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Uncovering patterns and drivers of inter-regional (im)mobility

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Abstract: Many countries actively seek to disperse refugees to counteract residential segregation or/and take measures to attract and retain international migrants in smaller communities to mitigate or reverse population decline. This study explores the regional distribution and inter-regional mobility among refugees in Sweden. It uses individual-level register data to follow two cohorts for eight years after their arrival in Sweden, distinguishing between refugees subject to a placement policy in the 1990s and recent cohorts that had either arranged their own housing or had been assigned housing. It uses sequence analysis and multinomial logit regression to analyse regional trajectories, and event history analysis to examine mobility determinants. The results indicate that most refugees remained in the same type of region throughout the period. A significant proportion of refugees with assigned housing in large city or small city/rural regions stayed there over a long period, suggesting that refugee settlement policies have long-lasting consequences.

Keywords: Trajectories, Inter-regional mobility, Refugees, Sweden, Sequence analysis

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Introduction

In the current context of large-scale refugee migration, the issue of refugee reception has become increasingly prominent in many receiving countries. Refugees' place of settlement in their new country is the subject of particular attention from researchers and policymakers alike. One obvious reason is that large inflows of refugees in certain locations can affect local resources and constrain the capacity of local institutions to provide infrastructure and services. At the same time, there are persistent concerns that the concentration of newly arrived refugees in already immigrant-dense areas hampers their socioeconomic integration (Musterd et al. 2008). Several refugee-receiving countries therefore seek to steer refugees' settlement and spread them geographically, with a greater or lesser degree of coerciveness. Policies of compulsory dispersal of asylum-seekers have been implemented in the UK, Denmark and Switzerland, among others. Sweden applied a refugee dispersal policy between 1985 and 1994. As will be explained, the Swedish refugee settlement policy has also recently been reformed towards increased governmental steering of asylum-seekers' initial settlement location.

The Swedish refugee dispersal policy—the so-called “Sweden-wide strategy” (“Hela Sverige strategin”)—was aimed at offsetting the concentration of new refugees in large metropolitan areas and achieving a balance between municipalities regarding refugee reception. Asylum-seekers were assigned to a municipality where they were to reside for an 18-month introductory period (Andersson and Solid 2003). However, refugees did not face any major costs for leaving their municipality of placement, aside from a delay in enrolment into introductory activities. Since July 1994, asylum-seekers have been offered the possibility to choose between arranging for their own accommodation ('Eget boende', EBO) or being accommodated by the Swedish Migration Agency ('Anläggningsboende', ABO).¹ Individuals who arrange their own housing usually stay with family members or acquaintances in metropolitan regions. Those who are accommodated by the authorities tend to reside in smaller municipalities (Statistics Sweden 2016). In recent years, there has been mounting criticism against the 'Own accommodation' legislation (EBO-lagen). It is argued that the freedom of asylum-seekers to settle where they want leads to residential segregation and overcrowding (National Board of Housing, Building and Planning 2015). In January 2019, the newly formed social-democratic and green government decided to reintroduce restrictions to the freedom of asylum-seekers to settle wherever they want. The new policy, which entered into force in January 2020, implies that

¹ Once they obtain a residence permit, refugees can either be assigned housing in a municipality by the authorities ('Kommunanvisad') (under the condition that they lived in accommodation provided by the Swedish Migration Agency during their asylum procedure ('Anläggningsboende', ABO) or arrange for their own housing ('Egenbosatt') (SFS 1994). Usually, individuals who resided in a public facility as asylum seekers tend to ask for public assistance with their settlement in a municipality (Bevelander et al. 2019).

asylum-seekers who settle in certain socioeconomically disadvantaged areas are no longer eligible for financial assistance (Government of Sweden 2019). This decision is part of broader efforts to reform Sweden's refugee reception policy after the high inflows of asylum-seekers, which culminated in 2015 when 160,000 individuals applied for asylum in the country.

In addition to the dispersal of refugees, many immigrant-receiving countries seek to attract and retain international migrants in smaller communities as a way to mitigate or reverse population decline in rural regions. Initiatives towards the 'regionalisation of immigration' have been undertaken in Australia, Canada and New Zealand, among others (Akbari & MacDonald 2014). In Sweden, there is also a lively political debate on the role of international migrants as a potential solution to the demographic and economic decline in rural areas (Parliamentary Committee on Rural Development 2016; Bergström & Rehnvall 2014; see also Hedberg & Haandrikman 2014 for a review of the academic literature on international migrants in rural areas).

Despite the increased policy attention on the issue, relatively little is known about the settlement patterns and relocation of recent refugee cohorts in Sweden. What type of regions do refugees settle in and relocate to? The aim of this study is thus to explore the patterns and drivers of (im)mobility for different refugee categories. In particular, we consider refugees who arrived in the early 1990s and were subject to the Sweden-wide dispersal strategy, and compare them with refugees from the late 2000s, distinguishing between those who arranged for their own accommodation upon being granted their residence permit and those who were assigned housing by the authorities. We structure our analysis in two steps. First, we apply sequence analysis to longitudinal individual-level register data, in order to identify refugees' typical geographical trajectories across different types of regions in terms of population density and labour market conditions. We also assess how individual- and neighbourhood-level characteristics are associated with refugees' likelihood of following the identified trajectories. Second, we examine the likelihood and drivers of refugees' inter-regional mobility, specifically their first move away from the region of initial settlement.

The study contributes to the literature on internal migration of refugees in Sweden in the following ways. First, it gives prominence to refugees' regional context and inter-regional mobility. The majority of Swedish studies have focused on moves between municipalities (for example Åslund 2005; Aradhya et al. 2017). Municipalities indeed play an important role in refugee reception, as they provide assistance with housing and are responsible for the organisation of language courses. However, refugees' regional patterns and inter-regional mobility deserve more attention. Indeed, regions often correspond to local labour market areas, which makes them a relevant unit of analysis with regard to refugee labour market

participation, which is a core dimension of their overall integration in the host country. Individuals usually seek employment within their local labour market area (or commuting zone), and not only within their municipality (or neighbourhood). There is substantial empirical research showing that the regional context plays a significant role in refugees' labour market participation. Previous research shows that residence in Sweden's capital region of Stockholm is associated with the highest probability of obtaining a first employment among refugees, and the residence in the metropolitan region of Malmö is associated with the lowest, with small city/rural regions lying in between (Vogiazides & Mondani 2019; Bevelander 2011; Andersson 2016; Ruist 2018). The second contribution is that this study is the first, to our knowledge, to use sequence analysis to examine refugees' long-term residential trajectories across regions with different socio-demographic characteristics. Such an approach is able to identify common patterns, while highlighting aspects of timing, ordering and duration of states (such as different residential contexts). Finally, by comparing refugees who were subject to the dispersal policy with more recent cohorts, and comparing between refugees with assigned and self-arranged housing within the more recent cohort, we will gain knowledge on the impact of different refugee reception policies in Sweden. Our findings will provide insights into the long-term effect of refugee reception policies that should be useful to policy makers in Sweden and elsewhere.

Immigrants' settlement and internal migration

International migrants tend to reside in cities; this pattern has been observed in many different contexts. In the US, it is estimated that 86% of the country's foreign-born population lives in a large metropolitan area (Singer 2015). The corresponding proportion among OECD countries is 64% (OECD 2018a). Sweden is no exception, as nearly 82% of international migrants lived in a metropolitan or larger city region in 2018, whereas that was only the case for 65% of the native-born population (Statistics Sweden 2019). While migrants have traditionally settled in a few large metropolitan cities, such as New York, Los Angeles and Chicago in the US, recent research has paid increasing attention to new destinations, or so-called 'new immigrant gateways'. These include metropolitan regions that did not previously host many international migrants, but also smaller cities and rural communities (Waters & Jimenez 2005; Hall 2013). In Sweden, for instance, research has shown that, compared to the 1990s, non-European migrants today are increasingly present in small and larger (albeit not metropolitan) cities (Malmberg et al. 2018). Rural living is more common among asylum-seekers and refugees compared to other migrant categories. Indeed, as mentioned above, many host countries have implemented policies aimed at geographically dispersing asylum-seekers and refugees. Recent research shows that asylum-seekers

in 18 European countries are less concentrated in urban areas compared to the overall population (Proietti & Veneri 2019; OECD 2018b). Asylum-seekers are especially dominant in rural areas in Ireland, Finland and Norway. In Sweden, 37% of asylum-seekers resided in a rural area in 2015, while this was only the case for 20% of the Swedish population (Proietti & Veneri 2019: 22).

Several theoretical perspectives seek to explain migrants' geographical patterns, with some emphasising labour market considerations and others the importance of amenities or migrant networks. The remainder of this section briefly presents the main theoretical arguments and empirical findings on migrants' settlement and relocation, focusing on the case of refugees. *Neoclassical economic theory* contends that migration, both international and internal, is driven by labour market considerations. According to the neoclassical micro perspective on migration, individuals are rational actors who seek to maximise their income through migration (Todaro 1969; Borjas 1989). In post-industrial society, large cities commonly offer better employment opportunities than rural areas. Employment-motivated migration tends to be directed towards more urbanised areas, and particularly metropolitan areas. In that respect, Sassen (1991) hypothesised that *global cities* with strong service sectors attract highly educated workers within finance, IT and research as well as low-skilled migrant workers seeking employment in industries such as catering and cleaning.

A large body of empirical literature analyses the importance of labour market considerations for immigrants' initial and subsequent location choices (see for example Zavodny 1999 in the US; Sapeha 2017 in Australia, Lympelopoulou 2013 in the UK and Zorlu & Mulder 2008 in the Netherlands). Research from Sweden shows that employed migrants are less likely to move internally, whereas migrants receiving social allowances are more likely to do so (Rephann & Vencatasawmy 2000; Andersson 2012). While the aforementioned studies investigate the migrant population as a whole, a number of studies focus specifically on refugees. For instance, studies on refugees who were subject to compulsory placement as part of a dispersal policy showed that they were more likely to move away from locations with high unemployment (see Damm 2009 in Denmark and Åslund 2005 and Haberfeld et al. 2019 in Sweden). Swedish research has also found that internal migration results in increased earnings for refugee families (Rashid 2009; Haberfeld et al. 2019). Finally, qualitative studies have stressed the importance of local labour market prospects for refugees' likelihood to remain in rural/small city areas over a long period of time (Stewart & Shaffer 2015; Gilhooly & Lee 2017; Fang et al. 2018). Employment opportunities, however, are not the only motives for residing in cities. Cities are also considered attractive for their *amenities*, including educational institutions, public services and cultural and leisure facilities (Blomquist et al. 1988; Glaeser et al. 2001; Buch et al. 2014).

For newly arrived migrants, cities may also be appealing due to the presence of previously established migrants, as already-established migrants can provide economic assistance, information and psychological support to more recently arrived relatives, friends or other members of their community of origin (Massey 1990). Co-ethnic concentration allows for the maintenance of cultural practices and may entail the possibility of employment opportunities within the ethnic economy (Peach 1996; Logan et al. 2002). In this paper, we use the term *ethnic preference* to describe the hypothesis that migrant groups may prefer to reside in proximity to co-ethnics.² In Sweden, Åslund (2005) found that refugees subject to mandatory placement in the late-eighties were more likely to relocate to municipalities with a high proportion of co-nationals and immigrants overall. Some studies have also shown that refugees were less likely to leave municipalities (Aradhya et al. 2017) or regions (Haberfeld et al. 2019) with a high proportion of co-ethnics.³ Finally, Bevelander et al. (2019) showed that refugees in the 1998-2010 arrival cohort who arranged their own housing were more likely to reside in cities with a higher immigrant population.

The policy context at the time of arrival also determines the geographical patterns of refugees. Indeed, refugees who were subject to a compulsory placement policy are less concentrated in urban areas and more likely to migrate internally. For example, a larger proportion of placed refugees within the Sweden-wide strategy later moved away from their assigned municipality, usually relocating into metropolitan regions and large cities (Statistics Sweden 2016; Åslund 2005; Borgegård et al. 1998). Such subsequent mobility may be motivated by a desire to reside close to relatives and other co-ethnics. In that respect, several qualitative studies have discussed how dispersal policies can potentially disturb co-ethnic networks and lead to social isolation (e.g. Larsen 2011 in Denmark; Stewart & Shaffer 2015 in the UK and Povrzanovic Frykman 2009; Rönnqvist 2009 in Sweden). Subsequent mobility may also be motivated by employment considerations or amenities.

Finally, a large body of literature describes how residential mobility varies over individuals' life course. In general, younger, single and highly educated people have a higher propensity to move (Mulder & Hooimeijer 1999). In addition, the longer a person resides in a place, the less likely she is to move. This is explained by the fact that, over time, individuals develop so-called 'location-specific insider

² This approach goes against the theory of *spatial assimilation* which posits that migrants, who initially concentrate in deprived and immigrant-dense neighbourhoods, later relocate to more affluent and majority-dominated areas, as their socioeconomic situation improves (Massey 1985).

³ Aradhya et al. (2017) used pre-migration data of the region of origin based on migrants' birth location (in Turkey and Iran). Interestingly, they found that individuals are less likely to relocate from municipalities where there is a large presence of other migrants from the same *region of origin*, but are more likely to move away from municipalities with high proportion of migrants from the same *country of origin*.

advantages' which constitute disincentives to move. Work, family ties, and attachment to the place of residence can be such drivers of immobility (Fischer & Malmberg 2001). In light of these theoretical arguments and empirical evidence, we derived the following hypotheses:

Hypothesis 1: Refugees who did not choose their initial region of residence will be more likely to experience an inter-regional move, especially if their region of initial settlement is a small city or a rural region.

Hypothesis 2: Refugees who lack employment are more likely to experience inter-regional mobility.

Hypothesis 3: Refugees who initially settled in the capital region of Stockholm are more likely to remain in that region over a long period.

Hypothesis 4: Refugees residing close to co-ethnics will be less likely to leave their region of initial settlement.

Data and methods

Study population

This paper analyses the geographical trajectories of refugees in Sweden using longitudinal, annually updated individual-level register data. The data come from a compilation of administrative registers managed by Statistics Sweden and include a number of demographic, socioeconomic and residential variables. We follow the geographical trajectories of refugees over an eight-year period, starting from their arrival in Sweden. The refugees in our dataset were between 18 and 58 years old at the time of immigration and they did not reside in their parental home during the eight-year follow-up period (N=80,801). Our study population consists of two refugee cohorts: the 1990-93 cohort, which was subject to the Sweden-wide dispersal strategy, and the 2005-09 cohort. For the latter cohort, we distinguish between refugees with assigned housing ('*Kommunanvisad*') and refugees with self-arranged housing ('*Egenbosatt*').⁴ This distinction allows us to assess the impact of settlement policy on refugees' geographical trajectories. As shown in Table 1, the vast majority of refugees originate from the Middle East, North Africa (MENA) and the Horn of Africa, especially from Iraq and Somalia (88%

⁴ So-called 'quota refugees' have been left out of this study due to their different migration situation. Indeed, quota refugees are directly resettled from refugee camps in their home region and do not come to Sweden by their own means. Quota refugees only represent a small portion of refugees in Sweden (about 10% of refugees who were granted asylum in the period 1980-2018) (Swedish Migration Agency 2019).

of the 2005-09 cohort with self-arranged housing; 69% of the 2005-09 cohort with assigned housing and 50% of the 1990-93 cohort). Over a third of the refugees in the 1990-93 cohort came from Europe, especially the former Yugoslavia. The three refugee categories also differ in terms of the type of region of initial settlement. The majority of refugees who arranged for their own accommodation (either during the asylum process or once they are granted a residence permit) settled in Stockholm (39%), followed by large city regions (29%). Only 8% settled in a small city or rural region. In contrast, large city regions were the most common type of first region among refugees who were assigned housing by the authorities, while small city/rural regions came in second place. Only 8% of refugees from the 2005-09 cohort with assigned housing initially resided in Stockholm. It should be noted that the two refugee cohorts were faced with somewhat different socio-historical contexts on arrival. Although housing shortage was already a problem in many Swedish localities in the 1990s, it worsened over the years. In 2019, 240 out of Sweden's 290 municipalities reported a housing shortage. In 2013, the corresponding number was 126 (National Board of Housing, Building and Planning 2019). In addition, both the 1990-93 and the 2005-09 refugee cohorts arrived in Sweden during (or just before) an economic recession. Yet while the economic downturn of the early nineties hit refugees severely, the 2008 crisis did not affect refugees' employment rates as negatively (Ruist 2018).

Table 1. Characteristics of the refugee population.

	<i>1990-93 cohort</i>	<i>2005-09 cohort with assigned housing</i>	<i>2005-09 cohort with self- arranged housing</i>
<i>N</i>	44,438	14,101	22,262
<i>Sex (%)</i>			
Men	59.0	56.9	63.1
Women	41.0	43.2	36.9
<i>Age at immigration (mean)</i>	32.2	33.4	32.9
<i>Region of origin (%)</i>			
Europe	35.5	20.3	9.9
America	5.2	0.2	1.0
MENA & Horn of Africa	50.9	69.2	87.7
Other Africa	1.4	5.3	1.0
Other Asia	6.9	4.9	4.2
Stateless & unknown	0.1	0.1	0.1
<i>Type of region of initial settlement (%)</i>			
Stockholm	19.4	8.4	39.1
Gothenburg	7.6	5.2	11.8
Malmö	5.4	6.7	11.8
Large city region	34.0	49.4	29.1
Small city/rural region	33.6	30.3	8.2

Sequence analysis

In the first stage of the analysis, we employed sequence analysis, which is a family of methods for the holistic description of longitudinal data. A sequence is an ordered series of *states*. A change in a state is called a *transition*, and the method allows the properties of these state orders and transitions to be described (Cornwell 2015). Sequence analysis has attracted the attention of disciplines traditionally concerned with the life course perspective of individuals, such as social and population sciences (Billari 2001). A number of studies have applied sequence analysis to explore geographical mobility. The majority of them focus on the neighbourhood unit, investigating trajectories across the neighbourhoods with different levels of deprivation (e.g. Lee et al. 2017 (US), Kleinepier et al. 2018 (Netherlands), Toft 2018 (Norway), van Ham et al. 2014, Vogiazides & Chihaya 2019 (Sweden)) or immigrant density (Wind & Hedman 2018). Impicciatore and Panichella (2019) investigate south-to-north internal

mobility in Italy, in combination with employment, education and family trajectories. To our knowledge, the US study by Stovel and Bolan (2004) is the only one, to date, examining residential trajectories across regions with different levels of population density.

Similarly to Stovel and Bolan (2004), sequence states in our study represent different types of regional contexts. Regions correspond to local Labour Market areas (LMAs), which are annually constructed by Statistics Sweden taking into account commuting patterns.⁵ We used a single LMA classification per refugee cohort: 1998 for the 1990-93 cohort and 2013 for the 2005-09 cohort, as middle points in the eight-year follow-up period.⁶ We distinguished between five types of region: 1. Stockholm, 2. Gothenburg, 3. Malmö, 4. Large city regions, 5. Small city/rural regions. Large city regions are LMAs that include a large city based on the 2017 classification of municipalities by the Swedish Association of Local Authorities and Regions (SALAR).⁷ ⁸ Sweden's three metropolitan regions are separate categories because of their different economic situations and political roles. Indeed, while Stockholm is Sweden's financial and administrative centre, Gothenburg and especially Malmö have faced social and economic challenges related to deindustrialisation. Unemployment rates have been consistently high in Malmö, and the region also hosts a comparatively higher proportion of refugees (Vogiazides & Mondani 2019). In our sequence analysis, a transition is thus a move between two different regional contexts. Mobility between similar types of regions (e.g. large city regions) does not count as a transition. In addition, mobility within regions (between neighbourhoods or municipalities) is outside the scope of this paper.

The dataset for the sequence analyses included 76,047 refugees who resided in Sweden for eight consecutive years (41,724 refugees in the 1990-93 cohort, 13,387 arriving in 2005-09 with assigned

⁵ Local LMAs should not be confused with Sweden's 21 County Councils, which are named 'regions'.

⁶ The 1998 LMA classification included 100 LMAs and the 2013 classification included 73. In some sparsely populated areas in northern and west-central Sweden, the borders of certain LMAs coincide with municipal borders. Although LMAs are annually updated, we opted for a single classification per cohort in order to study inter-regional mobility (similar to other studies, e.g. Haberfeld et al. 2019). By allowing LMA borders to vary, we would not be able to disentangle a change in LMA of residence from a change of the LMA borders. Given that our follow-up period is relatively short and that changes in commuting patterns unfold over a long period of time, this choice should not significantly affect our results.

⁷ The following Swedish cities are classified as large cities: Eskilstuna, Linköping, Norrköping, Jönköping, Växjö, Halmstad, Trollhättan, Borås, Karlstad, Örebro, Västerås, Borlänge, Gävle, Sundsvall, Östersund, Umeå, Luleå. When a LMA includes both a metropolitan city and a large city, it is classified as a metropolitan region.

⁸ It must be acknowledged that the three metropolitan regions as well as large city region include sparsely populated areas. Yet, as previously explained, we classified entire regions as LMAs because they are the geographical unit of interest in the study.

housing, and finally 20,936 from 2005-09 with self-arranged housing).⁹ We clustered refugees' eight-year sequences across the five region types based on their similarity. A dissimilarity score was computed by optimal matching, which implies defining costs to transform a given sequence into another one by state substitution. The substitution costs correspond to the standard implementation of constant symmetric value. Once the similarity scores were computed for all sequence pairs, sequences were grouped using a combination of two clustering techniques: the Ward method for the initial clustering, and Partition around the Medoid (Studer 2013).¹⁰

In the next stage, a multinomial logit model was estimated to examine how individual socio-demographic characteristics predict membership in the identified clusters. The model includes the time-constant variables *Gender*, *Region of birth* and *Age at arrival*. Categorical time-varying variables consist of: *Having a partner*, *Having children in the household*, *Having university education*, and *Being employed*. These variables were quantified using the proportion of the eight-year sequence that an individual belongs to each category of the variable. The models also controlled for *average number of intra-regional moves* and *the average number of inter-regional moves* during the follow-up period. For the multinomial logit model, we used the average value of the variable over the eight-year period. The main advantage of sequence analysis is that it provides a comprehensive picture of refugees' geographical trajectories across different types of regions. However, one limitation of the method is that it does not allow for time-varying covariates in regression analysis (but only average values or values measured at one point in time). Therefore, we complemented our analyses with event history analysis which is more suited to causal inference (Eerola & Helske 2016).

Event history analysis

In order to address the second part of our study aim, i.e. the analysis of the drivers of inter-regional (im)mobility, we used event history analysis. We focused on the mobility away from the *first* region of residence in Sweden, because the first region provides a natural starting point after arrival in Sweden and is not confounded by the multiplicity of transitions individuals experience later during their time in Sweden.

⁹ Note that this sample is smaller than the study population due to the additional requirement of residence in Sweden for eight consecutive years.

¹⁰ Regarding implementation, we analysed the sequence data with TraMineR, an R package for sequence analysis (Gabadinho et al. 2011). Regression models were estimated with Stata (StataCorp 2017).

In a first descriptive step, we estimated hazard rates for the event of *leaving the first region of settlement in Sweden*. In discrete time event history analysis, the hazard is defined as the probability of an event occurring at time t , assuming that it has not yet occurred (Rabe-Hesketh & Skrondal 2012: 750). In a second step, we estimated a logit model for discrete time data on the probability to leave the first region of settlement. The main independent variable of the model was the *Type of region*, which distinguishes the same five types of regions as the states in the sequence analysis. The model also controlled for socioeconomic and demographic variables known to influence inter-regional mobility, which are included in the aforementioned multinomial logit model. Finally, the variable *Co-ethnic neighbours*¹¹ describes the proportion of a person's 1,600 closest neighbours who belong to the same ethnic group.¹² This variable was calculated using the “geocontext” Python script (Hennerdal 2018). In the event history model, time-varying variables are lagged, meaning that the risk of leaving the first region of residence during a given year was modelled as dependent on the value of the variables the preceding year.

Limitations

The present study has a number of data limitations. First, refugees enter Swedish registers once they are granted a residence permit. Register data do not include any residential data from the period of determination of the asylum application (Statistics Sweden 2016). Second, in our dataset, individuals' place of residence is measured annually on December 31. This implies that the study probably underestimates the number of mobility events experienced by refugees, as refugees are known to be particularly mobile during their first year in the country (Ibid.)¹³. Finally, every study on determinants of regional mobility patterns should acknowledge the possibility that selection mechanisms are in place. For instance, when choosing their region of settlement, migrants might be influenced by individual characteristics that make them sort themselves into specific types of regions (Åslund 2005). We attempted to reduce these effects by studying the drivers of inter-regional mobility at the transition from

¹¹ Swedish registers do not include information on individuals' ethnicity. Therefore, this variable is based on country of birth data. Our dataset comprises 28 'ethnic groups', consisting of individual countries or aggregation of countries. The variable is therefore only a proxy of ethnicity. Indeed, many ethnic groups are geographically spread across national boundaries, notably Kurds in the Middle East. The grouping of certain countries is a further limitation. Yet this is the best approximation of ethnicity that we can achieve based on our data.

¹² This nearest-neighbour approach bypasses the so-called Modifiable Areal Unit Problem (MAUP), which is a source of statistical bias that can affect any geographical analysis based on arbitrarily defined aggregations of geographical areas (Openshaw 1984).

¹³ Our dataset includes a variable with the number of inter-municipal moves during each year, but we lack information about the specific municipalities between which these moves occur. Among the 105,164 refugees in our risk set, 29% experienced at least one inter-municipal move during their first year in Sweden/year of immigration. A smaller proportion of these moves may have crossed a regional boundary.

region of first settlement, using event history analysis with lagged time-varying covariates, both at the individual and at the neighbourhood level. Furthermore, individual-driven selection effects of the kind described above should be less important for the 1990-93 cohort under the Sweden-wide strategy as well as for the refugees in the 2005-09 cohort with assigned housing, since in those groups the allocation into the region of first settlement is by definition not a choice of the individual. However, this does not completely eliminate the possibility of sorting into regions and neighbourhoods upon first settlement. Among the refugees of the 2005-09 cohort, there was also a likely self-selection into choice of arranging for their own housing or asking for assistance with housing arrangements. Those choosing the former may have more economic resources or social contacts that facilitate their housing arrangements.

Results

A typology of refugee geographical (im)mobility trajectories

The first stage of our investigation involved using sequence analysis to identify patterns of refugee trajectories across regional contexts. Figure 1 shows the mean time (in years) that a refugee spent in each type of region, by refugee category. Note that this does not have to be consecutive years, just the accumulated number of years. The patterns are relatively similar for the 1990-93 cohort and the 2005-09 cohort with assigned housing, whereas the patterns of the 2005-09 cohort with self-arranged housing differ substantially. When interpreting the results, it is important to remember that refugees in the former two cohorts had very little or no influence in the choice of the place of first settlement. On average, these two categories of refugees resided longest in a large city region, followed by small city/rural regions. In contrast, refugees from the 2005-09 cohort who arranged for their own housing were most likely to reside in Stockholm and least likely to reside in small city/rural regions. Refugees from the 2005-09 cohort who arranged for their own housing spent more than twice as much time in Stockholm compared to those who took assigned housing (about 39% and 14% respectively). Residence in Malmö was also slightly more common among refugees with self-arranged housing. It is also worth noting certain differences between the two refugee categories that did not choose their place of first settlement. Indeed, the more recently arrived cohort spent on average a longer period in a large city region and a shorter period in Stockholm.

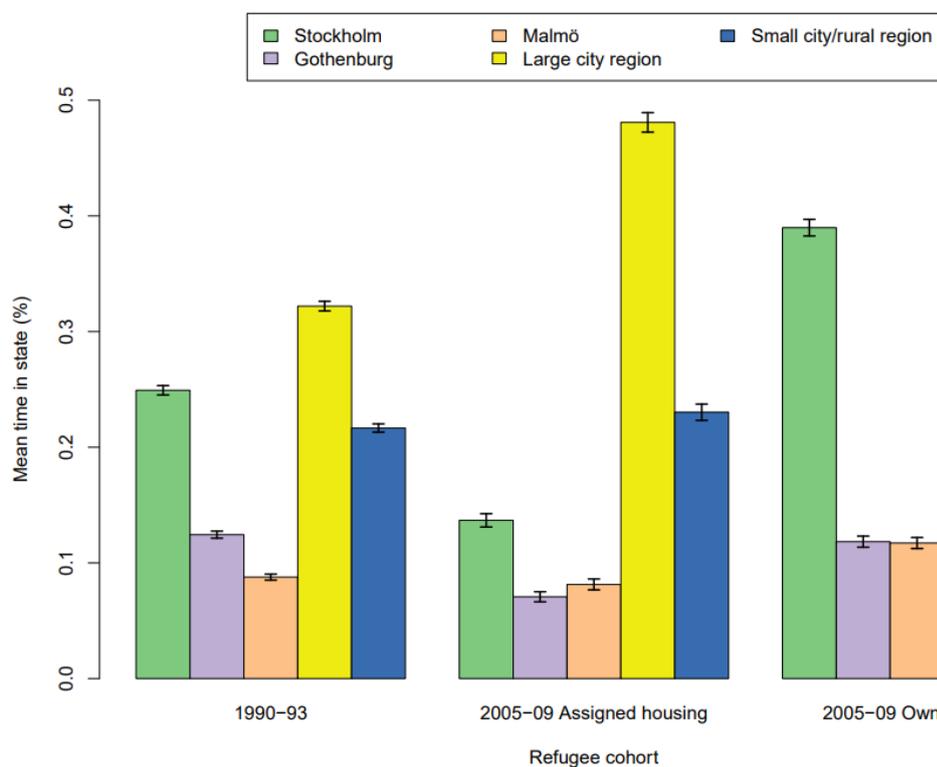


Figure 1. Mean time in state, by refugee category

Next, we grouped sequences into clusters based on their similarity, using the standard optimal matching implementation (with equal substitution costs) and the clustering procedure explained in the Data and Methods section. This procedure was carried out separately for each of the three refugee categories. For each category, we obtained ten distinct clusters representing a typology of ten geographical mobility trajectories.¹⁴

¹⁴ To account for the quality of the clustering in the solution, we analysed statistics on the ten-cluster solution, as implemented in the Weighted Cluster package (Studer 2013). In particular, we computed the Average Silhouette Width (ASW), which is a measure of the coherence in the assignment sequences to clusters, and of the degree to which sequence clusters are distinct from one another. It is interpreted as a measure of the plausible underlying structure in the cluster solution, and it ranges from 0 to 1. Values above 0.71 are considered as indicators of a strong underlying structure (Studer 2013). We obtained the following values of ASW for the overall cluster solution: 0.63 for the 1990-93 cohort, 0.72 for the 2005-09 cohort with assigned housing, and 0.87 for the 2005-09 cohort with self-arranged housing.

Figure 2 depicts the modal sequence plots of refugees' geographical trajectories, i.e. the most frequent sequence of the cluster, for the three categories of refugees. The clusters are shown in descending order of number of individuals per cluster. The frequency of each cluster is summarised in Table 2.

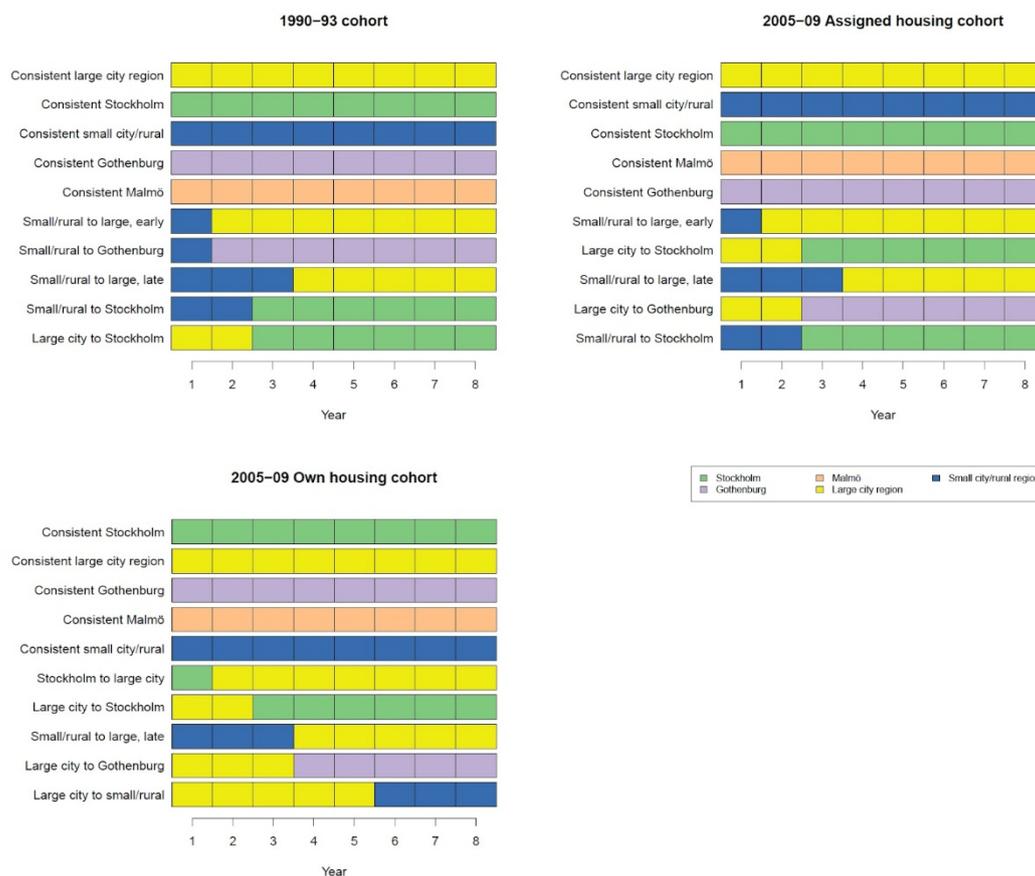


Figure 2. Modal sequence plots.

Table 2. Frequency of regional trajectories by refugee group.

	<i>1990-93 cohort</i>	<i>2005-09 cohort with assigned housing</i>	<i>2005-09 cohort with self- arranged housing</i>
<i>Consistent Stockholm</i>	22.2	10.5	37.9
<i>Consistent Gothenburg</i>	9.7	5.6	11.1
<i>Consistent Malmö</i>	8.9	7.9	11.8
<i>Consistent large city</i>	24.8	40.4	26.2
<i>Consistent small city/rural</i>	17.8	20.4	6.9
<i>Stockholm to large city</i>	-	-	1.9
<i>Large city to Stockholm</i>	2.9	3.8	1.6
<i>Large city to small city/rural</i>	-	-	0.7
<i>Small city/rural to Stockholm</i>	2.3	1.7	-
<i>Small city/rural to large city: early</i>	4.8	5.0	-
<i>Small city/rural to large city: late</i>	2.9	2.5	0.8
<i>Large city to Gothenburg</i>	-	2.2	1.1
<i>Small/rural city to Gothenburg</i>	3.7	-	-
<i>Total</i>	100.0	100.0	100.0

A first important finding is that transitions between different types of regions were very rare. The vast majority of refugees stayed in the same type of region throughout the eight-year follow-up period. As much as 94% of refugees from the 2005-09 cohort with self-arranged housing belonged to a cluster that is characterised by a lack of transition between different types of region. For the other two refugee cohorts, the corresponding proportion was 85%.

There was, however, significant variation in the frequency of the different stable trajectories among the three refugee categories in the study. In general, refugees who arranged for their own housing were more likely to follow a stable trajectory in one of the three metropolitan regions. For instance, 38% of individuals in the 2005-09 cohort with self-arranged housing followed a trajectory characterised by consistent residence in Stockholm, while this was only the case for nearly 10% of the 2005-09 cohort with assigned housing. In contrast, refugees who did not choose their initial location followed mostly stable trajectories in large city regions. Indeed, consistent residence in a large city region is the most common trajectory for the 2005-09 cohort with assigned housing and the 1990-93 cohort, involving around 40% and 25% of refugees respectively. These two cohorts were also more likely to follow a trajectory of stable residence in a small city or rural region. Nearly 20% of refugees in the 2005-09

cohort with assigned housing followed that trajectory during their first eight years in Sweden, compared to 7% of refugees with self-arranged housing. It should be noted that mobility between regions of the same type is, by construction, also a stable trajectory.

The sequence analysis also revealed typical trajectories that are characterised by a transition between different types of regions. Some of them were common to the three refugee categories, whereas others differed between them. With one exception (the cluster involving a move from a large city to a small city/rural region for refugees from the 2005-09 cohort with self-arranged housing), all these trajectories included a shift towards type of region with a higher degree of urbanisation.

Among refugees who were assigned housing by the authorities, the most frequent trajectory involving a transition was an early move from small city/rural region to a large city region. About 5% of refugees in the 1990-93 cohort and 2005-09 cohort with assigned housing belonged to that cluster. This move took place early on, after about a year of residence in the small city/rural region. A second cluster was characterised by the same type of mobility, yet with the transition occurring after a longer period of time (during the fourth year in Sweden). Within the 1990-93 cohort, which was subject to the 'Sweden-wide strategy', 3% of the refugees belonged to a cluster dominated by this transition. Although moves towards increased urbanisation were the most common type of move, they were still relatively rare when compared to the stable trajectory clusters. Indeed, the proportion of refugees remaining in a small city/rural region exceeded that of refugees following trajectories characterised by a move away from such regions.

After identifying refugees' typical geographical trajectories in Sweden with the help of sequence analysis, we estimated a multinomial logit model to examine the effects of demographic, socioeconomic and neighbourhood characteristics on the probability of belonging to any of these trajectory clusters.¹⁵ We calculated average marginal effects based on the estimated multinomial logit coefficients, which are presented in Table 3.

[See Table 3 in annex]

Refugees who followed the trajectory of consistent residence in Stockholm were more likely to have arranged for their own housing, have a university degree and employment. This trajectory was also

¹⁵ We excluded the clusters with low cluster-specific ASWs (below 0.40; see Footnote 11), as well as clusters that were not common to all three refugee categories. The clusters in the regression represent 89.2% of the refugees in our study population and comprise both stable and transition-dominated clusters, thus allowing high sample coverage with a strong underlying structure.

more frequent among female refugees, refugees from Africa, the Middle East and America. Consistent residence in Malmö was more common among refugees who arranged for their own housing and have a university education. Yet it was negatively associated with having an employment and positively associated with European origin. Refugees who followed a stable trajectory in small city/rural regions have generally been assigned housing by the authorities. They tended to be employed but lacked university education. Refugees in this cluster were also more likely to have a partner and children in their household. Finally, the cluster involving a transition from a large city to Stockholm was most common among refugees who did not arrange for their own housing.

Mobility away from first region of settlement

After describing the refugees' typical geographical trajectories across different types of regions, we turned to the analysis of the propensity and drivers of refugees' inter-regional mobility, specifically their first move away from the region of initial settlement. Table 4 shows the hazard rates for the event of leaving the region of initial settlement, by type of region of settlement and refugee category, over the observation period, conditioned on non-emigration from Sweden. A first observation is that mobility away from the first region of residence in Sweden was relatively rare among the refugees. On average, 7% of refugees in our study left their first region every year. However, there were large differences according to the type of region of initial settlement. Among the refugees who initially settled in one of Sweden's three metropolitan regions—Stockholm, Gothenburg or Malmö—only about 2% left their first region. In contrast, the corresponding rates for refugees who settled in a small city/rural region or a large city region reached 18% and 8% respectively. There were also differences in the propensity of experiencing a first inter-regional move between the three refugee categories in the study. Indeed, refugees from the 1990-93 cohort who were subject to municipal placement within the Sweden-wide strategy were more likely to leave a large city region or a small city/rural region compared to the refugees who arrived in the period 2005-09. While on average 21% of the refugees from the 1990-93 cohort placed in a small city/rural region moved away every year, the corresponding figures for refugees from the 2005-09 cohort with assigned and those with self-arranged housing were 14% and 8% respectively. There was therefore a clear decrease in mobility away from non-metropolitan regions during recent years, compared to the 1990s.

Table 4. Hazard rates for leaving the region of first settlement, by type of region of settlement and refugee category (average over the observation period).

	Stayed in first region	Left first region	Total
All	92.7	7.3	100.0
Stockholm			
All	98.1	1.9	100.0
90-93 cohort	97.9	2.1	100.0
05-09 cohort assigned housing	97.6	2.4	100.0
05-09 cohort self-arranged housing	98.3	1.7	100.0
Gothenburg			
All	97.9	2.7	100.0
90-93 cohort	97.6	2.4	100.0
05-09 cohort assigned housing	97.4	2.6	100.0
05-09 cohort self-arranged housing	98.4	1.6	100.0
Malmö			
All	97.3	2.7	100.0
90-93 cohort	96.5	3.5	100.0
05-09 cohort assigned housing	96.9	3.1	100.0
05-09 cohort self-arranged housing	98.2	1.8	100.0
Large city region			
All	91.4	8.4	100.0
90-93 cohort	88.6	11.4	100.0
05-09 cohort assigned housing	92.1	7.9	100.0
05-09 cohort self-arranged housing	95.7	4.3	100.0
Small city/rural region			
All	82.0	18.0	100.0
90-93 cohort	78.6	21.4	100.0
05-09 cohort assigned housing	86.1	13.9	100.0
05-09 cohort self-arranged housing	92.0	8.0	100.0

Next, a logit model for discrete time data was estimated to analyse the determinants of mobility away from the region of initial settlement. The results are reported as average marginal effects in Table 5.

Table 5. Logit model of refugees' mobility away from the region of first settlement, average marginal effects and standard errors (N=80,801).

	b	se
Type of first region of residence (ref. Stockholm)		
Gothenburg	0.001	(0.001)
Malmö	0.009***	(0.001)
Large city region	0.063***	(0.001)
Small city/rural region	0.121***	(0.001)
Proportion of co-ethnics among 1600 closest neighbours	-0.002***	(0.000)
Refugee cohort (ref. 2005-09 with self-arranged housing)		
2005-04 with assigned housing	0.024***	(0.001)
1990-93 Sweden-wide strategy	0.040***	(0.001)
Years in Sweden	-0.014***	(0.000)
Education level (ref. Primary)		
Secondary	0.002*	(0.001)
Tertiary	0.009***	(0.001)
Unknown	0.029***	(0.001)
Employed (ref. No)	-0.017***	(0.001)
Number of inter-municipal moves (within the year)	-0.008***	(0.001)
Age at immigration (ref. 18-24)		
25-39	-0.008***	(0.001)
40-58	-0.024***	(0.001)
Sex (ref. Male)		
Female	-0.004***	(0.001)
Partnership status (ref. No)	-0.010***	(0.001)
Children in the household (ref. No)	-0.010***	(0.001)
Region of origin (ref. Europe)		
America	-0.026***	(0.002)
MENA & Horn of Africa	0.005***	(0.001)
Other Africa	-0.001	(0.003)
Other Asia and Oceania	-0.018***	(0.001)
Stateless or unknown	-0.002***	(0.000)
Nagelkerke R ²	0.225	
Number of observations	412,826	

Notes: Standard errors in parentheses; average marginal effects calculated with other covariates values as observed; * p < 0.05 ** p<0.01 *** p<0.001.

A first finding is that the type of region of first settlement significantly influences refugees' likelihood of leaving the first region. Refugees who settled in a small city or rural area were on average about 12

percentage points more likely to leave their first region compared to individuals who initially settled in Stockholm. Those who resided in a large city region were six percentage points more likely to experience inter-regional migration. Finally, refugees who settled in the metropolitan region of Malmö only had a slightly higher probability (less than one percentage point) of leaving their first region.

In addition, a one percent increase in the share of co-ethnics among the 1,600 closest neighbours slightly decreased the probability of leaving the first region. Indeed, a one percent increase in the proportion of co-ethnics implied an almost 0.2 percentage point decrease in the probability of relocating. Although the direction of the effect suggests the presence of an ethnic preference mechanism, we should interpret it with caution, since the magnitude of the effect is relatively small.

As expected, settlement policy also has effects on refugees' propensities to leave their region of first settlement. Compared to refugees who arranged for their own housing (and thus chose their place of settlement), Sweden-wide strategy refugees and refugees with assigned housing had on average a four and two percentage points higher probability of relocating, respectively. Consistent with the concept of *location-specific insider advantages*, every additional year of residence in Sweden also decreased the chances of becoming an internal mover by roughly one percentage point.

Regarding the socioeconomic variables, having a university degree slightly increased the likelihood of leaving the first region, while being employed decreased it (by three percentage points).

In line with the life course perspective, we found that refugees who moved across regions were more likely to be young, single and without children. Men were also more mobile than women. Finally, the results revealed differences between origin groups in the propensity to leave the first region. Compared to Europeans, individuals from Africa and the Middle East had the highest propensity to relocate, while refugees from America were the least mobile group.

Concluding discussion

A first important finding from the study is the prevalence of trajectories of stable residence in a single type of region. Transitions between regions with different sociodemographic characteristics are generally a rare phenomenon. The vast majority stayed in regions with similar population density and economic structure over the eight-year follow-up period. Only about 12% of the refugees in our study followed a trajectory characterised by a transition between different types of regions.

Refugees who did not choose their initial location were more likely to experience a transition between different types of regions, typically from a less to a more urbanised region. More generally, and consistent with our first hypothesis, refugees with assigned housing were more likely to leave their region of initial settlement, especially when they resided in a small city/rural region. Based on these results, it appears that some of the refugees who did not choose their region of initial settlement relocated to ‘adjust’ the regional context to meet their preferences.

However, despite refugees with assigned housing being more mobile, a substantial proportion of refugees who were placed outside a metropolitan region by the Swedish authorities remained in their first region over a long period. Stable residence in a large city region was a frequent trajectory, especially for the most recently arrived refugees. As much as 40% of refugees of the 2005-09 cohort with assigned housing consistently resided in a large city, compared to 25% for the 1990-93 cohort. In addition, a significant share of refugees who were placed in a small city or rural region remained in that region type (around 82% of the 1990-93 cohort and 80% of the 2005-09 cohort with assigned housing). In general, refugees who did not choose their initial place of settlement were more likely to consistently reside in regions with low population density. In contrast, refugees from the 2005-09 cohort who arranged for their own housing resided stably in the Stockholm region to a much greater extent. These results are consistent with the study by Bevelander et al. (2019) which found that own-housing refugees were more likely to live in cities with higher immigrant populations, compared to refugees with assigned housing.

Overall, the patterns reported in this study indicate that refugees’ settlement in Sweden is not solely a metropolitan phenomenon. Moreover, the prevalence of stable geographical trajectories suggests that refugee placement policy has long-standing effects on refugees’ regional patterns. Likewise, the drop in outmigration from non-metropolitan regions, especially small city and rural regions, among the recent refugee cohort with assigned housing implies that government-led refugee dispersal is becoming increasingly permanent. These considerations are particularly relevant in relation to the recent reform of the ‘Own accommodation’ legislation that removes the right to financial assistance for asylum-seekers who settle in certain socioeconomically deprived neighbourhoods, which are predominantly located in metropolitan and large city regions.

An important question is whether refugees’ long-term residence in less densely populated regions is the result of a choice or a constraint. The fact that a notable proportion of refugees remain in non-metropolitan regions, even when they did not decide to initially settle in such regions themselves, suggests that they are satisfied with their regional environment. Over time, refugees may develop so-

called ‘location-specific insiders’ advantages’ which act as disincentives for subsequent mobility (Fischer & Malmberg 2001). They may also feel a need for stability after the traumatic experiences leading to their seeking asylum in Sweden. Finally, many refugees may also have a preference for rural residence, particularly if they lived in a smaller community in their country of origin (Povrzanovic Frykman 2009). Yet our results suggest that immobility in non-metropolitan regions may be involuntary. First, refugees who arranged for their own housing predominantly settled and remained in metropolitan regions, which points to a general preference for urban residence.

Second, transitions between different types of regions are mostly directed towards regions with higher levels of urbanisation. In this regard, a recent survey study among asylum-seekers showed that two thirds of the respondents who lived in accommodation managed by the Swedish Migration Agency (ABO) hoped they would be residing elsewhere in Sweden in a year, whereas only a third of those who arranged for their own housing expressed a desire to move (Esaiaasson & Sohlberg 2018). One possible explanation for the prevalence of stability in small city/rural regions among refugees with assigned housing is the increasing housing shortage in metropolitan and large Swedish cities. Beyond the question of preference, the growing presence of refugees in non-metropolitan regions, especially in large city regions, invites closer academic and policy attention towards these types of regions, which could arguably be labelled ‘new immigrant gateways’. Further research needs to analyse what the prospects of economic and social integration in those regions are.

Our study also showed that multiple factors—economic, social and policy-related— influence refugees’ likelihood to leave their region of first settlement. In line with our second hypothesis, being employed decreases refugees’ probability of leaving the first region of residence. Inter-regional mobility, and in the case of this study its first occurrence, seems to be at least partly determined by labour market considerations. This is consistent with previous Swedish research on the inter-regional mobility of international migrants as a whole (Andersson 2012). The capital region of Stockholm is particularly favoured among refugees who arranged for their own accommodation. Moreover, consistent with our third hypothesis, refugees who initially settled in the capital region of Stockholm are more likely to remain in that region over a long period. The attractiveness of Stockholm is likely to be related to the labour market opportunities available in the region. Given its strong service-oriented economy and global competitiveness, Stockholm could be viewed as a *global city*, where both high- and low-skilled migrant workers are in demand (Sassen 1991). Accordingly, we found that employed and university-educated refugees had a higher probability of consistently residing in this region. This is in line with previous Swedish research showing that residence in Stockholm is associated with greater labour

market entry and participation among refugees (Andersson 2016; Bevelander et al. 2019; Vogiazides & Mondani 2019). Stockholm may also be attractive due to its amenities.

In line with our fourth hypothesis, we found that proximity to co-ethnics indeed slightly decreased refugees' likelihood of leaving their region of initial settlement, which is consistent with the *ethnic preference* approach. Previous studies drew similar conclusions, but measuring co-ethnic concentration at the levels of the municipality (Aradhya et al. 2017; Åslund 2005) or region of residence (Haberfeld et al. 2019). Finally, our results also highlighted differences in refugees' propensity to leave their region of initial settlement according to the settlement policy implemented. Indeed, as previously mentioned, refugees with assigned housing were more likely to leave their region of initial settlement, especially when they resided in a small city/rural region.

The coexistence of multiple motives for inter-regional mobility has been previously highlighted in some qualitative studies among refugees in Sweden (e.g. Povrzanovic Frykman 2009; Rönnqvist 2009). Yet this result raises a number of challenges. First, based on register data alone, one cannot assess the relative importance of economic versus social factors. Indeed, a certain motive may be more relevant to certain types of refugees. For instance, a Danish study found that preferences for residing in ethnic enclaves were strongest among the least integrated ethnic minorities, with the degree of integration being defined based on labour market participation, language skills and social connections with natives (Skifter Andersen 2015). Moreover, economic and social factors are interrelated. A desire to live close to relatives and co-ethnics may actually be economically motivated. Social connections with co-ethnics can indeed facilitate migrants' labour market integration, by providing employment or information about job opportunities (Haberfeld et al. 2019; Rönnqvist 2009). An interesting question then is whether certain groups of refugees are more likely to find employment through ethnic networks.

Finally, let us outline some directions for further research. Firstly, refugees' geographical trajectories across different region types should be compared with those of migrants who were granted residence in Sweden on the grounds of employment, study or family reunion. This would allow potential differences to be revealed in the geographical patterns based on the reason for immigration. Further comparisons could be made with the trajectories of migrants' descendants and members of the native population of similar age. Secondly, the inter-municipal mobility of refugees deserves further attention. Indeed, various municipal characteristics may influence refugees' mobility, including the situation of the housing market, but also 'soft factors' such as the openness and capabilities of local civil servants in charge of refugee reception. Thirdly, refugees' subjective preferences for different types of regions of residence deserve closer attention. The process through which individuals select regions (and

neighbourhoods) could be fruitfully studied by applying discrete choice modelling or by using survey data of stated preferences. Qualitative or survey research would also enhance the understanding of refugees' subjective preferences and selection of regions of residence.

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Annex

Table 3. Multinomial logit model of refugees' typical geographical trajectories in Sweden, average marginal effects and standard errors (N=76,047).

	Consistent Stockholm	Consistent Gothenburg	Consistent Malmö	Consistent large city	Consistent small city/rural	Large city to Stockholm
Refugee cohort (ref. 2005-09 with self-arranged housing)						
2005-04 with assigned housing	-0.251*** (0.004)	-0.042*** (0.003)	-0.049*** (0.004)	0.165*** (0.006)	0.158*** (0.005)	0.021*** (0.002)
1990-93 Sweden-wide strategy	-0.082*** (0.004)	0.018*** (0.003)	-0.043*** (0.003)	-0.009 (0.004)	0.099*** (0.003)	0.017*** (0.001)
Proportion of residential career with a tertiary degree	0.061*** (0.004)	0.005 (0.003)	0.018*** (0.003)	-0.033*** (0.005)	-0.058*** (0.004)	0.007*** (0.002)
Proportion of residential career as employed	0.208*** (0.006)	-0.053*** (0.005)	-0.120*** (0.005)	-0.094*** (0.007)	0.048*** (0.005)	0.011*** (0.002)
Average number of inter-municipal moves during residential career	0.031*** (0.002)	-0.034*** (0.002)	0.010*** (0.001)	-0.046*** (0.002)	0.015*** (0.002)	0.024*** (0.001)
Age at immigration (ref. 18-24)						
25-39	0.029*** (0.004)	-0.007* (0.003)	-0.002 (0.003)	-0.023*** (0.005)	0.004 (0.004)	-0.000 (0.002)
40-58	0.060*** (0.006)	-0.021*** (0.004)	-0.014*** (0.004)	-0.027*** (0.006)	0.005 (0.005)	-0.003 (0.002)
Sex (ref. Male)						
Female	0.061*** (0.004)	-0.004 (0.003)	-0.028*** (0.003)	-0.021*** (0.004)	-0.013*** (0.003)	0.006*** (0.002)
Proportion of career with a partner	-0.040*** (0.006)	-0.022*** (0.004)	0.018*** (0.004)	0.015* (0.006)	0.039*** (0.005)	-0.009*** (0.002)
Proportion of residential career with children in the household	-0.061*** (0.006)	-0.017*** (0.004)	0.013** (0.004)	0.046*** (0.006)	0.020*** (0.005)	-0.002 (0.002)

Region of origin (ref. Europe)						
America	0.239*** (0.011)	-0.039*** (0.005)	-0.077*** (0.006)	-0.085*** (0.011)	-0.056*** (0.009)	0.018*** (0.004)
MENA & Horn of Africa	0.115*** (0.004)	0.031*** (0.003)	-0.025*** (0.003)	-0.047*** (0.005)	-0.099*** (0.004)	0.024*** (0.001)
Other Africa	0.197*** (0.014)	-0.010 (0.008)	-0.075*** (0.007)	-0.008 (0.013)	-0.134*** (0.008)	0.031*** (0.005)
Other Asia and Oceania	0.140*** (0.008)	-0.020*** (0.005)	-0.030*** (0.006)	-0.075*** (0.008)	-0.031*** (0.007)	0.017*** (0.003)
Stateless or unknown	0.067 (0.061)	-0.063* (0.025)	0.102 (0.063)	-0.016 (0.070)	-0.077 (0.058)	-0.013*** (0.001)
Nagelkerke R ²	0.213					
Number of observations	67,824					

Notes: Standard errors in parentheses; average marginal effects calculated with other covariates values as observed; * p < 0.05 ** p<0.01 *** p<0.001.

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