedom of residence, such as those stipulated in the German Residence Act, actually inhibit refugees’ socio-economic integration, thus apparently counteracting the stated purpose of these policies (Fasani, Frattini, and Minale 2022; Jørgensen 2021). We call the seemingly contradictory evidence that refugees tend to move to economically disadvantaged areas, while policies restricting exactly these relocations hinder their labor-market integration, the ‘refugee mobility puzzle’.

The aim of this study is to address a central element of this puzzle: Why do refugees, upon the lifting of residency restrictions, often relocate to areas characterized by high unemployment rates? We propose the spatial overlap hypothesis, according to which refugees in comparatively generous reception systems face complex situations in which they initially often need to prioritize spatial resources such as the social infrastructures of cities, affordable housing and proximity to social networks, rather than employment prospects. These initial residential preferences and needs unintentionally result in moves to areas with high levels of unemployment, which tends to spatially overlap with lower housing costs and existing refugee networks. We extend this argument with the novel hypothesis that other attractors may well motivate refugees to move to areas that *appear* deprived, but actually imply relatively benign prospects for socio-economic integration. An example of this second type of attractor is a high density of small, service-oriented firms, which are often found in high unemployment areas but constitute a relevant labor market for refugees.

We test the implications of our argument by analyzing the residential choices of recent refugees in Germany. We use data from the IAB-BAMF-SOEP Survey of Refugees (Brücker, Rother, and Schupp 2017), which allows us to track the location of more than 2,400 refugee respondents who were exogenously allocated a place of residence and subsequently became eligible to move. We model the residential relocation of each refugee as a discrete choice between all of Germany’s 8,017 postcodes and 388 counties drawing on rich contextual information on these areas’ characteristics.

Our descriptive findings confirm an important result of previous research: Most refugees do not relocate after their initial dispersal. This means that initial placements have a strong influence on the distribution of refugee-origin populations in the long run. However, refugees who do relocate tend to move to economically disadvantaged areas. In line with the spatial overlap hypothesis, discrete choice models demonstrate, however, that preferences and needs related to urban areas, affordable housing, co-ethnic communities, but also to proximity to small, service-oriented companies explain refugees’ tendency to move into areas that appear economically disadvantaged but also offer them several benefits. In conclusion, refugees’ residential choices appear to be tightly constrained by the lack of affordable housing in ways that are likely to hamper their own and their families’ labor-market and longer-term socio-cultural integration.

## Theoretical background: the refugee mobility puzzle

In the following, we establish why the current literature on refugee integration in Europe suggests a ‘refugee mobility puzzle’. We do this by providing a brief review of the literature on context effects for refugees, which shows that contextual socio-economic and demographic conditions shape opportunities for individual refugees’ socio-economic integration. We then discuss recent causal evidence of negative consequences of dispersal policies and restrictions on relocation on refugees’ socio-economic integration. This research is commonly interpreted to imply that, if refugees were allowed to, they would relocate to economically prosperous areas conducive to their labor market attainment. While this is indeed the pattern documented by research on the United States (Mossaad et al. 2020), European studies of refugees’ secondary migration suggest the opposite: that they tend to move to deprived high-unemployment areas. Having thus established a European ‘refugee mobility puzzle’, we discuss why refugees in Europe move to areas that appear to offer dim economic opportunities.

### *Context effects on refugees’ socio-economic attainment*

Refugees’ labor market integration is facilitated in economically prosperous areas with low unemployment. A growing body of research studies the outcomes of refugees who are exogenously allocated to deprived areas with high unemployment rates by dispersal policies. These studies show that refugees sent to such areas take considerably longer to enter the labor market than those placed in areas with better opportunities (Aksoy, Poutvaara, and Schikora 2020; Azlor, Damm, and Schultz-Nielsen 2020; Åslund, Östh, and Zenou 2010; Damm and Rosholm 2010; Godøy 2017; Kristiansen et al. 2022).

Using the same research design, other scholars provide evidence that refugees who are exogenously placed in areas with high shares of co-ethnics do better in the labor market (Battisti, Peri, and Romiti 2016; Damm 2009; Martén, Hainmueller, and Hangartner 2019). This is in line with classic arguments from urban sociology, which suggest that so-called ‘ethnic enclaves’ provide beneficial community support, including jobs in the enclave economy and job-referrals through ethnic networks (Hanhörster and Wessendorf 2020; Park and Burgess 1921; Wilson and Portes 1980). However, a number of studies reports no systematic association between co-ethnic embedding and labor market outcomes (Azlor, Damm, and Schultz-Nielsen 2020; Damm and Rosholm 2010; Gërzhani and Kosyakova 2022; Kristiansen et al. 2022), or one that depends on how well the already settled co-ethnics are established, for example in terms of (self-) employment, income, or education (Andersson 2021; Beaman 2012; Damm 2014; Edin, Fredriksson, and Åslund 2003; Stips and Kis-Katos 2020).

In sum, areas with low unemployment are clearly beneficial to the economic integration of recent refugees, whereas the evidence of benefits of co-ethnic embedding is somewhat mixed.

### *Effects of dispersal policies*

Dispersal policies aim to distribute refugees more evenly across a country. Social scientists often criticize these policies, arguing that they often allocate refugees to areas whose

labor markets do not match their skills (Bansak et al. 2018; Fasani, Frattini, and Minale 2022).

Research comparing refugees who were subject to dispersal policies and residence restrictions to those who were not, supports this critique. Studies have found that dispersed refugees take longer to enter the labor market (Brücker et al. 2020; Edin, Fredriksson, and Åslund 2004; Fasani, Frattini, and Minale 2022).<sup>1</sup> Similarly, Jørgensen (2021) provides causal evidence that the Danish dispersal policy limits refugees' integration prospects, as measured by their chances of naturalizing. Against this background scholars have called for the abolition of dispersal policies, arguing that this would lower the barriers to find suitable employment (Büchsel and Schneider 2016; Konle-Seidl and Bolits 2016; Wiedner et al. 2018). Others have proposed alternative data-driven allocation mechanisms that would take into account the fit between a refugees' individual background and a context characteristics (Bansak et al. 2018; see also: Ferwerda et al. 2020).

### *Secondary migration patterns*

Policies that restrict refugees' freedom to relocate are often criticized, as they can lead to refugees being placed in areas with poor economic prospects. Critics tend to assume that restricted refugees would move to areas with better economic prospects if bans on their freedom to relocate were lifted (e.g. Brücker, Hauptmann, and Jaschke 2020; Fasani, Frattini, and Minale 2022). Research on resettled refugees' secondary migration the United States indeed supports this claim (Mossaad et al. 2020). Studies of refugees' secondary migration in Europe, on the other hand, tend to come to the opposite conclusion. In line with the refugee mobility puzzle, most studies find that refugees move to locations with above-average unemployment rates (Damm 2014; Jähnen and Helbig 2023; Poppe 2013; Weber 2022; Zorlu and Mulder 2008), or find no association altogether (Åslund 2005; Fasani, Frattini, and Minale 2022). In sum, labor market considerations do not seem to play a major role for refugees relocation choices in Europe (but see: Åslund 2005; Damm 2009), although research shows that local labor market conditions shape their employment prospects.

These findings are hard to reconcile with the interpretation that restrictions on the freedom to relocate inhibit refugees' integration by preventing them from moving to areas with better economic prospects. Taken together, this conglomeration of findings constitutes what we call the refugee mobility puzzle: While restrictions on the freedom of residence limit refugees' socio-economic integration, those who do not face such restrictions often move to areas with high unemployment that similarly hinder their labor market prospects. By asking why refugees who relocate tend move to places with seemingly poor economic prospects, we address an important aspect of this puzzle.

### *Refugees' re-location choices*

While the general residential preferences of refugees are well documented, no study has investigated how these preferences may explain why refugees move to places with high unemployment. By engaging this question, we contributes to an emerging literature investigating the detailed residential choices of recent refugees whose residence restrictions have been lifted (Ferwerda, Marbach, and Hangartner 2023).

Here we propose the spatial overlap hypothesis. In line with research on the general residential preferences of refugees, our argument is that the initial moving behavior of recent arrivals in refugee reception systems that are comparatively more generous than the US is governed by needs that are often not employment related. Extending prior work, the spatial overlap hypothesis proposes that residential characteristics that fulfill these needs, such as affordable housing and proximity to co-ethnics, are spatially correlated with high unemployment and thereby result in a peculiar selection effect. We further consider a previously unacknowledged factor, the local presence of small service-oriented companies, which have been shown to constitute an important labor market for refugee migrants. Similar to the other residential characteristics, we argue that small service-oriented companies are relatively more prevalent in high unemployment areas. In the following we develop this spatial overlap hypothesis and discuss why place characteristics that are important to recently arrived refugees presumably overlap with local disadvantage and thereby produce a selection effect that motivates refugees to move to deprived high-unemployment areas.

Refugees who relocate often prefer *cities* over rural areas (de Hoon, Vink, and Schmeets 2021; El Moussawi and Schuermans 2021; Mossaad et al. 2020; Vogiazides and Mondani 2021). Cities offer important advantages, such as better public transportation, better physical and mental health facilities, and local administration support (Careja 2019; van Liempt and Miellet 2021). Additionally, refugees may be drawn to the more multicultural atmosphere of cities, which can make them feel less visible and discriminated against (Maxwell 2019). Finally, it is worth noting that many refugees were urban residents before fleeing from their home countries. This is because refugees in Europe tend to be selected from their home country's higher educated populations (Spörlein et al. 2020). However, in the current German context, cities often have higher unemployment rates than suburban or rural areas (BMWSB 2022). *Therefore, by moving to urban areas, refugees may unintentionally move to contexts with higher unemployment rates.*

Refugees often move into *proximity to co-ethnics* and other immigrants. Qualitative research documents how refugees seek multiple benefits by moving into proximity to co-ethnics and other immigrants. The benefits include general support networks that provide aid in navigating an unknown society and its public administration (Hall, King, and Finlay 2017; Wessendorf and Phillimore 2019), protection against discrimination (Phillips 2006), community monitoring supporting the educational attainment of children (Zhou 2009), and ethno-religious minority infrastructure in terms of places of worship, associations, and business (Wiedner et al. 2022). However, research suggests that immigrant communities are disproportionately located in areas with high unemployment rates (Schönwälder and Söhn 2009). *By moving into proximity to co-ethnics, refugees therefore also move to places with higher unemployment rates.*

Interviews with refugees suggest that finding *affordable housing* is one of the most daunting challenges (Adam et al. 2021; Bernt et al. 2022; Francis and Hiebert 2014). This is because recent refugees are often unemployed and reliant on social transfers (Brücker et al. 2020). As a result, they relocate to places where finding affordable housing is possible (Hanhörster and Wessendorf 2020). However, housing in locations with vacant apartments and comparatively low rents is accessible precisely because such locations are characterized by high unemployment rates. In other words, *by*

*moving to locations with more affordable housing, refugees move to contexts with above-average levels of unemployment.*

Finally, refugees who enter the labor market often work in *service occupations for smaller employers*, such as in the hospitality, retail, and cleaning industries, and predominantly at lower skill levels (Brücker et al. 2020; Colic-Peisker and Tilbury 2006; Worbs, Bund, and Böhm 2014). One reason for this is that, in the German context, these industries witnessed the strongest labor shortages in the late 2010s (Müller and Volk 2021). This can explain why areas with high unemployment rates may still hold employment opportunities for refugees. This is because these labor market niches are primarily found in areas that are otherwise characterized by rather high rates of unemployment (BMWSB 2022). What is more, counterintuitively it was companies in such areas, especially in East Germany, who found it hardest to recruit workers (Müller and Volk 2021). In other words, the labor markets that are relevant for refugees do not necessarily align with the overall geography of (long-term) unemployment in Germany. Yet, there is no prior research linking industry structure to refugees' residential choices. *By moving to places with larger numbers of smaller and service-oriented companies, refugees move to locations with above-average levels of unemployment.*

## The German setting

We conduct our study in Germany, which recently experienced a large immigration of asylum seekers fleeing war and persecution in Central Asia, the Middle East, and East Africa. Between 2013 and 2017 German authorities counted 1,645,238 original asylum claims (BAMF 2022, Table I-1), making Germany the third-largest host of refugees worldwide (UNHCR 2023, 8). Like other countries, Germany tightly restricts the choice of residence for asylum seekers and, at least initially, for refugees who have been granted protection.

Refugees' asylum claims are processed by the 16 federal states. Importantly, social benefits and other public services provided to refugees are similar across and within federal states, so that access to welfare is not a driver of refugee relocation choices (see also: Ferwerda, Marbach, and Hangartner 2023). Refugees are automatically and exogenously allocated to states, and typically also to a municipality within a state. All refugees are thus initially assigned a place of residence beyond their control. However, those who are eventually granted protection typically gain the right to choose their place of residence, albeit initially often only within their federal state. Our study focuses on the transition from the last mandated place of residence to the first one individually chosen after restrictions below the level of the federal state expire. We provide further details on asylum seekers' allocation and the residence restrictions they face in Appendix A.

## Data and methods

Our goal is to answer why refugees who relocate tend to move to places with seemingly poor economic prospects once restrictions on their residence expire. To do this, we analyze the geo-referenced, secure access version of the IAB-BAMF-SOEP Refugee Survey, a yearly household panel of asylum seekers and refugees in Germany that started in 2016, and contains information on refugees' detailed residential trajectories



**Table 1.** Post-stratification weighted socio-demographic characteristics by mover-status.

		Non-movers 2016– 2019 (n = 1300)	Movers 2013–2019 (n = 2466)	
			During field period (n = 512)	Before field period (n = 1954)
Age, mean		32.8	32.7	31.0
	missing	0	0	0
Female		.30	.31	.26
	missing	0	0	0
Lives in communal accommodation		.54	.06	.25
	missing	.0	.11	.05
Residence title	Asylum seeker	.17	.05	.17
	Accepted asylee	.04	.04	.07
	Refugee	.43	.56	.65
	Permanent residence title	.004	.001	.004
	Suspended deportation	.09	.02	.02
	Resettled refugee	.04	.04	.03
	Other humanitarian	.17	.14	.03
	Other	.04	.02	.02
	missing	.03	.12	.01
Religious affiliation	Christian	.11	.07	.10
	Muslim	.71	.66	.67
	other	.18	.15	.21
	missing	0	.12	.01
Household composition	Single or shared	.60	.52	.63
	apartment			
	Partner in HH	.05	.04	.07
	Partner and children	.34	.32	.30
	missing	0,001	.12	.004
Education according to CASMIN-scheme	(1a) inadequately completed	.43	.27	.28
	(1b) general elementary school	.18	.16	.20
	(1c) basic vocational qualification	.02	.02	.02
	(2c_gen) general maturity certificate	.16	.14	.17
	(2c_voc) vocational maturity certificate	.03	.02	.03
	(3b) higher tertiary education	.16	.17	.25
	missing	.01	.21	.05
Equivalence income*, mean		660.1	757.5	840.1
	missing	150	48	171
Employed**		0,21	.23	.33
	missing	0	0	0
Year of last move		-	2017.3	2015.4

Notes: \* We employ the OECD definition, according to which monthly net household income including transfers is divided by household members, where underage children are weighted by a factor of .3 and any adult member after the first by a factor of .5.

\*\*We include full- and regular part-time employment, but exclude marginal employment and vocational training in our count.

(Brücker, Rother, and Schupp 2017). The population covered by the Refugee Survey are persons who entered Germany after January 2013 and applied for asylum before August 2016.

We use data from the four annual survey waves conducted between 2016 and 2019; the onset of the COVID-19 pandemic in 2020 significantly disrupted administrative processes, refugee relocations, and data collection efforts. Upon entering the survey,



respondents retrospectively report their full residential history since arriving in Germany to date. In each further wave, refugees are then asked whether they have moved since the last interview. We combine both kinds of information, which allows us to draw on relocation information for years prior to a respondents' first survey. Our analytical sample covers the 2,466 adult refugees who have moved to a new place after their residence requirement has been lifted, allowing them to voluntarily relocate. We observe 21% (512) of these voluntary relocations during the field period (2016–2019) and 79% (1,954) through the retrospective questions asked in the first interview. If a refugee made several voluntary relocations, we focus on the latest.

We define a voluntary relocation as a move occurring after the expiration of residency restrictions. To operationalize this, we jointly use four partially overlapping criteria at the time of the first observation after the move: (i) the refugee respondent reports that they are free to choose their place of residence (at least within the respective federal state), (ii) they no longer live in their initially-assigned residence, (iii) they have received a decision on their asylum claim, and (iv) they do not report 'administrative assignment' as reason for their relocation. By relying on all four criteria, we classify respondents as eligible for voluntary relocation only if multiple criteria *consistently* identify them as such. This approach minimizes the inclusion of administrative relocations or respondent recall errors.

By focusing on movers, we can directly address the question of why refugees move to places with high unemployment rates. Moreover, our criteria for establishing voluntary relocation eligibility are limited for non-movers outside the 2016–2019 observation period. Yet limiting us to the 2016–2019 observation period (i.e. ignoring the majority of movers identified retrospectively and their unidentifiable non-mover counterparts), we conduct additional robustness tests that include refugees who do not relocate but voluntarily choose to stay in their assigned county (see 'Alternative analytical strategies' and Appendix D for details). These robustness tests reveal that only 31% (521) of newly eligible refugees report any relocation during the 2016–2019 window, including those leaving communal accommodation. If we look at more significant relocations across county lines, this figure even drops to less than 8% (or 129 relocations). These relocation rates indicate a large inertia in leaving administratively assigned places of residence. Figure F.1 in Appendix F confirms this assessment: even mobile refugees tend to move only short distances. This is not surprising, considering that refugees are often reliant on social transfers and may therefore anticipate the difficulty of finding housing (Adam et al. 2021).

The above considerations justify our focus on movers but also raise the question of how movers differ from non-movers. Table 1 presents a descriptive overview of socio-demographic characteristics of refugees in our sample, stratified by mover status, focusing on non-movers whose eligibility was observed (2016–2019), and whom we analyze in greater detail in Appendix D. For movers, characteristics are further differentiated by whether the move was observed during the study period (2016–2019) or retrospectively reported in the first interview (i.e. starting from 2013). The figures for non-movers in Table 1 refer to their latest observation in our panel dataset. Characteristics of before-field-period-movers come from the first survey they participated in, and the characteristics of respondents, who moved during the field period, come from their first observation after the move.

[Table 1](#) highlights two key findings. First, most of our respondents in any category are not yet integrated into the German labor market and are, therefore, poor. In the two mover and the non-mover group, a third or less than a third of respondents are in employment, and average equivalized disposable incomes are below €850 per month. This is well below the at-risk-of-poverty threshold, which in 2018 was between €1,035 and €1,364, depending on the data source used (Bundesregierung 2021, 477ff.).

Second, there are relatively few systematic differences between observed and retrospective movers, and between movers and non-movers. Unsurprisingly, movers are more likely to live in private accommodation, which is plausible as moves often result in private housing, and are indeed often motivated by the desire to establish a private household. Movers also possess residence titles that allow freer location choices (compared to suspended deportation or asylum seeker status) somewhat more frequently than non-movers. Moreover, movers' economic situation, as indicated by employment status and incomes, is slightly less disadvantaged, perhaps reflecting their slightly higher educational qualifications. We emphasize that these are descriptive patterns and refer readers to Appendix D for multivariate evidence on how personal characteristics relate to relocation propensities in a prospective framework.

### **Analytical strategy**

We analyze refugees' voluntary residential choices in a linear probability discrete choice model framework. In these models, the 2,466 refugees ( $J$ ) identified as having made a voluntary move chose among 8,017 postcode alternatives ( $I$ ) nested within 388 counties. For those restricted to their current federal state, we limit the choice-set to postcode areas within that state, resulting in 13,143,936 potential and realized relocations.

We model a relocation to a postcode  $i$  as a function of  $K$  destination characteristics, such as the local unemployment rate. Importantly, the characteristics of each refugee remain, by design, constant across all 8,017 potential destinations and thus cannot confound the estimates. This also means that any missing values reported in [Table 1](#) do not lead to casewise deletion. Consequently, our analysis exclusively contrasts potential destinations, those ultimately selected by refugees and those that remained unchosen. Specifically, we estimate the following linear probability equation:

$$Pr_{ij} = \alpha + \sum_{k=1}^{k=K} \beta_{ik} x_{ik} + \delta_{1ij} d_{ij} + \delta_{2ij} d_{ij}^2 + \epsilon_{ij},$$

where  $Pr_{ij}$  is the probability of refugee  $j$  to choose postcode  $i$ .  $d$  is the distance between the origin and the destination alternative,  $\epsilon_{ij}$  is an error term, clustered at the county-level to account for variables measured at the county-level. The coefficients of interest,  $\beta_{ik}$ , represent the conditional change in a refugee's probability of relocating to a given postcode associated with a unit change in the postcode-level characteristic  $x_{ik}$ .

To answer our research question, we establish the refugee mobility puzzle by estimating the above equation with local unemployment as the only destination characteristic  $k$  in an initial baseline model. We then investigate which preferences attract refugees to high unemployment locations by consecutively adding further destination characteristics (see below) and investigating to which degree they account for the baseline association.

We also conducted heterogeneity analyses to investigate how these dynamics vary between different kinds of refugees by interacting spatial indicators of interest with measures of refugees' personal characteristics. We refer to the insights of the heterogeneity analyses in the main text and document the full results in Appendix G.

### **Alternative analytical strategies**

Our analytical strategy directly answers the research question of why refugees move to locations with high unemployment rates once residence restrictions are lifted. However, it also raises concerns about those who stay, about the effects of characteristics of the places that refugees leave behind, and about those who relocate across county lines. To address the robustness of our findings to alternative analytical strategies, we report several additional analyses in the online appendix. The results of all these alternative analytic strategies are consistent with those reported in the main text.

First, Appendix D reports an analysis of the hazard rate of leaving a county, conditional on its and on refugees' characteristics. This analysis allows us to examine the factors that influence refugees' decisions to stay in a particular location. In line with the descriptive [Table 1](#), the evidence there suggests that whether refugees leave their initial county is hardly selective with respect to socio-demographic characteristics or detailed residence status.

Second, Appendix E limits the sample to those 1,223 refugees who did not only relocate but made a more significant move beyond the confines of their initially assigned county. This analysis allows us to examine the factors that influence refugees' decisions to make a more significant move.

Third and finally, in Appendix E we replace the overall unemployment rate with unemployment among non-German residents in establishing the refugee mobility puzzle and then accounting for it.

### **Predictors: destination characteristics**

Our main predictors are characteristics of the postcodes and counties that refugees moved to or could have moved to. Unless otherwise specified, these characteristics are measured in the year preceding each refugee's relocation and are based on official statistics (BBSR 2021). To initially establish the refugee mobility puzzle, the first characteristic is the county level *unemployment rate*. We use the unemployment rate at the county level because the refugee mobility puzzle is concerned with the labor market implications of residential relocations. Counties are a relevant labor market context in contrast to postcodes.

To account for why refugees move into areas with high unemployment, we measure the degree of urbanization, proximity to co-ethnics, the prevalence of service occupations and smaller employers, and affordable housing with two indicators each. We measure *the degree of urbanization* as the postcode population density (based on the 2011 census) and as the population-size class of a municipality, which distinguishes villages, small towns, mid-size, and big-cities. We measure *proximity to co-ethnics* as the county level proportion of residents of the same nationality as the respondent, and an indicator that captures the local density of ethnic infrastructures as of 2017 (Wiedner et al. 2022). Specifically, this indicator adds the county level number of cultural associations

registered in the official German trade-register that cater toward an ethnic minority (as defined by its nationality) to the number of local groceries targeting it gathered from Google Maps. In a final step, the indicator divides this sum by the respective minority's county population size. We measure *proximity to service occupations and smaller employers* as the share of all firms in the county that have less than 50 employees, and the share of all employees working in the non-corporate, non-professional, non-personal service sector. These indicators are only available for the year 2015. Finally, we measure *affordable housing availability* using data from Germany's largest real-estate listings platform Immoscout24, which accounts for 50% of all listed apartments in Germany (Boelmann and Schaffner 2018; RWI and ImmobilienScout24 2021). Our first indicator is the number of distinct listings in a postcode-year advertising a rental apartment between 15 and 100 square meters per 1,000 inhabitants. The second indicator is the median asking rent per square meter for such an apartment. For both measures, we exclude apartments with asking rents below 0.5 of the first and above twice the 99th rent percentile. If there are no listings in a postcode-year, we impute rents with the respective county median. Descriptive statistics for these variables are presented in Table B.1 in Appendix B.

### Control variables

In all analyses, we control for whether a postcode destination is in East or West Germany, its distance in kilometers from the origin county (also squared), and finally for the per-capita rate of anti-immigrant far-right protests, property damages, arsons, and assaults, which we derive from data published by Benček and Strasheim (2016).

### Panel attrition

A potential concern for our analysis is panel attrition, which is when respondents drop out of a longitudinal survey. This could bias our results if people who move to certain types of destinations are more likely to drop out of the survey. Fortunately, only 6% of all dropouts are related to unsuccessful follow-ups that may indicate dropout after a relocation (Siegers, Belcheva, and Silbermann 2020 Tab. 3.1). We address this issue by using the provided survey weights, which adjust the sample for a large number of individual, household, and contextual characteristics linked to respondents' re-interviewing probabilities (Siegers, Belcheva, and Silbermann 2020). Moreover, our robustness analysis of the probability of *staying* in a county in Appendix D, less affected by panel attrition because respondents are observed *before* moving in a proportional hazards model that better accommodates right censoring due to panel attrition, is consistent with the conclusions drawn in the main article.

### Missing values

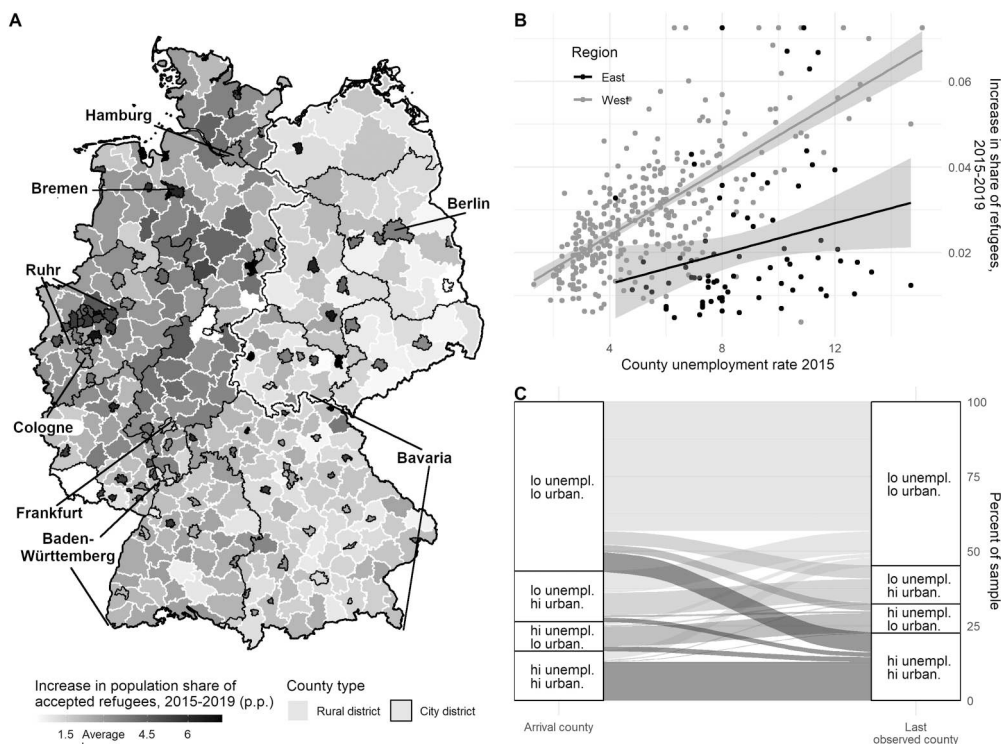
Finally, we exclude all postcode-area-alternatives in the six counties of the Saarland, where important demographic information on co-ethnics is not available at the sub-state level, in five counties for which other covariates are not available, and in two counties which have undergone territorial reform during our observation period. This corresponds to the omission of 3.25% of Germany's 401 counties. Missing refugee

characteristics (see Table 1), by contrast, do not lead to casewise deletion in our discrete model framework.

## Results

Where do refugees settle? Panel A of Figure 1 maps the percentage point increases of the number of refugees across German counties 2015–2019. The increase in the population share of refugees has been highly unequal, in opposition to the declared goal of Germany's refugee dispersal policy. While many rural East German districts saw their refugee population increase by less than one percentage point from their already low starting point, refugee populations increased by four percentage points and more in medium-sized cities and rural counties in northwestern Germany.

German regions known as boom regions with full employment and unmet labor demand during the later 2010s are not among the regions with the highest increases



**Figure 1.** Settlement patterns of refugees in Germany. Notes: Data on refugees in Panels A and B come from Destatis (2021). Data for counties in the Saarland, for Landkreis Kassel/Kassel, and Spree-Neiße/Cottbus is not available at the county level (white in Panel A). Unemployment figure in Panel B are taken from the INKAR database (BBSR 2021). Panel C is based on refugees' relocations during the observation period. It is based on data from the IAB-BAMF-SOEP survey distinguishes 4 types of counties: counties in the bottom 25% of both the county-level-distribution of unemployment and of population density, counties in the bottom 75% of the county-level-distribution of unemployment, but in the top 25% of population density, counties in the top 25% of the county-level-distribution of unemployment, but in the bottom 75% of population density, and counties which are in the top 25% of both unemployment and population density.

in refugee populations. For example, the counties of the rich southern states of Baden-Württemberg and Bavaria, where large portions of Germany's high-value-added manufacturing industries are based, and the large cities Cologne, Frankfurt, and Hamburg saw only modest increases in the number of refugees. Only Berlin, the comparatively poor and economically struggling capital, has seen marked increases. Like Berlin, Bremen and the cities of the Ruhr area have seen strong increases in refugees, although these are places that have been hit hard by the demise of heavy industries, mining, and ship-building since the middle of the last century.

This is further supported by the Panel B scatterplot. Although somewhat different between East and West Germany, the clear pattern is that the higher the unemployment rate, the higher the increase in refugees. This constitutes an important descriptive insight: we observe neither equal distribution of refugees intended by dispersal policies, nor a tendency for prosperous areas to take in more refugees.

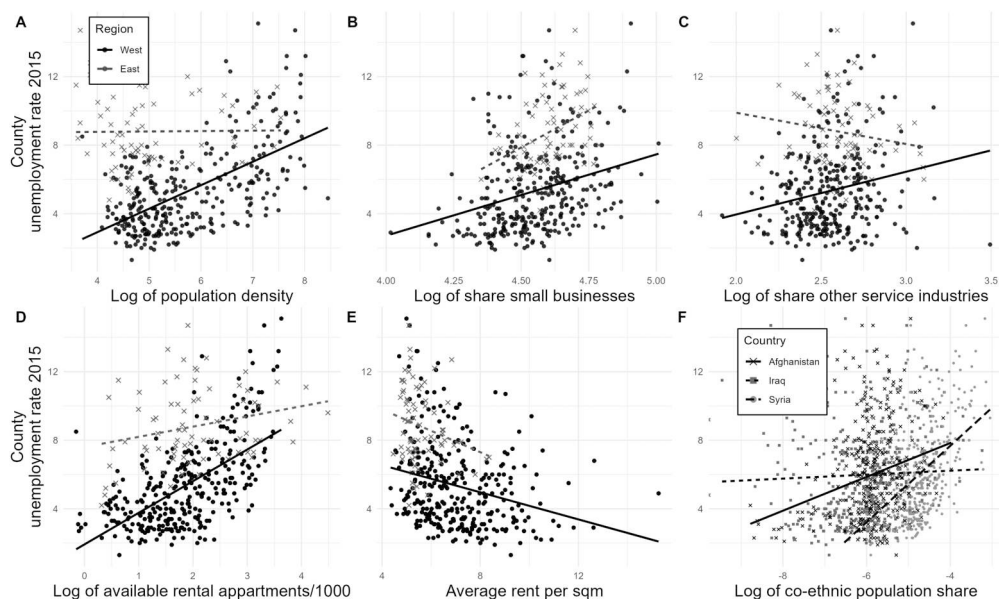
To study the role of refugees' relocation choices, we turn to the IAB-BAMF-SOEP Refugee Survey. Where do the mobile move to, and do their relocations contribute to refugees' concentration in areas with high unemployment rates? Panel C of [Figure 1](#) shows relocation flows between four types of counties among refugees who moved at least once based on their own initiative during the observation period. Panel C confirms that secondary migration contributes to the pattern displayed in Panels A and B of [Figure 1](#). 26% of refugees reported an initial location in a county in the top 25% of the county-level unemployment distribution. But by the end of our observation window in 2019, this figure has increased by seven percentage points (or 23%) to more than 32%. Panel C also shows that most of the increases in the high-unemployment category stem from relocations into counties that are both urban (i.e. among the top 25% of the county-level population density distribution) and have high unemployment. The main contributor to the growth of this category were relocations out of rural counties with low unemployment. Panel C, establishes that, unlike in the US context ([Mossaad et al. 2020](#)), secondary migration of refugees in Germany does not typically lead into areas with stronger labor markets. In fact, migration from high to low unemployment counties is very rare.

All in all, these descriptive figures put a central assumption of critics of dispersal policies into question: Dispersal policies are apparently not counterproductive by prohibiting the relocation of a highly mobile population to economically booming regions. Instead, refugees' desires or means to relocate after the completion of their asylum process are limited and directed toward economically struggling areas with high unemployment rates

### ***Spatial overlap: potential attractors and unemployment levels***

Based on cross-sectional official population and on longitudinal sample data, [Figure 1](#) underlines an important element of the refugee mobility puzzle. Refugees move to locations with high unemployment rates once restrictions on their residence are lifted. As a first step in testing whether the spatial overlap hypothesis accounts for this pattern, [Figure 2](#) displays the empirical correlation of the location characteristics we discussed as potential attractors and of unemployment at the county-level in Germany; its panel F focuses on the three most important origin countries of the refugee cohort we analyze.





**Figure 2.** Place characteristics and unemployment levels across German counties. Note: Lines give the OLS best linear prediction.

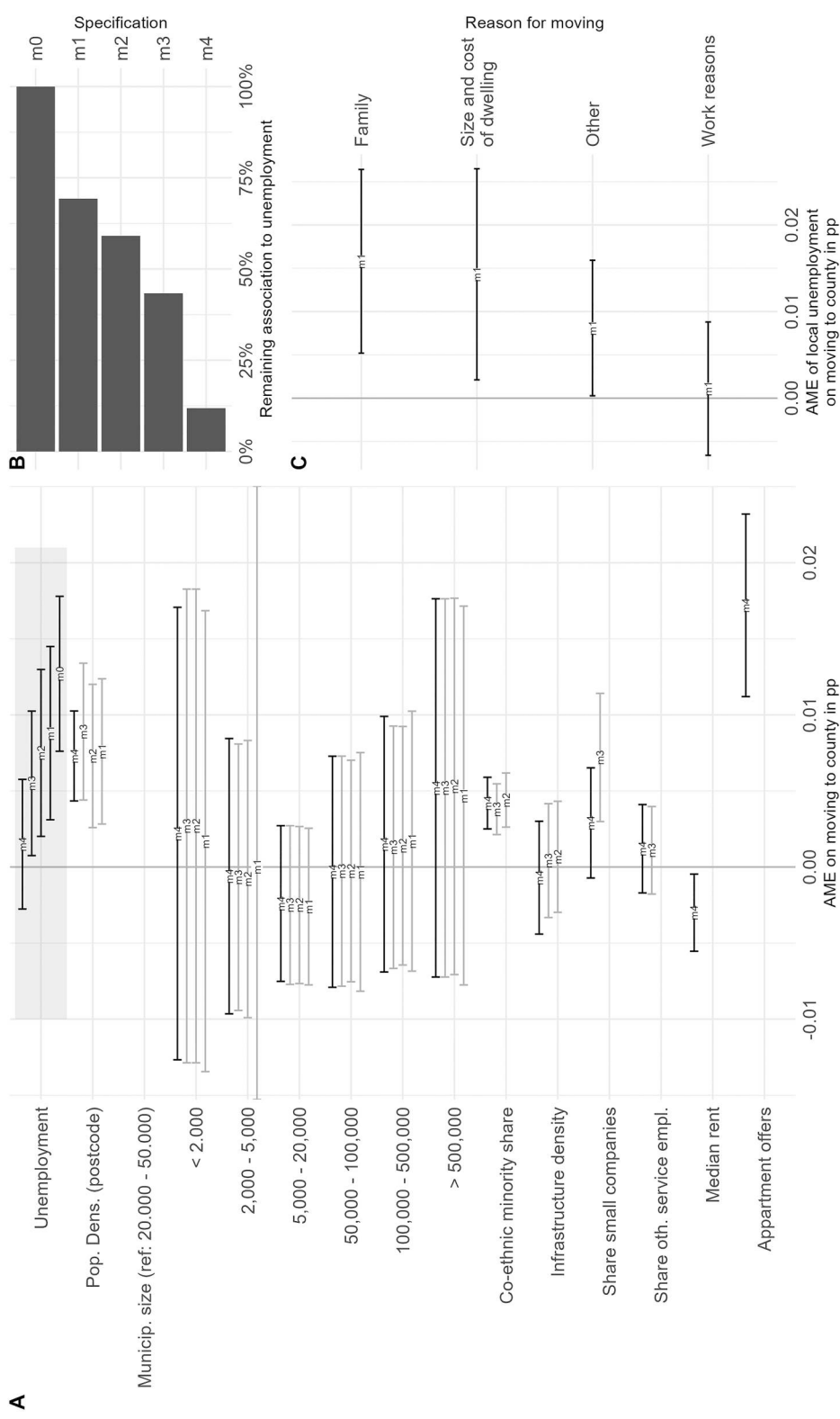
Panels A through F of [Figure 2](#) demonstrate that virtually all potential attractors (degree of urbanization, low rents, and housing availability, share of pre-existing co-ethnic communities, and small business and service industry employment) overlap with higher levels of unemployment. The three exceptions are population density and service-employment in East Germany and the spatial distribution of Iraqi communities. [Figure 2](#) thus confirms an important premise of our argument: Place characteristics that are valued by refugees are spatially correlated with unemployment, at least in Germany during the mid-2010s.

### *The consequence of spatial overlap: evidence from choice models*

To address the question what attracts refugees to high unemployment areas, we estimate a series of choice models. [Figure 3](#) displays the results. We start with Model m0 in the highlighted first row of Panel A. This baseline model only controls for East–West German differences and distance to the last place of residence. It shows that a standard deviation increase in the county level unemployment rate is associated with a 0.013 percentage points increase in the probability that a refugee chooses to move to a postcode area in that county. Given a baseline probability to move to a random postcode area of about 0.0185%, this represents a substantial ( $\sim 68\%$ ) increase. Importantly, the patterns evident in Panel A of [Figure 3](#) remain virtually unchanged if we replace the local unemployment rate by the local unemployment rate among the non-German population (see Table E.2 in the Online Supplement).

Model 1 additionally considers the degree of urbanization of all potential destinations. It yields three insights. First, refugees are much more likely to move to *cities*. A standard deviation increase in population density relates to an increased probability of 0.008





**Figure 3.** Recent refugees' location-choices in Germany. Notes: Panel A shows the coefficients from a linear-probability discrete-choice model,  $N = 13,143,936$ ,  $N_i = 2,466$ ,  $N_{\text{county}} = 388$ . Control variables are omitted. Full results are available in Online Appendix C. Panel B shows the reduction of the conditional association of local unemployment to location choice. Panel C shows the association of local unemployment to location choice, conditional on reasons for moving,  $N = 2,236,288$ ,  $N_i = 427$ ,  $N_{\text{county}} = 388$ . m0: baseline model; m1: adds controls for degree of urbanization; m2: adds adjustment for co-ethnic community; m3: adds adjustment for industry structure; m4: adds adjustment for housing markets.

percentage points of refugees moving there (i.e. a ~41% increase compared to a random move). Second, this relation plays out at the circumscribed neighborhood rather than municipal level (net of postcode density, municipality size is not significantly associated with moving probabilities). Third and most importantly for the spatial overlap hypothesis, Panel B of [Figure 3](#) underlines that the attraction of urban areas accounts for more than a quarter of the baseline association of destination county unemployment rates and location choice. In line with our first argument, the refugee mobility puzzle is partly driven by refugees' attraction to cities and the fact that urban areas and unemployment overlap spatially in Germany.

Having established these basic patterns, we turn to more immediate attractors. Model 2 confirms that refugees are more likely to move to places where there are many *co-ethnics*. The density of co-ethnic infrastructure, however, does not play a significant role net of the demographic presence of co-ethnics. Panel B of [Figure 3](#) shows that considering co-ethnic minority networks moderately explains relocation choices into areas with high local unemployment (the unemployment coefficient is further reduced by about 15%).

Model 3 engages with our argument that moves into local unemployment may conceal an underlying pattern by which refugees actually move into proximity of *service occupations and small firms* and thus toward an attractive sub-section of the labor market. In line with this argument, Model 3 affirms that refugees move to destinations with higher densities of small companies – although our industry-based indicator plays no significant role. More importantly, however, considering the density of small companies as attractor for refugees, reduces the remaining association of location-choice to unemployment by more than 25%, as Panel B shows. This is a remarkable reduction, given that Model 3 already contains some of the most important drivers of refugees' relocation choices.

Finally, Model 4 investigates the importance of *affordable housing* and confirms that refugees are more likely to move to places with less expensive and abundant vacant housing. Moreover, and in line with the spatial overlap hypothesis, considering their moves toward available and affordable housing further reduces the association between local unemployment and refugees' relocation choices to less than 12% of its initial size and thereby to such a degree that it no longer remains statistically significant. The finding that housing *availability* is relatively more important than *rents* is strengthened in additional analyses, where we add the two indicators individually (see Table E.3 in the Online Supplement).

To establish whether other forms of collinearity are present, we estimated the variance inflation factor (VIF) of every independent variable in the full model 4. With the exception of distance and distance<sup>2</sup> (which indeed measure the same concept), none of the regressors has a VIF in excess of 2, well below the conventionally recommended thresholds of 10 or 40 (see Footnote 2 in O'Brien 2007 for a critical survey).

All in all, Panels A and B of [Figure 3](#) support our arguments. Refugees' relocations toward cities, small companies, co-ethnics and affordable housing together almost entirely account for their moves to areas with high unemployment rates.

### *Heterogeneity analyses*

The above conclusions are based on observed moving behavior. However, refugees who relocate during our observation period were also surveyed about their main subjective

reason for moving. While these reasons are only available for a sub-sample of movers, they allow for an assessment of whether relocations into unemployment were driven by an intentional pursuit of economic opportunity.<sup>2</sup> Beyond these subjective reasons, we find no effect heterogeneities by background characteristics, such as refugees' language skills, expectations to find employment, or their homeland orientation (results are in Appendix E). The estimated heterogeneities are consistently close to zero and statistically insignificant.

Panel C of [Figure 3](#) presents estimates of the relationship between local unemployment and relocation choice, equivalent to that from Model 0 from Panel A, but stratified by subjective motives for moving. The estimates do not support the hypothesis that relocations into local unemployment conceal *intentional* moves into employment opportunities. The strongest associations with local unemployment are evident for those who moved to be close to relatives and friends, or to find better housing. By contrast, those who moved for work reasons do not move into local unemployment. This is still noteworthy because, all else equal, employment-motivated moves should result in *low* unemployment destinations. Overall, Panel C documents an ongoing spatial stratification of the German refugee population: Those moving with a view to the labor market move to less disadvantaged areas than those who move for other reasons.

## Conclusion

This article contributes to an emerging literature investigating the detailed residential choices of recent refugees whose residence restrictions have been lifted. This setting allows us to address an important element of the refugee mobility puzzle: Why do refugees tend to settle in deprived areas once they are free to choose where to live? As an answer, this study proposes the spatial overlap hypothesis, according to which refugees often settle in economic disadvantaged areas due to their spatial overlap with lower housing costs, pre-existing refugee communities, and presence of small, service-oriented companies that constitute a relevant labor market.

Based on the IAB-BAMF-SOEP Survey of Refugees, the study shows that refugees tend to move into places with high unemployment. Residential choice-models suggest that refugees' moves into areas with high unemployment rates are driven by other local characteristics attracting them to these areas: a high degree of urbanization, vacant housing, and high densities of small companies that potentially constitute an important labor market for them. In line with previous research, we also document the attraction of newcomers to pre-existing co-ethnic communities. Additional analyses that take refugees' reasons to relocate into account suggest that the resulting spatial patterns and implications for future opportunities are unintended. Refugees move to be close to relatives and friends or to find housing, but then find themselves in high unemployment areas.

Taken together, these results imply that refugees, who have recently completed their asylum application process and take the first steps toward integration, face difficult trade-offs in the choice of their residential location. Given that they relocate at all, they can move to urban communities, perhaps with extended family and friends present, where accommodation that falls within the social-assistance budgets on which most refugees

initially rely is relatively available. Such communities may even offer refugees entry-level employment in smaller businesses. While this strategy accommodates important needs, it risks inhibiting the longer-term attainment of refugees and their families as our research shows that such initially attractive places likely lie in high-unemployment communities. This does not only imply challenging labor market integration, but also that the local authorities that (co-)fund much of the early-integration infrastructure, kindergartens, and schools are poorer and that their services therefore of lower quality. The other conceivable option that recently approved refugees have, is to move into better-to-do communities with ample employment opportunities. However, this is either outright forestalled by the lack of affordable housing in such areas, or requires frustratingly difficult house hunting and much short-term compromising for uncertain longer-term gains.

Our findings thus question the dominant assumption, which has found support in US studies (Mossaad et al. 2020), that refugees in Europe will move into ‘opportunity’ if only allowed to. On the one hand, the results show that refugees are attracted to areas that offer them important resources and opportunities, as critics of dispersal policies assume. They move to cities where they can find co-ethnic networks, affordable housing, and small employers. On the other hand, the association between local unemployment and refugees’ relocation is mainly driven by moves to cities and toward affordable housing. While local unemployment limits refugees’ socio-economic integration (e.g. Aksoy, Poutvaara, and Schikora 2020; Azlor, Damm, and Schultz-Nielsen 2020; Godøy 2017), the evidence is less clear about the extent to which co-ethnics networks or affordable housing improve it (e.g. Damm and Rosholm 2010; Gërxhani and Kosyakova 2022; Kristiansen et al. 2022). On balance, then, the secondary migration of relevant parts of the refugee population into areas that are likely disadvantaging in the long run should be cause for concern. Nevertheless, we emphasize that the pattern of relocation into higher unemployment areas among refugees without a residence restriction does not in turn imply restriction policies to be innocuous, even from a purely instrumental labor market integration perspective. Our results also show that dispersal policies result in long-lasting legacies because most refugees stay in or close to the places they were originally assigned to.

The spatial overlap hypothesis goes a long way to explain why refugees move to areas with high unemployment, but it does not fully resolve the refugee mobility puzzle, that is, the simultaneous evidence of negative effects of dispersal and restriction policies, and of secondary migration into demonstrably economically disadvantaging contexts. Nevertheless, it highlights that more research is needed into how exactly residence restriction and dispersal policies hinder refugees’ labor market attainment. One possibility is that by limiting their mobility, dispersal policies may prevent refugees from finding opportunities and regional labor market niches that match their *individual* human and social capital profile (Jørgensen 2021). In other words, it may not be contextual characteristics *per se* that hinder or promote employment, but a complex match between locations and individual characteristics. Another possibility is that dispersal policies delay refugees’ labor market entry and undermine refugees’ mental health and motivation through a lengthy process and virtual confinement in clearing centers and communal accommodation (Hainmueller, Hangartner, and Lawrence 2016; Kosyakova and Brenzel 2020). Indeed, our study is based on refugees who have been subjected to this lengthy process, so that their subsequent moving decisions already reflect possible loss of

motivation. Refugees who are free to choose their residence from the very beginning may make different and more ambitious choices than the ones we study. To gain a better understanding of why residence restrictions harm refugees, future studies should investigate these two alternative explanations.

Despite the need for further research, our study has clear implications for policy. We document that the search for housing is a major culprit steering mobile refugees into areas that are likely harmful to their mid – and long-run employment trajectories, and, perhaps most importantly, to the life-chances of their children. Policy makers can improve this situation in two ways. First, by raising housing allowances so that refugees can find accommodation outside the most severely disadvantaged neighborhoods and regions. Second, and more importantly, by providing more low-cost housing in urban regions experiencing a shortage of labor.

## Notes

1. Note, however, that quasi-experimental evidence from Germany shows that refugees' subject to residence restrictions have lower subjective expectations to find employment, but show *higher* actual employment probabilities (Hilbig and Riaz 2022). However, since the analyzed policy of residence restrictions grants exceptions for employment purposes, it is unclear whether this is an effect of the policy itself or of incentives to avoid it.
2. Table C.2 in the Online Supplement shows that in the combined subsample of refugees who have given at least one reason for their relocation, the association of unemployment to location choice is very similar to that of Model 0 in Figure 3.

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