

No. 2132

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OF IMMIGRANTS IN SWEDEN: OBSERVED
OR UNOBSERVED CHARACTERISTICS?**

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LABOUR ECONOMICS



Centre for Economic Policy Research

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Discussion Paper No.2132
April 1999

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April 1999

ABSTRACT

Declining Employment Assimilation of Immigrants in Sweden: Observed or Unobserved Characteristics?*

Weak labour market attachment is a primary reason for unsuccessful integration of immigrants. Therefore, it is interesting to know what affects the probability that immigrants become employed, and hence gain stronger labour market attachment. We study what determines the probability of being employed in Sweden in 1970 and 1990. And, in a decomposition analysis, we investigate whether the decline in employment probability for immigrants over time is due to observed or unobserved differences between the Swedes and the immigrants.

JEL Classification: J22, J23, N30

Keywords: employment assimilation, discrimination, qualifications

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*This paper is produced as part of a CEPR research programme on Labour Demand, Education, and the Dynamics of Social Exclusion, supported by a grant from the Commission of the European Communities under its Targeted socio-economic research Programme (no. SOE2-CT97-3052). All correspondence to Helena Skyt Nielsen. Financial support from the Danish National Research Foundation and the Swedish Council for Social Research is gratefully acknowledged. Comments on earlier versions of this paper from participants at the ESPE conference 1998 and from colleagues in Aarhus and Lund are appreciated.

Submitted 30 March 1999

NON-TECHNICAL SUMMARY

In 1990, immigrants accounted for 10% of the population in Sweden, and nearly all groups of immigrants had a lower rate of employment than the Swedes. Since employment is essential for the assimilation and integration of immigrants, what factors determine whether or not immigrants become employed after entering Sweden is an interesting question. Also, how the determinants differ according to the immigrants' nationality is very interesting.

In an attempt to answer these questions, we analyse the probability that natives and foreign-born men and women obtain full-time employment on the Swedish labour market. We use Swedish data from 1970 and 1990 and look at a group of 25-59 year olds. As in standard labour supply studies, we assume that the probability of working is determined by the level of formal education, previous labour market experience, civil status and the presence of children. Furthermore, since we are dealing with immigrants, the probability of working depends on which country the immigrant comes from, which cohort of immigrants the individual belongs to, and the state of the labour market when they entered the country. In addition, we attempt to account for whether or not the highest level of education was obtained in the home country or in Sweden.

In order to analyse the assimilation process in depth we make an attempt to distinguish between the explained and the unexplained difference in the probability of working. The explained part is the part of the employment difference which is due to the fact that immigrants and Swedes have different observable characteristics (e.g. education or experience). The unexplained part is the part of the difference in employment probabilities which is due to the fact that an immigrant and a Swede would have different probabilities of employment even if they had identical observed characteristics.

From 1970 to 1990, the employment probability of immigrants went down compared to that of natives. Traditionally, declining qualifications of the immigrants change with the cultural background of the typical immigrant, and change in motivation for migration are hypotheses that are used to explain this development. In addition, we suggest an alternative hypothesis to explain why the employment rate has gone down for both foreign-born men and women from 1970 to 1990 in Sweden. We hypothesise that it is not only the explained difference, due to a gap in formal qualifications, that has increased but also the unexplained difference. The unexplained difference in the probability of becoming employed can increase if the demand for informal skills increases, if the discrimination increases, or if preferences for working decrease. The demand for informal and Sweden-specific qualifications has increased and has become more important for obtaining employment during the structural change that increased the dominance of the service sector compared to

manufacturing. But also discrimination might have increased, meaning that immigrants are no longer treated like Swedes in the labour market. Employers might refrain from employing immigrants for reasons not related to productivity. Whether or not preferences to work have changed is a good question. It is plausible that the preference for working is higher among labour migrants than among refugees and that could explain the decline in employment assimilation.

The most striking finding from the empirical analysis is that low qualifications in terms of observed human capital do not explain much of the difference in employment rates between Swedes and immigrants in 1990. The main part of the difference in employment rate is unexplained. This includes discrimination in the traditional sense, implying that immigrants are treated differently for reasons other than productivity reasons. In addition, it includes the assumed effect of the structural change that made informal and Sweden-specific qualifications more important for obtaining employment. Also, the fact that the composition of the immigrant population is different in 1990 compared to 1970 would be picked up by the unexplained part. In 1970, labour immigrants from European countries dominated the immigrant population, with refugee Poles as an exception. In 1990, the number of refugees and tied movers from outside Europe constituted one third of the immigrant population. Since refugees have non-labour market related reasons to migrate, they are expected to have lower employment assimilation. The fact that Poles are the only group among male immigrants that have an unfavourable unexplained part, both in 1970 and 1990, may suggest that refugees experience more difficulties getting employment. However, the fact that the difference due to the unexplained component of the Chileans in 1990 is about the same level as that of Nordic and German immigrants, means that the opposite could also be the case.

If discrimination in the traditional sense was most important, you would imagine that only the immigrants with the largest cultural distance to Swedes had a significant unexplained part. We find that in 1990 all groups have a significant unexplained part, not only the culturally distant Iranians and Chileans. However, the culturally close Nordic and German people, and the Chileans of whom the public opinion was positive, have relatively small unexplained differences. Therefore, we find some support for the hypothesis of traditional discrimination, but it is not the only explanation.

In addition to discrimination in the traditional sense, we opt for an alternative explanation in which the structural change of the Swedish economy is of crucial importance. This structural change has implied a higher demand for informal skills, such as culture-specific social competence and language skills. This could have decreased the possibilities of entering the labour market for new cohorts and decreased the possibilities to stay in the labour market for

the older cohorts of immigrants. Hence, all immigrant groups are more or less deprived of obtaining employment because of this change, which favours the native born.

This conclusion is consistent with the finding for men that singles have a smaller unfavourable unexplained difference than cohabitants. This suggests that they are better at obtaining the informal skills needed to adjust to the structural change in the Swedish economy, for instance because they interact more with Swedes in social life than the cohabitants do.

Regarding preferences to work, we would expect labour migrants and tied movers to do much better than refugees, because they move to work. If this is a dominating force, we would have expected a favourable unexplained difference for Nordic men in the 1990 census as we found for the labour migrants in the 1970 census. The fact that all immigrant men in 1990 have an unfavourable unexplained difference, including Nordic men who are clearly labour migrants, means that other explanations are needed.

Although we find that the unexplained difference, rather than the explained difference, stands for the huge decrease in the employment rate of immigrants relative to Swedes, some explanatory power is left for the explained factors. For instance, for Iranians it is essential whether the highest attained education is obtained in Sweden or in Iran. Also, we find that Iranians and Chileans, due to lack of general experience, have a lower employment rate than Swedes, and the same goes for various other groups due to lack of formal education.

1. Introduction

In 1990, the immigrants accounted for 10% of the population in Sweden, and nearly all groups of immigrants had a lower rate of employment than the Swedes. Since employment is essential for the assimilation and integration of immigrants, it is an interesting question, what determines whether or not the immigrants become employed after entering Sweden. In addition, it is highly interesting, how the determinants differ according to the immigrants' nationality.

In an attempt to answer these questions, we analyse the probability that natives and foreign born men and women obtain full-time employment on the Swedish labour market. We use data from the 1970 and 1990 censuses in the Swedish Statistics census database, and look at the core group of 25-59-year-olds. As in standard labour supply studies, we assume that the probability of working is determined by the level of formal education, previous labour market experience, civil status and the presence of children. Furthermore, since we are dealing with immigrants, the probability of working depends on which country the immigrant comes from, which cohort of immigrants the individual belongs to, and the state of the labour market when they entered the country. In addition, we attempt to account for whether or not the highest level of education was obtained in the home country or in Sweden.

In order to analyse the assimilation process in depth, we make a decomposition analysis in the spirit of Oaxaca and Blinder. This allows us to distinguish between the explained and the unexplained difference in the probability of working.

The remainder of the paper is organised as follows: Section 2 contains a discussion of the history, theory and evidence on employment assimilation in Sweden and other countries. Section 3 explains the econometric framework behind the empirical analysis. Section 4 presents the Swedish data used for the empirical analysis, the results of which are found in section 5. Section 6 consists of the

decomposition analysis that forms the basis for a discussion of the reasons for the decline in employment assimilation. Section 7 concludes the paper.

2. Employment assimilation: History, theory and evidence

Sweden, which developed into one of the richest countries in the world after the Second World War, has since then received a substantial number of immigrants. By 1990 the number of first generation immigrants was 790,445 or about 10% of the population. Until the mid seventies, the large amount of immigration into Sweden was due to the high demand for foreign labour. Hence, immigration consisted almost entirely of European labour immigrants. Since then, the economic and industrial growth has declined, and the service sector has boomed. At the same time, the economy went through a period of transformation, with long-term investments in new forms of production, innovations, and an increase of employment of highly skilled workers. Since the mid seventies, a change has also taken place in the composition of the immigrant population by country of origin, from being labour immigration from European countries to being refugees and tied movers (relatives to earlier immigrants) from non-European countries. The changing character of the economy and the changing character of the immigration are generally considered to be the causes of the decreasing labour market attachment of immigrants expressed in lower employment rates and higher unemployment rates.

Not even the economic upturn in the late eighties has served to reverse the development. In fact, the opposite happened as incomes and employment rates of immigrants decreased, even for those who had been living in Sweden for a long time, see Ekberg (1991a, 1991b), Bevelander (1995, 1998), and Scott (1995). These studies suggest that not only supply side factors, but also demand side factors can explain the situation. Firstly, a lower level of economic growth was experienced during the 1970s and 1980s compared to the 1950s and 1960s. Secondly, a structural change of the economy in the direction of a smaller industrial sector and a larger service sector took place.

Thirdly, more information- and communication-intense working processes were introduced in both the industrial and the service sectors. This economic development increased the demand for employees with a higher general competence, while unskilled labour were made redundant by efficiency improvements. Without reducing the importance of formal education and skills, the importance of informal competence increased. This informal competence includes, for instance, culture-specific proficiency, language skills, and the understanding of different patterns of behaviour in team work and in relations with authorities and labour markets organisations (see Dustmann, 1994, for a discussion of the importance of language skills). This structural change made it more difficult for immigrants with the same general formal human capital stock as Swedes to obtain employment, see Scott (1995) and Bevelander (1995, 1998). Together with a shift towards immigration with less cultural proximity to the Swedish society, this structural change, may have entailed more discrimination by authorities, employers, and employees (Broomé, Bäcklund, Lundh and Ohlsson, 1995).

Two selection processes could influence the composition of the immigrant population, and hence affect their probability of employment. Firstly, the immigrants who enter Sweden are selected according to the motivation for the migration decision. Some are refugees, others are labour migrants or tied movers. Secondly, the immigrants in the country are selected according to the possibilities of return. Refugees have less possibilities of returning, whereas labour migrants can return depending on the labour market conditions in Sweden and in the source country. In addition, the immigrants that enter the country may be selected according to favourable or unfavourable observed and unobserved skills.

In terms of economic theory, explanations for the declining employment rates can be found in, for instance, the job search theory. Immigrants entering a labour market are similar to native born individuals who are new entrants or re-entrants in the labour market. Because skills and knowledge

about the labour market are not perfectly transferable between countries, immigrants have higher search costs, and higher turnover rates. In addition, they have lower levels of country specific skills and human capital, making them less productive and decreasing their hiring rate. All these factors point to the direction of a lower employment rate, although the effect is expected to diminish after some years in the new host country.

The main determinants of the probability of being employed are education, experience, age, sex and civil status. In accordance with the arguments above, educated individuals have less problems finding employment. Married men are more often employed unlike married women. Similarly, men with children are more often employed in contrast to women with children. Furthermore, duration of residence, and country of origin are important, since they reflect the country-specific human capital and the informal skills as well as preferences for being employed. Furthermore, the country of origin indicates the level of cultural proximity to Sweden, and that clearly affects discrimination against the migrants. Also the reasons for migration are indicated by the country of origin, and that would affect employment assimilation, for instance, labour migrants are more prepared for migration and their skills more transferable than those of refugees.

As mentioned above, the immigrants accounted for 10% of the population in Sweden in 1990, and nearly all groups of immigrants had a lower rate of employment than the Swedes themselves. A similar pattern is found for other Western-European countries with similar labour market conditions such as Germany, the Netherlands, and England (Schmidt, 1994; Penninx, Schoorl, and van Praag, 1993, Kee, 1994; Schields and Price, 1996). On the other hand, for Canada, Baker and Benjamin (1994) find that immigrants assimilate quickly. And for USA, Chiswick and Hurst (1996), and Chiswick, Cohen and Zach (1997), show that immigrants have a lower employment rate and a higher unemployment rate than native born during the first years in the US, and then they catch up to reach a stable employment and unemployment rate. Since this result is reached for different cross

sections, one might conclude that there has been no change in the 'quality' of immigrants. In contrast, Borjas (1984) and Piore (1979), show a somewhat different picture. They both see the employment integration of immigrants as a two-stage process. According to Borjas immigrants have strong incentives to accumulate country specific skills just after migration ('early stage'). To acquire these skills, active participation in the labour market is necessary. However, these strong incentives decrease with the duration of residence because of the reallocation of work effort. Piore, argues that both early after arriving and later on, relatively low levels of immigrant employment exist. In both stages immigrants are stuck in the secondary labour market. In the early stage, the opportunities for immigrants are mainly in this segment of the labour market, and upward mobility to the primary sector becomes more difficult the longer the period of residence. In a more recent study, Fry (1997) finds a rising idleness among immigrants in the U.S. labour market which is not due to admission status or changes in the integration policy.

To sum up, declining qualifications of the immigrants, change in the cultural background of the typical immigrant, and change in motivation for migration are hypotheses that could explain the immigrants' declining employment probability compared to natives between 1970 and 1990. In addition and in line with Kee (1994), we suggest an alternative hypothesis to explain why the employment rate has gone down for both foreign born men and women from 1970 to 1990 in Sweden. We hypothesise that it is not only the explained difference, due to formal qualifications, that has increased, but also the unexplained difference. The unexplained difference in the probability of becoming employed can increase if the demand for informal skills increases, if the discrimination increases, or if preferences for working decreases. The demand for informal and Sweden-specific qualifications has increased and has become more important for obtaining employment during the structural change. But also discrimination might have increased, meaning that immigrants are no longer treated like Swedes in the labour market. Employers might refrain from employing immigrants for reasons not related to productivity. Whether or not preferences to

work have changed is a good question. It is plausible that the preference for working is higher among labour migrants than among refugees, and that could explain the decline in employment assimilation. However, traditions and sex role patterns in the home country are also important indeed. In terms of two cross section analyses we separate the explained and the unexplained effect for the 1970 and 1990 census in what follows.

3. Econometric framework

Let the incidence of employment be modelled in a logit model. Let F be the logistic c.d.f., y the dependent indicator variable, x a row vector of explanatory variables, and N the sample size. For notational simplicity we group the sample in two groups, namely, natives and foreigners. In the empirical analysis, we divide the foreigners according to nationality. Subscript $j=n,f$ indicates whether the individual is native born or foreign born, whereas subscript i index individuals. The log-likelihood function is:

$$\begin{aligned} \ell(\beta, \delta) = & \sum_{i=1}^{N_n} \{y_{ni} \ln F[x_{ni}\beta] + (1-y_{ni}) \ln(1-F[x_{ni}\beta])\} \\ & + \sum_{i=1}^{N_f} \{y_{fi} \ln F[x_{fi}(\beta+\delta)] + (1-y_{fi}) \ln(1-F[x_{fi}(\beta+\delta)])\} \end{aligned} \quad (1)$$

Maximization of (1) gives $\hat{\beta}$, which is the estimated parameter vector for natives, and $\hat{\delta}$, which should be added for foreigners.

One way of analysing the difference across nationalities in a logit model would be to decompose the difference in log-odds ratios. The log-odds ratios are linear in the parameters, and therefore, the Oaxaca-Blinder decomposition (Oaxaca, 1973; Blinder, 1973), and the extension to indicator variables by Nielsen (1998) can be used directly. However, the difference in probabilities is easier to interpret than the difference in log-odds ratios.

First we decompose the difference in probabilities into an ‘explained’ part which is caused by differences in observed qualifications between natives and foreigners (E), and an ‘unexplained’ part which may be caused by discrimination and difference in informal skills (U). The natives are used as standard. Define the following probabilities:

$$\begin{aligned}\bar{P}_n &= \sum_{i=1}^{N_n} F[x_{ni}\hat{\beta}] / N_n \\ \bar{P}_f &= \sum_{i=1}^{N_f} F[x_{fi}(\hat{\beta} + \hat{\delta})] / N_f \\ \bar{P}_f^0 &= \sum_{i=1}^{N_f} F[x_{fi}\hat{\beta}] / N_f\end{aligned}\tag{2}$$

\bar{P}_n and \bar{P}_f are the average probabilities that natives and foreigners are employed, respectively, and \bar{P}_f^0 is the average probability that foreigners are employed had they been treated like natives.

The following identity defines E and U

$$\bar{P}_n - \bar{P}_f = \underbrace{\bar{P}_n - \bar{P}_f^0}_E + \underbrace{\bar{P}_f^0 - \bar{P}_f}_U,\tag{3}$$

see Even and Macpherson (1990) and Kee (1994). The term E is the average probability that natives work minus the average probability that foreigners work had both been treated like natives. The term U is the average probability that foreigners work had they been treated like natives minus the average probability that foreigners work. If some explanatory variables are defined only for either immigrants or natives, respectively, the approach in Kee (1994) is used. He makes the assumption that the effects of these explanatory variables are identical for the two groups.

Now we make a detailed decomposition of E and U showing which explanatory variables cause the unexplained difference. We apply the method suggested by Nielsen (1998). As in the Oaxaca-Blinder decomposition used for linear models, the indicator variables should be treated with care, see Jones (1983). The sample is split into T sub-samples where all individuals are of similar ‘type’, where the type of an individual is defined by the categories of the indicator variables. To simplify,

assume only two explanatory variables, an indicator variable (I), and a continuous variable (z):

$x_{ji} = \{1, I_{ji}, z_{ji}\}$, $j = f, n$, the parameter vectors are $\beta = \{\beta_0, \beta_1, \beta_2\}$, and $\delta = \{\delta_0, \delta_1, \delta_2\}$.

Generalising to the case of more explanatory variables is straightforward. One indicator variable produce two types, and U becomes

$$\begin{aligned}
U &= \sum_{i=1}^{N_f} \left\{ F[\hat{\beta}_0 + I_{fi}\hat{\beta}_1 + z_{fi}\hat{\beta}_2] - F[\hat{\beta}_0 + \hat{\delta}_0 + I_{fi}(\hat{\beta}_1 + \hat{\delta}_1) + z_{fi}(\hat{\beta}_2 + \hat{\delta}_2)] \right\} / N_f \\
&= \alpha^1 \sum_{\{i|I_{fi}=1\}} \left\{ F[\hat{\beta}_0 + \hat{\beta}_1 + z_{fi}\hat{\beta}_2] - F[\hat{\beta}_0 + \hat{\delta}_0 + \hat{\beta}_1 + \hat{\delta}_1 + z_{fi}(\hat{\beta}_2 + \hat{\delta}_2)] \right\} / N_f^1 \\
&\quad + \alpha^2 \sum_{\{i|I_{fi}=0\}} \left\{ F[\hat{\beta}_0 + z_{fi}\hat{\beta}_2] - F[\hat{\beta}_0 + \hat{\delta}_0 + z_{fi}(\hat{\beta}_2 + \hat{\delta}_2)] \right\} / N_f^2 \\
&= U^1 + U^2
\end{aligned} \tag{4}$$

where α^t is the proportion of foreigners of type t , and N_f^t is the number of foreigners of that particular type. U^t is the contribution to the difference in the probability of working from individuals of type t . Now the contribution to the unexplained part from individuals of each type has been identified. However, the contribution to the unexplained component from individuals of type t includes both the effect of the continuous variable, z_i , and the implicit type-specific intercepts, $\hat{c}_f^1 = \hat{\beta}_0 + \hat{\delta}_0 + \hat{\beta}_1 + \hat{\delta}_1$ and $\hat{c}_f^2 = \hat{\beta}_0 + \hat{\delta}_0$. The last step of the detailed decomposition is to separate the two effects:

$$U = U^1 + U^2 = U_z^1 + U_c^1 + U_z^2 + U_c^2 \tag{5}$$

where U_z^t is the contribution from the continuous variable for type t , and U_c^t is the contribution from the implicit intercept for type t . The separation is based on a total differentiation of U w.r.t.

\hat{c}_f^t and $\hat{\delta}_2$:

$$\begin{aligned}
dU &= \alpha^1 \sum_{\{i|I_{fi}=1\}} \left\{ -f \left[\hat{c}_f^1 + z_{fi} (\hat{\beta}_2 + \hat{\delta}_2) \right] \right\} \left\{ d\hat{c}_f^1 + z_{fi} d\hat{\delta}_2 \right\} / N_f^1 \\
&+ \alpha^2 \sum_{\{i|I_{fi}=0\}} \left\{ -f \left[\hat{c}_f^2 + z_{fi} (\hat{\beta}_2 + \hat{\delta}_2) \right] \right\} \left\{ d\hat{c}_f^2 + z_{fi} d\hat{\delta}_2 \right\} / N_f^2 \\
&= dU^1 + dU^2
\end{aligned} \tag{6}$$

The specific contributions are then computed as

$$\begin{aligned}
U_z^t &= \frac{\alpha^t \sum_{\{i|I_{fi}=1\}} -f \left[\hat{c}_f^t + z_{fi} (\hat{\beta}_2 + \hat{\delta}_2) \right] z_{fi} d\hat{\delta}_2 / N^t}{dU^t} U^t \\
U_c^t &= \frac{\alpha^t \sum_{\{i|I_{fi}=1\}} -f \left[\hat{c}_f^t + z_{fi} (\hat{\beta}_2 + \hat{\delta}_2) \right] d\hat{c}_f^t / N^t}{dU^t} U^t
\end{aligned} \quad \text{for } t=1,2 \tag{7}$$

Since U , E , U_z^t , and U_c^t are non-linear functions of the estimated parameters from the logit model, standard errors are calculated by the Delta method.

4. Data and descriptive statistics

We use data from the 1970 and 1990 census in the Swedish Statistics census database. This database gives us the possibility of analysing the entire immigrant population at the individual level, avoiding problems associated with sample data. The key variables examined include hours worked, country of birth, year of arrival, civil status, number of children and educational level. The information in the 1970 census is self-reported, and we exclude individuals with missing employment information. In the 1990 census the information on employment is collected from the employment register. The 1970 census and the 1990 census are chosen because they include information about education. A positive side effect of analysing those two censuses is that in 1970 and 1990 the Swedish economy was at a peak in the business cycle just before a major downturn, and hence differences in employment rates between the two years are not due to business cycle effects.

Only the core group of 25-59-year-old Swedish and foreign born inhabitants are analysed. The lower age limit is chosen because most individuals have finished their education at that time, and are ready to enter the labour market. The upper age limit is chosen because people start considering retirement after they reach the age of 60.

We define immigrants as those who are foreign born ('first generation immigrants'). In the 1970 census the immigration year can only be identified for immigrants who entered Sweden after 1945, and in the 1990 census the immigration year can only be identified for immigrants who entered Sweden after 1967. Because this variable is essential in any analysis of assimilation, we exclude immigrants for whom an immigration year cannot be identified. Selecting the largest immigrant groups in Sweden leaves us with 6 groups of immigrants in the 1970 census, and 8 groups of immigrants in the 1990 census. One group consists of immigrants from the Nordic countries, the rest of the immigrants come from Germany, Chile (only 1990 census), Poland, Iran (only 1990 census), Greece, Turkey, and Ex-Yugoslavia. The samples contain all natives and foreign born immigrants of the mentioned nationalities who are in the mentioned age group. This leaves us with 1,685,081 males and 1,657,753 females from the 1970 census, and 1,655,933 males and 1,596,625 females from the 1990 census. About one twentieth of each sample are immigrants about half of which are from the Nordic countries.

Our sample of immigrants is a selected sample of immigrants because return migration might not be a random sample of the population of immigrants. Labour immigrants are more likely to return to their home country than refugees, because they would consider leaving when the demand for labour is low in the receiving country and high in the source country. Also return migration might be related to observed or unobserved abilities.

In the analysis of employment assimilation, the focus is on full-time employment. Individuals are considered to be full-time employed if they worked at least 35 hours a week during the month of the

data collection. Those who are not full-time employed may be either part-time employed, unemployed, or out of the labour force. In the empirical analysis we compare the employment rate of immigrants with that of native Swedes. In Table 1 employment rates by nationality are presented for men and women in 1970 and 1990.

Table 1. Employment rates for men and women aged 25-59 years in 1970 and 1990.

	Sweden	Nordic countries	Germany	Chile ^a	Poland	Iran ^a	Greece	Turkey	Ex-Yugoslavia
Men									
1970	0.924	0.940	0.933		0.863		0.906	0.893	0.941
1990	0.879	0.764	0.793	0.745	0.713	0.448	0.619	0.582	0.681
Women									
1970	0.348	0.429	0.370		0.436		0.710	0.530	0.688
1990	0.516	0.550	0.455	0.522	0.494	0.231	0.376	0.331	0.485

a. In the 1970 census, there are too few immigrants from Chile and Iran to include them in the sample.

In 1970, both Swedish and immigrant men had employment rates of about 90%. In 1990, Swedish men had an employment rate of 88%, which was more than all immigrant groups. Among the immigrants, Germans and people from the other Nordic countries did best with employment rates of 79% and 76%, respectively. Chileans (75%), Poles (71%) and immigrants from Ex-Yugoslavia (68%) followed closely, whereas people from Greece (62%), Turkey (58%) and Iran (45%) had extremely low employment rates. Thus, employment rates of Greek, Turkish and Yugoslavian men declined by about 30 pct. points from 1970 to 1990, whereas that of Swedish men declined by only 4 pct. points.

For women the picture is different. In 1970, all women but Greek, Turkish, and Yugoslavian women had employment rates of about 40%, and Swedish women had the lowest employment rate of them all. This is due to the low labour market participation of women at that time. The employment rates for Greek, Turkish, and Yugoslavian women were highest, 71, 53 and 69%, respectively. From 1970 to 1990 employment rates increased by 17 pct. points for Swedish women and 12 pct. points for immigrant women from Nordic countries due to the well known increase in female participation rates during that period. With an increase of 8 and 5 pct. points, a similar tendency is seen for

German and Polish women. However, among Greek, Turkish and Yugoslavian women the employment rates fell by more than 20 pct. points from 1970 to 1990. And, as was the case for men in 1990, Iranians had the overall lowest employment rate (23%), whereas Chileans had an employment rate similar to that of Swedes, Germans, Nordic people, and Poles.

To sum up, Table 1 shows a dramatic decline in employment rates from 1970 to 1990 for most immigrant groups. The decline was relatively small for immigrants with an assumed high degree of cultural proximity to Swedes, and no decline but a rise was seen for women from these areas. The most dramatic decline was found for Greeks, Turks and Yugoslavs, and Iranians who were not in the sample in 1970 have even lower employment rates. Hence, we conclude that employment assimilation of immigrants has declined, and the following sections contain an investigation of the reasons for this decline.

In Appendix A, Tables A1-A4 we present means of the variables. To represent the level of formal education we create a set of indicator variables for having completed primary education, secondary education or higher education. We cannot distinguish between education completed in Sweden and in the source country. However, by use of the age at entry we approximate where the education has been taken, and incorporate that information in the analysis. In general, immigrants from Germany, Poland and Iran have a much higher level of education than Swedes. People from Greece, Turkey, and former Yugoslavia have a relatively low level of education, whereas people from the Nordic countries and Chile have about the same level of education as Swedes. We see an increase in the level of education among Swedes and all immigrant groups from 1970 to 1990, although this increase is more moderate for immigrants from Greece, Turkey and former Yugoslavia.

Table A1-A4 also give the average potential experience and the immigration year. Because experience is potential experience, the mean experience reflects age and education. For the immigrants it also reflects immigration year, because immigrants are usually selected among the

young age groups, no matter whether they are labour immigrants or refugees. If all immigrants arrived just before the census year (which is the case for Greeks and Yugoslavs in the 1970 census and for Iranians and Chileans in the 1990 census), young people are over-represented in the sample. On the other hand, if most of the immigrants arrived long time before the census year (which is the case for Poles in the 1970 census), older people are over-represented in the sample. The reference category for the indicator variable for immigration year is Swedes who did not migrate and return-migrate.

As regards family and household variables, about 90% of all groups except Iranian men are married or cohabiting. A large part of all individuals have children, although exceptions are Turkish immigrants in the 1970 census, and Polish men in the 1970 census. Parents amount to only about half as many as the number of cohabitants among the Swedes, Nordic people and Germans in 1990.

5. Results

As mentioned in section 2, an important explanation for the huge decline in the full-time employment rates for immigrants from 1970 to 1990 is that migration shifted from being labour immigrants to being refugees. However, as discussed in that section, a declining employment assimilation may also be explained by a decline in the quality of immigrants (E), a structural change in the Swedish economy (U), an increased discrimination against immigrants (U), or a change in the preferences for working (U). The investigation of these hypotheses is the main focus of the empirical analysis in the following two sections.

Table 2 presents the results from estimation of a logit model for the probability of obtaining full-time employment. For males, the effect of immigration year shows a clear pattern of employment assimilation, at least in 1990: the longer the immigrants have been in the country the higher the probability of being employed. However, not even those who have been in the country more than 20 years have caught up with the natives, which might support LaLonde and Topel (1991, 1997) in that

a more appropriate reference group might be natives with similar ethnicity. One could also argue that these coefficients catch a cohort effect instead of a time effect, although the monotonously decreasing pattern suggests that the time effect dominates. The picture is somewhat more positive for women because women to a higher extent than men are employed in the service sector, which was not as badly hit by the crisis as the industrial sector. But also, it is because the reference group of Swedish women have a lower degree of labour market attachment. The coefficients to immigration year for women reflect that immigrants in the 1970 census who arrived 0-9 years ago, and immigrants in the 1990 census who arrived more than 15 years ago, arrived at a time where the demand for labour was high and the participation rate of Swedish women was still low. This means that the immigrants from that period gained a permanent advantage over the Swedish women, see Bevelander (1995).

Regarding nationalities, being Polish decreases the probability of working. Most of the Poles arrived as refugees after the Second World War and during the communist regime in the post war era and not as labour migrants, which explains this difference. In 1990, all but Nordics and Germans (of both sexes) and Chilean men are less likely to work than Swedes. This is in striking contrast to what is found for the 1970 census, where only Poles had a low employment rate. One difference is that more Swedish women have entered the labour market, and they compete with the immigrants for the low skilled jobs.

The coefficients to the indicator variables for the attained educational level show an unexpected result for males in 1970 since university graduates have a lower probability of working than others. This is probably because the tight labour market in 1970 resulted in bottle necks in sectors requiring a lot of unskilled labour, see Ohlsson (1986). The result is more standard for females, and for males in 1990. For most immigrant groups the effect of education is smaller than for Swedes. However, having obtained the highest educational level in the country of origin counteracts this effect for men

from Germany and the Nordic countries. For Iranians education only facilitates getting a job if it was obtained in Sweden.

Having children and cohabiting increases the probability of being employed for Swedish men. This is explained by actions on both the supply side and the demand side of the labour market. Often the man is more committed to providing than the woman, and this is known by the employer who interprets the family variables as indicators of stable manpower. For Swedish women, having children and cohabiting decreases the employment probability. Also for women this stems from both the supply-side and the demand-side of the labour market. Most often women are more committed to their family than men, and therefore, they are not as eager to work, and hence they are regarded as more unstable manpower.

For most immigrants the effects of the family variables are much weaker than for Swedes. This might be unexpected because of the delusion that the sex role pattern is more traditional among the immigrants than it is among Swedes. Even if that is true, a counteracting effect might be that Swedish women are more often eligible for parental leave, or unemployment insurance benefits than immigrants, because eligibility is gained through employment. Another counteracting effect is that Swedish women more often work part-time than immigrants. Also to a higher extent than Swedish born women, foreign born women work in the industrial sector, and here part-time work is not as common as in the service sector where most of the Swedish women work. For an earlier period, Ohlsson (1975) finds that the lower income of the partners of the immigrant women may play a role for the incentive to be employed, and a similar explanation may apply for the years that we study.

Table 2. Results from estimation of logit models for the probability of being employed.

	Males, 1970		Males, 1990		Females, 1970		Females, 1990	
	Coeff.	Std.err.	Coeff.	Std.err.	Coeff.	Std.err.	Coeff.	Std.err.
Intercept	0.31	0.02	0.73	0.01	-0.04	0.01	0.28	0.01
Married/Cohabiting	0.94	0.01	0.89	0.01	-1.12	0.01	-0.33	0.01
Having children	0.55	0.01	0.20	0.01	-1.06	0.00	-1.17	0.00
Secondary education	0.07	0.01	0.17	0.01	0.57	0.01	0.22	0.00
University education	-0.33	0.01	0.21	0.01	0.88	0.01	0.63	0.01
Entered Sweden >20 years ago	-0.13	0.13	-0.26	0.03	-0.05	0.07	0.12	0.02
Entered Sweden 15-19 years ago	-0.17	0.13	-0.47	0.03	0.01	0.07	0.05	0.02
Entered Sweden 10-14 years ago	-0.18	0.13	-0.52	0.03	-0.04	0.07	0.01	0.02
Entered Sweden 5-9 years ago	-0.25	0.13	-0.69	0.02	0.27	0.07	-0.03	0.02
Entered Sweden 0-4 years ago	-0.25	0.13	-1.00	0.02	0.22	0.07	-0.41	0.02
Experience	0.14	0.01	0.07	0.01	0.10	0.00	0.07	0.00
Experience squared/100	-0.29	0.00	-0.18	0.00	-0.23	0.00	-0.20	0.02
Nordic countries	1.73	0.17	0.71	0.08	0.58	0.09	-0.12	0.07
Germany	-0.09	0.26	0.44	0.30	0.14	0.18	-0.03	0.25
Chile			0.63	0.19			-1.12	0.18
Poland	-0.92	0.35	-0.64	0.22	-1.12	0.28	-1.10	0.15
Iran			-1.36	0.13			-2.41	0.20
Greece	0.18	0.42	-0.83	0.24	-0.39	0.43	-1.98	0.33
Turkey	-1.17	0.72	-0.44	0.18	0.48	0.97	-1.52	0.29
Ex-Yugoslavia	1.57	0.30	-0.24	0.16	0.11	0.23	-1.06	0.17
Experience*Nordic countries	-0.06	0.01	-0.03	0.01	0.00	0.01	0.02	0.00
Exp.squared*Nordic countries	0.07	0.02	0.01	0.01	-0.01	0.01	-0.07	0.01
Experience*Germany	0.05	0.02	-0.02	0.03	0.05	0.01	-0.04	0.02
Exp.squared*Germany	-0.07	0.05	0.06	0.06	-0.05	0.03	0.08	0.05
Experience*Chile			-0.05	0.02			0.08	0.02
Exp.squared*Chile			0.14	0.04			-0.13	0.03
Experience*Poland	0.06	0.03	-0.01	0.02	0.04	0.02	0.03	0.01
Exp.squared*Poland	-0.10	0.05	0.01	0.04	-0.04	0.04	-0.07	0.02
Experience*Iran			0.06	0.01			0.08	0.02
Exp.squared*Iran			-0.18	0.03			-0.18	0.04
Experience*Greece	0.07	0.04	0.06	0.02	0.08	0.03	0.09	0.03
Exp.squared*Greece	-0.18	0.09	-0.19	0.04	-0.21	0.07	-0.29	0.06
Experience*Turkey	0.16	0.07	-0.02	0.02	-0.05	0.07	0.04	0.02
Exp.squared*Turkey	-0.30	0.15	-0.03	0.03	0.14	0.14	-0.15	0.05
Experience*Ex-Yugoslavia	-0.06	0.03	0.02	0.01	0.06	0.02	0.08	0.01
Exp.squared*Ex-Yugoslavia	0.08	0.05	-0.13	0.03	-0.16	0.04	-0.25	0.03
Sec. educ.*Nordic countries	-0.46	0.09	-0.15	0.05	-0.28	0.04	-0.16	0.04
University*Nordic countries	-0.81	0.13	-0.12	0.08	-0.46	0.07	-0.26	0.04
Sec. educ.*Germany	0.10	0.16	0.43	0.28	-0.08	0.08	-0.17	0.23
University*Germany	-0.15	0.19	-0.57	0.26	-0.10	0.13	-0.14	0.20
Sec. educ.*Chile			-0.16	0.17			0.07	0.17
University*Chile			-0.39	0.22			0.26	0.19
Sec. educ.*Poland	0.06	0.40	0.06	0.16	-0.21	0.26	-0.09	0.12
University*Poland	-0.03	0.38	0.47	0.16	0.17	0.32	0.13	0.07
Sec. educ.*Iran			0.54	0.29			0.86	0.41
University*Iran			0.76	0.12			0.33	0.19
Sec. educ.*Greece	-1.13	0.37	-0.13	0.16	-1.96	0.37	-0.11	0.18
University*Greece	-1.88	0.39	-0.29	0.16	-2.06	0.53	0.08	0.22
Sec. educ.*Turkey	-0.44	0.43	-0.05	0.11	-1.17	0.43	0.64	0.12

University*Turkey	-1.17	0.46	<i>-0.29</i>	<i>0.16</i>	<i>-0.68</i>	<i>0.73</i>	<i>-0.03</i>	<i>0.22</i>
Sec. educ.*Ex-Yugoslavia	0.04	0.36	<i>-0.07</i>	<i>0.10</i>	-1.05	0.32	<i>0.03</i>	<i>0.08</i>
University*Ex-Yugoslavia	-0.96	0.34	<i>0.05</i>	<i>0.17</i>	-0.68	0.34	<i>-0.14</i>	<i>0.12</i>
Having children*Nordic countries	-0.11	0.04	0.07	0.03	<i>-0.00</i>	<i>0.02</i>	0.33	0.02
Having children*Germany	0.07	0.11	0.23	0.11	-0.20	0.05	0.28	0.10
Having children*Chile			<i>-0.06</i>	<i>0.07</i>			0.59	0.07
Having children*Poland	<i>-0.19</i>	<i>0.14</i>	0.14	0.07	0.41	0.08	0.59	0.04
Having children*Iran			-0.21	0.05			0.70	0.08
Having children*Greece	<i>-0.20</i>	<i>0.16</i>	0.20	0.08	0.76	0.14	1.15	0.11
Having children*Turkey	<i>-0.06</i>	<i>0.32</i>	<i>-0.09</i>	<i>0.07</i>	0.64	0.30	0.62	0.10
Having children*Ex-Yugoslavia	-0.26	0.11	<i>0.05</i>	<i>0.05</i>	0.50	0.08	0.80	0.05
Married/Cohab*Nordic countries	-0.77	0.05	-0.45	0.03	-0.22	0.03	0.13	0.03
Married/Cohab*Germany	-0.51	0.11	-0.75	0.15	-0.80	0.08	<i>0.16</i>	<i>0.15</i>
Married/Cohab*Chile			-0.60	0.10			0.21	0.09
Married/Cohab*Poland	-0.50	0.16	-0.33	0.10	0.45	0.16	0.39	0.10
Married/Cohab*Iran			-0.78	0.06			0.47	0.12
Married/Cohab*Greece	-0.47	0.18	-0.61	0.12	1.08	0.29	0.71	0.22
Married/Cohab*Turkey	<i>-0.45</i>	<i>0.31</i>	-0.40	0.12	<i>0.37</i>	<i>0.70</i>	0.56	0.21
Married/Cohab*Ex-Yugoslavia	-0.47	0.13	-0.37	0.09	0.52	0.13	0.37	0.11
Nordic*Foreign sec.educ.	0.38	0.09	0.11	0.05	-0.17	0.04	0.11	0.04
Nordic*Foreign university	0.74	0.14	0.20	0.09	-0.32	0.08	-0.15	0.04
Germany*Foreign sec.educ.	0.35	0.14	<i>0.48</i>	<i>0.26</i>	-0.40	0.08	<i>0.15</i>	<i>0.21</i>
Germany*Foreign university	0.02	0.19	<i>0.34</i>	<i>0.24</i>	-0.54	0.15	<i>-0.27</i>	<i>0.18</i>
Chile*Foreign sec.educ.			<i>0.12</i>	<i>0.17</i>			<i>-0.04</i>	<i>0.17</i>
Chile*Foreign university			<i>-0.18</i>	<i>0.21</i>			-0.68	0.19
Poland*Foreign sec.educ.	<i>-0.72</i>	<i>0.39</i>	0.32	0.15	<i>-0.12</i>	<i>0.26</i>	<i>0.21</i>	<i>0.12</i>
Poland*Foreign university	0.29	0.37	<i>-0.10</i>	<i>0.14</i>	<i>-0.12</i>	<i>0.33</i>	-0.26	0.09
Iran*Foreign sec.educ.			<i>-0.51</i>	<i>0.28</i>			<i>-0.66</i>	<i>0.40</i>
Iran*Foreign university			-0.76	0.11			-0.57	0.19
Greece*Foreign sec.educ.			<i>0.10</i>	<i>0.16</i>			<i>0.35</i>	<i>0.20</i>
Greece*Foreign university			<i>-0.09</i>	<i>0.18</i>			-0.70	0.28
Turkey*Foreign sec.educ.			<i>0.04</i>	<i>0.12</i>			<i>-0.22</i>	<i>0.15</i>
Turkey*Foreign university			<i>-0.23</i>	<i>0.18</i>			<i>-0.45</i>	<i>0.28</i>
Ex-Yugoslavia*Foreign sec.educ.			<i>0.06</i>	<i>0.10</i>			<i>0.05</i>	<i>0.08</i>
Ex-Yugoslavia*Foreign university			<i>-0.30</i>	<i>0.18</i>			-0.59	0.15
Mediterranean*Foreign sec.educ. ²	<i>-0.14</i>	<i>0.35</i>			0.76	0.32		
Mediterranean*Foreign university ²	0.38	0.33			<i>-0.30</i>	<i>0.36</i>		
Number of observations	1,685,081		1,655,933		1,657,753		1,596,625	

Notes:

1. Bold letters indicate statistical significance at a 5%- level, and italics indicate statistical significance at a 10%-level.

2. Very few Greeks, Turks and Yugoslavs obtained their education in Sweden, therefore, we group these nationalities in the 1970-estimations.

The effect of experience has the usual hump shaped form for Swedes. For most immigrant groups, the effect of experience is higher than it is for Swedes in the beginning of the life-cycle and smaller in the end of the life cycle.

In this section it has become clear that the probability of being employed and its determinants differ a lot across nationality. The next section gives a picture of what is most important in explaining the difference in the employment probability between Swedes and immigrants in 1970 and 1990.

6. Decomposition Analysis

In Table 1, we showed the probability of being employed for Swedes and immigrants of different nationalities. Now we decompose the differences in employment probability into an explained part which is caused by differences in observed qualifications between Swedes and immigrants (E), and an unexplained part (U), which is caused by differences in unobserved characteristics between Swedes and immigrants. The explained component is larger than zero if the explanatory variables of Swedes are more in favour of employment than those of immigrants. The explanatory variables in our model are indicators for year of immigration, indicators for level of education, indicators for whether the education was obtained in the home country, experience, an indicator for being married, and an indicator for having children. Therefore, a non-zero explained component can be caused by differences in any of these explanatory variables. The unexplained component is larger than zero if the effect of the explanatory variables on the employment probability are more favourable for Swedes than for immigrants. This may stem from the demand side or the supply side of the labour market. Employers might treat immigrants differently than Swedes, either because of discrimination or demand for Sweden-specific skills, but also immigrants might have other preferences than Swedes due to cultural traditions or different sex-role patterns.

Table 3 and 4 present the rough decomposition for males and females, respectively, and Table B1-B4 in Appendix B show the detailed decompositions. A quick glance at Table 3 indicates that in 1970 observed qualifications of immigrants and Swedish men were equal, whereas in 1990 immigrants had observed qualifications which were less in favour of employment than that of Swedes. Similarly, in 1970 no men had a significant unexplained deficit in their employment rate

compared to Swedes, whereas in 1990 all men had an unfavourable unexplained gap. A quick glance at Table 4 illustrates that the picture is more scattered for women. This is because of the increase in participation rates of Swedish women. In the following, we go through each of the two components, U and E , in turn.

6.1 *The unexplained gap(U)*

From 1970 to 1990, the unexplained gap in employment rates between Swedes and immigrants have increased for both genders. In the following, we discuss the unexplained component presented in Tables 3 and 4, and the further decomposition (see Appendix B) to see what causes the unexplained gap. It will be interesting to see whether the increase in the unexplained gap stems from the human capital variables, or whether it comes from the family variables. One could say that only the former is a candidate for discrimination, since the latter is at least partly a question of individual and household choice or traditions. On the other hand, one could also say that a difference in employment rates stemming from the effect of family variables are due to discrimination rooted in the cultural and social background. The detailed decomposition of U by ‘type’ as shown in equation (4), and by experience and type-specific intercept in equation (5) and (7) are presented in Appendix B, Table B1-B4. We discuss the unexplained difference in employment probabilities for men and women in turn.

For men in 1970, we find an unfavourable unexplained gap for Poles (only significant at a 15%-level) who came as refugees, and a favourable one for Yugoslavian men. In Table B1, it is seen that the favourable unexplained gap for Yugoslavian men in 1970 stems from men who are not cohabiting and have no children. And in fact, Nordic men of this type also have a favourable unexplained gap in 1970.¹ What shows up is the fact that they are labour migrants; they simply immigrated to Sweden to work. That makes sense, since this type of men could easily immigrate to

work. 17% of the Nordic men and 19% of the Yugoslavian men account for -1.5 and -2.1 pct. points difference in employment probability due to unexplained reasons.

Twenty years after, in 1990, all immigrants had an unfavourable unexplained gap, and the Yugoslavs now belong to the group of immigrants who have an unexplained component far above 10 pct. points. A general characteristic for all immigrant groups is that singles seem to do better than cohabitants relative to Swedes. This might be because employers do not regard cohabitation as a sign of stable manpower for an immigrant like they do for Swedes. Alternatively, it could be because singles mingle with the Swedes, are more open-minded towards the Swedish culture and hence assimilate faster.

The groups with a large unexplained difference in employment rates range from Poles with 14.0 to Turks with 25.0 pct. points unexplained difference between their employment probability and that of Swedes. For Poland, cohabiting individuals with secondary education and university graduates account for most of the unexplained gap. However, these groups are also the largest, and in relative terms they do not have a larger unexplained gap than other groups. In relative terms those with primary education account for most of the unexplained gap. Therefore, we conclude that they are more discriminated against or suffer more from lack of informal skills than others. The main part of the unexplained component comes from the type specific intercept, i.e. education and family variables. In other words, Poles need more education and more stable family relations to have the same employment probability as an otherwise similar Swede. For Poles with primary education only, this effect is counteracted by a favourable effect stemming from experience, meaning that a high level of labour market experience facilitates getting a job, and more so for Poles than for Swedes.

Table 3. Decomposition of the gross difference in employment rates between Swedish and immigrant men.

Country	Unexplained (<i>U</i>)		Explained (<i>E</i>)		Gross difference	
	Contribution	Std.err.	Contribution	Std.err.	Total	Std.err.
- pct. points -						
1970						
Nordic countries	-0.9	0.8	-0.6	0.8	-1.6	0.1
Germany	-0.1	0.9	-0.8	0.9	-0.8	0.2
Poland	3.2	2.2	2.9	2.1	6.1	0.6
Greece	1.1	1.3	0.8	1.2	1.9	0.5
Turkey	1.4	1.7	1.7	1.4	3.1	1.0
Yugoslavia	-2.8	1.7	1.1	1.6	-1.7	0.2
1990						
Nordic countries	5.3	0.4	6.2	0.4	11.5	0.2
Germany	7.6	1.5	1.0	1.3	8.6	0.8
Chile	6.4	1.3	7.0	1.1	13.4	0.6
Poland	14.0	1.1	2.5	1.0	16.6	0.6
Iran	23.6	3.2	19.5	3.2	43.1	0.5
Greece	21.1	1.0	4.9	0.6	26.0	0.8
Turkey	25.0	0.8	4.7	0.5	29.7	0.7
Yugoslavia	16.1	0.7	3.7	0.6	19.8	0.4

Note: Bold letters indicate statistical significance at a 5%- level, and italics indicate statistical significance at a 10%-level.

This decomposition is shown in equation (3).

Among Greeks, the cohabitants without children (32%) are more discriminated against than others, or lack more informal skills than others, or maybe, are behaving to reduce their employment probability. Had they been treated like or had they behaved like cohabiting Swedes without children, the total employment rate would have been 9.7 pct. points higher. In this group of Greeks, mostly individuals with only primary education have a large unexplained component. Had they been treated like Swedes, they would have induced a 6.4 pct. points higher employment rate. A similar conclusion apply for Turks. And also for Yugoslavs, the result is similar: The 37% cohabitants without children account for 8.4 pct. points of the deficit in the Yugoslavs' employment rate compared to that of Swedes. And more than half of this comes from the 18% who only completed primary school.

For Greeks all of the unexplained gap comes from the type-specific intercept, whereas for Turks a significant contribution also comes from experience. Therefore, we can conclude that the experience of Turks is not valued in the labour market. If it had been valued as it is for Swedes, their overall

employment rates would have been somewhat higher. Some of this effect may reflect that they obtained some of their experience in their home country, and that this is not valued in the Swedish labour market. Most of the Turks arrived after 1975 (i.e. after the structural change began) which might also explain a significant part of the effect.

For the Yugoslavs, experience represents a discriminatory effect for the low educated individuals.² This might be because most of them arrived in Sweden before 1976 and was employed in low skilled jobs in the industrial sector, and these jobs were rationalised away in the course of the 1970s and the 1980s. In 1970, 81% of the Yugoslavian born men were employed in the industrial sector, by 1990 the number was reduced to 50%, see Bevelander (1995). Furthermore, the jobs that were left after the rationalisation required a higher informal and Sweden-specific competence. Therefore, their work experience from the industrial sector was not useful for obtaining employment. The Turks who arrived later than the Yugoslavs were affected by the rationalisation in the way that they had difficulties entering the labour market as unskilled workers. Especially the 60% low educated Turks suffered.

Among Iranians, cohabitants (69%) account for 20.4 pct. points (86%) of the total unexplained gap in employment rates of 24 pct. points. The lower the level of education, the more of the unexplained gap they account for. The effect comes from both the type-specific intercept and experience, and therefore, we conclude that neither human capital nor family background are as valuable for getting employment as it is for Swedes.

In 1990, the difference in employment probability caused by unexplained differences between Nordic, German, and Chilean men is only 5-8 pct. points. For these groups who experience the smallest unexplained gap, cohabiting Germans and Chileans with university degrees are hit hardest, whereas all cohabiting men from Nordic countries are affected. Notice that both Nordic and German men experience an increase in the *U*-component from 1970 to 1990 implying that even countries

that are culturally close to Sweden as well as labour market movers are affected by changes that cannot be explained by observed qualifications. This calls for an explanation in line with the structural change; since more Sweden-specific knowledge is needed, even the immigrants with high education from culturally close countries have difficulties obtaining employment. The Chilean immigrants mainly arrived as refugees in 1976-80 and as tied movers in 1986-90. For some reason they do better during the 1980s than other refugee groups. According to Bevelander (1995), 78% of the Chileans arriving before 1976, and 60% of those arriving after 1975 are employed in the service sector in 1990. The reason for their relative success could be that the public opinion and the media were in favour of receiving Chilean refugees, which would affect the assimilation process positively (see details about the Chileans in Svanberg and Runblom, 1990). This is consistent with a hypothesis of discrimination in the traditional sense as an explanation for the unexplained gap in employment rates.

Now we turn to the women. In 1970, all groups of women had an unexplained advantage in employment relative to Swedes, although the effect is only significant at 11% and 20% significance levels for Poles and Germans, respectively. The reason why the total effect is not clearly significant for Germans is that cohabitants with children have a lower employment rate than Swedes due to unexplained factors, indicating that German women with a family have a higher preference for not working or working less than full-time compared to the Swedish women. By 1990 the unexplained difference in employment probability between Germans and Swedes has increased from zero to 7.0 pct. points. Mainly women without children account for this difference. In contrast to the case of the 1970 census, we expect that this is due to lack of Sweden-specific human capital rather than individual preferences. Also for the Poles in the 1970 census the negative unexplained component is not clearly significant, and Table B3 shows that the singles account for the counteracting effect. Table B4 shows that a similar result is found for the 1990 census. It is a well-known fact that Polish women often marry Swedes, and that would result in a fast assimilation.

In 1970 all other groups experienced a clearly significant favourable unexplained difference in employment probabilities, whereas in 1990, all but Nordic, Chilean, Polish, and Yugoslavian women have an unfavourable unexplained difference. Worst is it for Iranians, where the unexplained factors account for a gap in the employment rate of 7.3 pct. points. All types of female Iranian immigrants are affected, but women with no children are badly hit; 31% account for a gap in employment rates of 6.5 pct. points (89%). They are not able to (or maybe allowed to) become employed even though they have no children to take care of. Also university graduates are more affected than others, since 23.8% account for an unexplained difference in employment rates of 2.6 pct. points, indicating that employers do not want university educated Iranians. The effect comes from both the type-specific intercept and experience. Notice that we have corrected for whether or not the education was obtained in Sweden, and this explanation is caught in the *E*-component.

In 1970, Greeks, Turks, and Yugoslavian women experienced a large favourable unexplained gap accounted for by women who only completed primary education. This reflects that these immigrants were labour migrants, and that the demand for unskilled labour was high at that time. Furthermore, Swedish women with no skills were not as eager to work, and they did not have to work because their husbands earned higher wages than the husbands of the foreign born women (Ohlsson, 1975). And if Swedish women worked, they often worked part-time in the service sector, whereas the foreign born were employed in the low skilled industrial sector. Among all employed Swedish women in 1970, 24% worked in the industrial sector. The similar number was 67% for Greeks, 64% for Yugoslavs, and 56% for Turks (Scott, 1995).

Table 4. Decomposition of the gross difference in employment rates between Swedish and immigrant women.

Country	Unexplained (<i>U</i>)		Explained (<i>E</i>)		Gross difference	
	Contribution	Std.err.	Contribution	Std.err.	Total	Std.err.
1970						
			- pct. points -			
Nordic countries	-9.0	1.4	0.9	1.4	-8.1	0.3
Germany	-2.1	1.6	-0.1	1.5	-2.2	0.4
Poland	-4.2	2.6	<i>-4.5</i>	2.5	-8.7	0.8
Greece	-35.5	1.8	-0.6	1.5	-36.1	1.0
Turkey	-15.3	3.3	-2.8	1.9	-18.1	2.7
Ex-Yugoslavia	-25.9	2.4	-8.0	2.4	-33.9	0.6
1990						
Nordic countries	-3.9	0.5	0.5	0.4	-3.5	0.3
Germany	7.0	2.6	-1.0	2.4	6.0	1.0
Chile	-14.6	1.7	14.0	1.6	-0.6	0.7
Poland	0.8	1.5	1.4	1.4	2.1	0.5
Iran	7.3	3.6	21.1	3.6	28.4	0.5
Greece	6.6	1.2	7.4	0.7	14.0	1.0
Turkey	3.6	0.9	14.9	0.5	18.5	0.7
Ex-Yugoslavia	-3.4	0.8	6.4	0.6	3.0	0.6

Note: Bold letters indicate statistical significance at a 5%- level, and italics indicate statistical significance at a 10%-level.

This decomposition is shown in equation (3).

In the 1990-census, a rather general finding for women is that women with children have a favourable unexplained difference. This could reflect that immigrant women with children to a larger extent need to work full-time to contribute to the family income than do the Swedish women who only work part-time.

In 1990, Greek and Turkish immigrants experienced an unfavourable difference in their employment rates for unexplained reasons, whereas Yugoslavs still have a favourable unexplained difference. Similar for all three nationalities are that the childless, and mainly those with primary education, are negatively affected. However, for Yugoslavs, this is more than outweighed by a favourable difference for cohabitants with children. One explanation could be that these women need to work full-time to a larger extent in order to contribute to the family income than do the Swedish women who only work part-time. And in addition, the Yugoslavs arrived in 1968-75 where the labour market was still tight for women, so they had the possibility of a successful entry in the labour market.

Chileans experience a large favourable unexplained difference compared to Swedes. A further decomposition shows that it stems from cohabitants with children, and that it comes from the type-specific intercept. Poles have neither in 1970 nor in 1990 a statistically significant unexplained difference. However, in 1990 women without children have a disadvantage compared to Swedes; the fact that they have no children does not increase their employment. However, this is counteracted by a favourable effect for cohabitants with children.

6.2 *The explained gap (E)*

First we go through the results for men and then for women. From 1970 to 1990 the gap in employment rates due to the explained gap between Swedish and immigrant men have increased tremendously, see Table 3. In 1970, the gap was negligible, but in 1990 immigrants lack behind. As seen in Table A1 there are some differences in observed qualifications between Swedes and immigrants in 1970. However, Table 3 shows that they even out when we calculate *E*.

A striking finding relates to the variable that approximates whether or not the education was obtained in Sweden. When this variable was introduced, the explained component increased from 12 to 20 pct. points for Iranian men, meaning that 8 pct. points of the difference in employment rates was moved from the unexplained to the explained component. Thus, the fact that one's education was obtained in Iran is seen as a huge disadvantage by the employer. This might be because Iranian education is considered to be of lower quality than the Swedish education, or because it is not relevant in the Swedish labour market. Alternatively, the reason may be lack of information about the Iranian education system. For no other nationalities major changes were found.

Among the variables which contribute to the explained component are also the indicator variables for year of immigration. For all immigrants, one of these explanatory variables takes the value one. For Swedes, however, these variables take the value zero if they have not emigrated and return-

migrated. Table 2 illustrates a clear pattern of employment assimilation for males: the longer the immigrants have been in the country, the higher the probability of being employed. The indicators for immigration year are much more important in 1990 than in 1970, which explains some of the rise in the *E*-components for all nationalities from 1970 to 1990.

In 1990, Germans, Poles, and Yugoslavs have *E*-components of 1-4 pct. points. As seen in Table A2 these immigrants have higher education and more established family relations, both of which increases employment. A counteracting effect comes from the lack of assimilation which is reflected in the indicators for immigration year. This is why people of these three nationalities have a small deficit in their employment rate even though they have good qualifications.

In addition to lack of assimilation, Greeks have a relatively low level of education which also adds to their employment deficit. However, many Greeks have children, and they account for a favourable counteracting effect. Most of the Iranian immigrants and half of the Chilean immigrants came during the period 1986-90, meaning that they suffer more than others from lack of Sweden-specific human capital. However, a huge experience gap also contributes to their components of 19.5 and 7.0 pct. points.

Nordic men also have a relatively large explained component, pertaining to the university graduates. Having a university degree increases the employment probability, and only 13.1% of Nordic men have a university degree compared to 23.6% of the Swedish men.

Most Turks arrived less than 15 years before 1990. In spite of this fact, and the fact that Turks and Yugoslavs have low education, their *E*-components are rather low. This is because these men more often than Swedes have a family to support, and this affects their employment rate with a huge positive effect.

Now we turn to the women, see Table 4. In 1970, the characteristics of most immigrant groups worked more in favour of employment than that of Swedes, but only for Poles and Yugoslavs, the

explained components are statistically significant. In Table 2, we saw a positive effect on employment rates from arriving in the period 1961-70. This is mainly because immigrants arriving at that time were labour migrants and because the female labour market was tight (see Ohlsson, 1975). Table A3 shows that nearly all Yugoslavs and 43% of the Polish women arrived during that period, and this is the main reason for the positive explained gap for Yugoslavs, but for Poles an additional reason is that they have somewhat more education than Swedes. In the case of Germans, a favourable unexplained gap of 6 pct. points disappears when the variable for whether the education was obtained in Sweden or not is introduced. Hence, women who have obtained their education in Germany have more difficulties getting a job than those who obtained their education in Sweden. A similar effect, though of a smaller magnitude, is seen for Polish and Nordic women.

In 1990, Polish and Yugoslavian women have lost their favourable explained gap, and in 1990 Yugoslavs have qualifications that are less favourable in relation to employment than those of Swedish women. Especially Poles have a higher level of education than in 1970, but the Poles observed in the 1990-census have a lower level of experience than the Swedes, which was not the case in the 1970-census. Furthermore, they did not arrive at a favourable point in time unlike those observed in the 1970-census.

Also, the qualifications of female immigrants from Turkey have declined between 1970 and 1990 relative to those of Swedes. In 1990, lack of observed qualifications implies that Turkish women have an employment rate which is 14.9 pct. points lower than that of Swedes. Their story is similar to that of Chilean women, since both groups more often have children than Swedes, and that decreases employment.

Both Chileans and Iranians have an employment rate which is more than 10 pct. points lower than Swedes due to a gap in observed qualifications. This mainly stems from those arriving just prior to the census year; 55% of the Chileans and 83% of the Iranians came in 1986-90. Therefore, they

might still suffer from lack of country-specific human capital. This cohort of immigrants was younger than the population average, and therefore they also have a deficit in general human capital in terms of general experience. In addition, the proportion of the Chileans and Iranians that have established a family is larger, and this also reduces their employability, and increases the explained gap.

7. Discussion and conclusion

In this paper we have provided an analysis of various factors that affect the probability of being employed for immigrants and for Swedes in 1970 and 1990. The most striking finding from the empirical analysis is that low qualifications in terms of observed human capital do not explain much of the difference in employment rates between Swedes and immigrants in 1990. The main part of the difference in employment rate is unexplained. This includes discrimination in the traditional sense, implying that immigrants are treated differently for reasons other than productivity reasons. In addition, it includes the assumed effect of the structural change that made informal and Sweden-specific qualifications more important for obtaining employment. Also, the fact that the composition of the immigrant population is different in 1990 compared to 1970, would be picked up by the unexplained part. In 1970, labour immigrants from European countries dominated the immigrant population with refugee Poles as an exception. In 1990, the number of refugees and tied movers from outside Europe constituted one third of the immigrant population. Since refugees have non-labour market related reasons to migrate, they are expected to have lower employment assimilation. The fact that Poles are the only group among male immigrants that have an unfavourable unexplained part both in 1970 and 1990, may suggest that refugees experience more difficulties getting employment. However, the fact that the difference due to the unexplained component of the Chileans in 1990 is about the same level as that of Nordic and German immigrants, means that the opposite could also be the case.

If discrimination in the traditional sense was most important, you would imagine that only the immigrants with the largest cultural distance to Swedes had a significant unexplained part. We find that in 1990 all groups have a significant unexplained part, not only the culturally distant Iranians and Chileans. However, the culturally close Nordic and German people, and the Chileans of whom the public opinion was positive, have relatively small unexplained differences. Therefore, we find some support for the hypothesis of traditional discrimination, but it is not the only explanation.

In addition to discrimination in the traditional sense, we opt for an alternative explanation in which the structural change of the Swedish economy is of crucial importance. As mentioned in section 2, this structural change has implied a higher demand for informal skills, such as culture-specific social competence and language skills. This could have decreased the possibilities of entering the labour market for new cohorts and decreased the possibilities to stay in the labour market for the older cohorts of immigrants. Hence, all immigrant groups are more or less deprived of obtaining employment because of this change, which favour native born.

This conclusion is consistent with the finding for men that singles have a smaller unfavourable unexplained difference than cohabitants. This suggest that they are better at obtaining the informal skills needed to adjust to the structural change in the Swedish economy, for instance because they have to interact more with Swedes in social life than the cohabitants do.

Two selection processes mentioned in section 2 could influence the unexplained component. One selection hypothesis would suggest that labour migrants and tied movers do better than refugees, because they move to work. If this is a dominating force, we would have expected a favourable unexplained difference for Nordic men in the 1990 census as we found for the labour migrants in the 1970-census. The fact that all immigrant men in 1990 have an unfavourable unexplained difference, also Nordic men, who are clearly labour migrants, means that other explanations than this selection hypothesis are needed. Another selection hypothesis implies that highly motivated or

high ability individuals leave Sweden depending on the labour market conditions. This selection hypothesis could explain why the Nordic men also have an unfavourable difference in 1990.

Although, we find that the unexplained difference rather than the explained difference stands for the huge decrease in the employment rate of immigrants relative to Swedes, some explanatory power is left for the explained factors. For instance, for Iranians it is essential whether the highest attained education is obtained in Sweden or in Iran. Also, we find that Iranians and Chileans due to lack of general experience have a lower employment rate than Swedes, and the same goes for various other groups due to lack of formal education.

In addition, the fact that the immigration year is of greater importance in the 1990 census than in the 1970 census, and that immigrant men in the 1990 census never catch up completely, could imply that immigrants need more Sweden-specific human capital to obtain employment in Sweden in 1990 than they did in 1970. But still, to a larger extent the difference in employment rates is due to the unexplained component.

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Appendix A. Means.

Table A1. Means for men in the 1970-census.

	Sweden	Nordic countries	Germany	Poland	Greece	Turkey	Ex- Yugoslavia
Employment rate	0.92	0.94	0.93	0.86	0.91	0.89	0.94
Married/Cohabiting	0.81	0.83	0.85	0.86	0.80	0.75	0.81
Having children	0.51	0.61	0.60	0.44	0.57	0.47	0.56
Secondary education	0.30	0.31	0.68	0.43	0.22	0.31	0.49
University education	0.09	0.05	0.14	0.22	0.03	0.09	0.04
Foreign secondary educ.	0.00	0.27	0.58	0.39	0.22	0.31	0.48
Foreign university educ.	0.00	0.04	0.10	0.20	0.02	0.08	0.04
Entered Sweden >20 yrs ago	0.00	0.14	0.16	0.45	0.01	0.03	0.01
Entered Sweden 15-19 yrs ago	0.00	0.15	0.29	0.07	0.01	0.03	0.01
Entered Sweden 10-14 yrs ago	0.00	0.18	0.15	0.07	0.02	0.03	0.05
Entered Sweden 5-9 yrs ago	0.00	0.24	0.25	0.10	0.48	0.38	0.49
Entered Sweden 0-4 yrs ago	0.00	0.30	0.14	0.30	0.49	0.53	0.44
Experience	25.62	21.44	19.40	26.86	18.71	19.41	17.82
Number of observations	1,594,664	64,429	9,840	2,572	3,334	833	9,409

Table A2. Means for men in the 1990-census.

	Sweden	Nordic countries	Germany	Chile	Poland	Iran	Greece	Turkey	Ex- Yugoslavia
Employment rate	0.88	0.76	0.79	0.75	0.71	0.45	0.62	0.58	0.68
Married/Cohabiting	0.80	0.76	0.86	0.86	0.89	0.69	0.86	0.92	0.91
Having children	0.41	0.39	0.46	0.60	0.52	0.48	0.56	0.74	0.55
Secondary education	0.39	0.40	0.49	0.47	0.47	0.53	0.32	0.29	0.48
University education	0.24	0.13	0.31	0.17	0.41	0.29	0.18	0.12	0.09
Foreign secondary educ.	0.00	0.30	0.45	0.43	0.42	0.53	0.23	0.20	0.38
Foreign university educ.	0.01	0.10	0.27	0.15	0.33	0.24	0.09	0.09	0.06
Entered Sweden >20 yrs ago	0.00	0.31	0.26	0.00	0.13	0.00	0.20	0.06	0.37
Entered Sweden 15-19 yrs ago	0.00	0.21	0.24	0.05	0.15	0.02	0.30	0.14	0.23
Entered Sweden 10-14 yrs ago	0.00	0.20	0.18	0.24	0.18	0.11	0.23	0.37	0.13
Entered Sweden 5-9 yrs ago	0.00	0.09	0.14	0.18	0.35	0.20	0.12	0.22	0.10
Entered Sweden 0-4 yrs ago	0.00	0.19	0.19	0.53	0.19	0.67	0.15	0.21	0.17
Experience	23.36	22.65	23.42	19.60	20.19	16.06	22.07	19.02	22.82
Number of observations	1,570,783	43,007	2,644	5,940	5,324	10,001	3,459	5,829	8,946

Table A3. Means for women in the 1970-census.

	Sweden	Nordic countries	Germany	Poland	Greece	Turkey	Ex- Yugoslavia
Employment rate	0.35	0.43	0.37	0.44	0.71	0.53	0.69
Married/Cohabiting	0.89	0.91	0.89	0.93	0.96	0.96	0.92
Having children	0.55	0.70	0.68	0.46	0.74	0.72	0.69
Secondary education	0.23	0.25	0.48	0.33	0.08	0.19	0.28
University education	0.08	0.05	0.09	0.13	0.01	0.03	0.04
Foreign secondary educ.	0.00	0.21	0.39	0.31	0.08	0.18	0.27
Foreign university educ.	0.00	0.03	0.06	0.11	0.01	0.02	0.03
Entered Sweden >20 yrs ago	0.00	0.21	0.22	0.46	0.01	0.02	0.00
Entered Sweden 15-19 yrs ago	0.00	0.18	0.38	0.04	0.00	0.02	0.02
Entered Sweden 10-14 yrs ago	0.00	0.18	0.19	0.07	0.02	0.03	0.04
Entered Sweden 5-9 yrs ago	0.00	0.21	0.13	0.09	0.34	0.31	0.31
Entered Sweden 0-4 yrs ago	0.00	0.22	0.08	0.34	0.63	0.62	0.63
Experience	26.05	22.32	22.64	27.19	19.26	21.53	19.17
Number of observations	1,563,671	70,301	12,747	2,936	1,847	334	5,917

Table A4. Means for women in the 1990-census.

	Sweden	Nordic countries	Germany	Chile	Poland	Iran	Greece	Turkey	Ex- Yugoslavia
Employment rate	0.52	0.55	0.46	0.52	0.49	0.23	0.38	0.33	0.49
Married/Cohabiting	0.86	0.85	0.90	0.89	0.96	0.93	0.95	0.97	0.95
Having children	0.44	0.53	0.44	0.73	0.60	0.69	0.58	0.82	0.59
Secondary education	0.40	0.40	0.43	0.40	0.50	0.48	0.19	0.18	0.32
University education	0.26	0.22	0.36	0.17	0.33	0.24	0.11	0.06	0.09
Foreign secondary educ.	0.01	0.29	0.38	0.37	0.47	0.48	0.11	0.10	0.21
Foreign university educ.	0.01	0.13	0.29	0.14	0.27	0.21	0.05	0.03	0.05
Entered Sweden >20 yrs ago	0.00	0.32	0.19	0.00	0.09	0.00	0.24	0.05	0.34
Entered Sweden 15-19 yrs ago	0.00	0.22	0.20	0.05	0.15	0.01	0.34	0.15	0.28
Entered Sweden 10-14 yrs ago	0.00	0.22	0.21	0.22	0.26	0.03	0.17	0.37	0.14
Entered Sweden 5-9 yrs ago	0.00	0.10	0.17	0.18	0.28	0.14	0.12	0.23	0.10
Entered Sweden 0-4 yrs ago	0.00	0.14	0.23	0.55	0.22	0.83	0.13	0.20	0.13
Experience	23.76	21.40	22.21	20.01	20.42	17.43	23.53	19.51	22.88
Number of observations	1,504,977	50,309	2,227	5,643	11,823	6,320	2,237	4,279	8,810

Appendix B. Detailed decomposition.

Table B1. Detailed decomposition of the unobserved component for men in the 1970-census.^a

Type	Nordic countries			Germany			Poland		
	α	U^i	C/E^b	α	U^i	C/E^b	α	U^i	C/E^b
Cohabiting									
No children									
Prim.educ.	13.6	0.0		4.6	0.0		14.4	0.8	
Sec.educ.	7.2	0.2	c+	16.2	0.1		18.1	0.1	
University	1.2	0.1	c+, e+	3.6	0.1		9.7	0.8	
Children									
Prim.educ.	38.6	0.0		9.9	0.0		16.7	<i>0.8</i>	
Sec.educ.	19.0	0.2	c+	41.9	0.1	c+	18.7	0.3	
University	3.4	0.1	c+, e+	8.7	0.1		8.4	0.5	
Not cohabiting									
No children									
Prim.educ.	11.9	-1.2	c-, e-	3.3	-0.2	c-	4.2	0.1	
Sec.educ.	4.7	-0.3	c-, e-	10.2	-0.3		6.1	-0.4	
University	0.5	0.0	c-, e-	1.7	0.0		3.5	<i>0.3</i>	
Children									
Prim.educ.	0.0	0.0	c-, e-	0.0	0.0		0.1	0.0	
Sec.educ.	0.0	0.0		0.0	0.0		0.0	0.0	
University	0.0	0.0		0.0	0.0		0.0	0.0	c+
Total	100.0	-0.9	c-	100.0	-0.1		100.0	3.2	
Type	Greece			Turkey			Yugoslavia		
	α	U^i	C/E^b	α	U^i	C/E^b	α	U^i	C/E^b
Cohabiting									
No children									
Prim.educ.	18.4	-0.2		19.9	-0.1		13.2	-0.2	
Sec.educ.	4.1	0.4		6.5	0.3		11.3	<i>-0.3</i>	c-
University	0.5	0.1	c+	2.3	0.4		0.9	<i>0.0</i>	c+
Children									
Prim.educ.	44.3	-0.1		28.1	-0.1		25.4	-0.1	
Sec.educ.	11.2	0.9		13.4	0.3		28.0	-0.3	
University	1.3	0.3	c+	5.2	0.6		2.3	0.1	c-, e+
Not cohabiting									
No children									
Prim.educ.	11.9	-1.1		11.4	-0.7		7.8	-0.8	c-
Sec.educ.	7.1	0.6		11.3	0.3		10.0	-1.3	c-
University	1.0	0.3	c+	1.9	0.5	c+	0.9	0.0	
Children									
Prim.educ.	0.1	0.0	c-	0.0	0.0		0.1	<i>0.0</i>	c-
Sec.educ.	0.0	0.0		0.0	0.0		0.1	0.0	
University	0.0	0.0		0.0	0.0		0.0	0.0	
Total	100.0	1.1		100.0	1.4		100.0	-2.8	c-

Notes:

- a. The first column gives the proportion of immigrants of each type, the second column gives the result of the decomposition which is shown in equation (4), and the third column indicates the result of the decomposition in equation (7). All numbers are given in pct. points, and bold letters indicate significance at a 5%-level whereas italics indicate significance at a 10%-level.

b. C stands for type-specific constant term, and E stands for experience. c+ indicates that the type-specific constant term gives a significant positive contribution, e+ indicates that experience plus experience squared gives a significantly positive contribution, and so on.

Table B2. Detailed decomposition of the unobserved component for men in the 1990 census.^a

Type	Nordic countries			Germany			Chile			Poland		
	α'	U^t	C/E ^b	α'	U^t	C/E ^b	α'	U^t	C/E ^b	α'	U^t	C/E ^b
Cohabiting												
No children												
Prim.educ.	20.1	2.4	c+, e+	9.2	0.5		9.7	0.3	c+	5.1	1.4	c+, e-
Sec.educ.	13.3	1.2	c+, e+	21.1	2.3		12.7	0.8		17.9	3.4	c+
University	4.3	0.3	c+, e+	11.0	1.6	c+	5.5	0.7		14.9	1.9	c+
Children												
Prim.educ.	16.2	0.9	c+, e+	8.0	0.2		21.3	<i>1.4</i>		4.9	1.0	c+
Sec.educ.	15.7	0.7	c+, e+	21.1	<i>1.3</i>		27.1	2.2		24.1	3.2	c+
University	6.0	0.2	c+, e+	16.0	1.4		9.9	1.3		22.2	1.8	
Not cohabiting												
No children												
Prim.educ.	10.6	0.0	c+	2.6	-0.2		4.3	-0.3		1.7	0.3	c+, e-
Sec.educ.	10.1	-0.1		6.5	0.2		6.2	-0.1		4.7	0.8	c+
University	2.7	-0.1	c-, e-	4.1	0.2		1.9	0.0		3.9	0.3	
Children												
Prim.educ.	0.5	0.0	c-	0.0	0.0		0.5	0.0		0.1	0.0	c+
Sec.educ.	0.5	0.0	c-	0.4	0.0		0.7	0.0		0.2	0.0	c+
University	0.1	0.0	c-, e-	0.0	0.0		0.1	0.0		0.2	0.0	c-
Total	100.0	5.3	c+, e+	100.0	7.6		100.0	6.4		100.0	14.0	
Iran												
Greece												
Turkey												
Ex-Yugoslavia												
Type	α'	U^t	C/E ^b	α'	U^t	C/E ^b	α'	U^t	C/E ^b	α'	U^t	C/E ^b
Cohabiting												
No children												
Prim.educ.	3.9	1.6	c+, e+	18.6	6.4	c+	10.9	3.3	c+, e+	17.5	5.0	c-, e+
Sec.educ.	11.6	3.1	c+, e+	8.4	2.1	c+	5.4	1.3	c+, e+	16.1	3.0	c+
University	6.5	1.4	c+, e+	4.5	1.2	c+	3.1	0.8	c+, e+	3.0	0.4	c+
Children												
Prim.educ.	8.2	3.5	c+, e+	27.1	5.1	c+	44.9	11.8	c+, e+	22.2	3.4	
Sec.educ.	22.1	6.6	c+, e+	17.8	2.6	c+	20.2	4.4	c+, e+	27.5	3.0	c+
University	17.0	4.2	c+, e+	9.7	1.7	c+	7.2	1.9	c+, e+	4.8	0.4	c+
Not cohabiting												
No children												
Prim.educ.	5.3	1.1	c+, e+	4.0	0.5	c+	3.0	0.6	c+, e+	2.5	0.3	c-
Sec.educ.	19.0	1.7	c+	5.6	0.7	c+	2.6	0.4	c+, e+	4.4	0.4	c+
University	5.3	<i>0.2</i>	c+	3.3	0.6	c+	1.5	0.3	c+, e+	1.3	0.1	c+
Children												
Prim.educ.	0.2	0.1	c+, e+	0.6	0.0		0.5	0.1	c+, e+	0.3	0.0	c-, e+
Sec.educ.	0.8	0.1	c+	0.4	0.0	c+	0.5	0.1	c+, e+	0.3	0.0	c+
University	0.2	0.0	c+	0.1	0.0	c+	0.2	0.0	c+, e+	0.1	<i>0.0</i>	
Total	100.0	23.6	c+, e+	100.0	21.1	c+	100.0	25.0	c+, e+	100.0	16.1	

Notes: See Table B1.

Table B3. Detailed decomposition of the unobserved component for women in the 1970 census.^a

Type	Nordic countries			Germany			Poland		
	α'	U^t	C/E ^b	α'	U^t	C/E ^b	α'	U^t	C/E ^b
Cohabiting									
No children									
Prim.educ.	15.7	-2.1	c-, e+	9.6	-0.7	c-	26.0	-1.4	
Sec.educ.	5.5	-0.3	c+, e-	11.8	-0.8	c-	16.9	0.4	
University	1.1	0.0		2.1	0.0		5.7	-0.1	
Children									
Prim.educ.	49.4	-4.9	c-, e+	30.1	0.3		25.0	-2.6	c-
Sec.educ.	16.2	-0.7	c+	30.6	0.3		13.8	-0.6	
University	2.7	0.0		5.1	0.3	c+	5.9	-0.6	
Not cohabiting									
No children									
Prim.educ.	3.7	-0.5	c-, e+	2.3	-0.4	c+, e-	2.5	0.2	
Sec.educ.	2.8	-0.2	c-, e+	4.4	-0.6	c+	2.2	0.3	c+
University	0.8	0.0	c-	1.8	-0.2	c+, e-	1.2	0.1	c+
Children									
Prim.educ.	1.4	-0.2	c-, e+	0.7	-0.1	c-, e-	0.4	0.0	
Sec.educ.	0.7	-0.1	c-, e+	1.2	-0.2	c+, e-	0.2	0.0	
University	0.1	0.0	c-	0.2	0.0	c-	0.2	0.0	
Total	100.0	-9.0	c-, e+	100.0	-2.1		100.0	-4.2	
Type	Greece			Turkey			Yugoslavia		
	α'	U^t	C/E ^b	α'	U^t	C/E ^b	α'	U^t	C/E ^b
Cohabiting									
No children									
Prim.educ.	20.6	-4.9		18.6	-2.9		18.6	-4.3	
Sec.educ.	1.5	0.2		5.4	0.7		6.3	0.0	
University	0.3	0.1	c+	0.9	0.0		0.9	-0.1	c-
Children									
Prim.educ.	66.8	-30.9		56.9	-13.4		45.3	-17.7	c-
Sec.educ.	5.8	-0.1		12.9	0.4		19.1	-2.6	c+
University	0.8	0.0		1.8	-0.2		2.3	-0.5	
Not cohabiting									
No children									
Prim.educ.	3.0	-0.1		2.4	0.0		3.5	-0.3	
Sec.educ.	0.6	0.2	c+	0.3	0.0		1.6	0.1	c+
University	0.2	0.1	c+, e+	0.3	0.0		0.4	0.0	
Children									
Prim.educ.	0.4	-0.1		0.6	-0.1		1.5	-0.4	
Sec.educ.	0.0	0.0		0.0	0.0		0.5	0.0	
University	0.1	0.0	c-	0.0	0.0		0.1	0.0	c-
Total	100.0	-35.5		100.0	-15.3		100.0	-25.9	

Notes: See Table B1.

Table B4. Detailed decomposition of the unobserved component for women in the 1990 census.^a

Type	Nordic countries			Germany			Chile			Poland		
	α'	U^t	C/E^b	α'	U^t	C/E^b	α'	U^t	C/E^b	α'	U^t	C/E^b
Cohabiting												
No children												
Prim.educ.	17.4	0.0		11.0	0.7		10.8	-0.9	c-	7.8	0.8	c+
Sec.educ.	12.7	0.2		22.5	2.5	c-	7.7	-0.5	c-	17.7	1.9	c+
University	6.5	0.2	c+	14.6	<i>1.4</i>	c-	3.9	-0.3	c-	11.9	0.7	c+
Children												
Prim.educ.	16.7	-1.9	c-	7.9	0.1		28.7	-5.0	c-	8.5	-0.5	c-
Sec.educ.	20.6	-1.7	c-	17.1	0.8		27.3	-4.9	c-, e-	30.4	-1.0	
University	11.1	-0.7	c+	16.7	0.6		10.6	-2.2	c-, e-	20.0	-1.6	c+
Not cohabiting												
No children												
Prim.educ.	2.3	0.0		0.9	0.1	c-	1.6	0.0		0.3	0.1	c+
Sec.educ.	4.5	0.1	c+	2.9	0.3	c-	2.1	0.1		1.2	0.2	c+, e+
University	3.2	0.1	c+	4.0	0.4	c-	1.0	0.0		0.9	0.1	c+, e+
Children												
Prim.educ.	2.0	-0.2	c-	0.6	0.0		2.5	-0.3	c-	0.5	0.0	
Sec.educ.	2.3	-0.1	c+	0.9	0.1		2.7	-0.3	c-	0.5	0.0	c+
University	0.7	0.0	c-	0.9	0.1		1.1	-0.2	c-, e-	0.4	0.0	
Total	100.0	-3.9	c-	100.0	7.0		100.0	-14.6	c-	100.0	0.8	c+
Type	Iran			Greece			Turkey			Yugoslavia		
	α'	U^t	C/E^b	α'	U^t	C/E^b	α'	U^t	C/E^b	α'	U^t	C/E^b
Cohabiting												
No children												
Prim.educ.	9.1	2.4	c+	30.1	8.5	c+	11.7	2.8	c+	25.1	3.9	c+
Sec.educ.	10.4	1.1	c+	4.7	1.1	c+	2.8	0.1		9.7	0.7	c+
University	5.0	1.2	c+, e+	3.0	0.5	c+	1.4	0.3	c+	3.2	0.3	c+
Children												
Prim.educ.	17.7	1.6	c+	38.4	-3.2		63.0	1.8		31.9	-4.5	c+
Sec.educ.	34.0	-1.7		13.0	-1.1		14.5	-2.0	c-	20.3	-3.5	c+, e-
University	16.8	0.8		5.5	<i>-0.7</i>	c-	3.8	0.1		5.1	-0.6	c-
Not cohabiting												
No children												
Prim.educ.	1.1	0.4	c+, e+	1.0	0.4	c+, e+	0.8	0.3	c+	1.1	0.2	c+
Sec.educ.	3.5	0.8	c+	1.2	0.4	c+, e+	0.6	0.1	c+	1.5	0.2	c+
University	1.8	0.6	c+, e+	2.2	0.7	c+, e+	0.3	0.1	c+, e+	0.6	0.1	c+, e+
Children												
Prim.educ.	0.1	0.0	c+, e+	0.4	0.0		0.7	0.1	c+	0.6	0.0	
Sec.educ.	0.4	<i>0.0</i>		0.4	0.0		0.3	0.0		0.7	-0.1	c-
University	0.2	0.0	c+	0.1	0.0		0.1	0.0	c+	0.1	0.0	
Total	100.0	7.3	c+	100.0	6.6	c+	100.0	3.6		100.0	-3.4	c+

Notes: See Table B1.

¹ Pedersen (1996) discusses migration in the Nordic countries in more details.

² All groups of low-educated Yugoslavs experience an unfavourable experience effect, but for cohabitants with children and for singles without children the p-values are about 25%.