Internal Migration of Natives and Immigrants Following Job Displacement[*]

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Abstract:

In this paper discrete-time duration analysis is used to identify differences in the internal migration of immigrants and natives following job displacement. Human capital theory presents us with two hypotheses. One is based on immigrants having less location specific human capital, reducing the costs of migration and increasing the probability of migration. The other is based on ethnicity, immigrants living in ethnic enclaves will have higher costs to migration out of the enclave, due to the possibility of using country specific human capital within the enclave, reducing the probability of migration. The study is based on *all* displacements due to plant closure or major cutbacks in Swedish on-going establishments in 1987 and 1988. We follow residence up to 10 years after displacement and control for a wide range of human capital and family variables, as well as for labour market status and previous migratory behaviour. Findings support both of the hypotheses; settlement in enclaves does reduce geographical mobility for non-Nordic foreign born and foreign born are more mobile than native Swedes when enclaves and an extra effect on immigrants from living in a city have been controlled for.

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1 Introduction

Geographical mobility is an important means for labour market adjustment in response to structural change[1]. Blanchard and Katz (1992) found significant mobility responses to shifts in local labour demand in the US and that the effects on regional employment rates and wages of such shocks dissipated within a decade through population adjustments. Differences in responses to such shifts could therefore be important in explaining earnings and employment differences between groups in society. Topel (1986) showed that the emigration from declining areas and immigration to growing ones may be slower for minorities in society and that minority groups would therefore be more severely hurt by labour market shifts. Bound and Holzer (2000) found that the significantly lower levels of population adjustment to regional labour demand shocks contributed to the relative deterioration in earnings of individuals with less education and blacks in declining regions of the US during the 1980s and to increased earnings differences. Belanger & Rogers (1992) discuss another important aspect; the migration pattern of a given group affects its spatial concentration, which in turn affects its assimilation process.

In this paper we use discrete-time duration analysis to examine the internal mobility of almost 190 000 individuals who were all displaced through closure or major cutbacks in 1987 and 1988. The objective is to analyse differences in migratory propensity between native Swedes and foreign born[2]. Unlike previous studies we can control for both time and enclave effects. We use a unique data set where all individuals have suffered an identical labour market shock, displacement due to either a severe cutback or complete closure of the workplace, which we use as a starting point in our analysis. We then measure time until first migration following displacement. Since these individuals are displaced the analysis concerns individuals who are established on the labour market and the data set is unlikely to include recently arrived political refugees.

Immigrants constitute an increasing share of the Swedish population. In 1980, 7.5 per cent of the population were foreign born. By 1990 the share had increased to 9.2 per cent and by 2003, 12.0 per cent of Swedish residents were born abroad. Furthermore, in 2003 about 800 000 individuals were second-generation immigrants, born in Sweden but for whom at least one parent was not. Thus, understanding what drives internal migration of immigrants may have important policy implications. If immigrants are found to be more mobile than natives, they can be seen as more efficient in their job searching behaviour. This, in turn, would imply that the perceived costs of immigration could possibly be reduced.

There is some macro evidence suggesting that there is a positive relationship between immigrant inflow to Sweden and internal migration. During the 1960s Sweden experienced high levels of internal migration, measured as moves across county borders, followed by a decrease in the 1970s and early 1980s. After the recession of the early 1980s, during which mobility was reduced, internal mobility reached and surpassed the levels of the 1960s (Storrie and Nättorp, 1997). Interestingly, the pattern of immigration to Sweden from abroad is similar. During the 1960s there was a high rate of immigration, mainly for labour market reasons. In the 1970s the inflow of migrants decreased and the composition changed to

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[1] For a thorough description of economic theory on internal migration, see Greenwood (1975)

[2] We define an immigrant as being born abroad, with the exception of foreign born individuals whose parents are both born in Sweden. These individuals are classified as native Swedes. Foreign born is a better definition of immigrant than nationality, especially as living in Sweden although being born abroad identifies previous experience of migration.

consist mainly of political refugees or their families. During the 1980s the inflow of immigrants increased. One important factor in this relationship is that both internal migration and immigration of labour increases with the availability of jobs. However, this is not true for the immigration of political refugees, which now dominates the immigration to Sweden. Storrie and Nättorp (1997) showed that a major part of the significant increase in internal migration in the mid 1990s was attributable to an increase in the number of moves by foreign born residents, which in turn was due to the sudden increase of political refugees from the former Yugoslavia.

In human capital migration theory, migration is regarded as one of many forms of investment in human capital, migration will therefore only occur if the return is greater than the cost (Sjaastad, 1962). The return generally consists of increased earnings but the potential increase in earnings may be offset by a higher risk of unemployment in the destination, due to a lack of information on, and possibly also a lack of location specific human capital in, the destination labour market. Costs are divided into two parts; monetary and non-monetary costs[3].

Individuals facing economically identical migration choices sometimes do not make identical decisions. This can be mainly attributed to differences in non-monetary costs, which, according to Sjaastad (1962), are even more significant to the migratory decision than are the financial costs. This is also where we can expect the greater differences between natives and foreign born individuals, as attachment to the current location and the satisfaction with living there are influential factors to the decision. Residency satisfaction, and thereby the migratory decision, could vary between individuals of different ethnicity. These latter differences may be due to discrimination in the housing market or historical patterns of segregation, both of which constrain migration for minority groups (Enchautegui, 1997). Another reason may be a preference for living in areas of concentration of the own ethnic group, enclaves (Edin et al. 2003, Enchautegui, 1997). Furthermore, members of different ethnic groups have been found to respond differently to incentives to migration (Tienda & Wilson, 1992). There are also differences in search costs of information on alternative locations.

Chiswick (2000) presents two reasons for immigrants having a higher propensity to move. Firstly, there is selection into the group of immigrants, as they have already demonstrated a propensity to move. Secondly, as an effect of their relatively recent migration, they have accumulated less location specific human and social capital and therefore have lower costs to migration[4]. Many studies have shown that individuals with previous experience of migration are more likely to migrate again, see for instance Davanzo (1978) and Herzog & Schlottmann (1984). Belanger & Rogers (1992) show that foreign born are less attached to their region of residence but also that there are large variations, in the propensity to migrate, between individuals from different countries of origin. Bartel (1989) shows that immigrants are more likely to migrate within the United States than are comparative natives and that more educated immigrants are even more mobile than are those with less educational attainment. In one of the few analyses of the differences in native and immigrant mobility in Sweden, Ekberg (1995) uses a matching principle[5], showing that immigrants in Sweden are more mobile than are their native "twins".

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[3] It should be noted that the relationship between migration and employment is not obvious. Herzog & Schlottmann (1995) find no significant effect from migration on reemployment for displaced white male workers in the US.

[4] The classic example of this would be the arrival of immigrants in New York, who stay for a short time, before moving westward.

[5] Where individuals were matched with respect to age, sex, occupation, and location (county).

Some factors may affect immigrants differently than natives, for instance there may be differences in sensitivity to economic incentives because of different institutional, social, and cultural conditions, which affect decisions regarding migration (Tienda & Wilson, 1992). In the case of post displacement mobility, as a part of job search behaviour, greater difficulties in finding a job may also be forcing immigrants to be more mobile. le Grand et al (2004) show that immigrants, both first and second generation, have a much lower attachment to the Swedish labour market than native Swedes, apart from what can be explained by differences in traditional human capital variables. Olli Segendorf (2005) showed that immigrants had to search more intensely than native Swedes in order to find a job. It is probable that such increased job search behaviour also involves search in a more extensive geographic area. Increased mobility could therefore be due to both a higher willingness but also greater necessity to migrate.

An important factor in this discussion is the empirical observation that immigrants tend to cluster in "ethnic enclaves" with a high concentration of fellow compatriots[6]. Enchautegui (1997) discusses the effects from discrimination in the housing market, historical patterns of segregation, and a preference for living close to people of your own ethnicity. Borjas (2000) gives other reasons, in that living in ethnic enclaves may be providing welfare gains as well as welfare losses. A lack of country specific human capital may lead to difficulties for the newly arrived immigrant. The enclave may then be conducive to profitable ethnic specific activities (restaurants, grocery stores, etc.), as well as to provide useful job search networks. Borjas (2001) argues that a recently arrived immigrant will choose the location that offers the highest return to the skills the immigrant brings. Country specific human capital acquired in the country of origin will be worthless in the new country, but in an ethnic enclave some of it may still be rewarded. As a result, ethnic concentration would increase and enclaves would arise due to economic incentives

On the other hand living in an enclave may hinder the development of Swedish specific skills, of which language is the most obvious and arguably the most important, see Chiswick & Miller (2002)[7]. Socialstyrelsen (1999) report that Swedish language proficiency is important for immigrants both in finding work and in the chance of finding a job with a higher wage. Thus, although living in an enclave may help newly arrived immigrants find a job, the range of job opportunities and search networks within the enclave may be limited in scope and the long run effects could be negative. Borjas (2000) shows that living in enclaves does hinder economic assimilation of immigrants, and that this effect is relatively large, suggesting that segregation is likely to alter the incentives for the accumulation of additional human capital, which in turn hinders both economic and social assimilation. If immigrants have neither opportunity nor incentives to assimilate they risk facing problems on the labour market, which in turn increases the burden on the public welfare system and also increases other poverty-related problems (LaLonde & Topel, 1991). Furthermore, lack of assimilation will increase the difficulties of migrating to an area outside the ethnic enclave and have a locking in effect.

It is therefore plausible that living in an ethnic enclave can reduce the willingness to migrate after displacement. Tienda & Wilson (1992) show that living in an area of ethnic

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[6] See for instance Bartel (1989) and Frey (1996) for evidence from USA and Edin *et al.* (2003) from Sweden.
[7] Bauer et al. (2002) show that the causality may go in the other direction, as the locational choice of Mexican immigrants to the US is affected by their English proficiency. Immigrants with no or low English skills choose to reside in larger enclaves than do those with good English skills. Most probably, the effects are mutually reinforcing.

concentration significantly reduces the migratory propensity of Hispanic men in the US. Edin et al (2003) show that living in an enclave may have positive effects on earnings for some groups of immigrants in Sweden. Moreover, living beside one's compatriots may yield non-pecuniary welfare gains. Tienda & Wilson (1992) argue that if members of a minority group receive social and cultural benefits from living in enclaves the cost of migrating to a non-enclave region will be high. Therefore, enclave residents are willing to accept paying a hedonic wage premium before leaving the enclave and therefore risk earning less than they would had they not been living in an ethnic enclave. Rephann & Vencatasawmy (2000) argue that immigrants may have certain "insider advantages" when living in communities of culturally similar individuals and might therefore be more reluctant to leave such communities[8]. When controlling for this, they find that immigrants are more likely to migrate than natives.

From human capital theory, it is therefore not obvious whether immigrants should be expected to be more or less geographically mobile in their job search than native Swedes. The lack of location specific human capital due to the shorter time spent in a locality combined with greater difficulties in finding a new job would lead us to expect immigrants to be more mobile than native Swedes. On the other hand, living in an ethnic enclave would induce high costs to leaving the enclave, reducing mobility.

In this paper, results confirm both of these arguments. Settlement in enclaves does reduce geographical mobility for non-Nordic foreign born, and foreign born are more mobile than native Swedes when enclaves and an extra effect on immigrants from living in a city have been controlled for.

In the next section the data is presented, section 3 gives a short description of the model, results are presented in section 4, and section 5 concludes.

2 Data

This section begins with a description of the data, the sources used, and definitions of displacement, geographical mobility, and ethnic enclaves. This is followed by a discussion of attrition and descriptive statistics.

2.1 Data sources and definitions

The original data set covers all individuals in Sweden who were displaced through closures or substantial cutbacks[9] of establishments with ten or more employees, which occurred in 1987 or 1988. It should be noted that individuals can be displaced as early as 1986 due to advance notice of a forthcoming closure, see section 2.1.1 below. The data is collected from various registry data sources[10] and includes detailed information on a wide range of demographic, family, and labour market variables. All variables are registered on a yearly basis and we measure time from displacement until first migration. The latest displacement in the data occurs in 1988 and we have data until 1997 for all individuals, giving us a minimum period of observation of ten years. In order to treat individuals as equally as possible we put an upper limit of ten years on our observation period for all individuals, irrespective on which year they

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[8] For more on insider advantages, see Fischer et al. (2000)

[9] A substantial cutback is defined as a reduction of the workforce by 20% or more.

[10] See Appendix B for a description.

were displaced. Our long period of study ensures that we will observe all migration that is related to the initial displacement.

We limit our population to individuals who were aged 25 to 55 in the year of displacement. At ages outside this span individuals tend to move for non labour market reasons, related either to participation in higher education or exit from the labour market. Since our period of study is ten years and retirement age in Sweden is 65, we remove those who are older than 55 in the year of displacement.

After this age truncation and having removed individuals with missing or erroneous data, the data set includes almost 190 000 individuals displaced between 1986 and 1988, see Table 1.

<< Table 1 >>

2.1.1 Displacement

A plant closure can be a complex process lasting for many years, and not all employees stay to the final closure but leave earlier in the closing process. Our data therefore include individuals who are displaced up to 3 years before final closure. We consequently have observations of individuals displaced as early as 1986. Reductions in the work force, on the other hand, affect only the actual year of cutback and the group experiencing it is defined as employees who separated during a large cutback in 1987 or 1988, not followed within two years by a closure. There can be no early leavers in this displacement category and consequently the only displacements in 1986 are those displaced by closures.

Note that what is actually recorded in the data is separations, not displacements. We observe that a separation of employer and employee occurred some time between November 1st in the year prior to the cutback or closure and October 31st in the following year. As these separations occurred at the same time as substantial downsizing or a plant closure we interpret and treat them as displacements. [11]

2.1.2 Internal migration

The original data include municipality of residence registered in November each year. However, changing municipality does not necessarily constitute actual migration[12]. Long-distance migration is traditionally regarded as more labour market oriented than short-distance migration. The problem is that intra-region migration can be more long-distance than cross-border migration. Thus, analysing migration based on strictly geographical borders is problematic.

Statistics Sweden has constructed Local Labour Markets (LLMs) by examining the places of residence and work for all individuals in Sweden. These units were first used in migration research in Sweden by Storrie and Nättorp (1997), and are created by merging the Employment Register, which is based on the employers' social security payments at the establishment level, and the Population Register. Actual commuting behaviour is then used to construct LLMs by aggregating neighbouring municipalities, between which there is a high level of commuting, into LLMs. Borders are drawn between municipalities where commuting

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[11] Details of the closure process and the process of compiling this data can be found in Eliason and Storrie (2004).

[12] See Zax (1994) for the difference between a move and a migration and the implications thereof.

is very rare.[13] If one is to define migration in terms of moving due to labour market reasons, as opposed to, for example, merely moving to a new dwelling in a neighbouring municipality and commuting to the same work place, then a change of LLM is a very appropriate unit.

2.1.3   Ethnic enclaves

Recent literature has shown that some groups of foreign born experience positive income effects from living in ethnic enclaves in Sweden (Edin et al, 2003) and that foreign born individuals tend to aggregate in ethnic enclaves. Tienda & Wilson (1992) showed that living in such enclaves reduces willingness to migrate. We therefore include an enclave variable in our estimations. This variable is a combination of municipality and individual data. A municipality is a *potential* ethnic enclave if its share of residents with citizenship in any of the origin groups[14] is at least twice as high as the national share. The potential enclave is only an actual enclave for individuals of the same origin as the potential enclave, as only those individuals will experience the benefits of the enclave[15]. Thus, the indicator dummy for enclave residency varies between residents of the same municipality, depending on their region of origin.

A potential problem with this variable could be that most ethnic enclaves are located in the larger cities. It could therefore be difficult to distinguish between the effects of city and enclave. However, the large number of observations in our data enables us to make this distinction, as we have many observations of immigrants living both in and out of cities as well as enclaves, see Table 2.

<< Table 2 >>

2.1.4   Attrition

One reason for an individual no longer having a registered municipality of residence is death, which is identifiable in our data. The remaining attrition, where death does not occur, but residency is no longer registered is more problematic. The most probable reason for this attrition is emigration, another reason could be that the person has become homeless. Emigration may cause problems in that it is not a process entirely independent of the choice to migrate internally. Immigrants should be more inclined to emigrate, for the same reasons as they are assumed to be more mobile within the country. This is confirmed by looking at the data, where we can see that 12.2% of all displaced workers are foreign born. Among those individuals for whom we have attrition but who are not dead, the share is more than 44 %. It is highly probable that this attrition does indeed consist mainly of emigration. Klinthäll (2003) shows that of all immigrants arriving in Sweden in the 1968-1971 period, 50% had returned to their origin countries after 20 years. However, since we cannot be certain of the cause of the individuals being lost from our data we treat these individuals as stayers.

2.2   Descriptive statistics

Figure 1 plots the migration rates of native Swedes and foreign born before and up to ten years after displacement. As expected, migration rates for both groups increase at the year of displacement. One year later, migration rates decline to levels below those of the year prior to job loss. The patterns for native Swedes and foreign born are very similar, but with slightly

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[13] Details of the procedures are found in Statistics Sweden (1991).

[14] Origin groups are: Sweden, Nordic countries except Sweden, EU15 excluding any Nordic countries, other European countries, North America and Oceania, South America, Africa, Asia, and Unknown origin.

[15] This follows closely the definition used by Edin et al (2003).

higher rates for natives. The trend over the whole period is clearly declining and there is a surprisingly high degree of mobility in the years preceding displacement[16]. The declining trend after displacement can be assumed to largely depend on the diminishing effect of displacement combined with strong negative ageing effects.

<< Figure 1 >>

Storrie & Nättorp (1997) showed that the ageing effect on migratory propensity in Sweden is clearly non-linear. Therefore, age groups were constructed in our data, to allow for this non-linearity, and figure 2 plots migration rates in our sample by these age groups, where individuals have been grouped by their age in the year of displacement. The high rate of migration in the two youngest age groups explains the high mobility in the years preceding the job loss for the population as a whole.

<< Figure 2 >>

Native Swedes and foreign born differ mainly in terms of higher educational attainment for natives, fewer foreign born in the unmarried category, and that foreign born are more likely to live in one of the three major cities (The LLMs covering Stockholm, Gothenburg or Malmö), as can be seen in Table 3. Furthermore, foreign born individuals have more experience of unemployment and labour market programmes in the year before job loss.[17]

By definition, only foreign born can live in ethnic enclaves, and we find that just over 73 % of the foreign born in Sweden are enclave residents.

<< Table 3 >>

Characteristics of the displaced individuals grouped by region of origin can be found in Table *A1*. It is quite striking how all foreign born groups are more concentrated to the major cities than native Swedes. The highest degree of clustering is found among Africans and South Americans. Many foreign born groups are comprised of an appreciably higher share of men. South Americans and Asians have a larger share with children than do other groups.

Immigrants from Europe are generally older than natives, whereas the opposite is true for non-European immigrants. The average age in an origin group ranges from about 34 years old (Asia) to just below 40 years old (EU15). North Americans, Africans, and individuals from the Nordic countries are not married to the same extent as are other groups. All foreign born groups have a large share of individuals with no or very little education.

Turning to the differences between movers and stayers[18], we find larger disparities in characteristics. In Table 4 the characteristics in the year prior to displacement are shown. In general, the findings are in accordance with theory. We find the largest differences in that movers are younger, have a lower prevalence of children, and have a history of previous migration. They also have a lower frequency of being married. Of those who migrated after

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[16] Note that this is not anticipary migration of individuals with early warning of the forthcoming displacement, but migration to the job that the individual is later displaced from.

[17] These variables identify incidence during the year.

[18] Differences in characteristics are insensitive to the time span used. In table 3 an individual is classified as a migrant if he has migrated during the full ten year period. The corresponding information for migrants within the first five years can be found in table A3

job loss, a far greater share lived in cities prior to displacement. We can also see that there is a positive relationship between educational attainment and migration.

From these findings, we would expect to find positive effects on migratory propensity from education and previous migration, whereas negative effects are expected from age, children, and being married.

<< Table 4 >>

3 Econometric specification

We want to find what determines time to migration using data wherein changes in variables are aggregated to yearly measures. Most prior studies of migration have used logit-estimations in some form, with a dichotomous dependent variable for the occurrence of migration in a specified time interval. The problem with such modelling is that timing effects are not considered, probably due to there being no obvious starting point to measure time from. The ideal starting point would be the most recent previous migration, but this information is rarely to be found. In this paper, job displacement is used as a starting point, and it is probable that time since displacement has a significant impact on the decision to migrate. Thus, information on time is important and we employ a duration model.

Most methods for analysing event histories assume that time is measured as a continuous variable, assuming that only one event can occur at any given point in time, but the size of our data set and the fact that we have yearly observations results in large numbers of observed migrations in each interval, see table *A2*. When data only records the interval within which the event occurred it may be more appropriate to use a discrete-time model (Allison, 1982), which also has the benefit of being able to deal with time-varying explanatory variables, a potential difficulty in continuous time modelling.

The discrete-time hazard rate is:

$$h_{it} = prob\left(T_i = t \mid T_i \geq t; X_{it}\right)$$

where h_{it} is the conditional probability that an event occurs at time t, given that it has not already occurred and X_{it} is a vector of regressor variables which may vary over time. Together with the effects from included characteristics, we are interested in the distribution of T_i, which is a discrete random variable representing the time at which the end of the spell occurs.[19]

One of two approaches can be used. Either we assume that there is an underlying continuous-time model and estimate it, taking into account the discrete character of the data, using the logistic model. However, this model is most appropriate when events can only occur at regular, discrete points in time[20].

Since we assume that the time units in the data are only approximations of the true continuous time, a discrete-time counterpart to the continuous-time proportional hazards model, the complementary log-log function, is a better choice (Allison, 1995):

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[19] For a full description of deriving the likelihood function and more, see Jenkins (1995)

[20] An example often used for this kind of events is elections, whereby the governing party can generally only change when elections are held, say every fourth year.

$$\log[-\log(1 - P_{it})] = \alpha_t + \beta X_{it}$$

where α_t is the baseline hazard and P_{it} is the conditional probability that individual i migrates at time t, given that no migration has occurred previously.

Coefficients in the complementary log-log model are invariant to the length of time intervals, a property not shared by the logistic model. In practise however, the difference between the logistic and the complementary log-log function is likely to be trivial (Allison, 1982). In this paper, the latter of the two will be used[21].

An advantage of the complementary log log model is that the time scale is divided into intervals with one indicator variable for each interval. For each individual a group of binary dummy variables is included. Each of these variables identifies time since displacement and takes on the value one if the corresponding number of years has passed. Thereby, variable *d0* equals one, and variables *d1-d9* equal zero, at the year of displacement. In the following year variable *d0* equals zero and instead *d1* equals one, and so on. This is the discrete-time equivalent of the Cox model in continuous time, whereby we can easily estimate the effect of time without imposing any restrictions on the shape of it.

One potential problem is censoring, whereby some individuals will not have migrated before the end of our observation period. However, using maximum likelihood estimation we still make full use of the information available from these observations and information from the whole sample can be used, even though only a small share of all observed individuals actually migrate.

In order to capture any unobserved heterogeneity we utilise the strength of registry panel data and estimate the discrete time duration model including individual specific random effects.

4   Results

In this section the results from estimations are presented and discussed. Firstly, a basic model is estimated. Secondly, differences in results between different origin groups are discussed. This is followed by the estimation of an extended model, whereby stronger effects from residence in cities among foreign born and the effect of enclaves is included.

4.1   Basic model

We want to investigate whether controlling for differences in characteristics[22] changes the pattern found in migration rates, and the results from the estimation of a model including human capital, family, and labour market variables, can be seen in Table 5. Estimated coefficients for all variables but one are statistically significant at the one percent level. The coefficient for being foreign born does not have any significant effect. Thus, when we control for the included variables the migratory behaviour of immigrants is no longer any different from that of native Swedes. Second generation immigrants on the other hand, are significantly

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[21] Both models were tried, proving to give almost identical results, both with respect to parameter estimates and statistical significance. However, the underlying assumptions of the complementary log log model are closer to reality, and this model is therefore preferred.
[22] A list of the included variables can be found in table A4.

more mobile than are native Swedes, which could be related to a need for more extensive job search as discussed above.

<< Table 5 >>

We find an increasingly negative effect of age until the individual reaches an age of 60 or more, where migratory propensity is not as severely reduced any more. This supports the hypothesis that individuals at, or approaching, retirement age become more mobile than in the preceding years. Men are found to be more mobile than women, whereas having children reduces mobility. The negative effect from children is probably related to the extra social ties that would have to be severed if you were to take your child away from friends. Surprisingly, the mobility of unmarried individuals is not significantly different from that of those who are married. Due to difficulties in finding a job for the spouse in a new region, one would expect marriage to work as a tie to the region of residence, reducing the willingness to migrate. This however is not supported by the data. However, being divorced or widowed appears to cut the ties and increase mobility compared to married individuals. For individuals with recorded education, mobility increases with educational attainment, as expected. Less expected is the finding that individuals with no registered education are more mobile than the reference group with less than nine years of education.

Employment has a significant negative effect on migration, which is what we would expect, as the need to migrate in order to find work has been removed. Unemployment, on the other hand, has a strong push effect, for the contrary reason[23]. Participation in labour market programs has a negative effect. Observed previous migration has a positive effect on migratory propensity, which is in accordance with theory on location specific human capital. Disposable income has a positive effect on migration.

The decline in migratory propensity over time can be seen from the declining marginal effect of the *d1-d9* variables[24]. The negative but decreasing propensity indicates that migration becomes more unlikely the longer the time since displacement. Irrespective of the specification used the time effect is significant and similar in shape for the sample as a whole and for all origin groups. We see a large change from the year of displacement to the subsequent year, where we also found a peak in migration rates, followed by a period of relatively small decrease in coefficients. This in turn is followed by a second larger decrease four years after displacement, where after there are only minor changes in coefficients for the following years. This may be due to the inertia discussed in Greenwood (1985). In the year of displacement some chose to migrate to a new LLM, others will try to find a new job in the region of residence. Thus, some individuals migrate straight after displacement while others stay a while to see what happens. More than four years after displacement, time since displacement is no longer influential to your migration decision. Of course, the majority of all displaced workers do not migrate at all. Having lived in a location for some time should

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[23] Previous research has shown that about 45% of those unemployed in Sweden who find new jobs are reemployed by the same employer, see Jansson (2002). One would therefore expect individuals who experience displacement due to closure to be more mobile than those who are displaced due to a cutback, as they cannot hope to be rehired by the previous employer. However, no such difference is observable in our data.

[24] Various other specifications of duration dependency have also been tried. One alternative was to include period effects instead of yearly dummies, where time was divided into three periods; one to three years, four to six years, and more than six years after displacement, respectively. Another was the discrete time equivalent of a Weibull specification, where the effect of time was included in the form of 'log of time'. Both of these specifications yielded results almost identical to those of the model presented in table 5. The presented specification was chosen as it is the one that most clearly shows the strong but declining effect of time.

create emotional and other ties to the area, as well as location specific human capital, reducing ones propensity to migrate beyond what is captured in the included variables. It is not obvious why this pattern should be the same after displacement and the declining hazard requires careful consideration, since this could also be due to unobserved heterogeneity.[25]

One possible source of such heterogeneity could be differences between origin groups and we therefore look closer at the estimated effects for separate origin groups. Most of the coefficients maintain the same sign even though statistical significance is reduced, due to the small number of migrants in each origin group.

In order to increase sample size and for reasons of clarity we aggregate the origin groups into four larger groups; native Swedes, individuals from other Nordic countries, individuals from the non-Nordic countries that constituted EU15[26], and other regions of origin. In a majority of cases the signs of estimated coefficients are no different from those obtained for the full sample, see Table 6. Education only has significant effects in a few cases among foreign born from "other regions". This indicates that it is not a lack of educational attainment that constitutes the large share of individuals in the group of with no registered unknown educational attainment, but rather poor data. A related issue is that of immigrants not having the opportunity to reap the benefits of their educational attainment. This would reduce their potential returns to migration through the greater portability of higher education, which could be part of the explanation of the lack of effect from education. This argument is supported by the data, as estimated coefficients on education become more significant for individuals originating from regions culturally close to Sweden.

4.2   Extended model

It is apparent from the estimations by grouped origin that the negative effect from living in one of the three major cities is larger the more geographically distant your origin and we include an interaction variable for being foreign born and living in one of the three major cities. We also include a dummy for residence in an ethnic enclave. The results can be seen in the middle column of Table 5. The interaction effect from being foreign born and living in a major city in the extended model is negative and significant, showing that the city effect has a significantly larger impact on foreign born than on natives. Furthermore, the inclusion of this interaction effect results in the marginal effect from being foreign born being positive and significant at the one percent level. We can therefore conclude that foreign born individuals are more migratory, but that it is the effect of cities, combined with the larger share of foreign born residing there, which reduces their migration rate to a level similar to, and even below, that of native Swedes. However, the coefficient for living in an enclave is still insignificant.

Due to cultural similarities between Sweden and the other Nordic countries it could be argued that ethnic enclaves should not be important to immigrants from the Nordic countries. The model is therefore re-estimated excluding Nordic immigrants. The results can be found in the rightmost column of Table 5, where we can see that the enclave effect is now found to be

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[25] Imagine a case without any time dependency, and that we have two groups, high- and low-risk individuals, but this distinction is ignored. When analysing time to first migration we remove those individuals who have migrated from the set of observations "at risk" of migrating. This means removing more individuals from the high-risk group, as more of these migrate, resulting in a reduction of the average migratory propensity in the remaining sample. Thus, if we ignore the difference between the two groups, we would observe a decline in general hazard over time, simply due to self-selection of the "surviving" sample.

[26] i.e. Belgium, UK, France, Greece, Ireland, Italy, Luxemburg, Netherlands, Portugal, Spain, Germany, and Austria

significant and negative[27]. The only other coefficients that change are those for being foreign born and for the interaction term for being foreign born and living in a large city, which is what we would expect as those immigrants who are generally most culturally similar to native Swedes were removed from the estimation.

5   Conclusions

In this paper we have found differences in migratory propensity between native Swedes and foreign born following job displacement. We have shown two different human capital hypotheses on these differences to be true.

Descriptive migration rates showed that immigrants do not migrate to the same extent as do native Swedes. However, regression results from the basic model showed that the migratory propensity of foreign-born is not significantly different from that of natives Swedes. When controlling for city and enclave effects the results change once more. Living in an enclave has a significant locking-in effect on non-Nordic immigrants. There is also a strong negative effect from living in one of the three major cities and this effect is greater for immigrants than for native Swedes. When controlling for these two additional effects, immigrants turn out to be more mobile than native Swedes.

The negative effect on both native Swedes and foreign born from living in a city can have many reasons. Firstly, there are labour market effects; the size of the labour market makes it more probable to find a new job in a city. Secondly, there are non-labour market reasons, such as the greater supply and diversity of culture and events. Why the city effect should be greater for immigrants, especially non-Nordic ones, is more difficult to explain. Possibly this could be due to higher tolerance to foreigners, due to the generally greater cultural diversity found in larger cities. The city effect is not affected by the inclusion of the enclave variable into the estimations.

Second-generation immigrants are more migratory than native Swedes, which is surprising as they lack the immigrants' history of previous migration, but would be expected to suffer the higher costs of migration. This would result in reduced migration. One explanation could be greater difficulties in finding a new job, which previous studies have found for both first and second generation immigrants. Another could be "inherited selection". A common argument in explaining the higher mobility of immigrants is selection, in that immigrants in a country are obviously more mobile than those who stayed in the country of origin. If this mobility is due to unobserved characteristics it is possible that these characteristics to some extent can be inherited, making the second-generation immigrants more migratory than the natives Swedes.

Other coefficients have expected signs; age is found to be an important factor reducing the migratory propensity, as is being married, having children, employment, and participation in labour market programs. Being male increases migratory propensity, as does a higher level of education or disposable income, marriage break-up, unemployment, and previous migration.

Whether the enclave effect is really an effect or a cause, if it is due to more location specific human capital and therefore better labour market opportunities for immigrants within enclaves or if ethnic segregation increases economic segregation remains an open question. If

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[27] We also tried a different specification, including municipal job creation and job destruction variables. However, the inclusion of these additional variables only changed the effect of enclaves slightly.

the former is true, ethnic enclaves can be seen as having a positive effect on the labour market situation of immigrants. However, the existence of such differences in labour market opportunities is an indicator of failed integration into the host country society. If immigrants were perfectly integrated there would be no difference between the returns to their human capital within and outside ethnic enclaves.

6 Tables and Figures

Table 1: Number of displaced workers per year and displacement category

Year of displacement	Closure	Small cutback (20-29%)	Medium cutback (30-39%)	Large cutback (Over 40%)	Total
1986	1 735	-	-	-	1 735
1987	6 152	23 812	14 155	48 357	92 476
1988	4 360	24 335	11 481	54 893	95 069
Total	12 247	48 147	25 636	103 250	189 280

Table 2: Number of foreign born residing in city or enclave in the year prior to displacement

		City resident		
		Yes	No	Total
Enclave resident	Yes	11 416	5 528	16 944
	No	4 168	1 991	6 159
	Total	15 584	7 519	23 103
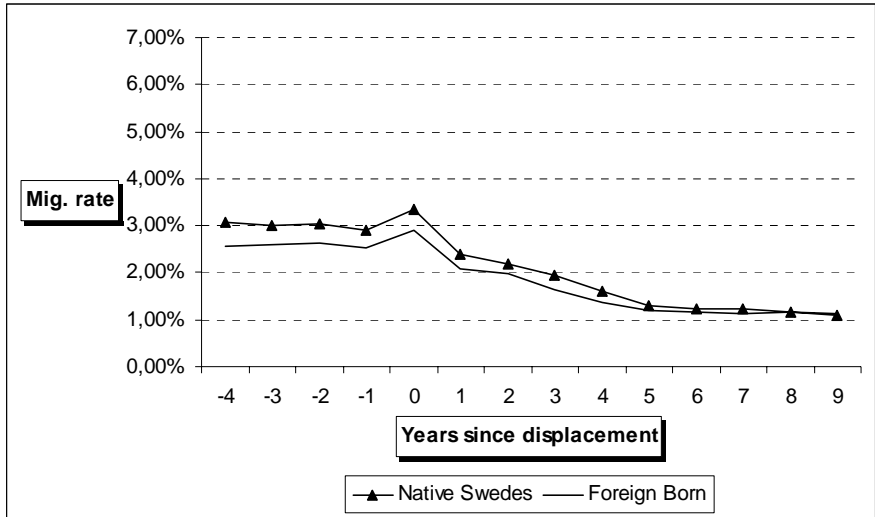
Figure 1: Migration rates of Native Swedes and Foreign Born
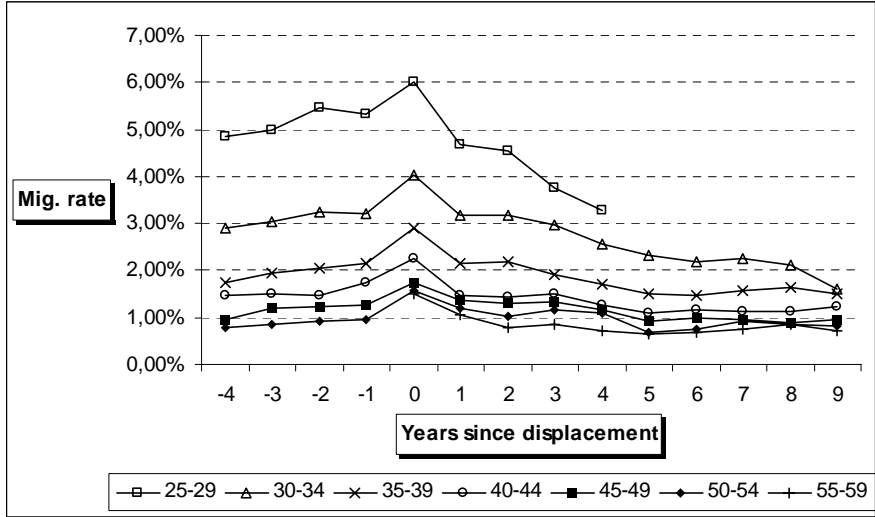
Figure 2: Migration rates by age group

Table 3: Characteristics in year prior to job loss

	All		Native Swedes		Foreign Born	
	Mean	**Std Dev.**	**Mean**	**Std Dev.**	**Mean**	**Std Dev.**
Age	37,220	8,480	37,076	8,506	38,253	8,216
Male	0,535	0,499	0,533	0,499	0,550	0,498
Children aged 0-6	0,248	0,432	0,248	0,432	0,249	0,433
Children aged 7-15	0,311	0,463	0,310	0,462	0,324	0,468
Children aged 16-17	0,091	0,287	0,090	0,287	0,093	0,290
Married	0,509	0,500	0,502	0,500	0,554	0,497
Unmarried	0,369	0,483	0,384	0,486	0,259	0,438
Divorced	0,115	0,318	0,106	0,308	0,177	0,382
Widowed	0,008	0,088	0,008	0,087	0,010	0,098
No registered education	0,050	0,218	0,045	0,208	0,086	0,281
Less than 9 years	0,135	0,342	0,126	0,332	0,200	0,400
9 to 10 years	0,122	0,327	0,123	0,329	0,113	0,317
High School	0,446	0,497	0,449	0,497	0,431	0,495
University, less than 2 years	0,033	0,179	0,035	0,183	0,023	0,150
University, 2 years or more	0,209	0,407	0,218	0,413	0,143	0,350
Post Graduate	0,004	0,061	0,004	0,061	0,004	0,061
Resident in a City	0,500	0,500	0,475	0,499	0,675	0,469
Employed	0,999	0,024	0,999	0,023	0,999	0,030
Unemployed	0,095	0,293	0,091	0,288	0,118	0,322
Training	0,038	0,192	0,033	0,178	0,080	0,271
log of disposable income	4,138	0,372	4,144	0,371	4,091	0,376
Foreign Born	0,122	0,327	-	-	-	-
Second Generation Immigrant	0,168	0,374	0,191	0,393	-	-
Enclave	0,090	0,285	-	-	0,733	0,442
# individuals	189 280		166 177		23 103	

Table 4:
Characteristics, of those who moved within 10 years after job loss and stayers, in the year prior to displacement

	Movers		Stayers	
	Mean	**Std Dev.**	**Mean**	**Std Dev.**
Age	34,257	8,161	37,925	8,357
Male	0,550	0,497	0,525	0,499
Children aged 0-6	0,213	0,409	0,261	0,439
Children aged 7-15	0,206	0,404	0,344	0,475
Children aged 16-17	0,060	0,238	0,099	0,299
Married	0,376	0,484	0,546	0,498
Unmarried	0,480	0,500	0,340	0,474
Divorced	0,137	0,343	0,106	0,308
Widowed	0,007	0,082	0,008	0,090
Unknown education	0,048	0,214	0,048	0,214
Less than 9 years	0,076	0,266	0,149	0,356
9 to 10 years	0,123	0,328	0,124	0,329
High School	0,458	0,498	0,446	0,497
University, less than 2 years	0,046	0,210	0,029	0,168
University, 2 years or more	0,244	0,429	0,200	0,400
Post Graduate	0,004	0,065	0,004	0,060
Resident in a City	0,594	0,491	0,470	0,499
Employed	1,000	0,020	0,999	0,025
Unemployed	0,110	0,314	0,090	0,287
Training	0,046	0,209	0,036	0,186
Foreign Born	0,115	0,319	0,115	0,319
Second Generation Immigrant	0,166	0,372	0,165	0,371
Previous migration	0,195	0,397	0,056	0,229
log of disposable income	4,127	0,387	4,142	0,363
Enclave	0,081	0,273	0,085	0,279
# individuals	37 514		144 108	

Table 5: Dependent variable: migration between LLMs

	Basic Model		Extended Model		Extended model excluding Nordic	
	ME	Std error	ME	Std error	ME	Std error
25-29 years old	ref.		ref.		ref.	
30-34 years old	-0,247***	0,020	-0,246***	0,020	-0,249***	0,021
35-39 years old	-0,472***	0,024	-0,470***	0,024	-0,460***	0,024
40-44 years old	-0,714***	0,027	-0,712***	0,027	-0,709***	0,028
45-49 years old	-0,951***	0,029	-0,951***	0,029	-0,946***	0,030
50-54 years old	-1,181***	0,033	-1,181***	0,033	-1,174***	0,034
55-59 years old	-1,364***	0,041	-1,362***	0,041	-1,365***	0,042
60 and older	-1,117***	0,058	-1,116***	0,058	-1,133***	0,061
Male	0,120***	0,015	0,123***	0,015	0,127***	0,015
Children aged 0-6	-0,157***	0,017	-0,155***	0,017	-0,160***	0,017
Children aged 7-15	-0,562***	0,018	-0,561***	0,018	-0,572***	0,018
Children aged 16-17	-0,495***	0,030	-0,495***	0,030	-0,504***	0,031
Married	ref.		ref.		ref.	
Unmarried	0,054	0,018	0,053	0,018	0,049	0,018
Divorced	0,628***	0,020	0,633***	0,020	0,631***	0,021
Widowed	0,472***	0,069	0,476***	0,069	0,524***	0,071
No registered education	0,316***	0,049	0,327***	0,049	0,324***	0,052
Educ. Less than 9 years	ref.		ref.		ref.	
Educ. 9 to 10 years	0,162***	0,034	0,162***	0,034	0,165***	0,036
Educ. High School	0,250***	0,028	0,253***	0,029	0,272***	0,030
Educ.University, less than 2 years	0,477***	0,040	0,477***	0,040	0,496***	0,042
Educ. University, 2 years or more	0,767***	0,030	0,767***	0,030	0,790***	0,032
Educ. Post Graduate	1,220***	0,091	1,223***	0,091	1,262***	0,092
Resident in a City	-0,528***	0,014	-0,452***	0,015	-0,453***	0,015
Employed	-0,408***	0,022	-0,408***	0,022	-0,403***	0,023
Unemployed	0,852***	0,016	0,851***	0,016	0,860***	0,017
Training	-0,084***	0,024	-0,083***	0,024	-0,082***	0,025
Foreign Born	0,020	0,024	0,332***	0,045	0,463***	0,049
Second Generation Immigrant	0,073***	0,020	0,069***	0,020	0,070***	0,020
Migrated previously	1,285***	0,019	1,275***	0,019	1,271***	0,019
ln(income)	0,051***	0,012	0,046***	0,012	0,037***	0,012
(Foreign Born)*(resident in a City)	-		-0,662***	0,043	-0,990***	0,065
Enclave	-		0,010	0,047	-0,219***	0,066
d0	ref.		ref.		ref.	
d1	-0,296***	0,020	-0,296***	0,020	-0,298***	0,020
d2	-0,337***	0,021	-0,337***	0,021	-0,339***	0,021
d3	-0,436***	0,022	-0,436***	0,022	-0,436***	0,022
d4	-0,640***	0,023	-0,640***	0,023	-0,643***	0,024
d5	-0,877***	0,026	-0,877***	0,026	-0,878***	0,026
d6	-0,925***	0,026	-0,924***	0,026	-0,924***	0,027
d7	-0,888***	0,027	-0,887***	0,027	-0,887***	0,027
d8	-0,913***	0,027	-0,912***	0,027	-0,927***	0,028
d9	-0,930***	0,028	-0,929***	0,028	-0,940***	0,029
constant	-3,954***	0,059	-3,959***	0,059	-3,937***	0,061
# individuals	189 280		189 280		177 920	

Table 6: Basic model by grouped origin

	Native Swedes		Nordic		EU15		Other	
	Coefficient	Std error	Coefficient	Std error	Coefficient	Std error	Coefficient	Std error
25-29 years old	ref.		ref.		ref.		ref.	
30-34 years old	-0,236***	0,024	-0,179*	0,097	0,054	0,231	-0,344 ***	0,109
35-39 years old	-0,438***	0,029	-0,612***	0,110	-0,341	0,255	-0,718 ***	0,124
40-44 years old	-0,719***	0,033	-0,758***	0,117	-0,471*	0,270	-0,828 ***	0,136
45-49 years old	-0,961***	0,037	-1,015***	0,127	-0,718***	0,280	-1,236 ***	0,154
50-54 years old	-1,205***	0,042	-1,282***	0,139	-0,777***	0,292	-1,466 ***	0,173
55-59 years old	-1,408***	0,053	-1,386***	0,162	-0,969***	0,339	-1,711 ***	0,229
60 and older	-1,000***	0,075	-0,996***	0,211	-1,024**	0,491	-1,692 ***	0,382
Male	0,133***	0,017	0,149**	0,062	0,085	0,138	0,242 ***	0,079
Children aged 0-6	-0,127***	0,013	-0,064	0,073	0,180	0,161	-0,087	0,081
Children aged 7-15	-0,366***	0,014	-0,413***	0,069	-0,596***	0,161	-0,247 ***	0,081
Children aged 16-17	-0,577***	0,036	-0,394***	0,107	-0,450*	0,269	-0,424 ***	0,141
Married	ref.		ref.		ref.	0,000	ref.	0,000
Unmarried	0,010***	0,021	-0,028	0,076	0,170	0,180	0,090	0,160
Divorced	0,670***	0,026	0,656***	0,072	0,638***	0,159	0,227 **	1,160
Widowed	0,548***	0,081	-0,177	0,293	0,694	0,515	-0,341	2,160
No registered education	0,344***	0,060	0,388***	0,147	1,116***	0,334	0,298	0,185
Less than 9 years	ref.		ref.	0,000	ref.	0,000	ref.	0,000
9 to 10 years	0,161***	0,042	0,201*	0,109	0,471	0,295	-0,019	0,164
High School	0,302***	0,035	0,121	0,085	0,627**	0,245	0,147	0,120
University, less than 2 years	0,573***	0,049	0,361**	0,179	1,110***	0,346	-0,131	0,230
University, 2 years or more	0,910***	0,038	0,572***	0,105	0,816***	0,264	0,492 ***	0,134
Post Graduate	1,413***	0,108	0,495	0,660	1,639***	0,521	0,756 *	0,457
Resident in a City	-0,462***	0,019	-0,720***	0,057	-1,314***	0,129	-1,512 ***	0,072
Employed	-0,477***	0,030	-0,480***	0,073	-0,269	0,183	-0,164 *	0,090
Unemployed	0,934***	0,022	0,762***	0,062	0,725***	0,148	0,843 ***	0,073
Training	-0,065***	0,033	-0,070	0,086	-0,054	0,220	-0,194 **	0,098
Second Generation Immigrant	0,069***	0,022	--	-	-	-	-	-
Previous migration	1,547***	0,036	1,286***	0,081	1,016***	0,181	1,132 ***	0,096
ln(income)	0,052***	0,011	0,147***	0,051	0,102	0,078	-0,075 *	0,043
d0	ref.		-		ref.		ref.	
d1	-0,247***	0,026	-0,263***	0,083	-0,249	0,663	-0,330 ***	0,103
d2	-0,290***	0,032	-0,287***	0,085	-0,368*	1,663	-0,292 ***	0,105
d3	-0,382***	0,037	-0,416***	0,090	-0,580***	2,663	-0,497 ***	0,115
d4	-0,631***	0,041	-0,560***	0,095	-0,752***	3,663	-0,784 ***	0,128
d5	-0,966***	0,046	-0,835***	0,105	-1,270***	4,663	-0,708 ***	0,129
d6	-0,934***	0,048	-0,898***	0,108	-0,792***	5,663	-0,779 ***	0,134
d7	-0,979***	0,050	-0,872***	0,110	-0,798***	6,663	-0,701 ***	0,135
d8	-1,038***	0,053	-0,663***	0,106	-0,619**	7,663	-0,987 ***	0,154
d9	-1,019***	0,055	-0,743***	0,112	-0,698***	8,663	-0,780 ***	0,148
constant	-4,408***	0,143	-3,996***	0,242	-4,365***	9,663	-2,971 ***	0,232
# individuals	166 177		11 360		2 944		8 799	

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8 Appendix A

Table A1: Characteristics of foreign born, by origin

	Nordic		EU15		Eur.	
	Mean	**Std Dev.**	**Mean**	**Std Dev.**	**Mean**	**Std Dev.**
Age	38,618	8,213	39,807	8,585	39,490	7,917
Male	0,500	0,500	0,621	0,485	0,529	0,499
Children aged 0-6	0,209	0,407	0,242	0,428	0,238	0,426
Children aged 7-15	0,313	0,464	0,325	0,468	0,370	0,483
Children aged 16-17	0,102	0,302	0,096	0,295	0,096	0,294
Married	0,484	0,500	0,629	0,483	0,656	0,475
Unmarried	0,324	0,468	0,201	0,401	0,139	0,346
Divorced	0,181	0,385	0,160	0,367	0,198	0,398
Widowed	0,011	0,106	0,011	0,102	0,007	0,085
No registered education	0,073	0,261	0,077	0,266	0,067	0,250
Less than 9 years	0,241	0,428	0,178	0,383	0,177	0,382
9 to 10 years	0,125	0,331	0,117	0,322	0,095	0,293
High School	0,420	0,494	0,420	0,494	0,473	0,499
University, less than 2 years	0,018	0,132	0,029	0,167	0,025	0,157
University, 2 years or more	0,122	0,327	0,171	0,377	0,159	0,365
Post Graduate	0,001	0,038	0,007	0,086	0,005	0,067
Resident in a City	0,593	0,491	0,726	0,446	0,732	0,443
Employed	0,999	0,027	0,998	0,049	1,000	0,015
Unemployed	0,115	0,319	0,088	0,284	0,114	0,318
Training	0,053	0,224	0,064	0,245	0,092	0,290
log of disposable income	4,105	0,357	4,087	0,419	4,123	0,352
Enclave	1,000	0,000	0,360	0,480	0,911	0,284
# individuals	11 360		2944		4372	

	Africa		North America		South America	
	Mean	**Std Dev.**	**Mean**	**Std Dev.**	**Mean**	**Std Dev.**
Age	35,384	7,037	36,086	8,011	36,156	7,152
Male	0,766	0,423	0,574	0,495	0,602	0,490
Children aged 0-6	0,341	0,474	0,295	0,457	0,344	0,475
Children aged 7-15	0,226	0,418	0,220	0,415	0,386	0,487
Children aged 16-17	0,043	0,203	0,065	0,248	0,076	0,265
Married	0,505	0,500	0,515	0,501	0,520	0,500
Unmarried	0,256	0,437	0,348	0,477	0,246	0,431
Divorced	0,231	0,422	0,137	0,344	0,227	0,419
Widowed	0,008	0,088	0,000	0,000	0,007	0,084
No registered education	0,128	0,334	0,158	0,365	0,131	0,338
Less than 9 years	0,116	0,321	0,030	0,170	0,101	0,302
9 to 10 years	0,094	0,292	0,071	0,258	0,112	0,315
High School	0,483	0,500	0,387	0,488	0,443	0,497
University, less than 2 years	0,037	0,188	0,045	0,207	0,039	0,193
University, 2 years or more	0,136	0,343	0,286	0,452	0,171	0,377
Post Graduate	0,007	0,081	0,024	0,153	0,003	0,055
Resident in a City	0,824	0,381	0,762	0,427	0,864	0,343
Employed	1,000	0,000	1,000	0,000	0,999	0,032
Unemployed	0,163	0,370	0,125	0,331	0,134	0,341
Training	0,154	0,361	0,104	0,306	0,153	0,360
log of disposable income	4,040	0,379	3,983	0,529	4,041	0,371
Enclave	0,000	0,000	0,765	0,425	0,030	0,170
# individuals	766		336		977	

	Asia		Unknown	
	Mean	**Std Dev.**	**Mean**	**Std Dev.**
Age	33,630	7,121	40,196	7,432
Male	0,649	0,477	0,604	0,490
Children aged 0-6	0,426	0,495	0,185	0,389
Children aged 7-15	0,311	0,463	0,315	0,466
Children aged 16-17	0,060	0,238	0,123	0,329
Married	0,652	0,476	0,615	0,487
Unmarried	0,241	0,428	0,200	0,401
Divorced	0,101	0,301	0,169	0,376
Widowed	0,006	0,076	0,015	0,123
No registered education	0,164	0,371	0,065	0,248
Less than 9 years	0,179	0,384	0,073	0,261
9 to 10 years	0,099	0,298	0,085	0,279
High School	0,384	0,486	0,531	0,500
University, less than 2 years	0,023	0,148	0,023	0,150
University, 2 years or more	0,146	0,353	0,219	0,415
Post Graduate	0,005	0,072	0,004	0,062
Resident in a City	0,778	0,416	0,592	0,492
Employed	0,999	0,038	0,996	0,062
Unemployed	0,161	0,368	0,073	0,261
Training	0,165	0,371	0,027	0,162
log of disposable income	4,005	0,388	4,169	0,512
Enclave	0,122	0,327	0,000	0,000
# individuals	2088		260	

Table A2: Movers and stayers, per period

time	movers		stayers	
	number	share	number	share
1	6 230	3,29%	183 103	96,71%
2	4 452	2,36%	184 164	97,64%
3	4 067	2,16%	183 909	97,84%
4	3 602	1,92%	183 630	98,08%
5	2 962	1,59%	183 455	98,41%
6	2 365	1,27%	183 173	98,73%
7	2 255	1,22%	182 356	98,78%
8	2 260	1,23%	181 375	98,77%
9	2 116	1,16%	180 550	98,84%
10	2 001	1,10%	179 667	98,90%
Total	32 310	1,74%	1 825 382	98,26%

Table A3:
Characteristics, of those who moved within 5 years after job loss and stayers, in year prior to displacement

	Movers		Stayers	
	Mean	**Std Dev.**	**Mean**	**Std Dev.**
Age	33,611	7,969	37,863	8,393
Male	0,556	0,497	0,529	0,499
Children aged 0-6	0,224	0,417	0,254	0,435
Children aged 7-15	0,181	0,385	0,337	0,473
Children aged 16-17	0,052	0,222	0,098	0,297
Married	0,362	0,480	0,537	0,499
Unmarried	0,499	0,500	0,345	0,475
Divorced	0,133	0,340	0,110	0,313
Widowed	0,006	0,080	0,008	0,090
Unknown education	0,047	0,211	0,049	0,216
Less than 9 years	0,068	0,251	0,148	0,355
9 to 10 years	0,125	0,330	0,122	0,327
High School	0,459	0,498	0,445	0,497
University, less than 2 years	0,050	0,218	0,030	0,171
University, 2 years or more	0,248	0,432	0,202	0,402
Post Graduate	0,004	0,059	0,004	0,061
Resident in a City	0,571	0,495	0,485	0,500
Employed	1,000	0,020	0,999	0,025
Unemployed	0,118	0,322	0,090	0,286
Training	0,046	0,210	0,037	0,188
Foreign Born	0,113	0,317	0,120	0,325
Second Generation Immigrant	0,161	0,368	0,166	0,372
Previous migration	0,217	0,412	0,061	0,240
log of disposable income	4,116	0,386	4,142	0,367
Enclave	0,078	0,268	0,088	0,284
# individuals	28 771		157 595	

Table A4: List of variables

25-29 years old	
30-34 years old	
35-39 years old	
40-44 years old	1 if the individual is of the corresponding age in the year of analysis, otherwise 0
45-49 years old	
50-54 years old	
55-59 years old	
60 and older	
Male	1 if male, otherwise 0
Children aged 0-6	
Children aged 7-15	1 if there are children in the household belonging to the corresponding age group, otherwise 0
Children aged 16-17	
Married	1 if married, otherwise 0
Unmarried	1 if unmarried, otherwise 0
Divorced	1 if divorced, otherwise 0
Widowed	1 if widowed, otherwise 0
Education: No registered	1 if the individual has no registered education, otherwise 0
Education: Less than 9 years	
Education: 9 to 10 years	
Education: High School	
Education: University, less than 2 years	1 if this is the highest attained education of the individual, otherwise 0
Education: University, 2 years or more	
Education: Postgraduate	
Resident in a city	1 if resident in one of the LLMs including Stockholm, Gothenburg, or Malmö, otherwise 0
Employed	1 if having registered earnings from employment during the year, otherwise 0
Unemployed	1 if having received compensation from unemployemnt agency during the year, otherwise 0
Training	1 if having received compensation for taking part in labour market program during the year, otherwise 0
Foreign born	1 if born outside of Sweden, otherwise 0. Also 0 if both parents are Swedish
Second Generation Immigrant	1 if born in Sweden but at least one parent is foreign born, otherwise 0
Migrated previously	1 if migration is observable in the data prior to displacement, otherwise 0
ln(income)	log of disposable income in 1983 Swedish krona
(Foreign Born)*(resident in a city)	1 if both foreign born and residing in a city, otherwise 0
Enclave	1 if resident in an ethnic enclave, otherwise 0
d0	
d1	
d2	
d3	
d4	Binary dummies representing years since displacement. d0 identifies the first year, during which displacement took place.
d5	
d6	
d7	
d8	
d9	

Appendix B

Taxation and the administration of the universal Swedish welfare state provide the basis for practically all the variables and the registers cover every individual and every firm in the country. The principal registers used are, The Register Based Labour Market Statistics, The Income and Wealth Register (*Inkomst- och förmögenhetsstatistiken*), and the Longitudinal Register of Education and Labour Market Statistics (LOUISE)[28].

The Population and Housing Censuses (*Registret över totalbefolkningen*) contains basic demographic information on age, sex, marital status, number and age of children, and country of birth.

All data pertaining to income and labour market status is compiled in The Income and Wealth Register. This register is based on tax returns and income statements (*kontrolluppgifter*). Employers are obliged to file annual income statements, for each employee, which are used by the taxation authorities for individual income taxation. Moreover, since practically all transfers in the Swedish welfare state, such as disability pensions, and sickness and unemployment benefits, are liable to tax the National Social Insurance Board also files income statements on such transfers. Although, social assistance is not liable to tax this information has been gathered from a separate register, the Social Assistance Register *(Registret över ekonomiskt bistånd),* and included in the Income and Wealth register.[29]

The data on education are from The Register of Educational Attainment of the Population (*Registret över befolkningens utbildning*), which draws its information from several sources. These include the Population and Housing Censuses, the Higher Education Register (*Högskoleregistret*), the National Labour Market Board (AMS), and the National Board of Student Aid (CSN), and are updated annually.

For immigrants, education obtained in the country of origin is not automatically included in the registers as it is for individuals who obtained their education as a part of the Swedish system. However, information on such education is obtained through the Population and Housing Census from 1990. Thus, if information on education is missing before 1990, but is observed in 1990, we use this information for the previous years as well, since it is obvious that the education was obtained but not recorded earlier.

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[28] We thank the Unit for Register Based Labor Market Statistics, Statistics Sweden, and in particular Björn Tegsjö and Jan Andersson for the full access to this wealth of information.
[29] Since 1994 the National Board of Health and Welfare (*Socialstyrelsen*) has the principal responsibility of the social Assistance Register.