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# Immigrant Settlement Policies and Subsequent Migration \*

by

Olof Åslund\*\*

December 21, 2000

## Abstract

Many countries consider the residential concentration among immigrants a problem. This paper studies the factors influencing individual location decisions and evaluates a Swedish attempt to change the residential distribution of refugee immigrants in the late 1980's. Despite common perceptions, I find that the evidence on increased secondary migration after the policy shift is very weak. Since people were exogenously distributed over locations, the policy provides a better way to estimate the effects of regional factors on relocation decisions. The results suggest that immigrants are attracted to regions with large populations, high representation from the own country, and large overall immigrant populations. Overall and immigrant-specific labor market opportunities affect location decisions, as does the size of the local public sector.

Keywords: Immigration, Settlement policies, secondary migration

JEL classification: J15, J18, J61, R23

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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 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.

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 (Zavadny, 1997), but only 31 percent of the overall population.

In the policy discussion, critics blame residential concentration and segregation for hampering the assimilation process of immigrants by slowing down the acquisition of country-specific human capital, such as language skills. In addition to this, regions and cities receiving large proportions of the immigrant inflow often consider this a financial and social burden. Until the mid 1980s, the arrival of new immigrants directly reinforced the concentration of immigrants to large cities in Sweden. This imbalance between a few big-city regions and the rest of the country was one reason behind the government's decision to transfer the responsibility for immigration issues to the Swedish Immigration Board in 1985. A new system, later called the "Whole of Sweden strategy", for reception of refugee immigrants was introduced. In the new system, people were distributed over a large number of municipalities, many of which previously had very small immigrant populations. The policy had two main aims: a more widespread distribution of the immigrant population, and improved conditions for assimilation.

A crucial criterion for the success of the first objective was that people stayed in their assigned locality. Those criticizing the policy implemented from 1985 claim that not allowing people to choose for themselves will lead to higher secondary migration rates, which will undo some of the intended results of the policy. Even though this particular system is no longer in place, active placement policies remain on the political agenda.

The UK is currently implementing a new system where refugee immigrants are located away from the London region and southeast England where most previous asylum seekers stay. Germany, Denmark, and the Netherlands also have policies designed to affect where new immigrants reside; see Dutch Refugee Council (1999). In Sweden, the National Integration Office considers new ways to make it attractive for new immigrants to settle out of the Stockholm area.<sup>1</sup> Also, it is an explicit governmental goal to minimize the secondary relocations of refugee immigrants (The Committee on Immigration Policy, 1996, p. 211). To achieve long-run success in all of these cases, a better understanding of the factors influencing secondary migration and location choice is necessary.

This paper has two objectives. First, I evaluate the settlement policy by comparing the migratory behavior of immigrant cohorts arriving under the new regime with that of previous immigrants and natives. Second, I examine in what way regional factors affect people's decisions to leave a place of residence, and what characterizes their choice of destination. For reasons further discussed below, the policy can be seen as a natural experiment. Thus, it provides a better way to estimate the influence of regional variables on migration.

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. However, some regions, especially sparsely populated parts of northern Sweden, have experienced very high out-migration among immigrants. Andersson (1998) notes that migration rates among immigrants were high also before the new policy was implemented, which is consistent with Ekberg (1995) who found higher migration rates among immigrants arriving before 1970 than among natives. The Immigration Board (1997) finds that about 40 percent of refugee immigrants leave their initial location within 5–6 years, and that the flows go from small and mid-sized municipalities to larger ones. They cite Tunevall (1994), who states that the most common factor in relocating and choosing a destination is family relations and a desire to live in a municipality with

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<sup>1</sup> See [http://newsvote.bbc.co.uk/hi/english/uk/newsid\\_699000/699841.stm](http://newsvote.bbc.co.uk/hi/english/uk/newsid_699000/699841.stm) for information on the UK policy and <http://www.integrationsverket.se/pressmeddelande/pressbostad.html> for a press release (in Swedish) from the Swedish National Integration Office (both sites accessed May 23, 2000).

people from the “own group”. Rooth (1998) finds that the factors most influential on the decision to relocate are the initial location in Sweden (metropolitan – lower probability, northern Sweden – higher), and the national origin of the individual, with people from Somalia, Iran, and Iraq being more likely to relocate. Based on the results, he reaches the conclusion that the “Whole of Sweden strategy” seems to have failed.

Among the above-mentioned investigations, Rooth’s study is the only one taking the same approach as this paper, by explicitly modeling individual decisions from micro data. Rooth does not, however, directly address whether there was a change in secondary migration, since he includes no comparison group. This study investigates whether the policy affected secondary migration by relating program participants to previous immigrants and natives. The importance of regional characteristics is discussed and descriptively analyzed in many of these studies (see e.g. The Immigration Board (1998)), but none of them contain a formal statistical analysis of the issue.

Experiences from the US show that secondary migration goes in the direction of regions with already large immigrant populations (Belanger and Rogers, 1992). Summing up the US literature, Zavodny (1998) 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), 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”. 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 main result from the policy evaluation in this study is that there is only weak evidence that the policy change increased the extent of secondary migration. Relative to natives, immigrants are attracted to regions with large populations. Substantial representation from the own country is an important factor for both the relocation decision and the choice of destination, and movers are drawn to places with large overall

immigrant populations. Labor market prospects affect the decisions. Nevertheless, movers go to locations where there are many welfare recipients and a large public sector, but there is no direct evidence on welfare seeking.

The rest of the paper is outlined as follows. Section two provides some institutional detail of the different regimes and the implementation of the new policy. Section three discusses the nature of secondary migration, and how we would expect it to differ between regimes. Section four contains the empirical investigation. After a description of the data obtained from the LINDA database, I evaluate the policy in terms of the probability to leave the first location within four years after arrival to Sweden. In the last parts of the section, I investigate the factors affecting the decision to relocate away from the initial place of residence, and the ensuing choice of destination.

## **2. The different regimes**

Before 1985, a majority of refugee immigrants to Sweden were already in the country when they applied for asylum.<sup>2</sup> 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 were submitted in municipalities with large populations of previous immigrants, and 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.<sup>3</sup> 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 assimilation. Smaller communities would in turn aid assimilation 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

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<sup>2</sup> 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.

<sup>3</sup> In practice, the new system came into effect during a trial period in the fall of 1984.

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.<sup>4</sup> 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 unobservable individual characteristics, with little room 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.

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 discuss what differences in migratory behavior we may expect between the two regimes.

### **3. Secondary migration**

This section begins with a brief discussion on the nature of secondary migration, and how the placement policy should be evaluated. After that, I discuss how the extent of secondary migration can be expected to vary between regimes.

#### *Evaluating secondary migration*

Criticizers of the policy attempt, as well as the government itself, assume that secondary migration is something negative. This is not necessarily true. For immigrants, choosing a place of residence in the host country may very well be a dynamic process. Initially one chooses a region where the opportunities for obtaining information about other localities

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<sup>4</sup> For an extensive description of the policy, and a survey of research related to it, see The Immigration Board (1997).

and acquiring country-specific human capital are good. Then, after gaining information and skills, one moves on to another place with desired characteristics. If this is the true process, secondary migration cannot be seen as an evaluation objective. Rather, we should then evaluate people's outcomes, e.g. in terms of earnings and employment, after some time in Sweden.

If we adhere to the view that the choice of location is a one-shot game, we can evaluate the policy with respect to its effect on secondary migration. Still, in this case we have to distinguish between two forms of secondary migration. The first form occurs as a result of changed conditions and opportunities, and cannot be avoided with the information available when the first choice is made. The second form is a correction of a suboptimal initial choice. For the purposes of this paper, the latter type of secondary migration is the one of primary interest.

#### *Expectations for secondary migration*

The policy shift can be seen as going from a system where the individual chooses both the initial location and whether to relocate, to one where the government makes the first choice, and then the individual chooses to stay or move. As claimed by Andersson (1998), a common view is that from a theoretical standpoint, the whole of Sweden policy must have increased the migration probabilities of new immigrants to Sweden. This is based on the simple intuition that individuals are more likely than the government to make the right choice of location immediately. There will therefore not be as much relocation to correct for suboptimal initial choices under the individual regime as under the governmental.

To see the assumptions that this argument rests upon, assume that an individual's utility in each possible location can be separated into two factors: (i) labor market outcomes and (ii) direct utility from regional amenities, e.g. presence of people from the own country. The above statement on secondary migration is then universally true if one of the following conditions hold: (i) the government has an information disadvantage regarding at least one factor, and does not have an information advantage regarding the other factor; (ii) the government has the same information but a different utility function than the individual.



It is easy to see that there may be situations when none of these conditions are met, and we are unable to determine which regime generates the higher rate of secondary migration. First, if the government and the individual have a common information set and the same utility function, the outcomes will be identical. Also, with perfect information in the first stage, there will be no correction relocations. In the case studied, the government clearly had an ambition to locate people where there were few previous immigrants. Accordingly, the government did not share the individuals' valuation of regional amenities, which would lead to correction migration when people re-optimize.

However, it is reasonable to think that the government could have an information advantage concerning the labor market prospects in various locations. People coming to a new country may have limited initial information on regional variations in opportunities of this kind, and then correct their location choices as they gain information with time. If the placement officers have, and act on, better information about the suitability of available choices, correction migration could be lower under the governmental regime than under the individual.

The implication is that without assumptions about information differences or differing utility functions, we cannot determine whether a governmental regime for initial placement leads to higher rates of secondary migration than does an individual regime. Thus, the presumption made by previous analysts that the implementation of the new policy must have increased secondary migration is not necessarily right.

#### **4. Empirical analysis**

This section starts with a description of the sampling procedure and the data used in the study. Then I turn to the empirical analysis of secondary migration, starting with the policy evaluation regarding the probability to leave the initial location within four years. This is followed by an examination of how individual and municipal factors affect the decision to leave the initial place of residence. Finally, I examine what characterizes people's choices of destination, given that they relocate.

##### 4.1 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 included. 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 on individuals, but people are linked to their household members.<sup>5</sup>

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 comparison 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. Data for municipal characteristics have been derived from a number of sources. The variables are described in the appendix.

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), whose municipality can be identified in both the year of immigration and four years later, i.e., I condition on staying in Sweden for at least four years.

The properties of the sample are shown in Table A1 in the appendix. Natives and OECD migrants are primarily included to make a difference-in-difference analysis possible, and I therefore focus on differences and similarities between the two refugee

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<sup>5</sup> 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.

immigrant subsamples. 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 (Table A2)<sup>6</sup>, the two groups are a bit unevenly distributed over education categories. However, if we impute years of schooling, the difference in means between 87/89 and 81/83 is only 0.2 years.

The most striking difference between the groups is the change 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 18 percent. The most marked increase comes from the Middle East, going from 23 to 46 percent of the total immigration. 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.

#### 4.2 Policy evaluation

As discussed above, the policy affected the initial geographic dispersion of immigrants to Sweden. In the pre-program cohort, 48 percent of the sample initially resided in the Stockholm area; for those arriving under the program, 25 percent did. The fraction going to the least densely populated parts of the country went from less than one percent in the earlier period, to more than six percent in the later. This section evaluates the policy with respect to the probability of leaving the initial location.

There are three ways of evaluating the extent of secondary migration of immigrants arriving under the governmental placement policy, with different levels of sophistication. The first and least advanced way is to only study the immigrant cohorts of 87/89. This gives the impression of very high relocation probabilities (Table 1), and a failure of the policy. The second possibility is to compare the 87/89 and the 81/83 immigrant cohorts. The third method is to control for overall time effects and use a difference-in-difference approach relating the immigrant cohorts to a reference group. The problem with this method is that we need a control group where the time effects are the same as in our

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<sup>6</sup> Measures of education are not available before 1990. For the 1981 cohort, I use the 1990 census information on education.

sample of immigrants. I use two different reference groups: natives, and people who immigrated from OECD countries during the observation period. (Henceforth, I refer to refugee immigrants as immigrants, and immigrants from the OECD countries as OECD migrants). It is hard to have a clear prior on whether it is better to use one of these groups than the other. All immigrants have in common that they are new in the country, and have recently migrated. On the other hand, OECD migrants enter Sweden with different motives and under different conditions than refugee immigrants, and changes in overall conditions may well affect the two immigrant groups very differently. Using both reference groups gives a better foundation for conclusions.

Table 1 : Relocation within four years, percent.

	Immigrants	Natives	OECD migrants
Program 87/89	37.6	13.0	26.4
Pre-program 81/83	34.4	11.9	30.1
Difference 87/89–81/83	3.2	1.1	–3.7

Notes: Fraction relocating out of the initial municipality within four years after arrival.

Table 1 shows the fraction of each group relocating within four years. Relocation is defined as living in a different municipality in year  $t+4$  than in year  $t$  – the year of immigration.<sup>7</sup> The difference in difference appears to be positive; the change among immigrants is larger than the change in the reference groups. Note also that relocation increased among natives to the program period, but decreased among OECD migrants.

The figures presented in Table 1 ignore possible changes in migration propensities following changes in the composition of individual characteristics. Table A3 shows the extent of relocation for each region of origin. It is clear that there are substantial differences between groups, where Eastern Europeans seem to be the least mobile. For people from Africa and the Middle East, the figures are higher in the program group, but for those from Asia and South America, the pattern is the opposite. With the decrease over time in the share from Eastern Europe and the increase from the Middle East in mind, it seems as if there has been a shift towards more mobile groups. This underscores

<sup>7</sup> Most secondary migration appears to occur relatively shortly after immigration. After eight years, 46.2 percent of program participants had relocated, to be compared with 37.6 percent after four years. If one instead uses the eight-year perspective for the analysis presented in the paper, the qualitative aspects of the results are the same.

the importance of controlling for region of origin, as well as other individual characteristics, when comparing secondary migration under the two regimes.

In the basic analysis, I use both the pre-post and the difference-in-difference approach. With each method, there are two steps in the analysis. In a first step, I estimate whether program participants were more or less likely than non-participants to relocate, given their individual characteristics. These specifications include only individual variables plus cohort and/or program dummies. After controlling for individual characteristics, the difference between program and pre-program cohorts can be interpreted as coming from policy-related factors; the parameter estimates tell us if program participants were placed and treated in a way that changed their probability of relocating.<sup>8</sup> The next step in the analysis is to include regional characteristics in the models. In terms of policy evaluation, this answers the question of whether there was any change in behavior, given that immigrants were initially located in the types of municipalities that they were. I will return to this issue later.

As is well known, in the standard logit model

$$P_{ij}(move^t) = \frac{e^{G_{ij}}}{1 + e^{G_{ij}}} \quad (1)$$

$P_{ij}$  is the probability that individual  $i$  moves out of municipality  $j$  within  $t$  years. The linear function  $G_{ij}$  has the following structure in the most extensive model

$$G_{ij} = \mathbf{a} + \mathbf{d}_1 NP + \mathbf{d}_2 T_{87/89} + \mathbf{d}_3 D_{im} + \mathbf{b}' \mathbf{X}_i + \mathbf{?}' \mathbf{Z}_j + D_{im} * \mathbf{b}_{int}' \mathbf{X}_i + D_{im} * \mathbf{?}'_{int} \mathbf{Z}_j + \mathbf{e}_{ij} \quad (2)$$

where  $T_{87/89}$  is a dummy that equals one for all observations from the 87/89 period, immigrants and the control group.  $D_{im}$  is a dummy for immigrants, allowing for different intercepts.  $NP$  (new policy) =  $T_{87/89} * D_{im}$ , and is thus a dummy equal to one for immigrants in the 87/89 cohort, zero otherwise.  $\mathbf{X}_i$  is a vector of individual characteristics, including region of origin dummies, and  $\mathbf{Z}_j$  contains municipal variables. The contents of these vectors will be further discussed in the analysis of factors affecting relocation probabilities.  $D_{im}$  is also used to form interaction terms to allow for the effects of individual and municipal variables to differ between immigrants

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<sup>8</sup> A necessary condition for this analysis is that unobservable individual characteristics affecting migration do not vary systematically between the 81/83 and the 87/89 groups of immigrants.

and natives or OECD migrants. For the pre-post analysis, the time variable  $T_{87/89}$ , the immigrant dummy  $D_{im}$ , and the interaction terms are excluded. The “individual” estimations exclude  $Z_j$  (and its interaction), whereas the “municipal” include both  $X_i$  and  $Z_j$ . In the specification above,  $d_1$  captures the difference-in-difference in relocation probability, i.e., whether there was a change in the difference between the control group’s and new immigrants’ migration propensities following the new policy. In the pre-post analysis,  $d_1$  captures the difference in migration probability between program participants and previous cohorts of immigrants.

Table 2 : Probability of relocating within four years, logit.

	Individual	Individual + municipal
Pre-post	-.008 (.048)	-.317 (.061)
Diff-in-diff, natives	-.104 (.070)	-.268 (.087)
Diff-in-diff, OECD migrants	.181 (.077)	.033 (.092)

*Notes:* Logit parameter estimates on a dummy for program participation, standard errors in parentheses. Full results shown in Table A4. “Pre-post” contains only immigrants, “Diff-in-diff, natives” immigrants and natives, “Diff-in-diff, OECD migrants” immigrants and OECD migrants. “Individual” includes only individual variables, “Individual + municipal” individual and municipal.

Table 2 shows the results for the program variable  $NP$ ; the full estimation results are presented in Table A4. The pre-post estimation using individual variables shows a zero effect of the policy. For the difference-in-difference specifications, the results differ depending on which reference group we use. Including natives yields a (non-significant) negative estimate for the program participants,<sup>9</sup> whereas including OECD migrants gives a positive estimate, suggesting a 13 percent increased relocation probability following the implementation of the policy.<sup>10</sup>

With the new policy, the government took a more active role in the reception of refugee immigrants. Since the Immigration Board was aware that many people were

<sup>9</sup> Previous research often finds that people who have once moved are more likely to do it again. This is confirmed for the native sample; of those who moved within three years before the sampling year, 33 percent moved within four years, compared to 10 percent of those who did not move shortly before the sampling year. Including only previous native movers in the reference group gives an estimate for  $NP$  of  $-0.070$  (0.173).

<sup>10</sup> In the logit model, the implied effects on the probability are obtained by multiplying the parameter estimates by  $P^*(1-P)$ ; we get the relative change in  $P$  by multiplying with  $(1-P)$ . If not explicitly stated otherwise, all evaluations of effects are made with the other explanatory variables at their sample means.

placed in municipalities unattractive to previous immigrants, it probably aimed some of its activities at making people stay in the assigned municipality. One way to address whether this succeeded or not is to compare the cohorts when controlling for municipal variables, such as population characteristics and unemployment. The results from the pre-post and difference-in-difference with natives estimations presented in the second column of Table 2 indicate that given municipality characteristics, program participants were significantly less likely to relocate; the order of magnitude is about a 20 percent lower probability. With OECD migrants as the reference group, we find that the inclusion of municipal variables makes the estimate small and insignificant.

This brings two messages. First, it seems that program participants received something that increased their likelihood of staying, conditional on the characteristics of their initial place of residence.<sup>11</sup> Second, participants were located in municipalities where municipal characteristics had an adverse effect on the prospects of staying, compared to what previous immigrants chose. This conclusion comes from the fact that when we include municipal characteristics, the parameter estimate for the program variable gets smaller.<sup>12</sup>

I have also performed some variations to check the robustness of these results. Level of education is not available before 1990, and thus it cannot be measured at the time of arrival. It is therefore not included in the baseline specification. However, restricting the sample to those still in Sweden eight years after arrival and including level of education in the specifications do not change the qualitative pattern of the results. A second variation is to use year dummies instead of the  $T_{87/89}$  variable, and substitute the program participation variable with an interaction between year dummies and immigrant status:  $D_{year} * D_{im}$ . Even though there are some differences between years, these estimations do not reveal that immigrants of one specific year drive the results. A similar variation is to reweigh the reference group, so that the composition by year

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<sup>11</sup> One factor that may have induced program participants to stay was the loss of introduction activities only granted in the assigned municipality, and the risk of having to wait for a spot in introductory language courses, connected with relocation. However, the results hold also in the eight-year perspective, when this effect should not be present, given the long time people have to relocate between the finish of the introduction activities (after approximately 18 months) and the time of observation. The lower relocation probability must therefore come from other factors contained in the placement program.

<sup>12</sup> This result is confirmed in a more direct estimation of municipal effects. If we use the 87/89 cohorts to estimate a model with dummy variables for each municipality, and then compute weighted averages of municipal effects, we find that program participants initially lived in municipalities where the probability of leaving was higher than in the municipalities chosen by the 81/83 cohorts.

within the 81/83 and 87/89 periods is the same within the immigrant and the reference group; this does not affect the results very much either.

The measure of initial location available is not ideal; it shows where the individual lived on December 31 the year he or she received the residence permit. People who have received their permit, but remains at the refugee center may therefore be included in the data. This is especially likely to be the case for quota refugees, who receive their permits at arrival, and then stay at centers for some time.<sup>13</sup> Since quota refugees make up a larger fraction in the 81/83 than in the 87/89 cohorts, the estimate of the program effect is potentially biased downwards; a larger fraction of the relocations in the pre-program cohorts could just be people leaving the refugee center.<sup>14</sup>

One approach is to exclude observations initially living in municipalities with (quota) refugee centers, or people who moved out of these quickly. However, there is an obvious risk that this procedure eliminates the most mobile individuals from the sample. I have experimented with variations on this approach. As expected, they give higher estimates for the program effect; e.g., a pre-post comparison excluding those who left their initial location in a “center municipality” after only one year indicates a 7 percent significant increase in the relocation probability. Thus, the possibility that there was a modest positive effect on secondary migration cannot be ruled out.

Municipalities were the primary geographic unit of the placement policy. Agreements concerning reception were reached between the Immigration Board and the municipalities, and these were then in charge of organizing the introduction for the immigrants. Leaving the initial municipality is therefore a reasonable principal measure for evaluating the policy. Nevertheless, there are supplementary ways. One is to look at the probability of long-distance relocations. If the individual moves between municipalities, but stays in the region he or she initially settled in, one could argue that the first location was right at least in some sense. Sweden contains 111 labor market regions (1992 classification), which are defined on the basis of observed commuting

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<sup>13</sup> Quota refugees on average stayed four to six months at the center before the new system was implemented (Ministry of Labor, 1981).

<sup>14</sup> Note two things: (i) The relocation measure could also understate mobility; those who move within the same year as they get their residence permits are not classified as movers. Figures in The Immigration Board (1997) suggest that about 5 percent of the refugees move within this time span. 2. If non-quota refugees also remain at the centers after receiving their permit, this implies a positive bias in the estimate of the program effect. The average time before moving to a municipality after receipt of a residence permit was around one month according to officials at the Immigration Board.



behavior. The size of these regions ranges from just one municipality with a few thousand people to the Stockholm region having a population of almost 1.8 million (1998), i.e., about 20 percent of the Swedish population.

Table 3 : Fraction of relocations involving change of labor market region.

	Immigrants	Natives	OECD migrants
Program 87/89	77.7	58.2	53.0
Pre-program 81/83	57.4	59.9	50.4

*Notes:* Figures in the table show the percentage of moves out of the initial municipality that also meant leaving the initial labor market region.

Table 4 : Relocation from initial local labor market region, difference-in-difference.

	Individual	Individual + population
Diff-in-diff, natives	.268 (.085)	-.232 (.090)
Diff-in-diff, OECD migrants	.442 (.094)	.168 (.103)

*Notes:* Difference-in-difference logit parameter estimates for relocation from labor market region within four years, standard errors in parentheses. Full estimation results in Table A5. Population specifications include the log of labor market population and its square.

Table 3 shows the fraction of municipal relocations involving a change in labor market region. It is clear that program participants were more likely to leave the local labor market when they moved, compared with previous immigrants as well as with the reference groups. When we repeat the difference-in-difference regressions of Table 2 with only individual characteristics, but now with the dependent variable indicating a move out of the initial labor market region, we get an impression of a sharply increased probability for program participants; the results are displayed in the first column of Table 4.

This is, however, somewhat misleading. If people move randomly, movers initially in large labor market regions will be more likely to remain in the same one even though they relocate. Also, which is more relevant to this example, there will be more within unit variation in large regions, increasing the possibility of the preferred location being in the same labor market region. Program participants were initially much less concentrated to the big city regions than the 81/83 immigrants. A person in the latter group who is dissatisfied with the first location will then be more likely to choose a place

in the same region. Some control for region size should therefore be included. The second column of Table 4 shows the results from a specification where the log of the labor market population and its square are added to the individual variables. In both specifications, the estimates decrease substantially. In the model with natives, it switches sign and becomes negative and significant; with OECD migrants it is still positive but becomes insignificant. The results suggest that the increased inter-regional migration rates mainly resulted from placement in smaller regions, not that the regions had other unattractive features. How much of the population effect that is mechanical, and how much that is a result of preferences for large regions cannot be determined.

The results obtained here indicate that the introduction of a new system for refugee reception did not have a very large effect on secondary migration probabilities in terms of leaving the initial municipality. Substantial relocation occurred also among previous immigrants that were free to choose their initial location, and the basic comparison between the two refugee immigrant groups indicates no effect of the policy change. Also, the difference-in-difference approach used to eliminate overall time effects does not show any clear impact of the policy: we get one positive and one negative estimate depending on which reference group we include.

If the government also had an ambition to make people stay in the initial labor market region, this part of the policy failed. Relocation out of the initial labor market region was substantially higher among program participants than previous immigrants, which was mostly a result of assignment to smaller regions. Further, it seems that immigrants arriving under the program were placed in municipalities with bad prospects for keeping them there, but the new system also appears to have included some components that decreased the migration probabilities of refugee immigrants.

#### 4.3 Factors affecting location decisions

Results from the US identify certain local characteristics that influence immigrants' migration decisions. In particular, it seems that the composition of the population matters, and that areas with other immigrants and people from the own country are attractive. American research has primarily dealt with the initial location choices of immigrants. The importance of different factors could differ between initial and subsequent choices. We could, e.g., expect the proximity of people from the own country

to be more crucial initially. If there are information problems in the initial stage that are not there when the second choice is made, the secondary choices in some sense reveal a more accurate picture of people’s preferences. Thus, studying secondary migration adds potentially important information to the research on immigrants’ location decisions.

Table 5 : Municipal population characteristics, movers and stayers.

		Population		Im/Pop		Et/Pop		Unemployment	
		Stay	Move	Stay	Move	Stay	Move	Stay	Move
Program	$t$	201.8	79.8	6.5	4.5	3.8	3.2	1.5	1.7
87/89	$t+4$	206.5	216.0	7.3	7.6	4.4	4.5	5.0	5.1
Pre	$t$	267.0	150.2	7.7	7.5	3.4	4.0	2.9	2.8
81/83	$t+4$	271.8	220.5	7.4	7.6	3.8	2.5	2.1	2.0
Natives	$t$	117.8	129.6	4.9	5.5			1.7	1.6
87/89	$t+4$	120.7	136.3	5.6	6.0			4.8	4.5
Natives	$t$	117.2	125.7	4.7	5.5			3.4	3.2
81/83	$t+4$	118.9	144.2	4.5	5.3			2.5	2.2
OECD	$t$	189.8	171.4	5.5	5.6	15.0	12.0	1.6	1.5
87/89	$t+4$	194.2	155.5	6.3	6.2	14.1	11.4	5.1	4.8
OECD	$t$	228.3	170.5	5.6	5.5	18.8	20.2	3.0	2.9
81/83	$t+4$	232.3	175.1	5.6	5.4	16.8	16.8	2.3	2.0

Notes: Averages of municipal variables at immigration and four years later for people who stay and relocate. “Population” in thousands, “Im/Pop” is the immigrant share (percent), “Et/Pop” the share from the ethnic group (per thousand), and “Unemployment” municipal unemployment (percent). The variables are defined in the appendix.

Table 5 displays average values of municipal variables, by group and relocation status. The first two rows contain figures for program participants, and the second two those of the 81/83 cohorts. Values for natives and OECD migrants are in the lower part of the table. A first striking pattern is that of the population variable in the program group. Those who moved were in much smaller municipalities initially than those who stayed, but four years after arrival the figures are not very different. A similar but not as strong a trend is found in the pre-program cohort. So, it seems as if people leave small places for larger ones.

The next two columns show immigrant shares of the population. Aside the presence of fellow countrymen, the overall share of the population constituted by immigrants may be important for the choice of staying/relocating. A high share of immigrants could reflect

that the community has experience in dealing with issues related to new immigrants, and/or an acceptance of foreign-born people leading to less risk of discrimination and alienation. First, program participants were located in municipalities with lower immigrant fractions than what the 81/83 immigrants chose. Second, participants moved from smaller immigrant populations to larger ones, so that the fractions are about equal four years later.

The number of people from the own ethnic group, and the fraction of the municipal population they constitute, may be somewhat deceptive for comparisons between categories, since the size of this variable varies by country and region of origin. However, the figures in the table clearly indicate that program participants initially in places with few countrymen moved to municipalities where there were more of them.

Previous research comes to different conclusions on whether other regional variables, such as labor market characteristics, matter for migratory behavior and location decisions. Plain means of municipal unemployment do not reveal that immigrants differ much from natives. Furthermore, values for those who move are not different from those who stay. The most obvious thing about unemployment is that it changed rapidly during the 87/89 cohorts' first years in Sweden. In the year of arrival, the average individual lived in a municipality with an unemployment rate of 1.6 percent; four years later this figure was 5.0 percent.

#### 4.4 The decision to relocate

We now turn to the formal analysis of how individual and municipal characteristics influence the probability to relocate. As mentioned before, if we want information on the regional factors triggering relocations, using data from a "free" regime may lead to biased estimates. I will start by discussing this bias, and then proceed to the results for the 87/89 cohorts. Then I discuss how big the problem with using data from the free regime is, by comparing the results for the 81/83 and 87/89 cohorts.

##### *The problem of bias*

Estimations relying on data where people choose also their initial location can suffer from severe bias. To see how this problem can occur, consider the following simple linear probability model

$$P_{ij}(\text{move}) = \mathbf{B}' \mathbf{X}_i + \mathbf{g}Z_j + \mathbf{h}_i + \mathbf{e}_{ij} \quad (3)$$

where the probability to move or stay is a function of individual characteristics,  $\mathbf{X}_i$ , a municipal factor,  $Z_j$ , and an unobservable individual component  $\mathbf{h}_i$ . If there is a correlation between  $\mathbf{h}_i$  and  $Z_j$ , estimates of  $\mathbf{g}$  will be biased. There are two obvious ways that this correlation 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 second way is a result of sorting. The probability to relocate in (3) is the probability that the utility in another locality will exceed the utility in the current place of residence (plus relocation costs). If people value municipal characteristics differently, we have an individual  $\mathbf{g}_i$ , and  $\mathbf{h}_i = (\mathbf{g}_i - \mathbf{g})Z_j$ . If people act on their preferences in location decisions, so that there is a correlation between the omitted element and the included  $Z_j$ , we will generally not be able to estimate  $\mathbf{g}$ , the average effect of  $Z_j$  on the relocation probability. If this is an important issue or not, can be examined with the data available. The natural experiment character of the placement of the 87/89 cohorts yields data that are free from the type of correlation discussed here,<sup>15</sup> whereas it is a potential problem for both the 81/83 cohorts and the sample of natives.

In a maximum likelihood model with a binary dependent variable, omitting a relevant variable ( $\mathbf{h}_i$ ) may bias the estimates even if there is no correlation between the omitted variable and the included ones. Yatchew and Griliches (1985) investigate how this bias manifests itself in the probit model. They find that if the left-out variable is correlated with the included one through a linear regression, the bias that occurs can be separated into two parts. The first part resembles the bias in the linear model and appears only if there is correlation between  $Z_j$  and  $\mathbf{h}_i$  (in our example); this bias is additive and can switch the sign of the parameter estimate. The other part, which can appear also without correlation, leads only to a rescaling of the estimate. Lee (1982) examines the conditions under which the parameter estimates of a multinomial logit model are not

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<sup>15</sup> 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.

biased although there is an omitted variable. He claims that if the omitted variable is continuous or discrete (not dichotomous), and  $Z_j$  and  $\mathbf{h}_i$  are independent conditional on the dependent variable, there will be no bias in the estimates.

If the conditions for no bias are not met, the problem of a rescaling bias seems hard to avoid since most applications on cross-sectional micro data will feature unobserved heterogeneity that cannot be eliminated. In any case, the bias is worse and of a different kind if we have correlation between the excluded variable and the omitted one.

Another issue in the statistical modeling is how to obtain appropriate standard errors. 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.

### *Results for program participants*

Table 6 below shows estimates for program participants' and previous immigrants' probability to relocate within four years after immigration. 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 have been included. I start by presenting the basic model, and then proceed to the extended one.

Table 6 : Factors affecting relocation, program participants and previous immigrants.

	Immigrants 87/89		81/83
	Basic	Extended	
(Et/pop)*10 <sup>3</sup>	-.034 (.010)	-.032 (.010)	-.001 (.015)
(Im/pop)*10 <sup>2</sup>	-.021 (.021)	-.018 (.024)	.004 (.021)
ln (mun population)	-.716 (.134)	-.699 (.108)	-.675 (.141)
Municipal unemployment	.162 (.083)	.204 (.082)	-.064 (.087)
SA takers		.012 (.072)	
ln (per capita mun spending)		.193 (.512)	
Tax rate		-.033 (.034)	
SA take-up rate		-.007 (.007)	
Female	-.355 (.081)	-.356 (.081)	-.673 (.161)
Age	-.005 (.019)	-.006 (.019)	.088 (.039)
Age squared *10 <sup>-2</sup>	-.025 (.027)	-.025 (.027)	-.153 (.059)
Married	-.291 (.064)	-.284 (.064)	-.414 (.141)
Married*female	.068 (.100)	.066 (.099)	.292 (.198)
Region of origin (Eastern Europe ref.)			
Africa	.404 (.160)	.396 (.167)	.593 (.175)
Middle East	.554 (.134)	.542 (.139)	.344 (.188)
Asia	-.265 (.123)	-.275 (.119)	.357 (.212)
South America	-.386 (.109)	-.399 (.105)	.325 (.210)
# individuals	10,456	10,456	2,718
Pseudo R-squared	.18	.18	.13

Notes: Parameter estimates from logit specifications, robust standard errors (clustered by municipality) in parentheses. 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.

For individual characteristics, 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 descriptive statistics discussed above suggest that region of origin explains some of the variation in migration propensities; this is confirmed in the estimations. 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.<sup>16</sup>

The basic setup contains the three variables related to municipal population composition discussed in 4.3. The first population variable is the fraction of the municipal population made up by people from the own ethnic group, defined by country of birth.<sup>17</sup> 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 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) and Zavodny (1997, 1998)). The

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<sup>16</sup> Note that the estimates for Asia and South America are very different in the 81/83 cohorts.

<sup>17</sup> 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).



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 each standard deviation.

All findings for municipal variables are in line with expectations. An obvious test of the robustness of the results is to include regional dummies to investigate the possibility that the results are driven by unobserved local factors correlated with the included variables, and not the variables themselves. Specifications including dummies for counties or county-blocks<sup>18</sup> reveal that in general, the estimates of municipal variables do not change much. Also, the inclusion of education 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 with education.<sup>19</sup>

Another possibility is that the specification is not flexible enough for the population variables. Including also the squares of the log of municipal population, the fraction of immigrants, and the fraction from the own country, reveals similar patterns as in the original specification. The most substantial difference is that the estimates suggest an u-shaped relation for the overall fraction of immigrants, with the lowest relocation probability around 10 percent foreign-born in the municipality.

There are also alternative ways of specifying the population characteristics. One is to use the size of the municipal population from the own country and the overall immigrant population instead of the fractions they make up. The logs of these variables both enter the model with negative signs. If the squares of the population variables are also included, we get an indication of a slightly bow-shaped pattern, i.e., that the decreasing effect on relocation probabilities is not present at very small values of the immigrant population variables.<sup>20</sup> Taken together, these alternatives for specifying the model confirm the qualitative aspects of the results from the original model.

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<sup>18</sup> This geographic grouping divides Sweden's 24 counties (using the pre-1997 definition) into eight blocks.

<sup>19</sup> 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.

<sup>20</sup> This may seem contradictory to the above result with a u-shaped pattern for the immigrant fraction. For two reasons, it is not necessarily so. First, the confidence interval for effects of changes in the absolute size in immigrant population is quite big. Second, since the correlation between the size of the immigrant population and the fraction of total municipal population it makes up is not perfect (0.74), the results could be different in the two specifications.

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. Starting with education categories, the pattern is fairly similar to that found in Table 6. There is a slight suggestion that the presence of people from the 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.

For the estimations with coefficients by region of origin, the picture gets more detailed and complicated (results are displayed in Table A6). The results indicate that the influence of local characteristics may vary by region of origin. However, the pattern of the differences is not quite clear-cut and it is hard to reach any conclusions based on these findings.

I now turn to the results for the extended model of Table 6. Some researchers, e.g. Borjas (1999b), claim that immigrants respond to the generosity of the local welfare system in their location decisions. To examine this point in the Swedish context, I have included an additional set of municipality variables. The first two variables are 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 would therefore 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, defined as the number of households receiving social assistance over the size of the population, is a measure of the socioeconomic status of the municipality. 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 the municipality treats applicants

in different income categories. Since this is not available, I have used two different variables. The first one is 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 second one is 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.<sup>21</sup> 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. 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.

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 own 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 out-migration 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. It is clear from Table 6 that the estimates for the municipal variables vary substantially between the two regimes.<sup>22</sup> For the 81/83 group, the only population variable with a parameter of any magnitude is the log of population; neither the fraction from the own group, nor the overall immigrant density seem to matter. The sign of the estimates for

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<sup>21</sup> 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.

<sup>22</sup> Pooling the two immigrant groups and estimating the corresponding model (with all variables interacted by cohort) shows that the difference in the estimates is statistically strongest for unemployment ( $P = .003$ ) and  $E_t/pop$  ( $P = .065$ ).

municipal unemployment is the opposite, indicating an insignificant negative correlation between the level of unemployment and relocation.

This comparison is not perfect; the difference-in-difference specification in the policy evaluation indicate that there were overall time effects during this period, however different across reference groups. The problem with a similar approach here is that we do not have any data for natives (or OECD migrants) where we do not expect correlation between the error term and the included variables. Ignoring this problem and estimating separate models for 81/83 and 87/89, where we focus on the difference between estimates for immigrants and natives, we find that the qualitative differences remain. Interestingly, natives and the 81/83 cohorts of immigrants seem to be less likely to leave localities with high unemployment, whereas the opposite is the case for program participants.

The conclusion is that using data from a regime where individuals choose the initial place of residence to study factors triggering secondary migration may cause us to underestimate 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)).

#### 4.5 The choice of destination

The next step in the investigation is to examine where people choose to go, given that they have decided to relocate. 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 destination choices of movers.<sup>23</sup> The figures presented in Table 5 in section 4.3 suggest that those who moved were likely to end up in places with certain population compositions. In particular, they seem to go to locations with large populations and substantial immigrant representation.

To analyze the destination choices of movers, I estimate specifications of McFadden's choice model for location four years after immigration. Which geographic level that is

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<sup>23</sup> 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  $x$  initially. The factor  $x$  may then not be related to the probability of relocating, since almost all immigrants have similar values of it. Though, when analyzing destination choices we will want to include also those regions where few immigrants resided initially. If people still go to regions with high  $x$ , we will find that  $x$  influences the destination choice, even though it had no effect on relocation probabilities.

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

$$P_{ij} = \frac{\exp(\beta' \mathbf{Z}_j)}{\sum_j \exp(\beta' \mathbf{Z}_j)} \quad (4)$$

where  $P_{ij}$  is the probability that individual  $i$  chooses region  $j = 1, \dots, J$ .  $\mathbf{Z}_j$  is a vector of regional characteristics, and since  $\beta$  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.

In this analysis, I focus on program participants; Table 7 shows results from conditional logit estimations of destination choices for movers within this group. The variables are measured at time  $t$  – the year of immigration. To interpret the results, note that

$$\frac{\partial P_{ij}}{\partial \mathbf{Z}_j} = P_{ij} (1 - P_{ij}) \mathbf{g} \quad (5)$$

If we are interested in the relative change in  $P_{ij}$  implied by a one-unit change in  $\mathbf{Z}_j$ , 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 elasticities.<sup>24</sup>

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<sup>24</sup> In the sample, 14 percent chose the municipality of Stockholm, 13 Göteborg, and 7 Malmö. Throughout, I discuss average effects.

Table 7 : Choice of municipality, program participants.

	Basic	Extended
(Et/pop)*10 <sup>3</sup>	.081 (.004)	.078 (.004)
(Im/pop)*10 <sup>2</sup>	.094 (.005)	.061 (.006)
ln (municipal population)	1.244 (.013)	1.105 (.027)
Municipal unemployment	-.023 (.022)	-.124 (.034)
ln (mean earnings)		.645 (.317)
Immigrant employment		.020 (.006)
SA takers		.134 (.028)
SA take-up rate		.003 (.003)
Municipal tax rate		.025 (.006)
ln (per capita mun spending)		-.013 (.194)
Fraction in resident-owned home		-.003 (.002)
# individuals	3,928	3,928
Pseudo R-squared	.27	.27

Notes: Estimates from conditional logit models, 279 alternatives for each individual. Regional variables described in the appendix.

Consider first the estimates in the basic model, where the municipal variables are the same as in the basic specification of Table 6. Just as we would expect, a large fraction of people from the own country increases the probability of choosing a particular region. The estimates imply that if ethnic concentration rises by 0.1 percent, the probability increases by about eight percent. Consistent with previous research, large overall immigrant populations also attract movers: if immigrant representation increases by one percent, the choice probability goes up by nine percent. If movers chose to distribute themselves in accordance with the rest of the population, the estimate for the log of population would be one. Here, a one-percent increase in the size of the municipal population raises the probability with more than one percent; thus, people in this sample seem to be attracted to large municipalities. The qualitative results for the population

variables hold also in the extended specification, but the estimates for the immigrant fraction and the log of population are somewhat smaller there.

Unemployment does not yield a significant estimate in the basic model. However, the extended specification contains a richer parameterization of local labor market properties. The local labor market variations may be different for immigrants compared to the overall population (see e.g. Arai *et al.* (1999)). I have therefore calculated the fraction with earnings of the stock of immigrants (aged 18–64) in each municipality and year. I have also included the average annual earnings in the municipality.<sup>25</sup> As we would expect, both of these variables enter the equation with positive signs. The estimates suggest that a standard deviation increase in the average earnings level gives an eight percent increase in the probability of choosing the municipality. Starting from the average level of 83 percent, ten percent higher immigrant employment leads to a probability increment of 16.6 percent. Furthermore, we find that with additional variables included, the effect of unemployment becomes significant and substantial: according to this estimate, a standard deviation increase in unemployment decreases the probability by almost fifteen percent.

We also find that some 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 13 percent higher choice probability. However, variables more directly related to the generosity of the local welfare system do not indicate welfare seeking: the take-up rate for social assistance shows no correlation with the choices made, and people do not appear to move to places with generous norms (estimates not shown).

Properties of local housing markets may be of importance for the destination choice, since it can affect the possibility of finding accommodation.<sup>26</sup> The fraction of people living in dwellings owned by themselves is not significant in this specification. The standard error of this point estimate is sensitive to model specification, but the size of it is quite robust. In alternative specifications (with variations on the included variables), the

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<sup>25</sup> If we instead include average earnings for immigrants in the municipality, the results are very similar.

<sup>26</sup> The relocation decision is likely to be less affected by this factor, since people always have a place to stay in the initial municipality. Including the “Fraction in own home” variable in the relocation model yields an insignificant estimate.

estimate is often significant at least at the ten-percent level. The overall average fraction of resident-owned homes was 68 percent in 1985; in the municipalities chosen by our sample, the average was 59 percent. Taken together, there is a slight suggestion that immigrants are more likely to go to places with substantial fractions of rentals in the housing market.

The estimate for municipal spending is positive but insignificant, and, somewhat surprisingly, the effect of the tax rate is positive and significant. One interpretation is that both these variables capture the same phenomenon: a large local public sector. Indeed, if the local tax base was identical across municipalities, and if the government had to spend exactly the raised taxes in each period, the tax rate and the per capita public spending could not be identified separately. 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.

Does location choice differ between refugees, OECD migrants and natives? Table A7 shows estimations of the extended specification for the two latter groups. 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 indicate two things. First, the strong impact of both earnings and overall unemployment suggest that many people in this group immigrate for work-related reasons. Second, the lack of influence of immigrant employment implies that, compared to refugee immigrants, this group in general has a stronger position in the labor market and need not consider immigrant-specific conditions to the same extent. The estimates suggest that earnings levels but not local unemployment affect natives.



OECD migrants are similar to refugee immigrants in the sense that both groups move to places with many social assistance recipients, and also municipalities 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 A7. 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.

### *Sensitivity analysis*

We now proceed to check the robustness of the results. First, we discuss some further variations on the above specifications. Second, we look at estimations where the sample has been divided according to gender, education level, and region of origin respectively. Third, we check if the results change when the unit of choice is labor market regions or counties instead of municipalities.

It is possible that the results in Table 7 are influenced by factors omitted from the model, but correlated with the included variables. 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 model. Even though these variables enter significantly, indicating that people are less likely to move long distances and up to twice as likely to choose an alternative within their original county, in general, the results of the extended model above hold also under these variations.<sup>27</sup>

The two first columns of Table A8 show results from gender-separated estimations. The influence of population composition does not seem to vary by gender: the estimates for the immigrant variables are quite similar. There is a small difference in the effect of

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<sup>27</sup> The average earnings variable loses its significance (z-value around 1.5), and unemployment becomes insignificant when only the distance variable is added. The effect of the tax rate is sensitive to the inclusion of county-block dummies.

population size, indicating that men are more attracted to large municipalities than are women. Interestingly, and perhaps somewhat surprisingly, the negative effect of local unemployment on the choice probability is strong and highly significant among females, but insignificant among males. The impact of immigrant earners is stronger among males, but the effects of social assistance prevalence and municipal tax rates hold for both genders. The estimates on the fraction in resident-owned homes signal that men drive the increased probability of going to places with high shares of rentals.

The third and fourth columns of Table A8 present separate estimates for high and low educated people. 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.<sup>28</sup> 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 for the immigrant fraction are similar in the two categories, and the estimates on the ethnic group variable are actually larger for the highly educated.

The predictions concerning the effect of municipal unemployment across different education groups are not clear. On the one hand, those with more schooling may stand a better chance of receiving any job. On the other, unemployment is generally higher among less educated people. In this sample, the effects are statistically stronger for the low educated. Not surprisingly, we find that people with high education are the ones drawn to municipalities with high average earnings, and that immigrant employment is more important for the lesser educated. More puzzling is the fact that those with high education appear to go to places with many welfare recipients at least as much as do the lesser educated. However, finding that the low educated are more drawn to locations with higher shares of rentals is in line with expectations.

In previous estimations we found region of origin to be an important predictor for differences in migration propensities. It is also likely that destination choices vary by this characteristic. Separate estimations for each region of origin group (not shown) reveal that there are differences but that the pattern is quite mixed and difficult to

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<sup>28</sup> People with missing values and those who leave the database between  $t+4$  and  $t+8$  fall in the lower education category. The results are very similar if we instead exclude these individuals from the sample.

interpret, which is what we found also for the relocation decision. Population variables have the same qualitative impact in all groups, but labor market characteristics seem to be more important for e.g. South Americans than for Asians or Africans. Further, people from the Middle East and Asia appear to be less likely to choose municipalities with large fractions of resident-owned homes, whereas the opposite is the case for Eastern Europeans.

We now continue to the examination of alternative geographic units. Table A9 displays parameter estimates where municipalities have been replaced with labor market regions or counties. It is clear that the qualitative implications are not altered. The estimates for the immigrant variables differ a bit from the municipality model, but the effect of the population size is approximately the same. Also, there is no effect of regional unemployment in these specifications. However, in contrast to the municipality models, these estimates are sensitive to the inclusion of the square of the size of the population. This is not surprising since the range is much wider here; e.g., while the smallest municipality is an own labor market with a population of about 3,500, the population of the largest labor market region is over 1.6 million compared to the largest municipality that has less than 700,000 inhabitants. With the square of the log of population included, both specifications yield significant estimates for the unemployment variable.

The results of this section show that immigrants are likely to choose locations where there are people from the own country and a substantial immigrant population. They are also attracted to large cities. All this is well in line with previous research from other countries. We have also found that labor market characteristics matter. Even though the effect of overall unemployment is somewhat uncertain, both average earnings and immigrant employment rates affect decisions. Immigrants tend to move to municipalities with many social assistance recipients, but estimates for variables related to the generosity of the local welfare system do not point at direct welfare seeking. However, large local public sectors seem to attract immigrant movers.

## **5. Concluding remarks**

The empirical investigation of migratory behavior of refugee immigrants to Sweden performed in this paper has two main purposes. First, I have tried to evaluate whether

the municipal placement of refugee immigrants implemented in Sweden during the second half of the 1980s increased secondary migration. Contrary to previous results and common perceptions, I find that there is only weak evidence on this. Secondary relocations were common also among immigrants arriving before the policy was implemented.

There are, though, two reservations to this result. First, because the government put people in small labor market regions, relocation out of these increased; if there was an ambition regarding a regional connection, this failed. Second, immigrants were located in municipalities with poor prospects for keeping them. This suggests that with the activities available in the new system, a more careful choice of municipalities could have resulted in a decrease in secondary migration.

The second objective of the study is to identify the factors affecting relocation probabilities and the subsequent choice of destination. The high mobility of the immigrant population makes knowledge on the impact of regional factors even more important for policies aimed at this group. I find that using data with exogenous initial location is important for estimating the effects of local characteristics on relocation probabilities; endogenous location leads to underrating of their importance.

Population composition plays an important role in residential decisions among the immigrants studied. They leave locations with small populations, and are attracted to large regions. The presence of people from the own country is important for both the decision to leave the initial location, and for choosing a new one. A large overall immigrant population is also attractive for movers. By and large, these findings conform to results from the US.

The results for other municipal characteristics contain some optimistic messages, especially about the destination choices of movers. Immigrants are affected by labor market prospects. They leave localities with high overall unemployment, and move to municipalities with high immigrant employment rates and high average earnings, given their other characteristics. Also, there is no evidence on direct welfare seeking in terms of choosing municipalities with generous welfare systems; however, immigrants move to places with prevalent welfare receipt and large local public sectors.

Policies for affecting the location of new immigrants are discussed and carried out in Sweden and several other countries. Until today, secondary migration among refugee immigrants to Sweden has been high regardless of settlement policy. With better knowledge of the factors influencing settlement patterns and migration decisions, future attempts could be more successful both in achieving governmental objectives and increasing the utility of individual immigrants.

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## Appendix

### A1: Countries excluded

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

- Austria
- Australia
- Belgium
- Canada
- Denmark
- Finland
- France
- Germany (West)
- Greece
- Iceland
- Ireland
- Italy
- Japan
- Luxembourg
- The Netherlands
- New Zealand
- Norway
- Portugal
- Spain
- Switzerland
- United Kingdom
- 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 (100 SEK). (Statistics Sweden, "Statistiska meddelanden, Serie Be".)
- 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 own calculations.

Table A1 : Sample properties.

Variable	Program (87/89)	Pre-progr (81/83)	Natives	OECD migrants	Total
Female	.44 (.50)	.48 (.50)	.49 (.50)	.47 (.50)	.47 (.50)
Age (at immigration)	30.19 (8.34)	29.52 (8.45)	35.43 (10.62)	29.97 (8.85)	32.37 (9.86)
Age squared *10 <sup>-2</sup>	9.81 (5.70)	9.43 (5.83)	13.68 (7.69)	9.78 (6.05)	11.45 (6.98)
Married (at immigration)	.60 (.49)	.54 (.50)	.48 (.50)	.36 (.48)	.50 (.50)
Married*female	.32 (.47)	.30 (.46)	.25 (.43)	.18 (.38)	.26 (.44)
Nordic				.64 (.48)	.12 (.32)
Western Europe				.27 (.45)	.05 (.22)
Eastern Europe	.18 (.38)	.37 (.48)			.08 (.27)
Africa	.12 (.32)	.09 (.29)			.04 (.20)
Middle East	.46 (.50)	.23 (.42)			.16 (.36)
Asia	.08 (.28)	.14 (.35)		.01 (.09)	.04 (.19)
North America				.07 (.25)	.01 (.11)
South America	.16 (.37)	.16 (.37)			.06 (.24)
Oceania				.01 (.12)	.003 (.05)
Et/pop, fraction from own country in mun *10 <sup>3</sup>	3.59 (4.69)	3.62 (6.21)		15.80 (3.28)	7.62 (18.75)
Im/pop, fraction of immigrants in mun *10 <sup>2</sup>	5.78 (3.56)	7.65 (4.02)	4.90 (3.55)	5.53 (3.36)	5.50 (3.63)
Ln (mun population)	11.11 (1.32)	11.63 (1.28)	10.88 (1.20)	11.31 (1.37)	11.09 (1.30)
Mean municipal unemployment (percent)	1.59 (.87)	2.85 (1.38)	2.50 (1.51)	2.01 (1.42)	2.16 (1.39)
# individuals	10,456	2,718	14,980	6,467	34,621

Notes: All municipal variables measured at time of immigration (sampling for natives).

Table A2 : Education eight years after immigration, percentages.

Education	Program	Pre	Natives	OECD migrants	Total
<9, missing	21.42	25.87	17.70	21.48	20.13
9–10 years	18.55	10.71	12.44	16.65	14.87
High school $\leq 2$	16.70	28.87	32.52	22.21	25.69
High school $> 2$	18.45	13.48	11.54	13.69	14.15
University $< 3$	13.42	10.15	13.30	11.79	12.82
University $\geq 3$	11.46	10.93	12.50	14.18	12.35
# individuals	9,963	2,671	14,795	5,741	33,170

Notes: Percentages in each education category, measured eight years after immigration (sample year for natives). The 1981 cohort uses measure from 1990.

Table A3 : Relocation by region of origin, percent.

Region of origin	Program	Pre-program
Eastern Europe	28.2	27.4
Africa	43.7	39.2
Middle East	46.6	35.2
Asia	24.3	42.7
South America	25.0	39.2

Notes: Fraction relocating out of the initial municipality within four years.

Table A4 : Relocation within four years, full estimation results for Table 2.

	(1)	(2)	(3)	(4)	(5)	(6)
Im cohort 87/89	-.008 (.048)	-.317 (.061)	-.104 (.070)	-.268 (.087)	.181 (.077)	.033 (.092)
87/89			.096 (.051)	-.049 (.062)	-.189 (.060)	-.350 (.069)
Female	-.436 (.063)	-.437 (.069)	.180 (.060)	.187 (.061)	-.144 (.070)	-.122 (.070)
Age	.048 (.016)	.019 (.017)	-.041 (.019)	-.041 (.019)	-.023 (.023)	-.021 (.023)
Age squared*10 <sup>-2</sup>	-.100 (.023)	-.057 (.025)	-.021 (.027)	-.021 (.028)	.007 (.034)	.004 (.034)
Married	-.242 (.052)	-.326 (.058)	-.424 (.089)	-.429 (.089)	-.099 (.086)	-.127 (.087)
Married*female	.178 (.080)	.136 (.087)	-.213 (.113)	-.216 (.113)	-.030 (.120)	-.046 (.120)
Sweden			Ref.	Ref.		
Nordic					Ref.	Ref.
W Europe					-.161 (.066)	-.213 (.073)
E Europe	Ref.	Ref.	-.762 (.394)	6.929 (.531)	-.991 (.450)	5.994 (.579)
Africa	.485 (.070)	.524 (.077)	-.277 (.393)	7.453 (.530)	-.506 (.449)	6.518 (.578)
Middle East	.647 (.052)	.614 (.057)	-.115 (.392)	7.543 (.530)	-.344 (.448)	6.608 (.577)
Asia	.031 (.075)	-.037 (.082)	-.731 (.396)	6.892 (.531)	-.302 (.344)	-.305 (.347)
North America					.013 (.114)	-.009 (.117)
South America	-.055 (.065)	-.188 (.070)	-.818 (.396)	6.741 (.529)	-1.046 (.451)	5.806 (.577)
Oceania					-.260 (.247)	-.303 (.249)
Et/pop*10 <sup>3</sup>		-.021 (.004)		-.021 (.004)		-.003 (.001)
Im/pop*10 <sup>2</sup>		-.013 (.006)		.052 (.008)		.028 (.010)
ln (mun population)		-.718 (.020)		-.095 (.024)		-.145 (.024)
Mun unempl.		.080 (.021)		-.086 (.022)		-.083 (.025)

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Table A4 continued.

Im*Female			-.616	-.623	-.292	-.315
			(.087)	(.092)	(.094)	(.098)
Im*Age			.089	.060	.071	.039
			(.025)	(.026)	(.028)	(.029)
Im*Age squared			-.079	-.037	-.107	-.061
			(.036)	(.037)	(.041)	(.042)
Im*Married			.181	.103	-.143	-.199
			(.103)	(.106)	(.101)	(.104)
Im*Married*fem			.391	.352	.208	.182
			(.139)	(.143)	(.144)	(.149)
Im*Asia					-.658	6.262
					(.575)	(.685)
Im*Im/pop*10 <sup>2</sup>				-.065		-.041
				(.010)		(.012)
Im*ln (mun population)				-.623		-.573
				(.031)		(.031)
Im*Mun unempl.				.166		.163
				(.030)		(.033)
Im*Et/pop*10 <sup>3</sup>						-.018
						(.004)
Constant	-1.060	7.697	-.298	.768	-.069	1.703
	(.258)	(.360)	(.299)	(.390)	(.369)	(.453)
# individuals	13,174	13,174	28,154	28,154	19,641	19,641
Pseudo R-squared	.04	.16	.12	.19	.03	.12

*Notes:* Parameter estimates from logit specifications for leaving the initial municipality within four years, standard errors in parentheses. Municipal variables described above in the appendix. “Im” is a dummy for refugee immigrants. (1) Pre-post, ind; (2) Pre-post, ind + mun; (3) Diff-in-diff, natives, ind; (4) Diff-in-diff, natives, ind + mun; (5) Diff-in-diff, OECD, ind; (6) Diff-in-diff, OECD, ind + mun.

Table A5 : Relocation from labor market region, full estimation results for Table 4.

	(1)	(2)	(3)	(4)
Im cohort 87/89	.268 (.085)	-.232 (.090)	.442 (.094)	.168 (.103)
87/89	.061 (.064)	.069 (.066)	-.113 (.076)	-.364 (.083)
Female	.249 (.075)	.313 (.078)	-.206 (.090)	-.215 (.097)
Age	-.040 (.024)	-.032 (.024)	-.023 (.029)	-.004 (.031)
Age squared*10 <sup>-2</sup>	-.026 (.035)	-.042 (.036)	.016 (.043)	-.014 (.046)
Married	-.342 (.115)	-.374 (.117)	.005 (.107)	-.220 (.115)
Married*female	-.207 (.144)	-.268 (.147)	.019 (.151)	.023 (.162)
Sweden	Ref.	Ref.		
Nordic			Ref.	Ref.
W Europe			-.160 (.085)	.318 (.093)
E Europe	-1.210 (.472)	-.041 (.497)	-1.099 (.547)	-.097 (.595)
Africa	-.541 (.470)	.639 (.495)	-.431 (.546)	.588 (.593)
Middle East	-.303 (.468)	.824 (.494)	-.193 (.544)	.771 (.592)
Asia	-1.057 (.473)	.001 (.499)	-.686 (.524)	.497 (.552)
North America			.277 (.133)	.820 (.146)
South America	-1.319 (.473)	-.092 (.499)	-1.209 (.549)	-.148 (.597)
Oceania			-.262 (.325)	.073 (.347)
Im*Female	-.743 (.103)	-.704 (.110)	-.288 (.115)	-.175 (.125)
Im*Age	.098 (.030)	.070 (.031)	.081 (.034)	.041 (.037)
Im*Age squared	-.088 (.044)	-.042 (.046)	-.129 (.050)	-.069 (.054)
Im*Married	.136 (.128)	.149 (.133)	-.212 (.121)	-.009 (.132)
Im*Married*fem	.485 (.169)	.429 (.177)	.258 (.176)	.135 (.190)

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Table A5 continued.

ln (lmr population)		1.103		1.632
		(.191)		(.198)
ln (lmr pop) squared		-.074		-.098
		(.008)		(.008)
Im*Asia			-.260	-.555
			(.768)	(.819)
Constant	-.950	-3.611	-1.061	-6.401
	(.375)	(1.194)	(.467)	(1.264)
# individuals	28,154	28,154	19,641	19,641
Pseudo R-squared	.13	.25	.06	.22

*Notes:* Parameter estimates from logit specifications for leaving the initial labor market region within four years, standard errors in parentheses. “Im” is a dummy for refugee immigrants. (1) Diff-in-diff, natives, ind; (2) Diff-in-diff, natives, ind + size; (3) Diff-in-diff, OECD, ind; (4) Diff-in-diff, OECD, ind + size.

Table A6 : Decision to relocate, municipal variables by region of origin.

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Et/pop (Eastern Europe)	-.062 (.013)
Africa* Et/pop	.113 (.070)
Middle East* Et/pop	.050 (.016)
Asia* Et/pop	-.187 (.118)
South America* Et/pop	-.001 (.031)
Im/pop (Eastern Europe)	-.001 (.028)
Africa* Im/pop	-.072 (.039)
Middle East* Im/pop	-.045 (.039)
Asia* Im/pop	-.001 (.030)
South America* Im/pop	.044 (.035)
ln (mun pop) (Eastern Europe)	-.426 (.101)
Africa* ln (mun pop)	-.223 (.074)
Middle East* ln (mun pop)	-.548 (.093)
Asia* ln (mun pop)	.071 (.076)
South America* ln (mun pop)	-.131 (.084)
Mun unempl (Eastern Europe)	-.191 (.105)
Africa* Mun unempl	.181 (.148)
Middle East* Mun unempl	.528 (.108)
Asia* Mun unempl	.052 (.142)
South America* Mun unempl	.309 (.120)
Female	-.345 (.082)
Age	-.017 (.019)
Age squared*10 <sup>-2</sup>	-.011 (.027)

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Table A6 continued.

Married	-.281 (.065)
Married*female	.050 (.105)
Reg. of orig. (Eastern Europe ref.)	
Africa	2.717 (.823)
Middle East	5.699 (.943)
Asia	-1.173 (.791)
South America	.357 (.842)
# individuals	10,456
Pseudo R-squared	.19

*Notes:* Parameter estimates from logit specifications for leaving the initial municipality within four years, standard errors in parentheses. Municipal variables described above in the appendix.

Table A7 : Natives' and OECD migrants' location choices.

	Natives	OECD migrants
(Et/pop)*10 <sup>3</sup>		.025 (.001)
(Im/pop)*10 <sup>2</sup>	-.018 (.015)	.013 (.014)
ln (regional population)	.964 (.051)	.872 (.046)
Regional unemployment	-.031 (.050)	-.287 (.053)
ln (mean earnings)	2.728 (.448)	1.966 (.457)
Immigrant employment		.960 (.869)
SA takers	.048 (.053)	.114 (.049)
SA take-up rate	-.015 (.005)	-.013 (.005)
Municipal tax rate	-.006 (.013)	.006 (.012)
ln (per capita mun spending)	-.459 (.332)	-.164 (.322)
Fraction in resident-owned home	-.005 (.003)	-.009 (.003)
# individuals	1,005	1,166
Pseudo R-squared	.12	.16

Notes: Estimates from conditional logit models for choice of municipality, 279 alternatives. Regional variables described above in the appendix.

Table A8 : Variations on individual characteristics in choice of municipality.

	Males	Females	Low education	High education
(Et/pop)*10 <sup>3</sup>	.080 (.006)	.075 (.007)	.068 (.005)	.112 (.009)
(Im/pop)*10 <sup>2</sup>	.063 (.008)	.057 (.011)	.066 (.007)	.052 (.013)
ln (regional population)	1.124 (.034)	1.076 (.044)	1.082 (.032)	1.169 (.052)
Regional unemployment	-.073 (.041)	-.214 (.058)	-.127 (.039)	-.103 (.067)
ln (mean earnings)	.502 (.409)	.847 (.504)	-.162 (.378)	2.708 (.587)
Immigrant employment	.025 (.007)	.011 (.009)	.027 (.007)	.003 (.012)
SA takers	.119 (.035)	.165 (.044)	.118 (.032)	.167 (.054)
SA take-up rate	-.001 (.004)	.008 (.005)	.003 (.004)	.003 (.007)
Municipal tax rate	.021 (.007)	.030 (.010)	.024 (.007)	.028 (.011)
ln (per capita mun spending)	.072 (.247)	-.167 (.312)	.011 (.227)	-.187 (.372)
Fraction in resident-owned home	-.005 (.002)	.000 (.003)	-.005 (.002)	.002 (.003)
# individuals	2,462	1,466	2,809	1,119
Pseudo R-squared	.28	.26	.26	.32

Notes: Estimates from conditional logit models for program participants' (87/89 immigrants) choice of municipality, 279 alternatives. Regional variables described above in the appendix. "High education" means at least some post-high school education (more than 12 years of schooling) eight years after arrival.

Table A9 : Choice of labor market region / county.

	Labor market regions	Counties
(Et/pop)*10 <sup>3</sup>	.128 (.009)	.142 (.011)
(Im/pop)*10 <sup>2</sup>	.031 (.011)	.080 (.018)
ln (regional population)	1.246 (.023)	1.233 (.058)
Regional unemployment	-.028 (.033)	.013 (.035)
# individuals	3,928	3,928
Pseudo R-squared	.39	.23

Notes: Estimates from conditional logit models. The labor market region (county) specification contains 111 (24) alternatives for each individual. Regional variables described above in the appendix. Note that the estimations include all individuals who changed municipality; i.e. also those who remained in the same labor market region (county).