

Determinants of the Spatial Mobility of Immigrants in Sweden

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Abstract: Foreign-born residents constitute approximately eleven percent of the Swedish population. This level has been reached after steady immigration during the post-war years and has been accompanied in recent decades with proportionately more non-European immigrants. Immigration has implications for Swedish regional economic development for two reasons examined here. First, immigrant settlement patterns are somewhat different from those of native Swedes. Second, immigrant internal migration behaviour, after arriving in Sweden, differs from native Swedes. This paper focuses on this second consequence of immigration. It examines the migration decisions of immigrants after initial settlement and the demographic, socio-economic, and cultural variables that influence them. It finds that immigrants differ from natives in migration behaviour, mainly because of the role that the size of immigrant communities plays in the decision to migrate and choice of destination. The implications of these results for regional economic-demographic modelling and regional economic growth are discussed.

Keywords: immigration, internal migration, Sweden, economic-demographic modelling

1. Introduction

Foreign-born residents made up approximately eleven percent of the Swedish population in 1995. This level has been reached after a steady stream of immigration during the post-war years that has become increasingly diverse in recent years. The changing volume and origins of the immigrant stream have ramifications for regional economic and demographic development in Sweden for various reasons. First, immigrant settlement patterns are somewhat different from those of native Swedes (Borgegård et al. 1996; Borgegård and Håkansson 1998). Second, immigrant internal migration patterns, following arrival in Sweden, differ from native Swedes (Andersson 1996). Furthermore, these patterns vary somewhat, depending on immigrant characteristics such as country of origin, year of arrival, and socio-economic background (Lundborg 1991; Fischer and Malmberg 1997; Fischer and Malmberg 1998). This paper is concerned primarily with the second issue. It examines the migration behaviour of immigrants once they have arrived and the demographic, socio-economic and cultural forces that shape it. The implications of the results for regional economic-demographic modelling and regional economic growth are discussed.

The immigration settlement patterns and migration behaviour of immigrants is of concern to academics and policymakers for several reasons. First, governments have an interest in integrating immigrants into society. This integration (or assimilation) has been measured in a number of ways. One approach is to examine the spatial settlement and mobility patterns of immigrants for evidence of geographical concentration or dispersion (Andersson 1996).¹ Second, regional labour mobility is an important factor in the smooth operation of regional labour markets and economic efficiency. If, however, migration flows come to be affected more by mobility impeding institutional and/or cultural influences, this could have a negative effect on labour market flexibility and contribute to regional economic imbalances. Therefore, it is important to study immigrant settlement and mobility decisions to determine if they are motivated by the same considerations as natives. Third, migration is the most important source of demographic change on the regional or local level (more than 80% of the change in population size and composition on the community level is related to net migration). However, interregional economic-demographic models always assume that immigrants are the same as natives.² While this assumption may be needed to keep the models simple, simulations vis-à-vis immigration policy questions with a relatively short reference period are likely to be less accurate.

This paper is part of a longer-term project to build a spatial-environmental-economic-demographic microsimulation model of Swedish society (tentatively called SVERIGE or *System for Visualising Economic and Regional Influences Governing the Environment*).³ It is a precursor for a study that will simulate the effects of changing immigration origins and settlement patterns on various national and regional economic-demographic-environmental outcomes. The spatial microanalytic approach that motivates this analysis has some advantages over conventional aggregate macroeconomic econometric and computable general equilibrium (CGE) models. First, it can be used to examine the distributional impacts of various policies, such as immigration, as well as their aggregate effects. Second, it can account for heterogeneity in driving forces in a way that can potentially improve results aggregated to the national level. Since there is reason to believe (see section 2 below) that immigrants and natives exhibit different mobility patterns, model simulation and forecasting may be strengthened by distinguishing between these two groups.

This paper is divided into several sections. The first section provides a review of literature concerning immigrant settlement choices and the internal migration behaviour of immigrants after their initial settlement choices. The second section describes the unique micro database used to make empirical estimates for the migration models here. The third section develops the equations used to investigate whether immigrants differ from Swedes in their propensity to migrate and choice of destination. In addition, it describes how cultural factors are likely to influence these decisions. The fourth section reports the results of the empirical analyses. The paper concludes with a summary and conclusion.

2. Literature review

Much has been written about the settlement patterns of immigrants in various Western, industrialised countries. Most of this literature is concerned about the housing choices of immigrants and the degree to which ethnic segregation occurs. Another strand of literature investigates the role of economic and social factors on immigrant location. Two competing influences have attracted the most attention: economic incentives or work opportunities and communities of ethnically similar individuals. One view is that economic opportunities are the most powerful attracting force during early stages of immigration but that communities of ethnically similar individuals exert a greater influence as the immigrant population grows (O' Loughlin 1985; Clark 1996). Immigrant clusters may be associated with subsequent immigration for several reasons: (1) they are indicative of networks for employment and housing information that assist new arrivals, (2) they provide various types of informal social support for immigrants in a situation of uncertainty, (3) they mark areas where immigrants are less likely to face discrimination and harassment, (4) they may reflect the availability of labour market opportunities in particular niches that match immigrant job skills, and (5) they may host specialised immigrant social services placed there by the government in order to minimise the costs of providing such services. The attractive force of immigrant communities may be mediated by several variables, including country of origin, language, level of education, and occupation. There is evidence that some immigrant groups may be more attracted to clusters than others (Dunlevy 1991; Bartel 1989). Moreover, destination characteristics having nothing to do with the size of existing immigrant settlement still exert a powerful force on immigrant settlement choices (Dunlevy 1991; Bartel 1989).

Governments sometimes alter immigrant settlement patterns and subsequent migration decisions by concentrating new arrivals in particular locales or by providing incentives for immigrants to settle in areas they might not otherwise consider. These policies are sometimes applied to large inflows of refugees. One approach (known in Sweden as the "Whole of Sweden Strategy") is to disperse immigrants in a manner similar to native distribution patterns (Rooth 1998). Such policies are adopted for a variety of reasons, including: (1) to better utilise limited housing and infrastructure for the care of immigrants, (2) to decrease the cost of maintaining immigrants, (3) to lessen native resistance to refugees and dilute their visibility by spatially dispersing them, (4) to encourage their spatial assimilation, and (5) to disperse their labour market effects and possibly relieve regional labour shortages in peripheral areas. Rooth (1998) asserts that one effect of the refugee policy in Sweden has been to induce "migration into the centres later on." Therefore, it may be useful to distinguish refugees from other immigrant groups when studying immigrant migration behaviour.

Much less is known about immigrant mobility after they have settled in a country. Simon (1989) writes "It is logical that new immigrants should be particularly mobile, because (unlike natives) they do not already have a stock of knowledge of persons and institutions which make it cheaper to remain in a given place than to begin anew elsewhere." In a similar vein, Fischer et al. (1998) write that "individuals who have immigrated from abroad should be at the outset more mobile than natives, as they have already lost their location-specific insider advantages and have not yet accumulated many new ones." Australian (Norman and Meikle 1983), American (Belanger and Rogers 1992; Kritz and Nogle 1994) and Canadian (Moore and Rosenberg 1995) studies appear to support this hypothesis. Fischer and Malmberg (1998) find that immigrants in Sweden are initially more mobile than natives but that their propensity to migrate decreases with time spent in Sweden. A competing explanation for these findings is that immigrants, who typically have less information about locational advantages within a country, may be more prone to make "locational errors" which require more frequent "corrective" or return migration at the onset.

Yet, there are equally compelling reasons to expect that immigrants would be less mobile. The same factors that cause immigrants to cluster in certain areas may serve to impede migration too. Immigrant clusters may offer a variety of non-monetary benefits that significantly erode the advantages to migrate created by economic opportunities in other regions. Second, immigrants are less likely to be familiar with national job opportunities than are citizens who have lived their entire lives in the country, been socialised there, and developed significant networks and contact there. Third, immigrants may lack the language

skills that are a prerequisite for entering the national labour market. Finally, immigrants may face discrimination in labour markets (particularly in areas unaccustomed to large immigrant flows), thereby decreasing the economic benefits of migrating. Although no empirical studies support the hypothesis that immigrants are less mobile than natives, two studies (Kritz and Nogle 1994; Rosenberg 1995) find that immigrant clusters have an impeding effect on immigrant interregional moves. In addition, Fischer and Malmberg (1997) find no differences between Finnish and Baltic immigrant and native Swede migration propensities once the usual explanatory variables are introduced. That is to say, individual attributes such as age, income, and educational level explain group mobility differences rather than national origins for these particular groups.

Another question which is difficult to divorce from the issue of propensity to migrate is where immigrants migrate to when they do migrate. If immigrants are more mobile, one possibility is that they move in order to be closer to ethnically similar individuals rather than in response to pecuniary economic incentives such as employment and earnings opportunities. This situation might be more likely to arise in situations where initial immigrant settlement decisions were uninformed or dictated by the government (such as the "Whole of Sweden Strategy"). In this event, greater mobility may not signal greater assimilative potential but rather the reverse. Regional effects may be manifested in increased residential segregation, perhaps greater urban concentration, and labour markets that do not equilibrate as well. The opposite scenario is equally plausible. Immigrants may become more sensitive to economic incentives once language and cultural impediments are removed after a few years of acculturation to the host society. In addition, they may have a greater tendency to move to places with more employment opportunities if their unemployment risk is higher. It might also be argued that, if immigrants have looser attachments to place (or "insider advantages"), they may be more likely to respond to pecuniary incentives because "return migration" (migration to place of birth) cannot influence migration patterns. Unfortunately, there appears to be little empirical literature available that can shed light on this migration issue.

3. Data

The data used for the empirical work in this paper are drawn from a longitudinal, geographically descriptive micro database called TOPSWING (*T*otal *P*opulation of *S*Weden *I*ndividual and *G*eographical database) obtained from Statistics Sweden and housed at the Spatial Modelling Centre in Kiruna, Sweden. The database contains detailed demographic and socio-economic information about every individual in Sweden during the period 1985-1995 derived from quintennial censuses and tax and social insurance records. Some of the more relevant items available for this study are variables representing age, sex, marital status, number and age of dependants, educational level, country of birth, length of residency in Sweden, income, employment status, and dates for changing residences. In addition, the database identifies the location of individuals, workplaces, and housing with geographical coordinates measured at a level of accuracy of 100 meter square. This resolution makes it possible to aggregate individuals into various user-specified regional boundaries for analysis and to visualise spatial outcomes with Geographical Information Systems. For the purposes of the present study, however, only migration between labour market regions is modelled. Sweden is divided into 108 separate labour market areas (also known as "LA regions") according to 1990 definitions developed by Statistics Sweden and the Swedish Department of Finance (Finansdepartementet 1994). The labour market boundaries are selected so as to maximise intra-regional commuting flows and minimise interregional flows. Since the main factor in daily activity is commuting distance, labour market areas are the most appropriate geographical units for interregional migration research.

TOPSWING has information on nine million Swedish residents. However, in order to make the empirical work manageable, it was decided to draw a 5% sample of Swedish families from the database. This sample was created by utilising a systematic random sampling method. The sample contains 458,854 individuals who were resident in Sweden in 1990, including 9,862 who moved between labour markets during the year. It is worth noting that, whereas the foreign born make up 13.6% of the sample, 18.4% of the movers are immigrants. The sources of this discrepancy will be investigated in the remaining sections. For the subsequent analysis, unless indicated otherwise, all values are measured in 1990 and migration occurs during 1990. Moreover, individuals between the ages of twenty-five and sixty-five are used as

the units of analysis. These age cut-offs were chosen because the resulting population is more likely to be influenced by labour market conditions than minors, college-age migrants, and retirees. Individuals are used as observations rather than household heads, although there are arguments in favour of each (Flowerdew and Boyle 1995).

4. Explaining immigrant mobility behaviour

Decomposing the migration decision

Geographers have argued that migration decisions are highly complex because individuals are typically faced with the problem of processing information concerning a large number of potential alternatives (Stillwell 1991). Indeed, there is some evidence that suggests individuals have a limited capacity for processing such information (Simon, 1969; Lindsay and Norman, 1972; Newell and Simon, 1972; Norman and Bubrow, 1975). Because of these human limitations and in order to represent choices in a manageable way, it has been proposed that migration decisions be modelled in a nested, hierarchical fashion (Holm and Malmberg 1997; Moore and Rosenberg 1995). A similar hierarchical approach has been recommended to represent industrial location search by firms (Walker and Calzonetti 1990).

One way to model the interregional migration decision, suggested in Holm and Malmberg (1997), is to split it into three separate decisions (see figure 1). First, an individual decides whether or not he/she wants to migrate. This choice is likely to be influenced by a variety of life-cycle and economic factors. Once the household has made that decision, it must determine which region offers the best migration possibilities based on destination opportunities and origin characteristics. Finally, the individual chooses a locality within the region to occupy. For this paper, only the first two decisions will be investigated.

The decision to migrate

The first decision can be estimated using logit regression, where the independent variables consist of individual demographic and socio-economic characteristics that are likely to influence a person's desire to migrate. The value of the dependent variable is equal to one if an individual moved between labour markets in 1990 and zero otherwise. There is a large literature regarding the variables which influence an individual's decision to migrate (Greenwood 1975). These attributes include individual and household characteristics such as age, sex, household income, home ownership, previous number of moves, level of education, number of children, marital status, employment status, and duration of stay in present location. Table 1 shows variables selected from TOPSWING to be used in the empirical analysis. Each of these variables is described here briefly to justify its inclusion.

Demographic factors are the most conspicuous determinants of propensity to migrate. Migration propensities are greatest during young adulthood, when individuals make the decision to go to university or enter the labour force, and diminish with age (**AGE**). Economic theory predicts this result because younger people typically have the most to gain from migration, since they are both likely to have relatively small costs of relocating (both out-of-pocket and psychic) and have many active employment years to realise the benefits of migration (Ehrenberg and Smith 1991). However, a slight increase in the tendency to migrate can be expected for those entering retirement age (**AGE2**) as the workplace ceases to bind them to a particular region. Gender (**SEX**) is typically not an important personal characteristic that distinguishes migrants from non-migrants in empirical research. However, there are reasons to expect some relationship, both positive and negative. For instance, wage discrimination on the basis of sex, particularly if concentrated in higher earning occupational fields, would result in lower returns to female migration and a lesser propensity to migrate. On the other hand, if as has been observed in labour force decision studies, women are more sensitive to income and wages than men (Killingsworth and Heckman 1986), women should be more responsive to interregional differences in wages as well and show a greater propensity to migrate.

Stronger family commitments such as being married or having children generally decrease interregional mobility. When individuals are married (**MARRIED**), the mobility decision is affected by the increased costs of movement and the probable loss of comparable spousal

income in the new location. This mobility impeding effect of marriage may be more severe for females since males are generally the higher wage earner in families. Divorcees (**DIVSEP**) do not face the same constraints, and may in fact have the desire to migrate in order to correct for sub-optimal locational decisions that were imposed during marriage. Children also have been found to decrease individual mobility, though the ages of the children plays a role in the strength of this relationship. Generally, school age children are more of an impedance than pre-schoolers since the psychic costs of re-location are likely to be much higher. In addition, larger families are more costly to move than smaller families. The number of children (**NCHILD**) is used here to capture both of these effects. Since larger families will be more likely to have older children as well, this will tend to reinforce its mobility inhibiting effects.

Some variables are indicators for one's "attachment to place," "insider advantages," or the stock of social capital accumulated in certain locales. Individuals who move frequently (**NMOVE**) or have resided at a particular location for only a short time (**DURATION**) are less likely to have established intimacy with residents and formed the kinds of social, professional, and civic ties that would result in substantial psychic costs if they moved (Fischer and Malmberg 1997). Owning a home (**HOME**) is another indicator of local rootedness. Those who do not purchase a home may be revealing their preference to remain mobile and should have substantially lower moving costs as a result of not needing to sell a home.

Simple economics are the motivating factor in most interregional migration decisions. Those with secure, high family incomes (**FAMEARN**) are less likely to migrate. Low wage earners and the unemployed (**WORK**) are more likely to migrate. This relationship may be clouded to some extent. Individuals in lower classes may also differ substantially in their future orientation, preferring present to future consumption. If this is evident, it will take substantial differences in interregional opportunities to motivate job search and relocation. Coupled with the relatively generous social support system in Sweden, these effects may counter somewhat the relationship between earnings and migration. College educated individuals (**COLLEGE**) are more likely to migrate because they are more likely to be integrated into national labour markets.

Two regional variables that describe economic conditions in the origin labour market are included. These are the local unemployment rate (**UNEMP**) and average earnings (**EARN**). Each is expected to capture push factors in migration decisions. Although a particular individual may have secure and rewarding employment, regional conditions may signal greater risk and uncertainty about future employment possibilities and fewer opportunities for advancement. Several other regional indicators are used to reflect regional immigrant networks, but they are discussed below.

Choice of Destination

The choice of destination will be assumed to depend on the locational attributes of the origin and destination labour markets. The regression equation adopted here is based on a modified gravity model of migration flows as described in Isserman et al (1985). It models migration flows from labour market i to j as a function of origin and destination populations, distance, and various economic variables. Expectations are that the populations of origin (**LAPOP**) and destinations (**LBPOP**) are directly related to labour market migration flows, while distance (**LDIST**) is inversely related. Also, earnings in the destination region (**LBEARN**) are expected to be positively associated with migration flows while the unemployment rate (**LBUNEMP**) is expected to have a negative association. In addition, because this study is interested in the attractive/repulsive effects of immigrant communities on migration flows, measures of immigrant networks are included (**LBFLAND** and **LAFLAND**). Each of these variables, expressed in terms of natural logarithms, is defined in table 2.

Differences in immigrant internal migration behaviour

Recall that the basic question is whether the migration behaviour of immigrants differs from natives. Because migration is a complex spatial decision, it is useful to further sub-divide the question into two sub-questions corresponding to the first two decisions described earlier. Do

immigrants have a greater or lesser propensity to migrate, once demographic and socio-economic attributes affecting the migration decision are controlled for? Do these demographic and socio-economic determinants play as important roles in immigrant mobility behaviour as they do for natives? Furthermore, once the migration decision has been made, do immigrants respond to the same locational incentives? Do they, for instance, tend to move where there are greater economic opportunities or to cluster in areas with larger immigrant populations.

Dividing Swedish residents into immigrants and natives may suffice for an initial analysis. However, Swedish immigrants are a fairly heterogeneous group. Some groups encounter few cultural or language barriers in Sweden and might be expected to cope fairly easily with their new situation after immigrating. Therefore, they may be expected to exhibit mobility behaviour that resembles that of native Swedes. Although Sweden has a fairly generous and elaborate system for educating immigrants and strong anti-discrimination laws, others groups may still face substantial problems because of language barriers and cultural differences.

One way to measure the level of anxiety and discomfort that immigrants are likely to encounter is to ask the Swedes themselves. Lange (1991) constructed a "cultural distance" index based on a national survey that measures Swedish attitudes towards different immigrant groups (see figure 2). It shows that Nordic immigrants (who share the same religion and, with the exception of the Finns, a similar language) are regarded as being the most similar to themselves. Western Europeans and North Americans can be aggregated into the next category followed by southern and central European nationals. Latin Americans and immigrants from the Balkan states of Yugoslavia and Greece are more dissimilar. The most culturally distant are immigrants from Asia and Africa. The hypothesis to investigate here is whether there are any differences in the mobility behaviour of immigrants based on this classification. One might anticipate the effects of being an immigrant to be indistinguishable for Nordic immigrants. On the other hand, the effects may be particularly pronounced for Asian and African immigrants, who are viewed as being the most different. An attempt was made to recreate the immigrant origin categories suggested by Lange's index using the TOPSWING data. Table 3. lists the principal countries included in each of these immigrant origin categories.

5.0 Results

Table 4. shows the results of logit regressions for the decision to migrate. Only results statistically significant at the $\alpha=.10$ are recognised. The socio-economic and demographic explanatory variables were described in section 4.0. The variable **FLAND** indicates whether an individual is an immigrant or not. Since the results for this regression form a benchmark for subsequent comparisons and because the coefficient signs are noteworthy in themselves, some of the major findings are summarised here. First, the propensity to migrate is a quadratic function of age (**AGE**). Family obligations, as expected, have a negative effect on the likelihood of migration; having children (**NCHILD**) and being married (**MARRIED**) decreases the likelihood while being divorced or separated (**DIVSEP**) increases it. An individual is less likely to move if he has a greater attachment to the area as measured by duration of stay at the present location (**DURATION**) and home ownership (**HOME**). Individuals who already have a degree of economic security as measured by higher family earnings (**FAMEARN**) and being employed (**WORK**) are less likely to move. However, higher education achievement (**COLLEGE, HIGH**) is associated with greater mobility. Finally, a healthier local economy (**EARN**) is associated with a lower propensity to migrate. Only three of the socio-economic and demographic variables are not statistically significant: **SEX**, **NMOVE**, and **UNEMP**. The argument that gender is an important variable was tenuous; so statistical insignificance is not terribly surprising. **NMOVE** is moderately correlated ($r=-.54$) with **DURATION**, the second mobility indicator used in the regression. **UNEMP** is a somewhat unreliable measure of unemployment because it actually measures both unemployed individuals and those out of the labour force. By and large, however, the results conform to expectations.

The results suggest that there is no difference between immigrants (**FLAND**) and natives, but immigrants become less mobile with the passage of time (**YEARIMIG**). Based on this

analysis, one would conclude that immigrants migrate in greater proportions only because they differ from natives with respect to demographic and socio-economic characteristics known to affect the propensity to migrate. Table 5 shows that immigrants within the 25-65 age group tend to be younger, are much more likely to be unemployed, more likely to be divorced, much less likely to own a home, and exhibit slightly shorter duration of stay in their labour market region of origin. However, this conclusion would be premature because the regression fails to take into consideration two factors that may be important in migration choices. First, the size of communities of culturally similar individuals where immigrants originate may have some bearing on the migration decision (Kritz and Nogle 1994; Moore and Rosenberg 1995). Immigrants may accrue certain “insider advantages” and may be reluctant to sacrifice these ties without corresponding larger rewards. Second, immigrants may differ substantially in their migration behaviour depending on their national origin and the obstacles they are likely to encounter adapting to new environments.

As the remainder of table 4 and table 6 show, the results are very sensitive to these specification issues. Column (2) of table 4 shows that once account is taken of the size of the origin immigrant community, by using the interaction term $MFLAND (=FLAND \times PFLAND)$, immigrants are *more* likely to migrate. Immigrants are less likely to leave regions with large immigrant communities. Column (1) of table 6 shows that the likelihood to migrate is quite sensitive to national origin. Most immigrant categories are not noticeably different from natives (the default category). Immigrants from southern and eastern Europe ($FLAND3$) are actually *less* likely to migrate. Only immigrants from Asian and African countries ($FLAND5$) show a greater propensity to migrate. However, once the relative size of each immigrant community is controlled for ($MFLAND1-MFLAND5$), most of the immigrant groups appear to be more mobile. Only Nordic immigrants are indistinguishable from the natives.

Table 7 addresses the issue of whether there are any systematic differences in the sensitivity of immigrant groups to the socio-economic and demographic variables that influence migration decisions. Results show that, unlike natives, age (AGE) is generally not a statistically significant factor in migration decisions. This finding appears to conflict with Bartel (1989) who argues, “Older individuals probably face higher psychic costs of relocation, especially in the case of immigrants who rely on ethnic enclaves for emotional support.” On the other hand, gender sometimes is statistically significant. Female immigrants from Western Europe and North America and Asia and Africa are less likely to migrate than males. The latter result might have some connection with the fact that most of these immigrants are drawn from predominantly Islamic countries in which females are expected to play more traditional roles. With the exception of Nordic immigrants and partly Asian and African immigrants, family factors do not appear to be important in migration decisions. In addition, education is important only for Nordic immigrants, a finding that appears to be at odds with Bartel (1989) who argues that “Education makes individuals better able to acquire information and adapt to environmental changes.” Finally, largely consistent with previous findings, the relative size of the immigrant population is statistically significant for the more culturally different groups and regional economic conditions are important also.

Table 8 reports the results of a log linear model of labour market flows. Only two regressions are performed because sub-dividing immigrants into culturally similar groups resulted in interregional migration flows that were too small to analyse. The first column shows the results of a log-linear regression of labour market migration flows for natives. The second column shows the same for immigrants. Results for each regression are consistent with the gravity model. Origin and destination populations ($LAPOP$ and $LBPOP$) as well as distance ($LDISTANCE$) have the expected coefficient signs. In addition, destination average earnings ($LAEARN$) has an attracting effect while origin unemployment rate ($LAUNEMP$) is repulsing. The signs on the remaining economic variables ($LBEARN$ and $LBUNEMP$) are not consistent with expectations. Each should have a negative sign, implying that higher unemployment rates inhibit migration flows there and higher origin average earnings reduce out-migration, but the results show each is positive. These counterintuitive findings are not uncommon in the migration literature (Isserman et al. 1985). Finally, the only substantial difference between the determinants of native and immigrant flows is the role of immigrant community size in the origin and destination labour markets. The number of immigrant residents in destination and origin ($LBFLAND$ and $LAFLAND$) is statistically significant in each equation. Immigrants are

more likely to flow from regions with large immigrant populations to other regions with large immigrant populations, while native flows are less likely to flow from and to such regions.

In sum, there are some differences in the mobility behaviour of natives and immigrants. On the whole, the underlying determinants of migration and origin-destination migration flows are similar. Both immigrants and natives react to the underlying migration incentives in the same predictable fashion. For example, unemployed immigrants are more likely to migrate but the same goes for native Swedes. The chief difference, however, lies in the role of the size of immigrant communities, which may proxy for unique social and economic support networks or immigrant “insider advantages.” The relative size of the immigrant community has an inhibiting effect on an immigrant’s willingness to migrate. However, once these “insider advantages” are taken into account, immigrants are actually more mobile than native Swedes. Moreover, the mobility impeding effects of these immigrant networks atrophies with time, perhaps as immigrants become more assimilated. Finally, immigrant migration flows are influenced by the size of immigration communities in the destination. That is to say, once an immigrant has made the decision to migrate, the size of the immigrant community in the candidate regions is likely to be an important factor in the destination choice.

6.0 Summary and conclusions

This paper is concerned with differences in internal migration behaviour between immigrants and natives. By splitting the migration decision into two levels: (1) the decision to migrate and (2) the choice of destination, it is possible to identify better the effect of demographic, socio-economic, immigrant, and regional characteristics on mobility behaviour. The paper shows that there are many similarities and a few notable differences in the migration responses of natives and immigrants. First, although immigrants and native propensities to migrate are influenced by the same underlying demographic and socio-economic variables, (e.g., age, earnings, marital status, family size), the size of immigrant communities in the originating region has some bearing on the migration decision and this influence is more evident for immigrant groups which are more “culturally distant” from the natives. The relative size of immigrant communities may be important because it proxies for certain “insider advantages” that are independent of the amount of time invested in developing intimate relationships with members of the community. Second, immigrant communities may help shape the destination choices of immigrants, once they have made the decision to move. Immigrant migration flows appear to be directed towards regions that have larger immigrant populations, while native flows appear to be directed away from these same regions. This latter result may be suggestive of native “flight” similar to what has been observed in some areas of the United States (Frey 1995).

These results suggest that interregional macroeconomic econometric models which assume that native and immigrant internal migration flows are the same may result in some simulation and forecasting error. Although it is relatively straightforward to simulate the effect of different immigrant settlement patterns on regional economic-demographic outcomes with models such as NRIES II (see Isserman 1993 for an example), the dynamics of immigrant internal migration cannot be reproduced because the models do not differentiate between foreign-born and native migration flows. The results here suggest that there will be some tendency for immigrants to perpetuate concentrated initial settlement patterns and for this clustering to be reinforced to some degree by subsequent migration. This immigrant “stickiness” means that the socio-economic and demographic effects of immigration may be less diffuse than predicted by current models. In a follow-up to this study, simulations will be conducted with the microanalytic simulation model SVERIGE, in order to study the effect of differences in native and immigrant migration behaviour on regional economic-demographic outcomes for Sweden.

ENDNOTES

¹ Not everyone agrees that assimilation success can be measured by looking at residential segregation and migration behaviour. For example, Ellis and Wright (1998) argue that immigrant clusters improve immigrant educational and employment opportunities and that equalisation in these areas is more indicative of assimilation.

² See, for example, major interregional economic-demographic econometric models such as NRIES II (Isserman 1993), ECESIS (Beaumont et al. 1986), and REMI (Treyz et al. 1992).

³ This microsimulation model is described further in Vencatasawmy and Holm (1998) and Vencatasawmy and Swan (1998).

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Table 1. Determinants of decision to migrate.

<i>Demographics</i>	
AGE	Age in years.
AGESQ	Age in years squared.
SEX	Gender (1=Female, 0=Male)
<i>Family</i>	
NCHILD	Number of children in the family.
MARRIED	Dummy variable indicating if married.
DIVSEP	Dummy variable indicating if divorced, separated, or widowed.
<i>Mobility</i>	
DURATION	Duration of stay in present labour market (in months).
NMOVE	Number of previous moves between labour markets during 1995-93.
HOME	Dummy variable indicating home ownership.
<i>Employment and Earnings</i>	
FAMEARN	Earnings of individual and partner (100s of SEK).
WORK	Dummy variable for employed.
HIGH	Dummy variable indicating high school graduate.
COLLEGE	Dummy variable indicating college graduate.
<i>Immigration</i>	
FLAND	Dummy variable indicating immigrant.
FLAND1	Dummy variable indicating Nordic immigrant.
FLAND2	Dummy variable indicating Western European and North American immigrant.
FLAND3	Dummy variable indicating Southern and Eastern European immigrant.
FLAND4	Dummy variable indicating Latin American or Balkan immigrant.
FLAND5	Dummy variable indicating Asian or African immigrant.
PFLAND1	Proportion of labour market population from Nordic countries.
PFLAND2	Proportion of labour market population from Western Europe and North America.
PFLAND3	Proportion of labour market population from Southern and Eastern Europe.
PFLAND4	Proportion of labour market population from Latin America and Balkans.
PFLAND5	Proportion of labour market population from Asia and Africa.
MFLAND	$FLAND \times PFLAND$
MFLAND1	$FLAND1 \times PFLAND1$
MFLAND2	$FLAND2 \times PFLAND2$
MFLAND3	$FLAND3 \times PFLAND3$
MFLAND4	$FLAND4 \times PFLAND4$
MFLAND5	$FLAND5 \times PFLAND5$
YEARIMIG	Years resided in Sweden.
<i>Regional</i>	
UNEMP	Unemployment rate
EARN	Average earnings for employed

Table 2. Determinants of labour market migration flows.

<i>LBPOP</i>	Log of population in destination labour market region
<i>LAPOP</i>	Log of population in origin labour market region
<i>LDISTANCE</i>	Log of distance between the geographical centres of origin and destination labour market regions
<i>LBEARN</i>	Average earnings for residents between 16-65 years of age in destination labour market regions
<i>LAEARN</i>	Average earnings for residents between 16-65 years of age in origin labour Market regions
<i>LBUNEMP</i>	Proportion of residents between 16-65 years of age unemployed in destination labour market regions
<i>LAUNEMP</i>	Proportion of residents between 16-65 years of age unemployed in origin labour market regions
<i>LBFLAND</i>	Proportion of residents in destination labour market region that is immigrant
<i>LAFLAND</i>	Proportion of residents in origin labour market region that is immigrant

Table 3. Immigrant origin categories.

- (1) Nordic (Norway, Denmark, Iceland, Finland)
- (2) Northwestern Europe, North America and Oceania (Germany, Great Britain, Ireland, Other Europe, America, Canada, Oceania)
- (3) Southern and Eastern Europe (Baltic states, Greece, Italy, Spain, Portugal, Albania, Romania, Czechoslovakia, Poland, Hungary, Former Soviet Union, Bulgaria)
- (4) Latin America and the Balkans (Yugoslavia, Bosnia-Herzegovina, Central America, Chile, South America)
- (5) Asia and Africa (North Africa, Sub-Saharan Africa, Ethiopia, Eritrea, Somalia, Sudan, Iran, Iraq, Turkey)

Table 4. Results for decision to migrate.

	(1)		(2)	
	Parameter Estimate	Pr> χ^2	Parameter Estimate	Pr> χ^2
Constant	5.8100	0.0001	4.6364	0.0001
AGE	-0.0446	0.0001	-0.0428	0.0003
AGESQ	0.000363	0.0088	0.000347	0.0125
SEX	-0.0179	0.5528	-0.0174	0.5639
NCHILD	-0.1729	0.0001	-0.1718	0.0001
MARRIED	-0.2208	0.0001	-0.2243	0.0001
DIVSEP	0.1681	0.0021	0.1726	0.0016
DURATION	-0.0362	0.0001	-0.0360	0.0001
NMOVE	0.00845	0.4577	0.0114	0.3176
HOME	-0.2277	0.0001	-0.2186	0.0001
FAMEARN	-0.00004	0.0019	-0.00004	0.0013
WORK	-0.5237	0.0001	-0.5172	0.0001
HIGH	0.2355	0.0001	0.2314	0.0001
COLLEGE	0.7583	0.0001	0.7501	0.0001
FLAND	-0.0192	0.7490	0.9188	0.0001
MFLAND	--	--	-9.7549	0.0001
YEARIMIG	-0.0245	0.0001	-0.0246	0.0001
UNEMP	-0.7844	0.3595	0.6953	0.4422
EARN	-0.00402	0.0001	-0.00331	0.0001
Number	238,994			

Table 5. Descriptive Statistics for native Swedes and immigrants.

	(1) Swedes		(2) Immigrants	
	Mean	Standard Deviation	Mean	Standard Deviation
AGE	43.326	11.344	43.166	11.065
SEX	0.488	0.500	0.500	0.500
NCHILD	1.045	1.100	1.162	1.269
MARRIED	0.546	0.498	0.550	0.498
DIVSEP	0.093	0.290	0.156	0.363
DURATION	66.95	13.716	65.827	15.181
NMOVE	0.695	1.140	0.779	1.172
HOME	0.650	0.477	0.385	0.487
FAMEARN	2406	1529	1854	1481
WORK	0.864	0.343	0.721	0.449
HIGH	0.559	0.496	0.532	0.499
COLLEGE	0.227	0.419	0.186	0.389
FLAND	0	0	1	0
YEARIMIG	42.902	11.929	25.238	20.898
UNEMP	0.192	0.017	0.191	0.020
EARN	1189	89	1227	95
MIGRATE*	0.019	0.138	0.032	0.176

*Proportion who migrated between labour markets

Table 6. Results for decision to migrate with immigrant origin.

	(1)		(2)	
	Parameter Estimate	Pr> χ^2	Parameter Estimate	Pr> χ^2
Constant	5.5854	0.0001	4.5901	0.0001
AGE	-0.0437	0.0002	-0.0430	0.0003
AGESQ	0.000345	0.0130	0.000336	0.0159
SEX	-0.00567	0.8511	-0.00434	0.8860
NCHILD	-0.1778	0.0001	-0.1777	0.0001
MARRIED	-0.2409	0.0001	-0.2420	0.0001
DIVSEP	0.1789	0.0011	0.1855	0.0007
DURATION	-0.0360	0.0001	-0.0357	0.0001
NMOVE	0.0115	0.3145	0.0177	0.1212
HOME	-0.2104	0.0001	-0.1924	0.0001
FAMEARN	-0.00003	0.0105	-0.00004	0.0064
WORK	-0.5156	0.0001	-0.5088	0.0001
HIGH	0.2496	0.0001	0.2540	0.0001
COLLEGE	0.7714	0.0001	0.7761	0.0001
FLAND1	-0.1168	0.1197	-0.1721	0.0833
FLAND2	-0.00964	0.9409	1.2567	0.0001
FLAND3	-0.4008	0.0014	0.7742	0.0015
FLAND4	-0.1081	0.3746	1.1354	0.0001
FLAND5	0.3980	0.0001	2.4403	0.0001
MFLAND1	--	--	1.1033	0.3935
MFLAND2	--	--	-125.7	0.0001
MFLAND3	--	--	-68.8730	0.0001
MFLAND4	--	--	-96.4574	0.0001
MFLAND5	--	--	-96.0396	0.0001
YEARIMIG	-0.0225	0.0001	-0.0215	0.0001
UNEMP	-0.5424	0.5285	-0.6203	0.5003
EARN	-0.00398	0.0001	-0.00320	0.0001

Table 8. Results for labour market migration flows.

	(1) Swedes		(2) Immigrants	
	Parameter Estimate	Pr> t	Parameter Estimate	Pr> t
Constant	-23.3208	0.0001	-6.1988	0.3115
LAPOP	0.2297	0.0001	0.0542	0.0477
LBPOP	0.2427	0.0001	0.1126	0.0001
LDISTANCE	-0.3537	0.0001	-0.1140	0.0001
LAEARN	2.4909	0.0001	0.4173	0.5185
LBEARN	0.7357	0.1854	0.5446	0.4318
LAUNEMP	0.8775	0.0001	0.1498	0.4934
LBUNEMP	0.2950	0.1093	0.2243	0.3097
LAFLAND	-0.0960	0.0443	0.1630	0.0047
LBFLAND	-0.0759	0.0986	0.1079	0.0618
R ²	.367		0.211	

Figure 1. Migration decision stages for three labour markets A, B, and C

- Decision to move
- Choice of region
- Choice of block



