INCOME FROM WORK AMONG IMMIGRANTS IN SWEDEN

by Mats Hammarstedt*

Växjö University

This paper uses a two-step Heckman approach to investigate to what extent there are differences in income from work between immigrants and natives in Sweden. Contrary to previous studies this study takes the selection effect, i.e. the probability of having an income from work, into account when calculating the effect on income from work of a change in any of the explanatory variables. Our study shows that when the selection effect is taken into account, the differences in income from work between immigrants and natives are smaller than when the selection effect is not considered. We find that immigrants have a lower income from work than the native population when we control for variables such as schooling, experience, civil status and region of residence. Furthermore, immigrant cohorts with a recent year of immigration have a considerably lower income from work than earlier immigrant cohorts.

1. Introduction

The incomes that the immigrants have at their disposal are to a high degree dependent on their employment status, their number of working-hours and in which branches of business they are working. During the 1950s and 1960s the employment ratio was higher for immigrants than for natives in Sweden. The changed character of immigration with an increasing number of refugees in combination with a deterioration in the labor market during and after the 1970s led however to lower and lower employment intensity and increasing unemployment among immigrants in Sweden.[1] Furthermore, immigrants who have arrived in Sweden during the last 20 years have also to a great extent been employed in jobs below their formal educational level. This fact has led to a deterioration in the immigrants' relative income position over the years and different studies have shown a low income from work and a high proportion of low-income earners among them.[2]

The aim of this paper is to study income from work among immigrants in Sweden. In this paper immigrants are defined as foreign-born individuals. By estimating income equations our study focuses on whether there exist differences between those born abroad and native-born Swedes as regards income from work when we control for factors such as education and experience. Are there differences between immigrant groups from different regions? Are there differences between immigrant groups that arrived in Sweden at different points of time? Does immigrant income from work increase as the length of residence in Sweden

[1]See for example Wadensjö (1972), Ekberg (1983, 1991), Bevelander and Skyt-Nielsen (2001).
[2]See Ekberg (1990, 1994), Aguilar and Gustafsson (1991).

increases? In line with many previous studies on earnings functions we use a two-step Heckman approach to estimate our income equations. But contrary to previous studies we are also taking the selection effect into account when calculating the effect on income from work of a change in any of the explanatory variables. The marginal effect of being an immigrant on income from work consists of two parts, one due to influence on the probability of having an income from work and one due to influence on the size of income from work. Not taking the selection effect into account might lead to an over- or underestimation of the differences in income from work between immigrants and natives. By taking the selection effect into consideration we will be able to estimate the full effect on income from work of being an immigrant. This is a point that appears frequently to have been overlooked in previous empirical studies.

The paper proceeds in the following way: Section 2 presents an overview of previous research. Section 3 presents some possible causes of differences in income from work between immigrants and natives. Sections 4 and 5 present the data and sample descriptives. The empirical investigation is presented in Section 6 while the last section summarizes the results.

2. Previous Research on Earnings of Immigrants

The international research literature contains a number of studies of immigrants' earnings and adjustment to the labor market. Among such studies the works of Chiswick (1978, 1980) have been extremely influential. According to Chiswick, immigrant men in the U.S. have been successful in the labor market. Chiswick used a sample of cross-sectional data from the 1970 U.S. Census and found that immigrant men had lower incomes on their arrival in the U.S. than men in a native comparison group of the same social and ethnic origin. After 10–15 years of residence in the U.S. many immigrants have obtained the same incomes as the native comparison groups. Their incomes become even higher than the corresponding native groups over time.

Chiswick explains the results within a human capital approach. According to Chiswick's hypothesis the labor-force immigrants are positively selected. They have a higher capacity and motivation for work than the native population in the host country. The idea of positive selection is based on the assumption that for persons with great capacity the benefits from migration are higher than for persons with low capacity whereas the costs are about the same. The tendency to migrate will be great if the quotient between benefits and costs is high. As regards refugees, it can be assumed that economic motives do not play the same role as for labor-force migrants. Refugees have lower initial earnings than labor-force migrants but, ceteris paribus, they have a steeper rise in earnings over time in the destination country as their pre-immigration skills adjust to the labor market of the destination country.

A great deal of the literature borrows both the theoretical framework and the empirical methodology from Chiswick's work. Carliner (1980), de Freitas (1980) and Long (1980) used the same method as Chiswick on alternative data sets and focused on specific immigrant groups. These studies came in all essentials to the

same conclusion as Chiswick and tend to confirm the fact that after 10–15 years immigrants do extremely well in the U.S. labor market.

The result obtained by Chiswick was later called into question by Borjas (1985, 1987, 1989). Borjas was critical in two different respects. Firstly, Borjas stated that cross-section regressions used in the literature confound the true income assimilation of immigrants. Borjas is of the opinion that cross-sectional data give a far too positive picture of the immigrants' income trends. This is due to the fact that the human capital of the earlier immigration cohorts is higher than that of the later immigration cohorts. Secondly, Borjas is critical of Chiswick's hypothesis that labor-market immigrants are positively selected. Borjas maintains that negative selection may also occur among labor immigrants. Whether positive or negative selection occurs depends on the economic and political circumstances in the emigrant and immigrant countries.

As regards economic circumstances, income distribution in the immigration and emigration countries is of essential importance. If the average income is the same in both the immigrant and the emigrant country an income-maximizing migrant will be positively selected if the income distribution is more uneven in the immigration country than in the emigration country. The migrant might then acquire a higher income. On the other hand, the migrants are negatively selected if the income distribution is more even in the immigration country than in the emigration country. If there are differences in both the average income and the income distribution between the two countries, the relative strength of these variables is decisive for whether negative or positive selection arises.

According to Borjas, an important political aspect is whether the immigrants come from countries with political repression. Immigrants from such countries have great incentives to adapt to the host country's labor market, since they have no plans to re-emigrate.

Borjas tested his hypotheses on data from the 1970 and 1980 U.S. Censuses and found a more complicated picture than Chiswick regarding immigrants' income assimilation in the U.S. Borjas found that assimilation took longer than 10–15 years. Furthermore, Borjas found declining cohort "quality" over time.

However, Borjas' study is not a real longitudinal study. The individuals in the 1970 and 1980 samples are not the same. Thus there may be a bias in Borjas' studies, since the individuals have not been followed over time. Besides, Borjas' samples are restricted to men and also exclude self-employed men.

In an answer to Borjas, Chiswick (1986) repeated his study using data from three different cross-sectional observations, the 1970 U.S. Census, the 1976 Survey of Income and Education and the 1980 U.S. Census. From all these sources he found a steeper upward earning profile for white immigrant men than for corresponding native groups. After about 15 years in the U.S. white immigrant men had higher incomes than corresponding native men. Chiswick argues that this indicates that cross-sectional earnings profiles are reasonable proxies for longitudinal changes in income.

The issue of whether cross section estimates give biased estimates of longitudinal changes in immigrant income adjustment has been tested in more recent U.S. studies as well. LaLonde and Topel (1991, 1992) and Duleep and Regets

(1996, 1997) demonstrate that there has been no significant decline in cohort "quality" among immigrants in the U.S. when other variables are held constant.

Other studies regarding immigrants' income assimilation are Al-Quadsi and Shak (1991), who studied immigrant men in Kuwait, and Poot (1993) who studied immigrant men in New Zealand. Al-Quadsi and Shak as well as Poot used the same method as Chiswick, i.e. cross-sectional data. The results tended, to some extent, to confirm the results in the study by Chiswick but the assimilation rate was found to be slower.

European studies of income assimilation have been performed by Dustmann (1993), Pischke (1993) and Schmidt (1997), who studied income assimilation among immigrant men in Germany. The studies showed that the immigrants did not reach the earnings level of the native population. Shields and Wheatley Price (1998) studied immigrant earnings in the U.S. and found a rather slow assimilation rate for immigrant workers.

Among early Swedish studies can be mentioned Wadensjö (1972) and Statistics Sweden (1977). These studies showed that foreign citizens were underrepresented among high and low income earners. More recent Swedish studies of income assimilation have been made by Ekberg (1990, 1994). Ekberg studied the immigrants' longitudinal adaptation to the Swedish labor market with the help of data on the total foreign-born population in the Swedish 1970 Census. These immigrants were followed in the 1975, 1980, 1985 and 1990 Censuses. To every foreign born individual a Swedish "twin" of the same age, gender, occupation and county of residence was selected. Ekberg found small differences between the immigrants who had an income from work between 1970 and 1990. If the income from work instead was divided among all the individuals in each of the two groups, the immigrants' relative income decreased between 1970 and 1990.

Aguilar and Gustafsson (1991) used repeated cross-sections from 1971 to 1980 and studied immigrant income assimilation for immigrant cohorts from 1969 and 1974. They followed immigrants from their immigration year up to 1980 and found that the 1969 cohort gradually caught up with the earnings of natives but that this was not the case for the 1974 cohort.

A more recent study is Åslund, Edin, and LaLonde (2001). They used cross-sectional data from 1996 and longitudinal data for the period 1970–97 and studied how measures of immigrant assimilation are affected by emigration. They found that immigrants assimilate in the sense that their earnings grow relative to natives. However, immigrants do not catch up with their native counterparts. Furthermore, they also found that those measures of earnings assimilation that do not account for emigration overstate the true rate of assimilation.

3. POSSIBLE CAUSES FOR DIFFERENCES IN INCOME FROM WORK BETWEEN IMMIGRANTS AND NATIVES

An individual's income from work depends on two components—the number of hours worked and the hourly wage. The number of hours worked in turn depends on the individual's desired labor supply and/or upon restrictions in realizing it. The individual's hourly wage depends on the individual's knowledge and experiences, i.e. on her or his human capital, but it is also possible that two indi-

viduals with the same knowledge and experiences are judged differently by the employers. Thus an individual's income from work is influenced by the individual's labor supply, the individual's productivity and possible discrimination in the labor market.

When we study income from work among immigrants it can be interesting to separate general and country-specific human capital.[3] General human capital consists of knowledge and experiences that increase the productivity of the individual, irrespective of in which country he/she is working. Country-specific human capital, on the other hand, consists of knowledge and experiences that increase the productivity of the individual more in the country where he/she has accumulated them than in other countries. Since country-specific human capital is adapted to the conditions in the country in which it has been acquired it yields low, or no, returns in other countries.

An individual's human capital can be acquired in different ways. One way to acquire human capital is formal schooling, another way is to take jobs which offer learning opportunities—"on the job training." It is of course of great importance to what extent an individual's human capital is acquired in Sweden or abroad. In our study we do not have any data about whether an individual has been educated in Sweden or abroad. Thus we do not have any possibility to elucidate the degree of transferability of schooling. Furthermore, we only have imperfect data about to what extent an individual's experience has been acquired in Sweden or abroad.

An important factor for the possibilities of an immigrant to be hired and promoted and thus for income from work is the knowledge of Swedish. Therefore, it is a limitation that there is no information in our study about proficiency in Swedish among the immigrants. Studies in the U.S. have shown that knowledge of English is an important factor in explaining the level of earnings among immigrants.[4] Immigrants with a thorough knowledge of English get much higher wages than those lacking that knowledge. The differences in earnings might be explained by the fact that knowledge of the language influences productivity on the job, but it might also reflect discrimination against immigrants with lower language proficiency.

Employers, other employees and customers may have preferences or prejudices against immigrants, making it more difficult for immigrants to be hired and promoted.[5] Since we cannot control for discrimination in our study it is important to have in mind that discrimination, in addition to differences in human capital and knowledge of the Swedish language, can contribute to the emergence of differences in income from work between immigrants and natives.

The transferability of schooling and experience, i.e. human capital, might vary for immigrants from different regions and for immigrants who immigrated at different points of time. Furthermore, different immigrant groups might have different proficiencies in the Swedish language and they might therefore run different risks of discrimination in the Swedish labor market. Because of this, we have

[3]In human capital theory it is usual to talk about general and firm-specific human capital.
[4]See Kossoudji (1988), Chiswick (1991).
[5]For an overview of the literature of discrimination, see for example Lundahl and Wadensjö (1984).

divided the immigrants by region and cohort. The regions and cohorts might serve as proxies for the transferability of schooling and experience, language proficiency and risk of discrimination.

The regions used in the study are: the Nordic countries, Western Europe,[6] Eastern Europe, Southern Europe and Other regions. The cohorts used are immigrants who arrived prior to 1976, 1976–80, 1981–85 and 1986–90.[7] We might, for example, expect income from work to be higher for Nordic than for other immigrants since their proficiency in the Swedish language is better. Furthermore, it is reasonable to believe that an educational degree from the Nordic or Western European countries is worth more in the Swedish labor market than a non-European educational degree. It is also reasonable to believe that Nordic or Western European immigrants run lower risks of discrimination than, for example, non-European immigrants. Furthermore, we might expect earlier immigrant cohorts to have a greater proficiency in Swedish than more recent immigrant cohorts, and we might therefore expect immigrants who arrived before 1976 to have a higher income from work than more recent cohorts.

4. Data

In our study we use data from a Swedish National Board of Health and Welfare database containing data for the total Swedish population. The data is based on the 1985 and 1990 Censuses and the income register for the years 1985–92.

From the database the National Board of Health and Welfare has drawn a sample of every tenth individual born between the years 1921 and 1974, which makes a total of 599,890 individuals. Our working sample includes all immigrants aged 16–64 in 1990 in the sample drawn by the National Board of Health and Welfare. The number of immigrants is 53,526. From the sample of the National Board of Health and Welfare we have also drawn a sample of natives aged 16–64 as a control group. The number of natives in the control group is 16,965. Thus the total number of individuals included in our study amounts to 70,491.

5. Sample Descriptives

To provide a background to the study, we begin by presenting some descriptive statistics regarding income from work among immigrants. It should be mentioned that one difficulty with our study is that we do not know anything about the number of hours the individuals have worked. Therefore it is not possible to separate how much of the variation in income from work that can be explained by differences in the number of hours worked and how much that can be explained by differences in hourly wages.

The number of hours that the individuals work is to a high degree dependent on the employment situation. A special version of the Swedish labor force survey

[6]Includes also the U.S., Canada and Oceania.
[7]For a more detailed description, see Appendix A.

TABLE 1

PROPORTION (%) OF IMMIGRANTS AND NATIVES WHO HAD AN INCOME FROM WORK IN 1990
(16–64 YEARS OF AGE)

	Educational Level					
Emigration Region	Nine-year Compulsory School or Shorter	Upper Secondary School <3 Years	Upper Secondary School ≥3 Years	Higher Education <3 Years	Higher Education ≥3 Years	Postgraduate Studies
Nordic countries (23,779)[a]	80.6	94.2	93.2	96.0	95.8	98.5
Western Europe[b] (5,339)	80.6	94.1	91.3	93.0	93.1	95.1
Eastern Europe (5,791)	72.7	91.7	87.6	90.5	91.1	92.8
Southern Europe (7,228)	72.5	89.2	89.0	91.4	89.3	86.7
Latin America (2,754)	84.2	96.5	89.5	94.4	90.3	94.1
Africa (1,641)	80.1	92.2	91.4	92.9	92.1	95.5
Asia (6,994)	70.4	91.4	81.5	76.5	81.0	79.7
Native-born Swedes (16,965)	87.2	97.9	96.7	97.4	98.2	97.5

N = 70,491

[a]The figures within parentheses indicate the number of individuals in each group.
[b]Includes also immigrants from the U.S., Canada and Oceania.

for the year 1992 showed that the unemployment rate was, with few exceptions, higher for immigrants than for natives.[8] This picture is confirmed in more recent studies, such as Bevelander and Skyt-Nielsen (2001). Furthermore, the Swedish labor force survey showed that the employment situation for immigrants becomes considerably better as their time in Sweden increases.

Table 1 shows the proportion of immigrants and natives at different educational levels who had an income from work in 1990. The proportion varies between immigrant groups and between educational levels. The lowest proportion is found for individuals with a nine-year compulsory school education or less. Among these, the lowest proportion, about 70 percent, is found among immigrants from Asia, and the highest proportion, about 84 percent, among immigrants from Latin America. For native Swedes the corresponding proportion amounts to about 87 percent.

For immigrants with upper secondary school education, the proportion with an income from work in many cases exceeds 90 percent. This is also the case for individuals with higher education. However, for immigrants from Asia the proportion with an income from work is without exception low. This could probably to some extent be explained by the low proportion of gainfully employed women from the Middle East.

[8]See Statistics Sweden (1992).

TABLE 2

MEAN VALUES OF INCOME FROM WORK IN SEK (FOR INDIVIDUALS WHO HAD AN INCOME FROM WORK) IN 1990 (16–64 YEARS OF AGE)

	Educational Level					
Emigration Region	Nine-year Compulsory School or Shorter	Upper Secondary School <3 Years	Upper Secondary School ≥3 Years	Higher Education <3 Years	Higher Education ≥3 Years	Postgraduate Studies
Nordic countries (20,824)[a]	124,900	130,000	137,700	148,100	201,200	313,600
Western Europe[b] (4,742)	117,900	123,100	145,700	142,800	192,300	234,500
Eastern Europe (4,928)	103,800	121,800	121,000	126,300	180,700	282,700
Southern Europe (5,778)	105,200	118,900	114,600	125,100	166,200	199,400
Latin America (2,445)	77,200	105,200	92,600	110,400	140,600	187,400
Africa (1,428)	75,400	99,900	97,900	118,300	156,400	183,900
Asia (5,425)	64,800	89,400	77,900	101,000	126,900	180,400
Native Swedes (15,840)	112,600	128,200	135,800	156,600	212,600	351,600

N = 61,410

[a]The figures within parentheses indicate the number of individuals in each group.
[b]Includes also immigrants from the U.S., Canada and Oceania.

Immigrants do not at any educational level reach the same proportion with an income from work as native Swedes. For natives with upper secondary school or higher education the proportion with an income from work exceeds 95 percent.

Table 2 shows the mean income from work for different educational levels. For immigrants, as well as for natives, the income level is higher for individuals with high education than for those with lower education. Immigrants do not, except for Nordic and Western European immigrants with upper secondary schooling or less, reach the same levels of income as the native population with the same level of education. Non-European immigrants have, independently of educational level, a lower income from work than European immigrants and natives.

Furthermore, there exists a relation between income level and year of immigration (see Table 3). The mean income from work is somewhat higher among immigrants who immigrated prior to 1968 than for the native population with the same level of education. For immigrants who immigrated between 1968 and 1975 the mean income was somewhat lower than that of the native population with the same level of education. For immigrants arriving after 1975 the mean incomes are substantially lower than the mean incomes for the native population. For the cohort 1986–90 the mean income amounts to at most 75 percent of the income for the native population.

TABLE 3

MEAN VALUES OF INCOME FROM WORK IN SEK FOR DIFFERENT IMMIGRANT COHORTS (FOR INDIVIDUALS WHO HAD AN INCOME FROM WORK) IN 1990 (16–64 YEARS OF AGE)

	Educational Level					
Year of Immigration	Nine-year Compulsory School or Shorter	Upper Secondary School <3 Years	Upper Secondary School ≥3 Years	Higher Education <3 Years	Higher Education ≥3 Years	Postgraduate Studies
Immigrants –1967 (15,771)[a]	128,500	131,200	154,200	158,100	214,000	276,300
Immigrants 1968–75 (10,312)	116,400	126,400	125,600	145,100	191,500	268,400
Immigrants 1976–80 (6,216)	95,700	118,800	115,700	133,100	178,200	225,700
Immigrants 1981–85 (4,897)	86,700	109,800	105,200	117,700	156,700	222,800
Immigrants 1986–90 (8,374)	76,500	96,200	85,800	88,300	133,200	172,100
Native Swedes (15,840)	112,600	128,200	135,800	156,600	212,600	351,600
N = 61,410						

[a]The figures within parentheses indicate the number of individuals in each group.

6. ESTIMATION OF INCOME EQUATIONS

6.1. *Empirical Specification*

Against the background described above, the aim of our econometric study is to elucidate in greater detail the income from work among immigrants in 1990. With the help of a cross-section study inquiries are made into whether income from work differs between immigrants and natives, between immigrants from different regions, and between different immigrant cohorts when factors such as education, experience, civil status and place of residence are held constant.

As mentioned earlier, one problem with our study is that we do not know anything about the number of hours that the individuals have worked. One important reason for differences between immigrants and natives might therefore be differences in that respect. Since it is possible that differences in income from work between men and women might be due to differences in their number of hours worked, separate income equations for men and women are estimated.[9] Another problem is that we do not know whether an individual's educational degree is obtained in Sweden or abroad. It is also worth noting that our study is a cross-sectional study and that we are comparing immigrants who immigrated at different points of time. There could therefore be other explanations than human capital-related ones of the results that we get. For example, the income level for an immigrant cohort could be affected by the labor market situation at the time of immigration.

---

[9]For a discussion about differences in the number of hours worked between men and women, see for example Anxo and Flood (1997).

The analysis in our study draws on the human capital theory developed by Mincer (1974). Mincer's wage equation for an individual can be written:

$$\ln \text{ wage}_i = \ln \text{ wage}_0 + \beta_0 \text{ schooling} + \beta_1 \text{ experience} + \beta_2 \text{ experience}^2 + \varepsilon_i$$

where wage_i represents the wage for an individual i and wage_0 represents the wage without education. The variable schooling represents years of education. The term experience represents post-school experience. We make the assumption that the returns to post-school experience are declining, and therefore the term experience^2 is included.

We do not have any data about the individuals' wages. Therefore, we are instead estimating income equations. The dependent variable is the individuals' income from work (in logarithmic form), y_i. Some individuals in our sample did not have any income from work in 1990. Excluding those individuals from the estimations would give rise to a selection bias. We address this problem by adopting the Heckman two-step procedure, in which we first estimate a probit-equation in order to estimate, z_i^*, the probability of having an income from work.[10] After that, we estimate the income equation including the value of λ_i estimated in the first step so as to correct for selection bias.[11] Following Greene (1997), let the equation that determines the selection, i.e. having an income from work, be:

$$z_i^* = \gamma' \mathbf{w}_i + u_i$$

and let the equation that determines the individuals income from work be:

$$y_i = \beta' \mathbf{x_i} + \varepsilon_i$$

The explanatory variables that are included in the vectors $\mathbf{w}$ and $\mathbf{x}$ are presented in Table 4. The sample rule is that y_i is observed when z_i^* is greater than zero. We suppose that ε_i and u_i have a normal distribution with zero mean and correlation ρ. The following model applies then to the *observations in the sample*:

$$
\begin{aligned}
E[y_i | y_i \text{ is observed}] &= E[y_i | z_i^* > 0] \\
&= E[y_i | u_i > -\gamma' \mathbf{w}_i] \\
&= \beta' \mathbf{x_i} + E[\varepsilon_i | u_i > -\gamma' \mathbf{w}_i] \\
&= \beta' \mathbf{x_i} + \rho \sigma_\varepsilon \lambda_i(\alpha_u) \\
&= \beta' \mathbf{x_i} + \beta_\lambda \lambda_i(\alpha_u)
\end{aligned}
$$

where $\alpha_u = -\gamma' \mathbf{w_i}/\sigma_u$ and $\lambda(\alpha_u) = \phi \, (\gamma' \mathbf{w_i}/\sigma_u)/\Phi(\gamma' \mathbf{w_i}/\sigma_u)$

This leads to that $y_i \mid z_i^* > 0 = E[y_i \mid z_i^* > 0] + v_i$
$$= \beta' x_i + \beta_\lambda \lambda_i(\alpha_u) + v_i$$

OLS regression of income from work, x_i, on its determinants, x_i, using only data for individuals who had an income from work in 1990 produces inconsistent esti-

---

[10]See Heckman (1979).

[11]β_λ in the estimations shall then be interpreted in the following way. If β_λ (the estimated coefficient for λ) is positive, individuals who do not have an income from work would have had a lower income than the average if they had had an income. If β_λ is negative, individuals who do not have an income from work would have had higher incomes than the average if they had had an income. We can expect the β_λ-coefficient to be positive.

mates of β. Therefore, the variable λ_i is included in our regressions. If λ_i is omitted the specification error of an omitted variable is commited.

The marginal effect of the explanatory variable on y_i in the observed sample consists of two components. β is the direct effect on the mean of y_i, but an independent variable which appears also in the probability that z_i^* is positive will influence y_i through its presence in λ_i. The full marginal effect of a change in a explanatory variable that appears in both $\mathbf{x}_i$ and $\mathbf{w}_i$ on y_i is:

$$\frac{\partial E[y_i|z_i^* > 0]}{\partial x_{ik}} = \beta_k - \gamma_k \left(\frac{\rho \sigma_\varepsilon}{\sigma_u} \right) \delta_i(\alpha_u)$$

where $\delta_i = \lambda_i^2 + \alpha_i \lambda_i$

Thus the full marginal effect consists of two components, one direct effect and one indirect effect. Suppose for example that the probability of having an income from work is lower for immigrants than for natives, and that being an immigrant has a negative influence on an individual's income. The marginal effect on income from work of being an immigrant is made up of a decreased probability of having an income from work and a decreased income from work. The estimated coefficient in the regression will in that case overstate the marginal effect on income from work of being an immigrant for individuals who have an income from work. It is worth noting that the magnitude, sign, and statistical significance of the marginal effect might all be different from those of the estimate of β.[12]

The variables included in the selection equation and the income equation are presented in Table 4. The same variables in the same form enter the selection equation and the main equation. According to Greene (1997) this way of estimating the model yields consistent estimates. It is worth noting that the measures of schooling and experience in the regression are approximations. They have been calculated with the help of the individual's age and educational level in 1990. If, for example, an individual has three years of upper secondary school education, we have made the assumption that the individual has 12 years of schooling. Furthermore, we then make the assumption that the individual obtained his/her degree at the age of 19. If the person in question is 35 years old it is thus assumed that he/she has 16 years of experience.[13] In this way we can study how schooling and education influence an individual's income from work. When we interpret our results it is worth noting that we cannot distinguish to which extent the experiences have been acquired in Sweden or abroad.

For reasons mentioned earlier, the immigrants have been divided by immigration region and cohort (see Table 4). The other explanatory variables used in the study are civil status and a variable for whether the individual lives in an urban area or not.

Since native Swedes form a control group for both cohort and region, it will not be possible to include cohorts and regions separately in the regression. Instead,

---

[12]The marginal effects are calculated at the mean value of the explanatory variables. For a more detailed explanation of the marginal effects in the Heckman model and how they have been calculated, see Greene (1997), chapter 20.

[13]For a more detailed exposition of how the variables schooling and experience have been coded, see Appendix A.

TABLE 4

EXPLANATORY VARIABLES USED IN THE SELECTION EQUATION AND THE INCOME EQUATION

Variable	Explanation
Dependent variables	
z_i:	1 if the individual had an income from work in 1990, 0 otherwise
y_i:	The individual's income from work in hundreds of SEK (in logarithmic form)
Explanatory variables	
Schooling[a]	Number of years of schooling
Experience	Number of years of experience acquired after formal schooling
Im –75	1 Immigrated before 1976
	0 Other
Im 76–80	1 Immigrated 1976–80
	0 Other
Im 81–85	1 Immigrated 1981–85
	0 Other
Im 86–90	1 Immigrated 1986–90
	0 Other
Nordic countries	1 Immigrated from the Nordic countries
	0 Other
Western Europe	1 Immigrated from Western Europe
	0 Other
Eastern Europe	1 Immigrated from Eastern Europe
	0 Other
Southern Europe	1 Immigrated from Southern Europe
	0 Other
Others	1 Non-European immigrant
	0 Other
Cohabitant	1 If cohabiting (married and non-married)
	0 If not cohabiting
Urban area	1 Urban area
	0 Other

[a]For a exposition of how the variables have been coded, see Appendix A.

we study the combination between cohort and region. With the help of hypothesis tests we then study whether there are any duration and/or regional effects.

6.2. *Statistical Hypotheses*

A number of possible explanations for differences in income from work between immigrants and natives and between immigrants from different regions were presented in Section 3. Against this background the following statistical hypotheses for women and men respectively can then be tested using Wald tests:

(i) H_0: *There is no duration effect*, i.e. there is no difference in income from work between immigrants with different times of immigration.

(ii) H_0: *There is no regional effect*, i.e. there is no difference in income from work between immigrants from different regions.

(iii) H_0: *There is neither duration nor regional effect*, i.e. there is no difference in income from work between immigrants with different times of immigration or between immigrants from different regions.

(iv) H_0: *There is no immigration effect*, i.e. there is no difference in income from work between immigrants and natives.

TABLE 5

INCOME EQUATIONS FOR WOMEN 1990 (16–64 YEARS OF AGE); INCOME FROM WORK IN HUNDREDS OF SEK (LOGARITHMIC FORM); STANDARD ERRORS WITHIN PARENTHESES

	Coefficient		Marg. eff.	
Constant	4.723**	(0.0514)		
Schooling	0.087**	(0.0030)	0.042**	(0.0025)
Experience	0.083**	(0.0023)	0.015**	(0.0005)
Experience^2	−0.002**	(0.0001)		
Nordic countries –75	−0.013	(0.0162)	0.013	(0.0159)
Nordic countries 76–80	−0.113**	(0.0309)	−0.056	(0.0297)
Nordic countries 81–85	−0.147**	(0.0439)	−0.028	(0.0414)
Nordic countries 86–90	−0.164**	(0.0354)	−0.048	(0.0328)
Western Europe –75[a]	−0.066*	(0.0274)	−0.063*	(0.0274)
Western Europe 76–80[a]	−0.554**	(0.0726)	−0.438**	(0.0713)
Western Europe 81–85[a]	−0.594**	(0.0751)	−0.443**	(0.0731)
Western Europe 86–90[a]	−0.775**	(0.0750)	−0.419**	(0.0658)
Eastern Europe –75	−0.102**	(0.0321)	−0.051	(0.0314)
Eastern Europe 76–80	−0.195**	(0.0462)	−0.110*	(0.0448)
Eastern Europe 81–85	−0.434**	(0.0457)	−0.310**	(0.0430)
Eastern Europe 86–90	−1.099*	(0.0555)	−0.774**	(0.0429)
Southern Europe –75	−0.268**	(0.0367)	−0.097**	(0.0287)
Southern Europe 76–80	−0.470**	(0.0545)	−0.299**	(0.0505)
Southern Europe 81–85	−0.400**	(0.0610)	−0.256**	(0.0584)
Southern Europe 86–90	−0.631**	(0.0590)	−0.400**	(0.0521)
Others –75	−0.334**	(0.0368)	−0.306**	(0.0368)
Others 76–80	−0.288**	(0.0376)	−0.231**	(0.0369)
Others 81–85	−0.495**	(0.0384)	−0.373**	(0.0354)
Others 86–90	−1.212**	(0.0536)	−0.817**	(0.0282)
Cohabitant	0.114**	(0.0135)	0.070**	(0.0123)
Urban	0.246**	(0.0193)	0.217**	(0.0190)
λ	0.681**	(0.0980)		
N		30,803		
R^2		0.194		

[a]Includes also immigrants from the U.S., Canada and Oceania.
**Significant at 1%.
*Significant at 5%.

Results of Wald tests of hypotheses (i)–(iv); 5% critical values within parentheses.
(i): χ^2 (15) = 488.414 (25.00)
(ii): χ^2 (16) = 664.674 (26.30)
(iii): χ^2 (19) = 877.947 (30.14)
(iv): χ^2 (20) = 883.757 (31.41)

6.3. Income Equations for Men and Women

As we have established above, an important reason for differences in income from work between women and men could be differences in their number of hours worked. We have therefore estimated separate income equations for women and men. The coefficient, β, is the direct effect on the income from work, but an independent variable which appears also in the probit-equation (see estimations in Appendix B) will influence y_i through its presence in λ_i. As mentioned earlier the full marginal effect consists of two components, one direct effect and one indirect effect. If we look at our probit estimations the coefficients are in all cases negative, i.e. being an immigrant has a negative effect on the probability of having an income from work. The income equations are presented in Table 5 and

TABLE 6

INCOME EQUATIONS FOR MEN 1990 (16–64 YEARS OF AGE); INCOME FROM WORK IN HUNDREDS
OF SEK (LOGARITHMIC FORM); STANDARD ERRORS WITHIN PARENTHESES

	Coefficient		Marg. eff.	
Constant	5.019**	(0.0432)		
Schooling	0.070**	(0.0026)	0.052**	(0.0026)
Experience	0.103**	(0.0025)	0.018**	(0.0006)
Experience^2	−0.002**	(0.0001)		
Nordic countries –75	−0.042*	(0.0186)	0.009	(0.0177)
Nordic countries 76–80	−0.213**	(0.0367)	−0.107**	(0.0348)
Nordic countries 81–85	−0.266**	(0.0539)	−0.110*	(0.0515)
Nordic countries 86–90	−0.175**	(0.0360)	−0.030	(0.0331)
Western Europe –75[a]	−0.114**	(0.0284)	−0.099**	(0.0284)
Western Europe 76–80[a]	−0.421**	(0.0725)	−0.275**	(0.0710)
Western Europe 81–85[a]	−0.434**	(0.0750)	−0.313**	(0.0740)
Western Europe 86–90[a]	−0.463**	(0.0608)	−0.226**	(0.0573)
Eastern Europe –75	−0.175**	(0.0331)	−0.124**	(0.0327)
Eastern Europe 76–80	−0.424**	(0.0717)	−0.313**	(0.0709)
Eastern Europe 81–85	−0.459**	(0.0597)	−0.363**	(0.0588)
Eastern Europe 86–90	−1.027**	(0.0650)	−0.619**	(0.0544)
Southern Europe –75	−0.468**	(0.0330)	−0.272**	(0.0257)
Southern Europe 76–80	−0.760**	(0.0506)	−0.552**	(0.0466)
Southern Europe 81–85	−0.667**	(0.0609)	−0.494**	(0.0584)
Southern Europe 86–90	−0.812**	(0.0583)	−0.462**	(0.0497)
Others –75	−0.550**	(0.0385)	−0.459**	(0.0375)
Others 76–80	−0.649**	(0.0375)	−0.520**	(0.0351)
Others 81–85	−0.714**	(0.0365)	−0.592**	(0.0343)
Others 86–90	−1.364**	(0.0500)	−0.882**	(0.0256)
Cohabitant	0.342**	(0.0162)	0.250**	(0.0134)
Urban	0.186**	(0.0207)	0.169**	(0.0206)
λ	1.054**	(0.1098)		
N		30,607		
R^2		0.251		

[a]Includes also immigrants from the U.S., Canada and Oceania.
**Significant at 1%.
*Significant at 5%.

Results of Wald tests of hypotheses (i)–(iv); 5% critical values within parentheses.
(i): χ^2 (15) = 398.489 (25.00)
(ii): χ^2 (16) = 1010.53 (26.30)
(iii): χ^2 (19) = 1234.06 (30.14)
(iv): χ^2 (20) = 1263.73 (31.41)

Table 6.[14] Our estimates show that the absolute values of the marginal effect of
being an immigrant are, in all cases, smaller than the absolute value of the coeffi-
cients. This means that not taking the selection effect into account, i.e. looking at
the coefficients instead of the marginal effects, will lead to an overestimation of
the differences in income from work between immigrants and natives.

If we look at the estimations we find that schooling has a positive effect on
income from work for women as well as for men.[15] The marginal effect of an addi-

[14]None of the analyses presented show any strong multicollinearity. The correlation between the
independent variables does not in any case surpass 0.30.
[15]The rate of return to schooling and experience for immigrant women and immigrant men from
different regions as well as for native men and native women are presented in Hammarstedt (1998).

tional year of schooling is about 4 percent for women and 5 percent for men. It is also the case, for women as well as for men, that experience has a positive and declining influence on income from work. The marginal effect of an additional year of experience amounts to 1.5 percent for women and to 1.8 percent for men.

Regarding the income equation for women, the Wald tests show that all hypotheses can be rejected.[16] However, there are no statistically significant differences in income from work between women from the Nordic countries and native women. For other regions, income from work is lower for immigrant women than for native women. For women who immigrated prior to 1976 the income from work is, with the exception of non-European immigrants, essentially higher than for more recent cohorts.

For European women who immigrated prior to 1976 the income from work is 5–10 percent lower than for native women. The immigrant cohort 1986–90 has, with the exception of women from Western Europe, a lower income from work than earlier immigrant cohorts from the respective emigration region. The income from work is also substantially lower than for native women. For example, among non-European women who immigrated during 1986–90 the income from work is about 56 percent lower than for native women.[17]

The results also show that income from work is higher among women who cohabit (about 7 percent) than among women who do not cohabit. It is surprising that cohabiting women earn more than other women. This seems quite different from findings for other countries. It is also worth noting that we have not included number of children in the regression. If cohabiting women have more children than those not cohabiting, and hence have less past labor supply, including children in the equation would further increase the cohabiting coefficient. This finding is difficult to explain.

For women who live in urban areas the income from work is higher (about 24 percent) than for women who do not live in such areas. Both these differences are statistically significant at the 1 percent level.

Regarding the income equations for men, the Wald tests show that in the cohorts of 1976–80 and 1981–85 all the hypotheses can be rejected.[18] For immigrant men from the Nordic countries the income from work is about 10 percent lower than the income from work for natives in those cases when statistical significance arises. Immigrant men consistently have a lower income from work than native men and the differences are greatest for non-Nordic immigrant groups. For non-European men who immigrated 1986–90 the difference amounts to about 59 percent.

Concerning the other explanatory variables we find that men who cohabit have substantially higher income from work, over 28 percent, than men who do not cohabit. The effect is consequently higher than for women. Among men who

---

[16]See Table 5.
[17]Small coefficients give a quite good approximation of the effect on the dependent variable of a change in the dummy variable. When the coefficient is larger, the approximation will be considerably poorer. The percentage change then has to be calculated. For example, the marginal effect for the variable Others 86–90 is −0.817. The percentage change is one minus the inverted logarithm of −0.817, which is 1 − 0.4417. The percentage change is thus 55.8 percent.
[18]See Table 6.

live in urban areas the income from work is higher (18 percent) than among men who do not live in urban areas. These differences are statistically significant at the 1 percent level.

7. Summary and Conclusions

Our study has shown that there are statistically significant differences in income from work between immigrants and natives even when we control for variables such as schooling, experience, gender, civil status and place of residence. Furthermore, the study shows that there are differences in income from work between immigrants from different regions and between different immigrant cohorts when we control for the variables just mentioned.

Contrary to previous studies, our study takes the selection effect into account when calculating the effect on income from work of a change in any of the explanatory variables. Our result shows that not taking the selection effect into consideration would have led to an overestimation of the differences in income from work between immigrants and natives.

As concerns immigrants from different regions we find that with exception for immigrants from the Nordic countries, immigrants do not reach the same level of income from work as the native population. Our study shows that income from work is higher among immigrants from the Nordic countries than among immigrants from other regions. Among non-Nordic immigrants, more recent immigrant cohorts have a lower income from work than the earlier cohorts.

Since it is reasonable to believe that especially recent immigrants work fewer hours per year than natives, it is not surprising that controlling for the probability of having an income from work lowers the partial effect of the explanatory variables for income from work.

There could be a number of explanations for the differences in income from work between immigrants and natives. Firstly, it is possible that natives work more hours than immigrants. Secondly, it might be that immigrants, holding schooling and experience constant, are working in sectors and positions on the labor market that have lower wages than those that the native population obtains. This could in turn be due to discrimination and/or the fact that the immigrants' human capital are not fully adjusted to the Swedish labor market.

Furthermore, it seems as if immigrants' incomes are increasing as time in Sweden increases. This result is in accordance with what has been observed in previous studies using cross-sectional data such as Chiswick (1978, 1980, 1986). However, contrary to Chiswick our results have shown that most immigrant groups do not reach the income level of natives during the first 15 years after immigration. As regards refugees, Chiswick finds that those immigrants would have lower earnings. This appears to be the case in Sweden for non-European immigrants.

One might here of course argue that the cohort "quality" among the immigrants might have changed over time. However, since we are studying data for the year 1990 it is reasonable to believe that the "quality" of the European immigrants has not changed remarkably over time. The great majority of the refugees in

Sweden until the year 1990 consisted of non-European immigrants. Therefore, it is reasonable to believe that a cross-sectional regression of income from work for 1990 in Sweden gives a reasonable proxy for longitudinal changes in income.

APPENDIX A: EXPLANATION OF VARIABLES

Schooling

The length of education has been coded in the following way:

7-year compulsory school:	7 years	Higher education < 3 years:	14 years
9-year compulsory school:	9 years	Higher education ≥ 3 years:	15 years
Upper secondary school		Postgraduate studies:	18 years
<3 years:	11 years		
Upper secondary school			
≥3 years:	12 years		

Experience

Experience has been coded as:
Age − years of schooling (see above) − 7

Western Europe

Includes Great Britain, France, Germany (the former FDR), Austria, Switzerland, the Netherlands, Belgium, Ireland, Luxembourg, Liechtenstein, the U.S., Canada and Oceania.

Eastern Europe

Includes Albania, Bulgaria, Poland, Romania, Hungary, the former Czecho-slovakia, the former Soviet Union and the former GDR.

Southern Europe

Includes Greece, Italy, Spain, Portugal, Monaco, Malta, San Marino, the Vatican, Turkey and the former Yugoslavia.

Others

Includes other countries.

Urban area

Defined according to the 1990 Swedish urban area definition.

APPENDIX B

Profit estimates of the probability of having or income from work in 1990 are given in Table B1.

TABLE B1

Probit Estimates of the Probability of Having an Income from Work in 1990 (women and men); Standard Errors Within Parentheses

	Women Coefficient		Men Coefficient	
Constant	0.852**	(0.0630)	1.448**	(0.0641)
Schooling	0.067**	(0.0041)	0.017**	(0.0043)
Experience	0.040**	(0.0026)	0.049**	(0.0028)
Experience^2	−0.001**	(0.0000)	−0.002**	(0.0001)
Nordic −75	−0.187**	(0.0293)	−0.284**	(0.0333)
Nordic 76–80	−0.364**	(0.0594)	−0.507**	(0.0621)
Nordic 81–85	−0.648**	(0.0721)	−0.671**	(0.0865)
Nordic 86–90	−0.637**	(0.0571)	−0.637**	(0.0574)
Western −75[a]	−0.019	(0.0469)	−0.091	(0.0545)
Western 76–80[a]	−0.635**	(0.1213)	−0.641**	(0.1205)
Western 81–85[a]	−0.771**	(0.1227)	−0.559**	(0.1388)
Western 86–90[a]	−1.389**	(0.0845)	−0.894**	(0.0932)
Eastern −75	−0.328**	(0.0511)	−0.281**	(0.0551)
Eastern 76–80	−0.500**	(0.0836)	−0.523**	(0.1281)
Eastern 81–85	−0.669**	(0.0736)	−0.471**	(0.1103)
Eastern 86–90	−1.307**	(0.0572)	−1.269**	(0.0736)
Southern −75	−0.843**	(0.0420)	−0.787**	(0.0409)
Southern 76–80	−0.842**	(0.0742)	−0.808**	(0.0751)
Southern 81–85	−0.747**	(0.0898)	−0.721**	(0.0969)
Southern 86–90	−1.040**	(0.0716)	−1.152**	(0.0706)
Others −75	−0.199**	(0.0739)	−0.450**	(0.0668)
Others 76–80	−0.362**	(0.0697)	−0.587**	(0.0632)
Others 81–85	−0.662**	(0.0600)	−0.562**	(0.0639)
Others 86–90	−1.487**	(0.0374)	−1.408**	(0.0382)
Cohabitant	0.218**	(0.0198)	0.340**	(0.0219)
Urban	0.124**	(0.0320)	0.063**	(0.0363)
N	36,050		34,441	
−2 log likelihood	23,697		19,881	

[a]Includes also immigrants from the U.S., Canada and Oceania.
**Significant at 1%.
*Significant at 5%.

References

Aguilar, Renato and Björn Gustafsson, "The Earnings Assimilation of Immigrants," *Labor*, Series 5, 37–58, Autumn 1991.

Al-Quadsi, Sulayman S. and Nasra Shah, "The Relative Economic Progress of Male Foreign Workers in Kuwait," *International Migration Review*, Series 25, 141–65, Spring 1991.

Anxo, Dominique and Lennart Flood, "Patterns of Time Use in Sweden," in Inga Persson and Christina Jonung (eds), *Women's Work and Wages*, Routledge, London, 91–121, 1997.

Åslund, Olof, Per-Anders Edin, and Robert J. LaLonde, "Emigration of Immigrants and Measures of Immigrant Assimilation: Evidence from Sweden," in Åslund, Olof: *Health, Immigration and Settlement Policies*, Dissertation, Department of Economics, Uppsala University, 2001.

Bevelander, Pieter and Helena Skyt-Nielsen, "Declining Employment Success of Immigrant Males in Sweden: Observed or Unobserved Characteristics," *Journal of Population Economics*, Series 14, 455–71, August 2001.

Borjas, George J., "Assimilation, Changes in Cohort Quality, and the Earnings of Immigrants," *Journal of Labor Economics*, Series 3, 463–89, October 1985.

———, "Self Selection and the Earnings of Immigrants," *American Economic Review*, Series 77, 531–53, September 1987.

———, "Immigrant and Emigrant Earnings: A Longitudinal Study," *Economic Inquiry*, Series 27, 21–37, January 1989.

Carliner, Geoffery, "Wages, Earnings and Hours of First, Second and Third Generation American Males," *Economic Inquiry*, Series 18, 87–102, January 1980.

Chiswick, Barry R., "The Effect of Americanization on the Earnings of Foreign-born Men," *Journal of Political Economy*, Series 86, 897–921, October 1978.

———, *Analysis of the Economic Progress and Impact of Immigrants*, Department of Economic and Survey Research, Laboratory of Economics and Survey Research, Chicago, April 1980.

———, "Is the New Immigration Less Skilled than the Old?," *Journal of Labor Economics*, Series 4, 168–92, April 1986.

———, "Speaking, Reading, and Earnings among Low-skilled Immigrants," *Journal of Labor Economics*, Series 9, 149–70, April 1991.

de Freitas, Gregory, *The Earnings of Immigrants in the American Labor Market*, Dissertation, Columbia University, New York, 1980.

Duleep, Harriet O. and Mark C. Regets, "Earnings Convergence: Does it Matter Where Immigrants Come From or Why?," *Canadian Journal of Economics*, Series 29, 130–4, April 1996.

———, "The Decline in Immigrant Entry Earnings: Less Transferable Skills or Lower Ability?," *Quarterly Review of Economics and Finance*, Series 37, 189–208, Special issue 1997.

Dustmann, Christian, "Earnings Adjustment of Temporary Migrants," *Journal of Population Economics*, Series 6, 153–68, May 1993.

Ekberg, Jan, *Inkomsteffekter av invandring (Income effects due to immigration)*, Dissertation, Lund Economic Studies nr 27. Lund, 1983.

———, *Invandrarna på arbetsmarknaden (Immigrants in the labor market)*, Ds 1990:35, Allmänna Förlaget, Stockholm, 1990.

———, *Vad hände sedan? En studie av utrikes födda på arbetsmarknaden (What happened next? A study of foreign born in the labor market)*, ACTA Wexionensia. Ser. 2. Economics and Politics 3, Växjö, 1991.

———, "Economic Progress among Immigrants in Sweden," *Scandinavian Journal of Social Welfare*, Series 3, 148–57, July 1994.

Greene William H., *Econometric Analysis*, Prentice-Hall International, New Jersey, 1997.

Hammarstedt, Mats, *Studier kring invandrares arbetsinkomster och inkomsttrygghet. (Essays on immigrant's income from work and participation in the Swedish social insurance system)*, Licentiate dissertation, Rapporter från Högskolan i Växjö nr 12, 1998.

Heckman, James J., "Sample Selection Bias as a Specification Error," *Econometrica*, Series 47, 153–61, January 1979.

Kossoudji, Sherrie A., "English Language Ability and the Labor Market Opportunities of Hispanic and East Asian Immigrant Men," *Journal of Labor Economics*, Series 6, 205–28, April 1988.

LaLonde, Robert J. and Robert H. Topel, "Immigrants in the American Labor Market: Quality, Assimilation and Distributional Effects," *American Economic Review*, Series 81, 297–302, May 1991.

———, "The Assimilation of Immigrants in the U.S. Labor Market," in George J. Borjas and Richard B. Freeman (eds), *Immigration and the Work Force: Economic Consequences for the United States and Source Areas*, National Bureau of Economic Research, University of Chicago Press, Chicago, 67–92, 1992.

Long, James E., "The Effects of Americanisation on Earnings: Some Evidence for Women", *Journal of Political Economy*, Series 88, 620–9, June 1980.

Lundahl, Mats and Eskil Wadensjö, *Unequal Treatment: A Study in the Neoclassical Theory of Discrimination*, Croom Helm, 1984.

Mincer, Jacob, *Schooling, Experience and Earnings*, Columbia University Press for the National Bureau of Economic Research, New York, 1974.

Pischke, Jorn S., "Assimilation and the Earnings of Guest Workers in Germany," *Discussion Paper*, Mannheim University, 1993.

Poot, Jacques, "Adaption of Migrants in the New Zealand Labor Market," *International Migration Review*, Series 27, 121–39, Spring 1993.

———, *"Arbetskraftsundersökningen" ("The Swedish Labor Force Survey")*, Stockholm, 1992.

Schmidt, Christoph M., "Immigrant Performance in Germany: Labor Earnings of Ethnic German Migrants and Foreign Guest-workers," *The Quarterly Review of Economics and Finance*, Series 37, 379–97, Special issue 1997.

Shields, Michael A. and Stephen Wheatley Price, "The Earnings of Male Immigrants in England: Evidence from the Quarterly LSF," *Applied Economics*, Series 30, 1157–68, September 1998.

Statistics Sweden, "Invandrarnas levnadsförhållanden 1975" ("Living Conditions of Immigrants in 1975"), *Levnadsförhållanden*, 9, Stockholm, 1977.

Wadensjö, Eskil, *Immigration och samhällsekonomi (Immigration and the Economy)*, Dissertation, Lund Economic Studies nr 8, Lund, 1972.