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Now and forever? Initial and subsequent location choices of immigrants

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by

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Abstract

This paper exploits a natural experiment to study the influence of regional factors on initial and subsequent location choices among immigrants. The results suggest that immigrants to Sweden are attracted to regions with high representation from the individual's birth country and large overall immigrant populations. Labor market opportunities affect location decisions, but people also tend to choose localities with many welfare recipients. The impact of most regional factors does not change over time. Thus, there is little evidence that information improves or that preferences differ between initial and subsequent stages.

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1 Introduction

Over the last decades, the immigrant population has increased in Sweden as well as in many other western countries. Combined with a declining performance of new immigrants in the labor market, this has raised public interest in a number of issues concerning immigrants and immigration policies. These include the residential location of immigrants and the pattern of so-called secondary migration, i.e., relocations within the host country.

The empirical literature on immigrants' residential patterns has so far been limited in scope. The lack of longitudinal data where individuals' behavior can be tracked over time has led researchers to focus on initial location choices, or location patterns at one particular point in time. The typical study has not been able to identify both the initial and subsequent location of an individual.[1] Methodological difficulties associated with studying subsequent choices has probably also contributed.

This investigation gains further knowledge on these issues by several means. First, it uses longitudinal Swedish micro data where individuals can be followed from the time of immigration. Second, it exploits a unique natural experiment to handle methodological problems. Third, it studies the impact of an unusually rich set of local characteristics.

I ask three main questions. First, which regional factors affect people's decisions on where to stay? Second, does the importance of these factors change over time, i.e., do initial and secondary choices differ? These choices may differ both as a result of changed preferences, but also because the initial choice is made under imperfect information. The third question is whether the effects of these regional factors vary between various immigrant groups and natives?

The results of the study give information on which regions that can expect high levels of immigration, and which regions that are likely to have large immigrant populations in the long run. These are important questions from a policy perspective, and can be central for, e.g., the need for public services in different locations. Furthermore, many Western countries have taken steps to direct immigrants into certain regions (see e.g. Dutch Refugee Council 1999).

[1] Bartel's (1989) influential study uses a panel to study internal migration; however, it does not necessarily contain the initial location in the US. This is the case also for Beenstock (1999), who studies internal migration of immigrants to Israel.

Such policies are more likely to succeed if they take individual preferences into account.

The quasi-experimental character of the data stems from a governmental refugee settlement policy pursued in the late 1980s. Under this regime, individuals were not free to choose where to reside initially, but were assigned to a municipality by the government. This placement appears to have created a geographic distribution that was independent of unobserved individual characteristics, which gives two advantages in the empirical analysis. One is that I can study the decision to relocate out of the initial location to get information on the factors that attract and repel immigrants. Another advantage is that, under certain conditions, investigating the destination choices of those who relocate will not give biased results due to the selection of movers. To study how initial choices are made, I use a group of comparable immigrants arriving before the policy was implemented.

A common international experience is that immigrants are more concentrated to large cities than the native population. In 1997, 53 percent of the Swedish immigrant population lived in one of the country's three largest cities; for natives this figure was 35 percent. Similarly, in 1990, California, New York, Florida, and Texas hosted 63 percent of the foreign-born US population (Zavodny 1997), but only 31 percent of the overall population.

Summing up the US literature, Zavodny (1999) concludes that the most important factor determining the locational choices of new immigrants is the presence of earlier ones. Different studies come to different conclusions on whether labor market conditions (such as average wages and unemployment) affect where immigrants live. However, recent evidence, e.g. Borjas (1999a) and Jaeger (2000), more frequently indicate that labor market prospects do matter. Another hypothesis, presented in Borjas (1999b), is that the generosity of the local welfare system may affect the location choice. He supports this with evidence that immigrants are clustered in states with generous welfare systems, and argues that these states may work as "welfare magnets". Dodson (2001) finds that welfare generosity has an effect on immigrant inflow and that this effect is present for all admission categories. By contrast, Zavodny (1997) claims that the design of the welfare system shows no correlation with state immigration when the presence of earlier immigrants is controlled for. The US experience also shows that secondary migration goes in the direction of regions with already large immigrant populations (Belanger and Rogers, 1992). Nevertheless, Bartel (1989) finds that some groups, such as the highly educated, tend to

move to less ethnically concentrated areas compared to where they resided initially. Funkhouser (2000) finds that moves out of ethnically concentrated areas occur after many years in the host country.

The main results from this investigation are that substantial representation from the individual's birth country is an important factor both for decisions to relocate and location choice. People are also drawn to places with large overall immigrant populations; this factor seems to be even more important for subsequent choices. Local unemployment and other indicators on labor market prospects have an impact on the decisions. Most regional factors appear to affect initial and subsequent choices in similar ways—changes in preferences or available information do not seem to be major issues. There are, though, indications that refugee immigrants learn about local public services and consider this factor in secondary location decisions. There are also clear differences across groups in how the choices are made.

The rest of the paper is outlined as follows. Section two provides some detail about the implementation of the placement policy. Section three contains the empirical investigation. After a description of the data, I discuss how the placement policy can be used to solve methodological problems. The placement policy is then exploited in an analysis of the factors affecting the decision to relocate away from the initial place of residence. Finally, I study initial and subsequent location choices among refugee immigrants and make comparisons with other immigrants and natives. Concluding remarks follow in section 4.

2 The placement policy

Before 1985 a majority of refugee immigrants to Sweden were already in the country when they applied for asylum.[2] The usual procedure was for asylum seekers to remain in the municipality where they had applied, awaiting authorities' decisions. Thus, it was the task of the municipalities to assist the immigrants in finding a place to stay, and many immigrants stayed on in the first location after receiving a residence permit. Most applications for asylum were submitted in municipalities with large populations of previous immigrants, and

[2] Refugee centers were in place for quota refugees. The annual inflow of this group of immigrants was roughly constant during the 1980s; thus, its share of total immigration decreased as refugee immigration soared.

refugee immigration increased the concentration of the immigrant population to certain areas.

Partly because of complaints from municipalities taking a disproportionately large share of immigration, a new system was implemented in the beginning of 1985.[3] The idea was to distribute refugee immigrants over a larger number of municipalities, in order to get a more even distribution of the immigrant population and to facilitate integration. Smaller communities would in turn aid integration by making interaction between immigrants and natives possible. Initially, the aim was to arrange for reception in about 60 municipalities. However, because of rapidly increasing immigration, a much larger number became involved: in 1989, 277 of Sweden's 284 municipalities had an agreement with the Immigration Board to provide spots. The factors that initially were supposed to govern the placement—labor market and education opportunities—were to a large extent neglected in favor of housing availability.

Edin *et al*. (2000) describe in more detail how the system developed, and how it worked for people immigrating under it.[4] They reach three conclusions that are of importance for the design of this study. First, a vast majority of the refugee immigrants were included in the governmental placement program. Second, the placement policy was strictest between 1987 and 1989. During this period about 90 percent of the refugee immigrants were assigned to municipalities. Third, the policy was implemented in a way that can be interpreted as a natural experiment. The assignment of municipality appears to have been independent of unobserved individual characteristics, with little scope for most people to affect their initial location. Note, though, that after initial placement there were no restrictions on people's right to relocate. Leaving the assigned municipality only meant the loss of some activities granted in an introduction program, which lasted about 18 months.

Several Swedish studies document various aspects of the "Whole of Sweden strategy" (Andersson 1993, 1996, 1998; Borgegård *et al*. 1998; The Committee on Immigration Policy 1996; The Immigration Board 1997, 1998). A general conclusion is that the implementation of the policy increased the dispersion of immigrants in Sweden. Åslund (2000) concludes that, despite common percep-

[3] In practice, the new system came into effect during a trial period in the fall of 1984.
[4] Their description is partly based on interviews with officials of the Immigration Board. For an extensive description of the policy, and a survey of research related to it, see The Immigration Board (1997).

tions, there is only weak evidence on a boost in secondary migration stemming from the policy shift. The raw numbers of Table 1 support this claim. They indicate that secondary migration was high among those subjected to the policy, but it was almost as common among refugee immigrants who arrived prior to the policy. The table also suggests that recently arrived immigrants in general move more than natives. This is in line with the common finding that people who have moved once are likely to move again.

Table 1. Relocation within four years, percent.

	Refugee immigrants	Natives	OECD immigrants
Program 87/89	37.6	13.0	26.4
Pre-program 81/83	35.6	11.9	30.1
Difference 87/89–81/83	2.0	1.1	–3.7

Notes: Fraction relocating out of the initial municipality within four years after arrival. Relocation is defined as living in a different municipality four years after the initial observation. See section 3.1 for a description of the groups. "Natives" consist of random samples drawn in the 87/89 and 81/83 periods. The 81/83 cohorts of refugee immigrants have been re-weighted to conform to the region-of-origin distribution of the 87/89 cohorts.

Most refugee immigrants arriving before 1985 were free to choose their initial location. Those arriving under the program faced severe restrictions on their possibilities to choose for themselves, and were normally placed by Swedish authorities. In the next section, I exploit the differences between these regimes in the empirical investigation.

3 Empirical analysis

This section starts with a description of the sampling procedure and the data used in the study. I then outline the empirical strategy, and discuss the advantages of exploiting data from the placement policy and the conditions under which these advantages are present. This is followed by an examination of how individual and municipal factors affect the decision to leave the initial place of residence and what characterizes people's choices of destination, initially and in later stages.

3.1 Individual data

The main data source for this study is the longitudinal database LINDA, which is described in Edin and Fredriksson (2000). The database contains two representative samples of parts of the Swedish population: a population sample covering about 3 percent of the total Swedish population, and an immigrant sample with approximately 20 percent of the foreign-born population. This study uses data from both samples. The database consists of a combination of income tax registers, censuses and the Swedish population register. Data are available for all household members of people included in the samples, and the members of a household can be linked to each other.[5]

I use data for the immigrant cohorts of three years before the new policy was implemented (1981–1983), and for three years when the program was running (1987–1989). The reason for choosing the latter period is that, as discussed earlier, the proportion of immigrants actively placed in municipalities by authorities was at its highest during these years. 1984 is excluded from the first group because the program in practice started out during the fall of that year. I also use a random sample of natives (Swedish-born) from LINDA for each of the included years.

The registers contain no information on admission status for immigrants, i.e., whether the individual entered Sweden as a refugee is not known. To handle this I adopt the following procedure. As a proxy for refugee status, only immigrants from countries that were not members of the OECD in 1985 (with some additions and exclusions described in the appendix) are included in the primary sample. Refugee immigrants with a grown-up Swedish-born person or a previous immigrant in the household in their first year in Sweden are excluded from the sample. This is to exclude those who were tied to people already living in Sweden, and therefore would not be included in the Immigration Board's placement program. I include in the estimations individuals aged 18–55 at the time of arrival (sample year for natives).

The properties of the sample are shown in Table A1 in the appendix. The idea is to use the 81/83 cohorts for studying initial choices, and the program participants in the 87/89 cohorts for investigating secondary mobility and location choice. To be able to compare these groups, I require them to be similar in observed and unobserved characteristics. The maintained assumption is that

[5] The household definition available is the one used in the tax registers. This definition of a household identifies cohabiting couples without common children as separate households.

equality in observed characteristics means equality in unobserved ones. The fraction of female immigrants is slightly higher in the pre-program cohort, whereas the average age at immigration is about 30 in both cohorts. The fraction of people married is somewhat higher in the program cohort, and the married constitute a larger proportion among females than males in both groups. Regarding education eight years after arrival,[6] the two groups are a bit unevenly distributed over education categories. However, if we translate the figures into years of schooling, the difference in means between 87/89 and 81/83 is only 0.2 years. None of these differences cause great concern for the analysis.

What is potentially more troubling is the difference in region of origin. In the 81/83 cohorts, immigration from Eastern Europe makes up 37 percent of the inflow; in 87/89 this figure is 17 percent. The most marked increase over time comes from the Middle East, going from 23 to 46 percent of the total immigration.[7] I will therefore re-weight the 81/83 data so that they conform to the region-of-origin distribution of the 87/89 cohorts.[8]

3.2 Factors affecting location decisions—regional data

Regional characteristics have been collected from a large number of sources; see the appendix for a further description. Table 2 shows the municipal variables included in this investigation. The data are measured on an annual basis at the time of the individual's arrival.[9] A central finding in previous research on immigrant location is that people choose to live where there are others with the same ethnic background and a presence of other immigrant groups. Large cities are also attractive. Living close to people with the same ethnic and linguistic background may of course be valuable as such, but can also be a way of establishing oneself in the new country. A high share of immigrants could reflect that the community has experience in dealing with issues related to new immi-

[6] Measures of education are not available before 1990. For the 1981 cohort, I use the 1990 census information on education.

[7] Most of the immigration from Eastern Europe to Sweden in the early 1980s came from Poland; in the later years of that decade, the war between Iran and Iraq generated large immigration flows from the Middle East.

[8] The weight given to each observation in any region-of-origin group X equals: (fraction of 87/89 sample from X)/(fraction of 81/83 sample from X).

[9] Some variables are not available in all years. See the appendix for a closer description of the data.

grants, and/or an acceptance of foreign-born people leading to less risk of discrimination and alienation. I use three variables to study these factors: (i) the fraction of the municipal population made up by people from the individual's own birth country; (ii) the fraction of the population constituted by immigrants from other countries; (iii) the (log of the) size of the municipal population.

Another issue that has received much attention is the importance of labor market characteristics. This study uses the local unemployment rate and the average earnings among earners in the municipality as measures of general conditions in the labor market. To capture variations specific to immigrants, I use the fraction of working-age immigrants in the municipality that has a registered labor income.

The prevalence of social assistance recipients is a measure of the municipality's socioeconomic status. One could also argue that welfare-prone individuals could use it as an indicator of the availability of social assistance. The take-up rate for social assistance—the fraction of the population earning less than a certain amount that receives social assistance—is a more direct measure of the local welfare system's generosity.[10] People may also base location decisions on other aspects of the characteristics of the local public sector (see e.g. Dahlberg and Fredriksson 2001). The local tax rate and the size of per capita municipal spending are used to indicate such behavior. I also include a measure of the properties of the local housing market: the fraction of residents in the municipality who live in a dwelling over which they have some type of ownership.[11]

[10] I have also used an alternative measure of the welfare generosity. The issue is further discussed in the empirical analysis.
[11] In principle, this equals one minus the rental rate.

Table 2. Municipal variables, means, (std. dev.).

Variable	1981/83	1987/89
Ethnic concentration, (et/pop)*10^3	1.29	1.20
	(1.51)	(1.51)
Immigrant density, (im/pop) (%)	3.45	3.76
	(3.19)	(2.93)
Municipal population	29,848	30,401
	(51,762)	(53,201)
Municipal unemployment (%)	3.71	1.66
	(1.74)	(1.05)
ln (mean earnings)	11.08	11.60
	(0.10)	(0.09)
Immigrant employment (%)	87.06	82.74
	(7.91)	(5.75)
SA takers (%)	2.24	2.66
	(1.00)	(0.90)
SA take-up rate (%)	11.03	13.05
	(8.44)	(7.53)
ln (per capita municipal spending)	10.37	10.36
	(0.17)	(0.14)
Municipal tax rate (%)	16.28	16.51
	(1.72)	(1.76)
Fraction in resident-owned home (%)	76.95	76.95
	(13.56)	(13.56)
# municipalities	279	279

Notes: The variables are described in the appendix. "Municipal unemployment" and "SA take-up rate" are not available for 1981 and 1982; values from 1983 are used. "Fraction in resident-owned home" is based on the 1985 census; the same value is used for all years. The variables are weighted according to the sample size of each year within the 81/83 and the 87/89 cohorts respectively.

3.3 When does the placement policy solve methodological problems?

Most previous studies deal with immigrants' first choice of location in the host country. If we ignore (or include controls for) the fact that choosing some regions may cost more than choosing others, estimates from a standard choice model will reflect preferences in the group studied. When it comes to studying

location decisions in subsequent periods—secondary locations—there are methodological problems that may bias the results. This section discusses these problems, and under which conditions the placement policy can be used to handle them.

There are basically three alternatives for studying secondary location behavior: (i) find out which regions people tend to leave; (ii) investigate how the whole population of interest is distributed over regions after some time in the host country; (iii) study the destination choices of movers.

With the first approach, it is easy to see that estimations relying on data where people choose also their initial location can suffer from severe bias due to unobserved heterogeneity. There are two obvious ways that this problem could occur. The first one parallels the ability bias much studied in the schooling literature. Suppose people with high "innate" migration propensity initially tend to go to localities with, say, large populations. The result is that the estimate on population size will be positively biased.

The bias can also be a result of sorting. If the impact of a certain regional characteristic differs between individuals, and people act on these differences in initial location choices, we will normally be unable to estimate the average effect of this variable on the relocation probability.[12] If this is an important issue or not, can be examined with the data available in this study. The natural experiment character of the placement of the 87/89 cohorts yields data that are free from the type of correlation discussed here,[13] whereas it is a potential problem for the 81/83 cohorts.[14]

Other problems plague approaches (ii) and (iii) above. Here, the existence of relocation costs plays a central role. Without these costs, everybody will always be in optimum, and we should use alternative (ii) to get a correct picture

[12] See Card (1999) for a discussion of this type of problem in the schooling context.

[13] This topic is further discussed in Edin *et al*. (2000). Some people may have been more likely than others to affect their first location. This was the case for highly educated individuals, who were attractive to the municipalities, and for non-singles for whom it was easier to find housing. None of the investigations in the study indicate that this is a big problem for the interpretation of the placement policy as a natural experiment.

[14] In a maximum likelihood model with a discrete dependent variable, omitting a relevant variable (e.g. "innate mobility") may bias the estimates even if there is no correlation between the omitted variable and the included ones. Yatchew and Griliches (1985) find that in the binary probit model, the bias leads only to a rescaling of the estimate if there is no correlation; with correlation, it can switch the sign of the parameter estimate. Lee (1982) derives conditions under which the multinomial logit model gives unbiased estimates even if there is an omitted variable.

of the group's preferences. If there are relocation costs, neither the whole group nor the movers may give appropriate results. Those who stay may not have realized their preferred option, because the gains associated with doing so are lower than the costs of moving. The problem with movers is that their preferences may not be representative of the whole group. Assume, e.g., that the preference for living in large cities is correlated with the ability to make the right choice immediately. Studying choices only among those who relocate will then underestimate the average preference for large cities. Under certain conditions, using movers in cohorts arriving under the government placement policy solves this problem.

I will now use a little more structure to discuss when the placement policy can be useful for studying relocation decisions and destination choices of movers. Assume for simplicity that there are two regions—r_1 and r_2—and that r_1 contains a factor m that r_2 does not. We also assume that the preferences for m in the population of interest are such that a fraction α prefers r_1 and thereby $(1-\alpha)$ prefers r_2. The odds ratio $\alpha/(1-\alpha)$ therefore reflects preferences for r_1 relative to r_2. Assume also that the government puts a fraction β, $0 < \beta < 1$, of the population in r_1 and $(1-\beta)$ in r_2, without concern for individual preferences or characteristics.

Consider the decision to relocate. In the absence of relocation costs, we will observe that α of those located in r_2 will leave for r_1, and that $(1-\alpha)$ of those originally in r_2 will move in the opposite direction. The odds ratio for leaving r_2 compared to leaving r_1 will therefore be $\alpha/(1-\alpha)$; thus, it captures preferences in a correct way. Note that β is irrelevant to this result—it does not matter how the government disperses people.

Introducing relocation costs puts restrictions on the analysis. The basic requirement is that the fraction of potential movers that refrain from relocating because of the cost should be the same in both regions. The odds ratio is then unaffected by the presence of a cost for relocating. Several factors could violate this requirement. Suppose that the choice of preferred region is based on an underlying continuous utility function of the factor *m*, and that the relocation cost is constant across regions and individuals. The locked-in fraction will then normally differ across regions unless the utility function is symmetric with

mean zero; i.e., equal fractions prefer r_1 and r_2.[15] Studying relocations will normally also be misleading if the relocation cost is not constant, and is correlated with living in or having preferences for a particular region.

For the moment, assume that the process generating relocations does meet these requirements, so that the fractions moving out of r_2 and r_1 are α and $(1-\alpha)$ respectively.[16] The study of destination choices among movers is then complicated if the government to a larger extent puts people in regions of a certain type, i.e., if $\beta \neq 0.5$ in our example. The problem occurs because the distribution of destination choices depends on the number of moves to different regions, and not on the fraction of those located in one region that chooses to leave for another region.

The fraction of all immigrants relocating from r_2 to r_1 is $\alpha(1-\beta)$, and the fraction moving in the opposite direction is $(1-\alpha)\beta$. The fraction of all relocations going to r_1 is then

$$\frac{\alpha(1-\beta)}{(1-\alpha)\beta + \alpha(1-\beta)} \qquad (1)$$

If the destination choices correctly reflect preferences, this fraction should be equal to α. It is easy to verify that this is only true when $\beta = (1-\beta) = 0.5$ (unless α equals zero or one). However, we can use the initial placement pattern to see which way the bias goes. Whenever $\beta > 0.5$, we will underestimate the fraction that prefers r_1—the expression above will be smaller than α. Thus, if people were more often located in regions with a high value of the factor *m*, we will have a negative bias in the estimate of how *m* affects location choices.

Which implications do we get for the empirical analysis? The government placement helps by eliminating bias due to unobserved characteristics of the individuals. The analysis of relocation decisions then requires that, conditional on observed individual characteristics and all other regional variables, refraining from moving because of relocation costs is not correlated with living in or having preferences for one type of region.

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[15] Assume that people get utility γ_i from *m*, and that the relocation cost is *c*. The formal restriction is then $P(\gamma_i > c \mid \gamma_i > 0) = P(\gamma_i < -c \mid \gamma_i < 0)$.

[16] Obviously, it does not matter if the fractions instead are $k\alpha$ and $k(1-\alpha)$, where *k* is the fraction of potential movers who move also in the presence of a relocation cost.

Investigating subsequent location choices of movers initially placed by the government requires the same assumptions about relocation costs. To find out whether there is bias because the government aimed the placement at certain regions, I will estimate choice models for the initial location. A positive estimate on, e.g., local unemployment, can be interpreted as $\beta > 0.5$ for this factor; we then know that the parameter estimate for unemployment is negatively biased in the model for secondary location choice. I will return to this issue in the presentation of the results.

An alternative approach is to assume that relocation costs are small compared to the potential gains from relocating, and do not lock in prospective movers to any substantial extent. Under this assumption everybody should always be in optimum, and we could just look at the residential pattern of an immigrant cohort at different points in time, regardless of regime at arrival.

The initial locations of 81/83 immigrants will be used to study primary decisions of refugee immigrants. For secondary locations, my strategy is to both use measures that allow for relocation costs of a specific character, and measures that assume these costs to be negligible. Decisions to leave the initial location and destination choices of movers among program participants can then be compared with residential patterns among program participants and cohorts arriving prior to the policy change. If these different measures give consistent pictures of how regional factors affect location decisions, or differ in a way that can be explained through the methodological problems discussed here, it seems plausible that the estimates reflect preferences.

3.4 The decision to relocate

I now turn to the empirical investigation of how different factors affect the decision to relocate out of the initial place of residence. Table 3 below shows logit estimates for program participants' and previous immigrants' probability to relocate within four years after immigration.[17] I will first present the results

[17] Moulton (1990) shows how using aggregate explanatory variables on micro units in a linear regression may result in serious downward bias in the estimated standard errors of the regression coefficients. Stata, the software used, allows for relaxing the assumption of non-correlation of the disturbances within defined units. In our case, this means letting the data be clustered by municipality. This procedure does not change the parameter estimates, only their variance. It turns out that controlling for possible clustering changes the standard errors dramatically, decreasing the number of significant relations. To avoid excessive interpretations I report the clustered standard errors in the analysis of relocation decisions.

that utilize the placement policy, and then compare these with the potentially biased results for previous immigrants. The first column contains the results for a basic model for 87/89 immigrants; in the second column we find results from a model where an additional set of variables has been included. I start by presenting the basic model, and then proceed to the extended one.

Table 3. Relocation out of the initial municipality.

	87/89 immigrants		81/83 immigrants	
	Basic	Extended	Basic	Extended
Ethnic concentration	–.034**	–.040**	–.014	–.031**
	(.010)	(.009)	(.012)	(.009)
Immigrant density	–.021	.014	–.005	.036
	(.021)	(.023)	(.021)	(.030)
ln (mun population)	–.716**	–.645**	–.667**	–.721**
	(.134)	(.101)	(.121)	(.127)
Municipal unemployment	.162	.228*	–.054	.037
	(.083)	(.098)	(.088)	(.120)
ln (mean earnings)		1.241*		.747
		(.551)		(1.145)
Immigrant employment		–.077**		–.141**
		(.011)		(.035)
SA takers		–.091		–.163**
		(.076)		(.121)
SA take-up rate		–.111		.140
		(.486)		(.493)
ln (per capita mun spend)		–.040		–.071**
		(.032)		(.031)
Municipal tax rate		–.001		.013
		(.006)		(.019)
Fraction in resident-owned		–.002		–.010
		(.005)		(.007)

Continued on the next page.

Table 3 continued.

Female	–.355**	–.340**	–.805**	–.748**
	(.081)	(.082)	(.214)	(.220)
Age	–.005	–.008	.093*	.065
	(.019)	(.019)	(.046)	(.045)
Age squared $*10^{-2}$	–.025	–.025	–.165*	–.128
	(.027)	(.028)	(.072)	(.071)
Married	–.291**	–.252**	–.536**	–.464**
	(.064)	(.064)	(.157)	(.152)
Married*female	.068	.039	.375	.312
	(.100)	(.101)	(.235)	(.235)
Region of origin (E Eur ref.)				
Africa	.404*	.304	.526**	.439*
	(.160)	(.164)	(.178)	(.184)
Middle East	.554**	.471**	.311	.255
	(.134)	(.133)	(.191)	(.168)
Asia	–.265*	–.302*	.349	.201
	(.123)	(.120)	(.224)	(.182)
South America	–.386**	–.411**	.324	.290
	(.109)	(.103)	(.211)	(.184)
# individuals	10,456	10,456	2,718	2,718
Pseudo R-squared	.18	.19	.13	.15

Notes: Parameter estimates from logit specifications, robust standard errors (clustered by municipality) in parentheses. The dependent variable equals one if the individual does not live in the initial municipality four years after immigration. Municipal variables described in the appendix. Note that the estimates in the 81/83 group suffer from endogeneity bias; the results for the 87/89 group are more correct. The 81/83 cohorts are weighted to conform to the region-of-origin distribution of the 87/89 cohorts. * (**) denotes significance at the 5 (1)-percent level. Pseudo R-squared = 1–L1/L0, where L1 is the log-likelihood of the presented model and L0 is the log-likelihood of a model with only a constant included.

Starting with individual characteristics in the first column of Table 3, we find that females are about 20 percent less likely than males to move. Being married decreases the relocation probability, but there is no interaction effect between gender and marital status. Both the linear and the quadratic term in the standard age profile are insignificant, but suggest that the migration probability decreases somewhat as age increases. Excluding the quadratic term yields a significant estimate for the linear variable, with approximately 5 percentage points lower probability for every 10 years (in both specifications).

The estimations suggest that region of origin is an important determinant of migration propensities. People from Africa and the Middle East are most mobile, whereas those from Asia and South America appear to be less likely to move. The effects are quite sizable: the parameters e.g. suggest that Africans

have 30 percent higher migration probability than Eastern Europeans, and that immigrants from the Middle East are almost twice as likely to move compared to South Americans.

The basic setup contains the three variables related to municipal population composition discussed in 3.2. The first population variable is the fraction of the municipal population made up by people from the individual's own ethnic group, defined by country of birth.[18] As expected, the larger this fraction, the lower the probability to leave. The estimates point at a 10 percent decrease in the probability following a standard deviation[19] increase in the variable. This finding matches the American research in this field; see e.g. Bartel (1989). The second population variable—the overall share of immigrants in the municipality—gives results that are insignificant in the clustered specifications.

Third, the log of municipal population is included. We find that the effect is negative, highly significant, and of sizable magnitude: the probability of leaving a municipality with 60,000 residents is about 15 percentage points lower than leaving one with 22,000 people. Some of this is just a mechanical consequence of the employed definition of relocation; also when randomly changing place of residence, the chance that this will involve crossing a municipality border is higher if you start in a small locality.

For examining whether immigrants consider labor market opportunities when making their location decisions, I follow the standard approach of including local unemployment in the model (see e.g. Bartel 1989; Zavodny 1997, 1999; Jaeger 2000). The results suggest that high unemployment may be associated with an increased probability of leaving the municipality. The parameter estimate implies a probability rise of about 9 percent for a standard deviation increase in unemployment.

All findings for municipal variables are in line with expectations, and are robust to specification variations. These include models with dummies for counties or county-blocks[20]. The inclusion of education (measured eight years after arrival) among the regressors does not change the results in any substantial way. In accordance with previous studies, I find that mobility increases

[18] People in our sample are identified on the basis of country of birth. Population data from Statistics Sweden give the number of foreign citizens by nationality (see description in appendix).
[19] This refers to a standard deviation in the variable in the sample of individuals; i.e., the variable is population weighted. Cf. the municipality weighted figures of Table 2.
[20] This geographic grouping divides Sweden's 24 counties (using the pre-1997 definition) into eight blocks.

with education.[21] To check the possibility that the specification is not flexible enough for the population variables, I have experimented with squares of the variables and entering the size of the ethnic group and immigrant population directly rather than as a fraction of the total population. The alternatives for specifying the model confirm the qualitative aspects of the results from the original model.

It is conceivable that the effects of local characteristics vary between groups. I have therefore tested specifications where the parameters are allowed to vary by region of origin and level of education respectively (estimates not shown). There is a slight suggestion that the presence of people from one's own country is more important for people in the lower education categories. This is consistent with Bartel's (1989) finding that people with higher education are more geographically dispersed. The results also suggest that the influence of local characteristics may vary by region of origin, but there is no clear-cut pattern in the findings. The estimated effect of people from one's own birth country is largest for Asians, whereas people from the Middle East and South Americans appear to be the most sensitive to local unemployment.

I now proceed to the results for the extended model of column two in Table 3. The first addition is to include a richer parameterization of local labor market properties. According to the estimate, high average earnings among workers in the municipality increase the probability to leave. This is counterintuitive, but we should keep in mind that this effect is conditional on other labor market variables. One possible explanation is that the estimate captures a socioeconomic sorting effect, i.e., refugee immigrants tend to choose less wealthy areas. The other added labor market characteristic gives an expected result: high employment among immigrants in the municipality decreases the probability to leave.

Some researchers, e.g. Borjas (1999b) and Dodson (2001), claim that immigrants respond to the generosity of the local welfare system in their location decisions. Another literature examines how local public services affect community choice (Quigley 1985, Nechyba and Strauss 1998, Dahlberg and Fredriksson 2001). To examine these points in the context of immigrants to

[21] An important caveat, and one reason for excluding education from the basic model, is that the causality may be reversed here. People may move in order to study and then fall in a highly educated category. Since education is measured after arrival, this may be the correlation we observe. However, the pattern remains if the sample is restricted to people over 25 years of age at arrival, who are likely to have completed their studies before immigrating to Sweden.

Sweden, I have included an additional set of municipality variables. Consider first per capita municipal spending and the municipal tax rate. Refugee immigrants on average have earnings below the mean, and would therefore benefit from living in a municipality with a large public sector. We expect a negative sign on the estimate for municipal spending, and conditional on spending, a positive effect of the tax rate. As shown, neither of the variables yields a significant estimate.

The prevalence of social assistance receipt is a measure of the socioeconomic status of the municipality.[22] Immigrants in our sample have a poor position on the labor market. Whether they are drawn to or deterred from places with low economic status because of this is hard to decide. On the one hand, it may be easier to live among people with similar economic status, but on the other, improving one's economic position may be easier in a wealthier surrounding. The parameter estimate is insignificant.

Conditions for reception of social assistance are a result of actual implementation of regulations. Ideally, we would want a measure of how each municipality treats applicants in different income categories. In the absence of such a measure, I use the take-up rate for social assistance, measured as the fraction of single-person households with earnings below one base amount receiving social assistance. The point estimate is insignificant. I have also used the municipal social assistance norm (estimation not in table), which is the annual amount that a person is entitled to for costs of food and other household expenses (excluding housing). The municipalities determine this amount individually.[23] The results obtained here do not indicate that people are more likely to remain where the take-up rate is high or the norm is generous.

The last added variable reflects properties of the local housing market. There is no evidence here that the share of rentals/resident-owned homes in the municipality matters for the relocation decision. Finally, note that the results for the population variables are robust to the addition of these variables. Also, the inclusion of them makes the positive effect from unemployment on the relocation probability stronger.

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[22] As mentioned above, it can also be seen as a crude indicator on welfare generosity. I will return to this in the analysis of location choices.

[23] In short, the problems with these variables are as follows. The fraction of eligible people that applies for social assistance may vary between municipalities; take-up rates could therefore reflect properties of the population rather than strictness of regulations. The information value of the norm may not be very high if actual implementation deviates from formal regulations.

The results of this section show that the probability of relocating varies with individual characteristics. Region of origin seems particularly important, with some groups being twice as mobile as others. The municipal characteristics that have the statistically most robust influence in triggering relocation are the presence of people from the individual's birth country and the size of the population. Recent immigrants tend to leave small municipalities, and ones where there are few fellow countrymen. Bad labor markets prospects also make outmigration more likely.

Differences in the estimates between the 81/83 and 87/89 cohorts

We now go on to compare the estimates for the 87/89 and the 81/83 immigrant cohorts. The comparison between the two immigrant groups hinges on the assumption that had the government also placed the 81/83 cohorts the estimates would have been the same.[24] It is clear from Table 3 that the point estimates for the municipal variables vary substantially between the two regimes.[25] For the 81/83 group, the only population variable with a parameter of any significance in the basic specification (column three) is the log of population; neither the fraction one's own birth country, nor the overall immigrant density seem to matter.[26] The sign of the estimates for municipal unemployment is the opposite, indicating an insignificant negative correlation between the level of unemployment and relocation. With the richer parameterization of the extended model (column four), the estimate on ethnic concentration becomes negative and significant, but unemployment does not show any significant effect.

The conclusion is that using data from a regime where individuals choose the initial place of residence to study factors triggering secondary migration may be misleading regarding the importance of municipal variables. This could be one reason for the insignificance of local characteristics found in some empirical studies (e.g. Widerstedt, 1998).

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[24] Note that the estimates for some individual characteristics differ substantially. A potential explanation is that certain variables are correlated with the ability to make an optimal choice initially (or having preferences that are stable over time), which would make the estimates for the 81/83 cohorts misleading.

[25] Pooling the two immigrant groups and estimating the basic model with all variables interacted by cohort, shows that the difference in the estimates is statistically strongest for unemployment (P = .01).

[26] The lower significance could be a result of the much smaller number of observations, but the point estimates are also substantially lower.

3.5 The choice of destination

In the preceding section we found that some municipal characteristics influenced the decision to leave the initial place of residence. With the same reasoning, these factors should also have an effect on the initial and secondary destination choices.[27] In this section I primarily use 81/83 immigrants to study what influences initial choices, and 87/89 program participants to investigate secondary choices.

To analyze location choices, I estimate specifications of McFadden's choice model. Which geographic level that is most appropriate is something of an open question. A very low level, e.g. neighborhoods, could be what people actually choose, but leads to computational problems. Also, the number of alternatives becomes so big that the model is unrealistic from a theoretical point of view. Large regions will have problems with within-region variation in the examined variables. Primarily, I use municipalities as the geographic unit, but I will use county and labor market region estimations to check the robustness of the results.

The probabilities in McFadden's choice model are given by

$$P_{ij} = \frac{\exp(\boldsymbol{\gamma}' \mathbf{Z_j})}{\sum_j \exp(\boldsymbol{\gamma}' \mathbf{Z_j})} \qquad (2)$$

where P_{ij} is the probability that individual i chooses region $j = 1,..., J$. $\mathbf{Z_j}$ is a vector of regional characteristics, and since $\boldsymbol{\gamma}$ is common to all regions, all individual characteristics cancel out of the expression. Differences in choice behavior with respect to individual variables are therefore investigated by estimations on subsamples.

Table 4 shows results from conditional logit estimations of destination choices. The variables are measured at time t – the year of immigration. To interpret the results, note that

[27] It is intuitively appealing to think that local factors triggering relocations should have an opposite effect on the probability to choose a new place of residence. However, there is a caveat to this idea. Assume that there are two types of regions, one with high x and one with low. Suppose that most immigrants choose (or are assigned to) a high x, so that x affects the choice probability. If there is little variation in x in the regions chosen, x may not be related to the probability of relocating, even though it affects destination choices.

$$\frac{\partial P_{ij}}{\partial Z_j} = P_{ij}(1 - P_{ij})\gamma \qquad (3)$$

If we are interested in the relative change in P_{ij} implied by a one-unit change in Z_j, we need to multiply the coefficients by $(1 - P_{ij})$. Needless to say, this correction becomes more important the larger P_{ij} (cf. the binary model above). It does not make much difference when we are looking at average effects, since the average probability is about 0.004; in principle we can interpret the estimates as percent changes in the probability following a one-unit change in the explanatory variable.[28]

The structure of Table 4 below is as follows. The first column shows estimates for initial location choices of the 81/83 cohorts, who were not affected by the placement policy. The second column shows estimates for the secondary choices of the 87/89 cohorts—program participants. The third column displays the signs of the biases of the estimates in the second column. I retrieved the signs of the biases by estimating a model for initial location of the 87/89 cohorts (the estimates are displayed in Table A2). As discussed in section 3.3, a positive (negative) estimate in the model for initial placement yields a negative (positive) bias in the model for secondary locations.

[28] In the sample of 81/83 immigrants, 21 percent initially chose the municipality of Stockholm, 8 Göteborg, and 7 Malmö. Among movers in the 87/89 cohorts, the corresponding figures were 14, 13, and 7 four years after immigration. Throughout, I discuss average effects.

Table 4. Choice of municipality at immigration and in subsequent periods.

	Initial, 81/83 cohorts	T+4, movers in 87/89 cohorts	Bias
Ethnic concentration	.084**	.078**	–
	(.004)	(.004)	
Immigrant density	.038**	.061**	–
	(.007)	(.006)	
ln (municipal population)	1.104**	1.104**	+[1]
	(.031)	(.027)	
Municipal unemployment	–.217**	–.113**	+
	(.026)	(.034)	
ln (mean earnings)	3.151**	.819*	–
	(.423)	(.322)	
Immigrant employment	–.106**	.018**	+
	(.008)	(.006)	
SA takers	.355**	.134**	–
	(.031)	(.028)	
SA take-up rate	.002	.003	0
	(.003)	(.003)	
Municipal tax rate	.000	.024**	0 (+)
	(.008)	(.006)	
ln (per capita mun spending)	–.015	–.017	–
	(.216)	(.193)	
Fraction in resident-owned home	.004	–.003	+
	(.002)	(.002)	
# individuals	2,810	3,928	
Pseudo R-squared	.36	.27	

Notes: Estimates from conditional logit models, 279 alternatives for each individual. Regional variables described in the appendix. "Bias" gives the sign of the bias in the estimates for the 87/89 cohorts. This is based on the initial location pattern of this cohort, presented in Table A2. A positive (negative) estimate in the model for initial locations yields a negative (positive) bias in the model for secondary locations. The 81/83 cohorts are weighted to conform to the region-of-origin distribution of the 87/89 cohorts.

[1] If placement/choice is random with respect to population size, the estimate on the log of population should be one. Since it is less than one for the initial location of the 87/89 cohorts (Table A2), the placement policy was targeted at small municipalities. People with preferences for large cities were then more likely to relocate. * (**) denotes significance at the 5 (1)-percent level. Pseudo R-squared = 1–L1/L0, where L1 is the log-likelihood of the presented model and L0 is the log-likelihood of a model with only a constant included.

Consider first the estimates for initial choices in the 81/83 cohorts. Just as we would expect, a large fraction of people from the individual's birth country increases the probability of choosing a particular region. The estimates imply that if ethnic concentration rises by 0.1 percentage points, the probability increases by about eight percent. Consistent with previous research, large overall immigrant populations are also attractive: if immigrant representation increases by one percent, the choice probability goes up by almost four percent. If immigrants chose to distribute themselves in accordance with the rest of the population, the estimate for the log of population would be one. Here, the point estimate suggests that a one-percent increase in the size of the municipal population raises the probability with more than one percent, which would indicate that people are attracted to large municipalities.

High unemployment decreases the probability of choosing a municipality: the choice probability falls more than 20 percent for each percentage point. Conditional on other characteristics, immigrants also choose high-earning municipalities initially, which is at odds with the results in Table 3. Surprisingly, the immigrant employment variable yields a significantly negative estimate; it is hard to find an intuition for this result.

I also find that other variables that were not related to the relocation decision affect the choice of destination. Immigrants in our sample choose municipalities where there are many social assistance recipients. If the ratio of social assistance households to the overall population increases by one percentage point (about a standard deviation in the variable), we get a more than 30 percent higher choice probability. The fact that the variable seems to affect location choice but not decisions to relocate could indicate that immigrants face restrictions in their choice sets. As discussed above, this effect may also reflect a preference for living among others in the same economic circumstances, or be a sign on welfare seeking. Note, though, that the estimate on the social assistance take-up rate is insignificant.

Properties of local housing markets may be of greater importance for the destination choice than for the relocation decision, since everybody has a place to stay before they relocate. However, the fraction of people living in dwellings owned by themselves does not have any effect on the initial choice of location. The estimates for municipal spending and the local tax rate are both insignificant. Thus, initial choices do not seem to be guided by consideration of local public services.

Let us now turn to the destination choices among movers in the 87/89 cohorts; the second column of Table 4 gives the results. Remember from section 3.3 that under certain assumptions about relocation costs, this group's choices can be used to investigate preferences. We should also bear in mind the bias that occurs if the initial placement was targeted at some types of regions

The most interesting question is if there are differences between initial and subsequent choices. Ethnic concentration appears to be equally important in later stages; the estimate is slightly smaller but has a negative bias. Overall immigrant density even has a larger effect for the secondary choice, especially considering the negative bias. This result is interesting, since it suggests that the immigrant population will become more geographically concentrated over time. It also goes against the view that individuals tend to opt for less immigrant dense regions after some time in the host country. The estimate on population size is larger than one, but since the placement was targeted at small municipalities, it may not be safe to conclude that big cities attract movers.

Considering the sign of the biases, it seems that unemployment and mean earnings play similar roles in the initial and later stages. Immigrant employment yields a positive estimate, but its bias is also positive. It is not clear whether and how this factor affects decisions in any stage.

In general, knowledge on differences in local welfare systems and public services should improve with time in the host country. I find that locations with many welfare recipients are popular also among movers, and that there is no effect of the take-up rate. The positive estimate on the tax rate is interesting but somewhat surprising. One interpretation is that both this variable and the municipal spending capture the same phenomenon: a large local public sector.[29] This hypothesis is supported by the fact that spending yields a significant estimate if the tax rate is excluded (and so does the tax rate if spending is left out). There are at least two reasons why this sample of immigrants might prefer substantial public sectors. First, as already mentioned, they are in the lower part of the income distribution, and would therefore benefit from local redistribution via taxes. Second, they may value certain public services that are more likely to be available in locations with large public sectors, such as training in the home language for children.

[29] Indeed, if the local tax base was identical across municipalities, and if the government had to spend exactly the taxes raised in each period, the tax rate and the per capita public spending could not be identified separately.

The findings of this section indicate that the regional factors with the strongest impact on the initial location choice also guide secondary choices. Proximity to people from one's own birth country and overall immigrant density are important, as are general labor market properties. The most robust difference between initial and secondary choices is that the importance of other immigrants appears to increase with time in Sweden. There are also indications that local public services are more important in later stages than initially, which could be explained by imperfect information at the time of immigration.

3.6 Variations on location choice

This section performs a sensitivity analysis for the findings of section 3.5 and investigates whether location choices differ between different immigrant groups and natives.

Sensitivity analysis

To check the robustness of the results, I first use the residential pattern in the whole group rather than looking at movers only, and also check whether using location at a later point in time matters for the results. Second, I discuss some further variations on the above specifications. Third, I check if the results change when the unit of choice is labor market regions or counties instead of municipalities.

As discussed in section 3.3, it is not clear whether one should use destination choices of movers or the residential pattern of the whole sample in the analysis. Table A2 shows estimations for the initial location, and locations for movers and the whole sample four and eight years after arrival in the 81/83 and 87/89 cohorts. The qualitative aspects of the results for the population variables, local unemployment, and average earnings appear to hold across cohorts, groups and time periods.

The tendency to choose locations with substantial shares of welfare recipients also holds in all specifications. However, there is a discrepancy between the cohorts in the effect of the SA take-up rate: among 81/83 immigrants it has a significantly positive effect in secondary periods, whereas the estimate is close to zero in the 87/89 cohorts. The results presented in the table also strengthen impression that the local tax rate has a positive effect on secondary

choice probabilities. There is also an indication that movers go to locations with substantial fractions of rentals in the housing market.[30]

Let me now turn to some variations on the specifications of Table 4. A first possibility is that people are more likely to move to locations close to the original one. This could either be a result of better information about closer alternatives, or a higher relocation cost for long-distance moves. I have checked this by including a measure of the distance between the initial municipality of residence and the choice alternative. I have also included a dummy variable for all alternatives that are located in the same county as the initial municipality. Furthermore, people may have regional preferences that are not based on any of the included variables. I have therefore also added county-block dummies to the models for initial location choice and movers' destinations. Even though these variables enter significantly, indicating that people are less likely to move long distances and much more likely to choose an alternative within their original county, most results hold under these variations.[31] It should be pointed out, however, that the estimated effect of the tax rate becomes negative if county-block dummies are included. One should therefore be cautious in the interpretation of the results for this variable.

We now continue to the examination of alternative geographic units. Sweden consists of 24 counties, and is also divided into 111 labor market regions.[32] I have estimated choice equations where population variables and labor market characteristics based on these regions are included. Most results hold, but the effect of average earnings becomes negative in some specifications.

Do location choices differ between groups?

It is likely that certain factors affect some groups more than others. I have therefore estimated the model of Table 4 on samples divided by gender, education level, and region of origin respectively (the estimates are not shown). Interestingly, and perhaps somewhat surprisingly, I find that female movers are more affected by local unemployment when choosing their destination. The es-

[30] Raw means of the variable show the same thing. The average native in our sample lived in a municipality with 68 percent resident-owned homes in 1985. Among movers in the 87/89 refugee cohorts the figure was 59 percent, whereas the average value for native movers was 69 percent.
[31] The average earnings variable looses its significance (z-value around 1.6) when the distance variable and the "same county" variable are added.
[32] Using the pre-1997 definition of counties and 1992 classification of labor market regions.

timates on the fraction in resident-owned homes signal that men drive the increased probability of going to places with high shares of rentals.

The criterion for falling in the high-educated group is that the individual has at least some post-high school education (more than 12 years of schooling) eight years after immigration. Bartel (1989) finds that more educated immigrants in the US are less concentrated to certain regions, and less dependent on ethnic ties in their location decisions. This is not confirmed in these estimations (in contrast to the results for the relocation decision). The estimates on the ethnic group variable are actually larger for the highly educated. I also find that unemployment affects those with less education more, whereas the highly educated are more likely to choose places with high average earnings, which is an expected result. There are no indications that people with little education are drawn to large public sectors or generous welfare systems to a larger extent than the highly educated.

When the samples are split according to region of origin, it seems that the population variables have qualitatively similar impacts, but that there are differences in the magnitudes of the effects. Asians appear to be unaffected by labor market characteristics,[33] and people from Africa and the Middle East drive the positive effect of high tax rates. Opposite to other groups, Eastern Europeans are more likely to choose municipalities with many resident-owned homes.

The next issue is whether location choice differs between refugees, OECD migrants and natives? Table 5 shows estimations of the extended specification for the two latter groups. The table shows estimates for (i) location choices among native movers sampled in 87/89, (ii) the initial location of the 81/83 cohorts of OECD migrants, and (iii) location choices among movers in the 87/89 cohorts of OECD migrants; the results are thereby comparable with the ones presented in Table 4. Note, though, that we do not have the benefit of the natural experiment in the analysis of these movers.

It seems that OECD migrants are drawn to places where there are people from their own country, but not necessarily a large overall immigrant population. Contrary to refugee immigrants, none of these groups appear to be attracted to large municipalities *per se*. The results for labor market variables among OECD migrants are similar to the ones for refugee immigrants. For na-

[33] The estimate on the unemployment variable is close to zero for individuals from the Middle East, which contrasts to the finding for the relocation decision, where this group was among the ones most affected by this factor.

tives, the estimates suggest that earnings levels have a strong impact on movers, but local unemployment shows no effect.

OECD migrants are similar to refugee immigrants in the sense that both groups move to places with a high share of rentals, although the effect is statistically stronger for OECD migrants. Neither of the local public sector variables (tax rate and spending) enters significantly in Table 5. This is consistent with the above-mentioned explanation that refugee immigrants may have more to gain from public spending than others, given their overall weaker earnings position. Frequent welfare receipt attracts also OECD migrants, but the SA take-up rate yields a significantly negative estimate both for this group and for natives.

Table 5. Natives' and OECD migrants' location choices.

	Natives	OECD migrants	
	87/89, movers	81/83, all	87/89, movers
Ethnic concentration		.025**	.025**
		(.001)	(.001)
Immigrant density	–.022	.012	.010
	(.015)	(.009)	(.014)
ln (municipal population)	.977**	1.019**	.884**
	(.050)	(.032)	(.045)
Municipal unemployment	–.002	–.167**	–.255**
	(.051)	(.022)	(.054)
ln (mean earnings)	2.631**	1.905**	2.141**
	(.505)	(.385)	(.477)
Immigrant employment	.012	–.053**	.009
	(.009)	(.008)	(.009)
SA takers	.065	.079*	.161**
	(.055)	(.031)	(.051)
SA take-up rate	–.015**	.000	–.020**
	(.005)	(.003)	(.005)
Municipal tax rate	–.011	.013	.001
	(.013)	(.008)	(.012)
ln (per capita mun spending)	–.372	.151	–.177
	(.332)	(.209)	(.322)
Fraction in res-owned home	–.005	–.011**	–.008**
	(.003)	(.002)	(.003)
# individuals	1,005	2,440	1,166
Pseudo R-squared	.12	.26	.16

Notes: Estimates from conditional logit models for choice of municipality, 279 alternatives. Regional variables are described in the appendix. * (**) denotes significance at the 5 (1)-percent level. Pseudo R-squared = 1–L1/L0, where L1 is the log-likelihood of the presented model and L0 is the log-likelihood of a model with only a constant included.

4 Concluding remarks

The empirical investigation performed in this paper has focused on three issues: (i) how do regional factors affect location decisions among immigrants to Sweden; (ii) do these effects differ between initial and subsequent periods; (iii)

do the effects differ across groups. To answer these questions I have utilized a unique natural experiment and used longitudinal data where different groups and cohorts can be tracked over time.

Population composition plays an important role in residential decisions among the immigrants studied. They leave locations with small populations, and are attracted to large municipalities. The presence of people from one's birth country is important for the choice of initial location, the decision to leave it, and for choosing a new one. A large overall immigrant population is also attractive in location choices, even more so in secondary decisions. By and large, these findings conform to results from the US.

The results for other municipal characteristics contain some optimistic messages. Immigrants are affected by labor market prospects. They leave localities with high overall unemployment, and move to municipalities with low unemployment rates and high average earnings, given their other characteristics. Labor market prospects and population composition appear to have similar effects initially and in later stages.

Furthermore, I find that immigrants choose municipalities where welfare receipt is prevalent. Whether this reflects restrictions on choice opportunities, socioeconomic sorting (i.e. preferences for living with people in similar circumstances), or welfare seeking is hard to tell. There are also indications that refugees learn about the availability of local public services and, unlike economic immigrants, base secondary location choices on this factor.

One conclusion from this paper is that regions that today have large immigrant populations can expect high levels of immigration in the future, and also a larger immigrant representation in the longer run. It is also probable that the future immigrants to a large extent will come from the same countries as the present ones. Public decision makers can also expect immigrants to consider labor market opportunities in their choices. This can be valuable information for the design of future social policies in Sweden and elsewhere.

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Appendix

A1: Countries excluded

The following countries that were members of the OECD in 1985 were excluded from the sample of refugee immigrants used in this study:

Austria	Italy
Australia	Japan
Belgium	Luxembourg
Canada	The Netherlands
Denmark	New Zealand
Finland	Norway
France	Portugal
Germany (West)	Spain
Greece	Switzerland
Iceland	United Kingdom
Ireland	United States

Turkey was also a member in 1985, but was still included because of the large inflow of refugee immigrants from Turkey to Sweden during the observation period.

A number of small European countries were also excluded:

Andorra
Cyprus
Liechtenstein
Malta
Monaco
San Marino
The Vatican

A2: Data and tables

Description of municipal variables

- Population (Pop)	# people living in the geographic unit. (Source: Statistics Sweden.)
- Ethnic group (Et)	# people with citizenship in the same country as the individual was born in within the geographic unit. (Statistics Sweden.)
- Immigrants (Im)	# foreign citizens – Et. (Statistics Sweden.)
- Unemployment	Mean number of unemployed / population age 16–64. (The National Labour Market Board (AMS).)
- Average earnings	Average annual earnings for earners, age 18–64. (LINDA.)
- Average im earnings	Average annual earnings for the stock of the foreign-born, age 18–64, including zeros (SEK). (LINDA.)
- Fraction im earners	Fraction of the foreign-born, 18–64, with above zero earnings. (LINDA.)
- SA takers	# households receiving social assistance (annually) / Pop. (Statistics Sweden.)
- SA take-up rate	Fraction of municipal population with earnings less than one base amount receiving SA (of those aged 18–64 in single-person households not receiving study allowances). (LINDA.)
- SA norm	The annual amount that people are entitled to for coverage of food and other household expenses (excluding housing). Varies by year and municipality. (Statistics Sweden, "Statistiska meddelanden".)
- Municipal spending	Total municipal spending (1000 SEK) / Pop. (Statistics Sweden.)
- Tax rate	Municipal tax rate (percent). (Statistics Sweden.)
- Fraction in resident-owned home	The fraction of people in the municipality living in a house or apartment of which they have some type of ownership. (LINDA, 1985 census.)
- Municipal distances	Geographic distance between the initial municipality and the choice alternative (used in destination choice estimations). (Department of Social and Economic Geography, Uppsala University.)

Notes: Source is for raw data; most measures are derived from further calculations.

Table A1. Sample properties, means, (std dev).

	Refugees		Natives		OECD migrants	
Variable	81/83	87/89	81/83	87/89	81/83	87/89
Female	.47	.44	.48	.49	.51	.44
Age (at immigration)	29.56	30.18	35.30	35.64	29.31	29.97
Std dev. (age)	(8.46)	(8.34)	(10.66)	(10.63)	(8.80)	(8.89)
Married (at immigration)	.55	.60	.51	.45	.37	.34
Married*female	.30	.32	.26	.24	.19	.16
Region of origin						
Nordic					.64	.67
Western Europe					.29	.24
Eastern Europe	.37	.17				
Africa	.09	.12				
Middle East	.23	.46				
Asia	.14	.08			.01	.01
North America					.05	.07
South America	.16	.16				
Oceania					.01	.02
Education						
<9, missing	.26	.21	.23	.13	.26	.20
9–10 years	.11	.19	.13	.12	.12	.19
High school ≤2	.29	.17	.30	.35	.24	.21
High school >2	.13	.18	.10	.13	.13	.14
University <3	.10	.13	.12	.14	.11	.12
University ≥3	.11	.11	.12	.13	.14	.14
# individuals	2,810	10,674	7,303	7,818	2,440	4,990
# individuals education	2,694	9,982	7,144	7,660	2,011	3,873

Notes: All variables except education measured at the time of immigration (sampling for natives). Education shows fractions in each education category, measured eight years after immigration (sample year for natives). The 1981 cohort uses education measured in 1990.

Table A2a. Initial and subsequent location choices, 81/83 cohorts.

	Initial	T+4		T+8	
	All	Movers	All	Movers	All
Ethnic concentration.	.084	.059	.070	.038	.064
	(.004)	(.009)	(.004)	(.009)	(.004)
Immigrant density	.038	.020	.018	.027	.021
	(.007)	(.012)	(.008)	(.011)	(.008)
ln (regional population)	1.104	.924	1.152	.914	1.129
	(.031)	(.047)	(.033)	(.044)	(.032)
Unemployment	–.217	–.154	–.262	–.222	–.281
	(.026)	(.049)	(.030)	(.045)	(.030)
Ln (mean earnings)	3.151	4.447	2.389	3.529	2.369
	(.423)	(.739)	(.471)	(.646)	(.462)
Immigrant employment	–.106	–.002	–.027	.001	–.029
	(.008)	(.017)	(.011)	(.015)	(.010)
SA takers	.355	.189	.341	.154	.326
	(.031)	(.051)	(.032)	(.048)	(.032)
SA take-up rate	.002	.037	.017	.036	.018
	(.003)	(.006)	(.003)	(.005)	(.003)
Municipal tax rate	.000	.028	.020	.016	.019
	(.008)	(.014)	(.008)	(.013)	(.008)
ln (per capita mun spending)	–.015	–.636	.039	–.327	.027
	(.216)	(.376)	(.232)	(.338)	(.230)
Resident-owned homes	.004	–.022	–.001	–.017	–.001
	(.002)	(.003)	(.002)	(.003)	(.002)
# individuals	2,810	934	2,718	1,086	2,694
Pseudo R-sq	0.36	0.35	0.40	0.32	0.39

Notes: See Table A2b.

Table A2b. Initial and subsequent location choices, 87/89 cohorts.

	Initial	T+4		T+8	
	All	Movers	All	Movers	All
Ethnic concentration.	.125	.078	.106	.081	.103
	(.002)	(.004)	(.002)	(.004)	(.002)
Immigrant density	.019	.061	.034	.065	.040
	(.004)	(.006)	(.004)	(.006)	(.004)
ln (regional population)	.896	1.104	1.099	1.090	1.112
	(.015)	(.027)	(.016)	(.024)	(.017)
Unemployment	–.099	–.113	–.191	–.126	–.183
	(.017)	(.034)	(.022)	(.034)	(.023)
Ln (mean earnings)	1.094	.819	.712	2.073	1.403
	(.179)	(.322)	(.197)	(.300)	(.205)
Immigrant employment	–.057	.018	–.005	.013	–.004
	(.002)	(.006)	(.003)	(.006)	(.004)
SA takers	.068	.134	.128	.139	.132
	(.015)	(.028)	(.017)	(.026)	(.017)
SA take-up rate	.002	.003	.003	.000	.002
	(.002)	(.003)	(.002)	(.003)	(.002)
Municipal tax rate	–.009	.024	.013	.027	.017
	(.004)	(.006)	(.004)	(.005)	(.004)
ln (per capita mun spending)	.224	–.017	.159	.109	.207
	(.105)	(.193)	(.116)	(.185)	(.122)
Resident-owned homes	–.004	–.003	–.002	–.005	–.003
	(.001)	(.002)	(.001)	(.002)	(.001)
# individuals	10,674	3,928	10,456	4,610	9,982
Pseudo R-sq	.18	.27	.26	.31	.29

Notes: Estimates from conditional logit models for choice of municipality, 279 alternatives. Regional variables described above in the appendix. "Initial" refers to the initial location, "T+4" and "T+8" to locations four and eight years later. "Movers" are individuals who live in a different municipality four (eight) years after the initial time of observation. The 81/83 cohorts are weighted to conform to the region-of-origin distribution of the 87/89 cohorts. People who emigrate or die exit the database; this is the reason that the number of observations is largest in the initial period.