

# **Permanent Disadvantage or Gradual Integration: Explaining the Immigrant-Native Earnings Gap in Sweden**

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## **ABSTRACT**

Theoretical explanations suggest that wage differentials between immigrant and native workers are generated either by unequal acquisition of human capital between the groups or by various forms of exclusion of immigrants from fair labor market rewards. We evaluate the labor quality and labor market discrimination hypotheses by using a large sample of Swedish employees in 1995. Our findings show that labor market integration is relatively unproblematic for immigrants from Western countries, whereas immigrants from other countries, especially from Africa, Asia, and Latin America, face substantial obstacles to earnings progress when entering the Swedish labor market. For the latter group of countries, extensive controls for general and country-specific human capital reduce the earnings differentials. However, the remaining gap is of a non-trivial magnitude. Thus, the labor quality hypothesis accounts for a part of the observed native-immigrant wage gap, but the remaining differentials can be interpreted in terms of labor market discrimination.

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## Introduction

Sweden has, alongside with many other EU countries, experienced a huge influx of immigrants during the last decades. Since the Second World War, Sweden has been a country of immigration - the number of immigrants has exceeded the number of emigrants. Until the end of the 1970's, immigration predominantly took place for labor market reasons. From the 1980's on, the major part of the immigrants came to Sweden as refugees or for family reunion reasons. At the same time, the composition of immigrants according to country of origin has changed. In 1980, 54 percent of all foreign born came from other Nordic countries, while the corresponding share was only 29 percent in 1998. Instead, the percentage of individuals born in non-European countries increased from 14 to 37 percent between 1980 and 1996 (Statistics Sweden 2000).

Considering these fundamental changes that has taken place in the Swedish society during the last decades, it is important to improve our knowledge about the situation of immigrants and their children in the Swedish labor market. Internationally, labor economists and sociologists have increasingly directed their attention towards different aspects of economic integration of immigrants. The earnings of immigrants and ethnic and racial minorities is an extensively studied research area (for example Chiswick 1978, LaLonde and Topel 1993, Borjas 1994 and 1995, Darity et al. 1995.). In Sweden, by contrast, most labor market research until recently has been focused on the obstacles that immigrants face when entering the Swedish labor market (Leiniö 1994, Bromé et al. 1996, Wadensjö 1997, Arai et al. 1999 and 2000). The scope of studies that analyze conditions pertaining to immigrants who are gainfully employed is more limited, which is especially true in regard to relative earnings of migrant workers (see, however, Wadensjö 1992 and 1994). Recent research has shown that immigrants who arrived in Sweden during the 1950s, 1960s and 1970s have been relatively successful in the labor market. They have achieved approximately similar employment rates, occupational mobility rates and yearly incomes compared to persons born in Sweden. In contrast, the labor market situation for immigrants who arrived during the 1980s and 1990s seems to be considerably more problematic (Ekberg 1994, Ekberg and Gustafsson 1995).

In this paper we contribute to the literature on immigrants in the Swedish labor market by analyzing the earnings differentials between workers born abroad and workers born in Sweden. The paper is organized as follows. We first summarize some theoretical arguments that explain why earnings differentials between native and immigrant workers arise. Then we describe the data we use and present our analytical strategy. In reporting results, we begin with a simple earnings model, which is successively expanded in order to examine the plausibility of various explanations for the earnings gap between immigrants and native born workers. These explanations focus on the impact of duration of residence, Swedish schooling and occupational segregation. Finally, we summarize and discuss our findings.

## **Mechanisms of Inequality in the Labor Market**

Proponents of the meritocratic approach to social inequality argue that modern societies are characterized by a secular trend towards achieved characteristics having more, and ascribed characteristics having less, impact on inequalities in rewards between individuals. Individuals' education, labor market experience and ability are claimed to have a powerful and over time increasing influence on their prospects for attaining favorable positions in the labor market. This view on societal development implies that the role of social background, gender, ethnicity and race becomes less and less significant for determining the distribution of scarce resources in society. In their review, Erikson and Goldthorpe (1992:6) summarized this position in the following manner: "What counts is increasingly what individuals can do, and not who they are."

Human capital theory may be regarded as an influential research tradition within the framework of the meritocratic approach because of its emphasis on the decisive role played by achieved characteristics in the wage setting process. According to human capital theory, differences in labor market rewards can be explained by differences in individuals' investments in education and other productivity enhancing activities (Becker 1964, Mincer 1974). The basic postulate of human capital theory is that the wage is a function of the worker's productivity. By developing skills through formal education, on-the-job-training, and so on, individuals increase their productivity, which in turn has a positive impact on their earnings.

However, conventional human capital indicators, such as schooling, experience and seniority, are not sufficient to explain the earnings differentials between immigrant and native workers. Therefore, human capital theory has been expanded by making the additional distinction between domestic and foreign sources of human capital, i.e., whether the skills have been acquired in the country of origin or in the country of destination. The concept of 'country-specific' human capital has been used for the latter type of skills. A number of studies on the relative wages of immigrants have focused on wage assimilation, i.e., the speed at which earnings differentials between natives and immigrants are reduced by the duration of stay in the host country (Borjas 1985; 1995, Chiswick 1978, Fridberg 2000, LaLonde and Topel 1993). At the time of arrival to the new country, immigrants are at a clear disadvantage considering country-specific skills. The assumption made by several authors is that immigrants tend to gradually acquire country-specific skills by learning the language of the new country, accumulating labor market experience, establishing connections with natives, and in other ways gradually adapting to the new social environment. This in turn leads to a continuous contraction of the earnings gap between natives and immigrants. Thus, according to this elaboration of the human capital theory, wage differentials between natives and immigrants can be explained by differences in productivity-related skills and abilities, and the duration of residence is seen as a proxy for the accumulation of country-specific human capital.

Alternative approaches to human capital theory are based on the assumption that the immigrant-native wage gap is not primarily a function of productivity differences between individuals. The earnings differentials that remain after control for relevant human capital variables are interpreted, at least partly, as being the result of discriminatory treatment of immigrants. Ascriptive characteristics like gender, race, and ethnicity are considered as lines of cleavages still influencing distributional processes in the labor market (Tomaskovic-Devey 1993). Several mechanisms behind inequality based on ascribed characteristics are depicted in the literature on labor market discrimination. The first mechanism is called "taste for discrimination" (Becker 1957). According to Becker, some employers, co-workers, or customers act on their dislike of certain ethnic or racial minorities. If sufficiently many employers discriminate against minorities, the earnings of

minorities will be lower compared to those of workers in the majority group with similar productive capacities.<sup>1</sup>

By contrast, proponents of the “statistical discrimination” approach argue that discrimination does not need to be based on an economically non-rational antipathy against minorities. Also profit-maximizing employers, acting on a competitive market, may make decisions that generate inequality based on ascriptive criteria (Phelps 1972, Arrow 1972. For an overview, see Altonji and Blank 1999). According to this theory, employers’ decisions on whom to employ, promote and reward, are based on imperfect information on individuals’ ability, productivity and aptitude. In absence of reliable information on the individuals, employers often rely on information on the *average* productivity of certain groups of employees - such as men and women, or foreign- and native-born persons.<sup>2</sup> Thus, when employers lack apt information on individuals, or when such information is costly to obtain, they may use the actual or assumed average (expected) productivity for a social category (or the reliability with which productivity may be predicted) as a proxy for the productivity of an individual belonging to this social category. Indicators of productivity may for example be turnover rates, sick leave, and the capability to accommodate to work-teams.

The tendency towards statistical discrimination may be especially salient when it comes to evaluating the educational attainment of individuals with foreign origin. In other words, employers may devalue education undertaken in foreign countries when they make decisions about recruitment, reward allocation, and promotion. Hence, employers may treat people with similar educational credentials differently; depending upon in what country the education was undertaken. This may in turn generate wage differentials between workers with and without immigrant background, even when educational

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<sup>1</sup> According to Becker, taste for discrimination and competition in the economy are mutually exclusive in the long run. On competitive markets, the individuals’ productivity is the only feature that counts, and discriminatory practices will therefore not survive. This theoretical view may explain why so many labor economists are unwilling to accept empirical results that indicate the existence of discrimination, and instead look for “omitted variables” and “selection bias” as explanations.

<sup>2</sup> A variation of this argument is when the average productivity of two groups is the same, but the dispersion in productivity is larger for one of the groups. In this case the employer would choose a person from the group with the smallest variance, since this will minimize the chance of employing (or promoting) a low productivity worker.

attainment has been taken into account. (The same argument goes for work experience acquired abroad compared to in the country of destination.)

To the extent that foreign-born workers as a group actually displays lower expected productivity, statistical discrimination could be seen as an economically rational strategy from the point of view of the employer. However, it is important to realize that statistical discrimination in fact generates unequal treatment of individuals, since the statistical judgments reflect typical group properties and not the individuals' own characteristics. Even if job-related characteristics on average do differ between social categories, there is in general a large variation also *within* the categories which implies that quite a large number of native-born workers may be favored at the expense of immigrants although the latter are more productive than the former.

Furthermore, in the original formulation of the theory of statistical discrimination it is assumed that the employer has correct information of the average characteristics of social groups. However, this may seldom be the case. Therefore, as for example England (1992) suggests, a third type of discrimination, "error discrimination", may be distinguished for cases when the employer acts on the basis of erroneous and prejudiced conceptions of the average characteristics of social groups (also, see Zellner 1972).<sup>3</sup>

Theories of statistical discrimination can explain the mechanisms behind "allocative" (or 'hiring') discrimination, i.e., a type of discrimination that prevents immigrants from entering favorable, high-paying positions. In other words, if there is statistical discrimination directed against immigrants concerning the allocation to favorable positions in the labor market, immigrants will tend to be excluded from such positions. Another version of the exclusion argument does not focus on employers' efficiency considerations, but concentrates on the interest of privileged groups to monopolize desirable positions (Weber 1968, Parkin 1979, Tomaskovic-Devey 1993). Such theories of discrimination emphasize that distribution of scarce rewards reflects

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<sup>3</sup> Many economists do not consider the distinction between correct and erroneous notions of average productivity differentials between social groups to be of any interest. The reason is that rational actors are assumed to learn from their mistakes. Therefore, employers will in the long run correct their erroneous conceptions so that these become in accordance with the true average productivity of the groups.

conflicting interests and processes involving exclusion of less powerful groups from righteous rewards (Pfeffer 1989, Tomaskovic-Devey 1993). Principles of selection adopted to determine who has access to valuable employment positions are often based on race, gender, or ethnic affiliation. Thus, according to the social closure approach employers and privileged groups of employees are motivated by self-interest to prevent immigrants from entering highly paid positions in the labor market.

Empirically, both statistical discrimination and social closure processes will be observed as labor market segregation between immigrant and native-born workers. Moreover, a segregated labor market may also be associated with an “evaluative” (or “comparable worth”) type of discrimination: jobs dominated by immigrants are devalued and paid less than would be the case if the jobs were dominated by native-born workers (see England 1992).

Finally, in accordance with Bergmann’s (1974) “crowding model”, discriminatory exclusion of immigrants from certain jobs can result in an excess supply of labor in jobs dominated by immigrant workers, depressing wages in these jobs. In our empirical study, we will not be able to distinguish between allocative and evaluative discrimination. We can only investigate whether occupational segregation is a major explanation for the immigrant-native pay gap or not.

In sum, wage differentials between immigrants and natives can be explained in two main ways. According to the first explanation wage differentials are generated by unequal acquisition of human capital between the groups. Proponents of the second approach argue that the differentials arise due to various forms of exclusion of immigrants from righteous rewards in the labor market. The purpose of this study is to evaluate the labor quality and labor market discrimination hypotheses by using a large sample of Swedish employees in the private and public sector in 1995.

## Data and Variables

The data set has its origin in the 1991 Swedish Establishment Survey, a national probability sample of 2 626 private and public sector establishments.<sup>4</sup> Information pertaining to all individuals employed in these organizations in 1995 (around 550 000 workers) has been collected from a variety of registers (see below). To be able to generalize to the whole Swedish population of employees, a sample weight has been used to correct for different sampling probabilities by sex, educational group, age, firm size and sector of employment.

Earnings are measured as full-time equivalent pre-tax earnings per month according to information from registers of the Swedish Employers' Confederation, the Swedish Trade Union Confederation, and Statistics Sweden. Education refers to the total number of years of formal schooling.<sup>5</sup> For employees who finished their upper secondary education in Sweden after 1972, there is information on the average grade point as well as the grade in Swedish language from this education. Seniority is the number of years that the employee has worked in the establishment. This variable is left-censored, since data is available only from 1986 onwards. Potential labor market experience is measured as age-6-number of years of schooling. To take curvilinear effects into account, a square term of potential experience is included in the models. The source of information on education, seniority and experience are various registers of Statistics Sweden.

Occupational data is included in the wage registers mentioned above. Occupation is classified according to the International Standard Classification of Occupations (ISCO-88). This information is available only for employees in the state, local councils and for white-collar workers employed in the private sector. Thus, blue-collar workers in the private sector and employees working for the municipalities are excluded from analyses where occupation is included as a predictor. We use two types of occupational classifications. The first classification combines skill group and occupational field into

<sup>4</sup> The probability of selection in this survey was proportionate to the number of employees in the establishment. For a presentation of the Swedish Establishment Survey, see le Grand, Szulkin and Tåhlin (1996).

<sup>5</sup> The register includes information on the level of education attained. The number of years of schooling for each educational level was calculated from another data source (the Level of Living Survey 1991).



10 major occupational groups. The second classification is based on 95 detailed occupational categories.

Immigrants are defined as persons born outside Sweden. We single out three different regions of origin: (i) Western countries, which includes Nordic, Western European countries and industrialized countries outside of Europe (Denmark, Finland, Iceland, Norway, Great Britain, the Benelux-countries, France, Ireland, Switzerland, Germany, Austria, Australia, New Zealand, Canada, US). (ii) Rest of Europe, i.e., the remaining European countries; and (iii) Rest of the world, (Africa, Asia and Latin America). Duration of residence in Sweden is measured by a variable indicating whether the immigrant has lived in Sweden for 1-5 years, 6-10 years, 11-20 years or more than 20 years.

## **Analytical Strategy**

Labor market discrimination pertains to processes through which individuals are assigned to jobs and to the way that the performance of these individuals is assessed. This implies that the consequences of discrimination against immigrants should be reflected in immigrants having inferior opportunities (a) to be employed at all, (b) to obtain favorable positions if getting an employment, and (c) to obtain fair rewards for the work they perform. In this paper we have restricted our analyses to the latter two consequences, namely to understand the nature of existing earnings differentials between workers born in Sweden and in a foreign country.

We start by giving an overall picture of the selection process that leads to the relative low probability of employment among immigrants. We then continue by giving a brief description of average differences in earnings and in some human capital indicators between workers born in Sweden and abroad. Thereafter, multivariate analyses of the immigrant-native earnings gap are performed in four steps, separately for men and women. In all analyses we distinguish between immigrants from the three broad regions of origin mentioned above (Nordic/Western countries, the rest of Europe, Africa/Asia/Latin America). First, we regress earnings on conventional human capital indicators. Second, we study the impact of the length of residence in Sweden on the earnings differentials. Due to the large number of observations in the data set, we are

able to combine information on region of origin with information on duration of residence in Sweden. We hence have the opportunity to study the earnings progress over time for different immigrant groups. A result showing that the relative earnings of immigrants with long duration of residence are approximately on the same level as those of native workers, can be interpreted as an indication of integration processes playing an important role for diminishing immigrants' disadvantages in the labor market. On the other hand, if wage differentials remain large even for those with a long duration of residence, the hypothesis of wage discrimination against immigrants will be supported.

The third analysis focuses on immigrants who have undertaken at least a part of their upper secondary education in Sweden. If even immigrants who have gone through all or a part of their education in Sweden have lower earnings than individuals born in the country, there are strong reasons to believe that there exist obstacles to integration of immigrants in the Swedish labor market. Such an outcome can be understood in two ways, depending on whether differences between the groups are established before or after the entry to the labor market. In the first case, observed earnings differentials may be due to processes leading relatively many immigrants to quit the educational system without sufficient skills in the Swedish language or in other subjects of importance for the future labor market careers. In the second case, earnings differentials may reflect the condition that individuals with foreign background are subject to discrimination in the Swedish labor market, irrespective of whether they have acquired country-specific human capital or not. Empirically, we try to distinguish between these two processes by controlling for the average grade point and grade in Swedish language for those who finished their upper secondary education in Sweden after 1972. If earnings differentials remain after controls for average grade and grade in Swedish language, we will interpret this as an indication of labor market discrimination.

Finally, in the fourth analysis we address the question whether the observed earnings gap between immigrants and natives is due to immigrants facing barriers to entry into highly paid occupations. This hypothesis obtains empirical support to the extent that earnings differentials between native Swedes and immigrants are substantially reduced when controls for occupation are included in the earnings equation. Such a finding would point to the importance of labor market segregation for immigrants' low relative wages.

## Results

The labor force participation rate of foreign-born individuals decreased dramatically in Sweden during the severe economic crisis at the beginning of the 1990's. Table 1, which is based on data from the Labour Force Survey of January in 1992-1995,<sup>6</sup> shows that the probability that an immigrant were employed, and thus were represented in our data material on earnings, is much smaller than for Swedish-born individuals. More specifically, significantly lower percentages of persons born abroad were employed compared to persons born in Sweden. About 56 percent of the foreign-born men were employed compared to 66 percent of the Swedish-born men. Among women, the difference in employment probabilities is even larger, 56 and 72 for foreign- and Swedish-born women, respectively. Furthermore, employment rates vary by region of origin and by duration of residence in Sweden. Immigrants from countries outside Europe and with relatively short duration of residence are characterized by very low employment rates.

These results indicate that there exist strong selection mechanisms that prevent immigrants, especially those from non-Western countries, from entering the Swedish labor market. Therefore, there are strong reasons to believe that selection bias affects the results of the earnings analyses. In other words, it may be that primarily only a selected group of resourceful immigrants succeeded to keep their jobs or to obtain a new job during the first half of the 1990's, which was characterized by mass unemployment. Less resourceful immigrants were out of the labor force or unemployed. The latter group of immigrants would receive low wages, if they would get a job. Thus, if labor demand had been higher, or the wage setting processes had been more flexible, so that a larger proportion of the population, including immigrants, had a job, the average earnings gap between immigrants and natives may have been larger than our results will indicate.

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<sup>6</sup>The January surveys of the Labour Force Surveys of 1992-1995 were collapsed, in order to increase the number of observations among immigrants.



Table 1. Employment Probabilities by Sex, Immigrant Background and Duration of Residence (percent)

	Men:				Women:			
	<i>Not Employed</i>	<i>Self- employed</i>	<i>Employee s</i>	<i>N</i>	<i>Not Employed</i>	<i>Self- employed</i>	<i>Employee s</i>	<i>N</i>
All 16-65 years of age	23.8	10.8	65.4	19 062	25.5	4.2	70.3	19 332
Born in Sweden	22.8	10.9	66.4	17 359	23.8	4.2	72.0	17 271
Born abroad	34.2	9.5	56.3	1 703	39.5	4.6	55.9	2 061
Nordic/Western countries	23.0	8.8	68.1	795	29.2	4.0	66.8	1 156
The rest of Europe	34.2	10.2	55.6	376	36.1	8.0	55.9	407
The rest of the world	50.4	10.1	39.5	530	66.2	3.1	30.7	495
Duration of residence 1-10 years	49.2	6.3	44.5	518	62.4	2.6	35.0	566
11-20 years	34.6	11.8	53.5	402	35.7	6.4	57.9	505
More than 20 years	23.7	10.3	66.0	776	28.2	4.8	67.1	980
Source: Own calculations from the Labour Force Surveys January 1992-1995								

In Table 2, descriptive statistics of the employees included in the analyses are presented. The average monthly full-time equivalent earnings of native male employees exceed the average wages of male immigrants by about 1 100 Swedish kronor (6.6 percent). The corresponding difference for female employees is only 386 Swedish kronor (2.6 percent).

Table 2. Variable Description by Sex and Immigrant Background  
(Mean values where nothing else is stated).

	Born in Sweden		Immigrants	
	Men	Women	Men	Women
Monthly earnings, SEK	17 842	14 945	16 709	14 559
Years of schooling	11.65	11.75	11.23	11.15
Years of potential experience	22.67	23.75	25.85	26.98
Age	40.14	41.30	42.96	44.02
Years of employer seniority (0.5 - 9.5 years)	4.84	4.17	4.99	4.33
<u>Immigrants:</u>				
Percent staying 5 years or less in Sweden			5.9	3.8
Percent staying 6-20 years in Sweden			41.0	37.5
Percent staying more than 20 years in Sweden			53.1	58.7
Percent who came before 7 years old			7.5	6.5
Percent who came before 21 years old			29.2	32.7
<u>Region of Origin:</u>				
Percent from Western industrialized countries			53.2	62.3
Percent from the rest of Europe			22.3	20.3
Percent from the rest of the World			24.6	17.5
N	221 982	263 657	25 109	27 684
(%)	41.2	48.0	4.7	5.1

The differences in observed human capital between immigrants and natives are generally rather small. The average number of years of formal education is somewhat higher among native employees than among immigrants. On the other hand, average potential experience and seniority with the current employer are longer for immigrant workers. Both these results reflect, at least partly, the fact that immigrants on average are older. Next, as shown in Table 2, relatively few immigrant workers in 1995 had stayed in Sweden for less than five years. A majority of the male and female immigrant workers had a length of residence of more than 20 years (53 percent and 59 percent, respectively).

However, only about 7 percent of the immigrants came to Sweden before they were 7 years old, although a much larger proportion - 29 percent of the men and 33 of the women – came to Sweden before they were 21 years old. Finally, the majority of the immigrants originate from Nordic and other Western industrialized countries. The dominant country of origin is Finland (this is not shown in the table). About one fourth of the male immigrants and one sixth of the female immigrants came from Africa, Asia or Latin America.

### **Observed and standardized wage differentials**

We start the analyses by comparing observed and standardized earnings for immigrants and Swedish-born workers. As can be seen from Table 3, male immigrants on average earn around 5.5 percent less than natives measured in full-time equivalent monthly earnings. The corresponding difference for women is less, 2.8 percent. However, as can be seen from columns 2-4 for men, and 6-8 for women, immigrants do not constitute a homogeneous group as regards earnings. Men from non-European countries earn about 15 percent less than native workers while male immigrants from Western countries have more or less the same earnings as Swedish-born workers have. The earnings differential for male immigrants from the rest of Europe is about 6 percent. Female workers show the same pattern, although the differentials are smaller compared to men. Women from Western countries have about the same earnings as women born in Sweden have, while women from the rest of Europe earn 2.1 percent less and women from the rest of the world about 12 percent less than native female workers.

In the second row of Table 3 results are presented from earnings regressions with controls for schooling, potential experience, experience squared and seniority. In column 1 and 5, the immigrant-native earnings gap is captured by a dummy for being foreign born or not. The other columns show the parameter estimates when three dummies for region of origin are included in the equations. As can be seen, the earnings differentials do not change very much when we compare workers with the same observed human capital. The largest difference compared to observed earnings is that the earnings gap for male workers from the rest of Europe increases from around 6 to 9 percent, and that for female workers from the rest of the world the gap decreases from 12 to 7 percent.

The third row of Table 3 reports results from a simulation analysis. The calculations of earnings differentials are based on the supposition that immigrants would be paid the same return to their human capital as Swedish-born workers are. First, we estimated an earnings model including only workers born in Sweden (separately for men and women) with the four human capital variables mentioned above as predictors. The regression coefficients from this equation were then used to calculate the predicted earnings of immigrants with “Swedish coefficients”. The results are that male immigrants, taken as a whole group, would on an average earn about 1 percent more than native workers, if the former group had the same returns to schooling, potential experience and seniority. This should be compared to the observed differentials of about 5.5 percent less than native workers, as shown in the first row. The immigrant-native earnings gap would be around zero for female workers. Looking at immigrants from different regions of origin, we see that male workers from Eastern and Southern Europe would earn 3.4 percent more than native workers, while female workers from Africa, Asia and Latin America would earn 4.5 percent less than native female workers. For other groups of immigrants the simulated wage differentials are very small.

The conclusion from Table 3 is that above all male immigrants from non-Western countries are paid less for their education and work experience than native workers are. An important explanation for this, as discussed above, is that some of the immigrants’ human capital has been acquired outside of Sweden, and may therefore not be as highly valued by employers as human capital that has been acquired in Sweden. Next, we turn



to the questions of how the duration of residence in Sweden, and education from Swedish schools affect the immigrant-native earnings gap.

Table 3. Average Earnings Differentials between Immigrants and Swedish born Workers by Sex and Region of Origin (Logarithmic Values. Absolute t-values in Parentheses)

	1	2	3	4	5	6	7	8
	Men:				Women:			
	All immigrant s	Western countries	Rest of Europe	Rest of the World	All immigrant s	Western countries	Rest of Europe	Rest of the World
Observed Differentials	-.0553 (26.1)	-.0097 (3.4)	-.0590 (13.7)	-.1506 (36.7)	-.0276 (21.5)	-.0041 (2.6)	-.0207 (7.6)	-.1196 (40.7)
Control for human capital (joint model) <sup>a)</sup>	-.0659 (38.7)	-.0188 (8.3)	-.0924 (26.7)	-.1430 (43.4)	-.0233 (21.5)	-.0044 (3.3)	-.0361 (15.7)	-.0748 (30.3)
Differentials with native coefficients <sup>b)</sup>	.0108 (8.4)	.0094 (5.4)	.0342 (13.0)	-.0073 (2.9)	-.0043 (6.1)	.0006 (0.7)	.0156 (10.4)	-.0449 (27.8)
Notes: a) Coefficients from a joint model with controls for schooling, potential experience, potential experience squared and seniority. b) Simulated values where immigrants have the same returns (coefficients) to human capital. N=247 090 for men and 291 340 for women.								

## Duration of residence

As discussed above, duration of residence in Sweden can be regarded as an indicator of “country-specific human capital”. Table 4 shows how duration of residence influences relative earnings of male and female immigrant workers from the three regions of origin (all the differentials reported here are net of schooling, potential experience and seniority). The result for male employees from Western countries is unexpected (column 1). Earnings of male Western immigrants who came to Sweden during the 90s are about five percent *higher* compared to male native employees with similar individual characteristics, while the average earnings for those who stayed more than 20 years in Sweden is 2.4 percent *lower*. An additional analysis (not shown in the table) reveals that male immigrants from Western countries who stayed for a short period in Sweden are a highly selected group; a very high proportion (68 percent) is employed in occupations requiring theoretical expertise, i.e., are employed as specialists with relatively high pay. Male immigrants from Western countries who have stayed in Sweden for 6-10 years earn on average almost the same as native workers do. The rest of the immigrants from this region (with 11 or more years of residence) have earnings of between 2 and 3 percent lower compared to native workers. The earnings differentials between women born in Sweden and women born in Western countries are generally quite small, irrespective of duration of residence.

In column 3 the results are presented for male immigrants who originate from other European countries than Scandinavia and Western Europe. The earnings gap between native workers and workers from this region decreases by the time spent in Sweden. However, the rate of decrease is small – from about 12 percent for workers who have stayed in Sweden for less than 6 years to about 8 percent for those who have lived more than 20 years in Sweden. For female employees originating from Eastern and Southern Europe (column 4) the integration process seems to be more successful. The earnings gap for this group decreases from about 11 percent for those who have lived in Sweden for 5 years or less to about 1 percent for those who have lived in Sweden for more than 20 years.

Finally, as indicated in column 5 of Table 4, the progress in labor market integration seems to be very slow indeed for male workers originating in countries outside Europe. The earnings gap is 18 percent for those who have lived in Sweden for less than 6 years compared to about 12 percent for the group who stayed in Sweden for more than 20 years. Female employees from outside Europe tend to experience a more advantageous wage development (column 6). For this group the earnings differential to native women decreases from about 11 percent for those with the shortest duration of residence, to 4 percent for those with the longest duration of residence.

Table 4. Regression analyses (OLS) of (log) Earnings. The Impact of Length of Residence by Sex and Region of Origin. Unstandardized regression coefficients (absolute t-values in parentheses)

	1	2	3	4	5	6
	Western industrialized countries		Rest of Europe		Rest of the World	
	Men	Women	Men	Women	Men	Women
<u>Years of residence:</u>						
5 years or less	.0537 (5.0)	.0019 (0.2)	-.1211 (9.2)	-.1099 (11.6)	-.1763 (15.6)	-.1076 (11.8)
6-10 years	.0148 (1.8)	-.004 (0.7)	-.1225 (13.4)	-.0796 (12.8)	-.1439 (26.0)	-.0964 (22.0)
11-20 years	-.0304 (5.9)	-.0074 (2.5)	-.0905 (12.5)	-.0467 (11.4)	-.1426 (28.2)	-.0688 (19.1)
21 or more years	-.0240 (8.8)	-.0042 (2.7)	-.0831 (18.0)	-.0099 (3.1)	-.1241 (14.4)	-.0365 (6.0)
R <sup>2</sup>	0.363	0.300	0.365	0.303	0.367	0.307
N	234 991	281 120	22 7543	26 9396	22 8517	26 8133
Notes: All models control for years of schooling, years of potential experience, potential experience squared, and years of seniority.						

As pointed out by Borjas (1994), it is problematic to analyze labor market integration of immigrants over time on the basis of cross-sectional data. The difficulty lies in the fact that different waves of immigrants originate from different regions of the world, and their potentials for integration in the host country may differ. According to Borjas, earlier

immigration waves to the US consisted of relatively qualified individuals with a high assimilation potential, while later immigrants have a lower potential.<sup>7</sup> Thus, Borjas argues that the estimates of the effect of the length of residency on earnings based on cross-sectional data from the US may overestimate the magnitude of the assimilation process. It may be that earlier waves of Swedish immigrants, who mostly came from European countries, after some time in the host country, reached wage levels that were in parity with those of the natives. However, this does not imply that later waves of immigrants from other regions of the world will be similarly successful. Due to the large number of observations in our data set we can distinguish between effects of region of origin and duration of residence. The results presented in Table 4 strongly indicate that integration processes are quite successful for some groups of immigrants, but that other groups face serious obstacles. Generally speaking, our findings suggest that female immigrants who were employed in 1995 had experienced a gradual integration in terms of earnings. However, the rate by which relative earnings increase over time seems to be much smaller for male workers originating from non-Western countries.

Several authors have argued that the rate at which immigrants accumulate country-specific human capital is influenced by the age at migration (see for instance Chiswick and Miller 1995). Generally, younger people possess high ability to learn new skills and, therefore, their efficiency in accumulation of country-specific human capital tend to be higher than that of older people. Hence, one can expect that immigrants who came to Sweden at relatively low ages have a relatively high rate of earnings convergence. In an additional analysis (results not shown), we have tested for the possibility that the relatively slow rate of increase in relative earnings among male employees from countries outside the Western industrialized world applies to older immigrants only. We estimated the earnings effect of duration of residence for male immigrants from these countries who came to Sweden before and after the age of 30 in separate models. The result indicates that the immigrant-native earnings gap for young workers – although substantial - is smaller than the corresponding gap for the older group, irrespective of the length of stay in Sweden. However, the convergence of relative earnings over time

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<sup>7</sup> The potentials for integration may also vary between different waves of immigrants owing to variation in labor demand over time.

seems not to be faster for younger than for older immigrants. Thus, male immigrants from non-Western countries appear, irrespective of the age at migration, to face a more or less permanent earnings disadvantage compared to male native employees with similar individual characteristics.

### **Swedish upper secondary education**

The next step in our analyses is to examine wage differentials between native and foreign-born employees who have completed their upper secondary education in Sweden after 1972. As can be seen from the first model in Table 5, men born in Western industrialized countries who have finished their upper secondary education in Sweden have about 1.5 percent lower wages than native men with similar individual characteristics. The corresponding differentials are 3.5 percent for male workers born in other European countries, and about 6 percent for male workers from non-European countries. In the second model, average high school grades are added to the equation. We see that the wage differentials between male native and immigrant workers now become somewhat reduced, but male immigrant workers still earn between 1.5 to 5 percent less than native workers do. Model 3 and Model 4 present the corresponding results for female workers. The wage differentials between the various categories of female workers are only marginal. The largest difference is found between female workers born in Sweden and those born outside Europe. However, even for this group of immigrants, the wage gap is only about 1.5 percent (after control for average grades).

The following conclusions can be drawn from Table 5. First, when we restrict the analyses to individuals who have completed their upper secondary education in Sweden the immigrant-native earnings gap is considerably reduced for non-Western immigrants. (Compare the coefficients in Table 3 and Table 5.) The differentials are rather small for Western immigrants in both analyses. (The latter result applies for both male and female employees.) Thus, a relatively large portion of the earnings gap seems to be due to the lower value that Swedish employers attribute to formal education acquired in countries outside the Western industrialized world. Second, however, the low relative earnings for male immigrants from Africa, Asia and Latin America can only partially be explained by their lack of Swedish education. Furthermore, non-trivial immigrant-native earnings differentials remain after grades from the Swedish upper secondary education have

been accounted for. If average grades from upper secondary education are accepted as an indicator of individual ability, this result implies that there exist earnings differentials between equally able individuals, but with different national backgrounds.<sup>8</sup> In our view, this result is a strong indication that immigrants from countries outside the Western industrialized World are subjected to discrimination in the Swedish labor market.

Table 5. Regression analyses (OLS) of (log) Earnings. The Impact of Average Grades in High School.

Unstandardized regression coefficients (absolute t-values in parentheses)

	1	2	3	4
	Men		Women	
Western industrialized countries	-.0153 (3.1)	-.0145 (3.0)	-.0050 (1.4)	-.0044 (1.2)
Rest of Europe	-.0352 (4.2)	-.0307 (3.7)	-.0048 (0.7)	.0012 (0.2)
Rest of the World	-.0582 (7.7)	-.0536 (7.1)	-.0227 (4.4)	-.0149 (2.9)
Average grades		.0386 (33.6)		.0346 (38.9)
R <sup>2</sup>	0.354	0.361	0.303	0.313
N	99 816	99 816	106 948	106 948
Notes: All models control for years of schooling, years of potential experience, potential experience squared, and years of seniority.				

### Occupational segregation

The results presented in Table 6 address the question whether limited access to highly paid occupations can explain wage differentials between immigrants and native employees. As mentioned above, information on occupational codes is available only for employees in the state, local counties and for white-collar workers in the private sector. Blue-collar workers in the private sector and employees working for the municipalities are excluded from the analyses in this section.

<sup>8</sup> A possible, alternative indicator of country-specific human capital is the grade in Swedish language. Further analyses, not reported in the table, show that the results are substantially the same when this measure is used instead of average grade.

As a prelude to this analysis, the distribution of immigrant and native workers across ten major occupational groups were compared (see the appendix). Overall, the degree of occupational segregation between Swedish- and foreign-born workers is larger for non-Western immigrants than for Western immigrants. The degree of segregation is summarized by the dissimilarity index, which gives the proportion of immigrants (or natives) who would have to change jobs for the occupational distribution of the two groups to be the same. As seen from the second last row in the table of the appendix, the dissimilarity index is about 6 percent when immigrants from Western countries, both men and women, are compared with native workers. The corresponding figure for male and female immigrants from the rest of Europe is around 14 percent. For immigrants from the rest of the world the dissimilarity index is 33 percent for men and 14 percent for women. In other words, one third of the male immigrants from Africa, Asia and Latin America would have to change occupational category in order to be distributed as male native workers are.

In Model 1 (the first row) of Table 6, we report wage differentials between male native and immigrant employees in the restricted sample (i.e., blue-collar workers in the private sector and employees in municipalities are excluded), without occupational controls. The wage gap between male employees born in Sweden and non-European countries is larger – around 22 percent - than was found in Table 3. This is mainly due to the fact that male white-collar employees from non-European countries tend to earn relatively low wages in the private sector.

In Model 2 (the second row), we use the same broad occupational classification for male employees as in the Appendix. Such a control reduces the wage gap substantially for non-European immigrants. However, the remaining wage differential for this immigrant group is still large – around 14 percent. In Model 3, we use a more detailed occupational classification consisting of 95 categories. Using this occupational control reduces the earnings gap somewhat further, compared to the broader categorization. However, the remaining wage differentials are still of a considerable magnitude – more than 11 percent for male non-European immigrants and 6 percent for male immigrants from Eastern and Southern Europe.



In line with the previous results, the immigrant-native earnings differentials are much lower for women than for men. Including occupation to the analysis reduces the differences somewhat (Models 4 – 6). However, female employees originating from non-European countries earn almost 6 percent less than native women with similar individual qualifications working in the same occupation. For women from Western countries, the earnings gap is almost zero when keeping occupation constant, while for women from Eastern and Southern Europe the earnings gap instead increases somewhat after control for occupation. The main conclusion from these results is that differential allocation of immigrant and native workers to occupations explains only a part of the earnings differentials. For some groups of immigrants the remaining wage gap is of a non-trivial magnitude.

Table 6. Regression analyses (OLS) of (log) Earnings. The Impact of Occupational Position.  
Unstandardized regression coefficients (absolute t-values in parentheses)

	Western industrialized countries	Rest of Europe	Rest of the World	R <sup>2</sup>	N
<i>Men:</i>					
1. Without control for occupation	-.0285 (7.6)	-.1087 (16.7)	-.2150 (37.0)	0.340	140 531
2. With control for major occupational groups	-.0282 (8.3)	-.0765 (13.1)	-.1390 (26.5)	0.469	140 531
3. With control for detailed occupational groups	-.0161 (5.4)	-.0632 (12.3)	-.1110 (23.9)	0.591	140 531
<i>Women:</i>					
4. Without control for occupation	-.0166 (8.5)	-.0234 (6.5)	-.0815 (18.6)	0.291	188 494
5. With control for major occupational groups	-.0124 (7.2)	-.0149 (4.7)	-.0562 (14.6)	0.455	188 494
6. With control for detailed occupational groups	-.0091 (5.8)	-.0275 (9.5)	-.0563 (16.1)	0.552	188 494
Notes: All models control for years of schooling, years of potential experience, potential experience squared, and years of seniority.					

## Conclusions

The fundamental question addressed in this study is how to explain earnings differentials between immigrants and native workers in Sweden. Our main findings can be summarized as follows:

- (1) The average earnings of both men and women born in Sweden are higher than those born outside the country. However, the earnings differentials are much smaller among female workers than among male workers.
- (2) The observed native-immigrant wage gap can not be explained by immigrants having accumulated less general human capital than natives have. Instead, for male workers the wage gap increased somewhat when individual characteristics were controlled for. A simulation analysis indicates that the average earnings of male immigrants would be somewhat higher than those of Swedish-born workers if both groups of workers would obtain the same returns to their human capital. The reason for this is that immigrant workers tend to be older, and hence tend to have longer potential experience, than native workers have.
- (3) Immigrants do not constitute a homogeneous group in respect to chances and outcomes in the Swedish labor market. Labor market integration appears to be relatively unproblematic for immigrants from Western countries. However, immigrants from other countries, especially those from Africa, Asia and Latin America, seem to face substantial obstacles to earnings progress when entering the Swedish labor market.
- (4) The relative earnings of immigrants tend to increase with the duration of residence in Sweden. Thus, the acquisition of "country-specific" human capital by living in the Swedish society seems to have a positive impact on immigrants' relative earnings. However, wage convergence with natives is considerably slower for male than for female immigrants. For male non-European immigrants, the results indicate that a substantial earnings disadvantage remains even when they have stayed in Sweden for more than 20 years.

- (5) When restricting the analyses to individuals, who have completed their upper secondary education in Sweden, the immigrant-native earnings gap becomes considerably reduced. This result applies for both male and female employees. However, for men born outside Europe, there remains a wage disadvantage of about 5 percent also when average grades from upper secondary education are accounted for.
- (6) Finally, the differential allocation of immigrant and native workers to occupations explains only a part of the wage gap between these groups. The remaining wage gap is again relatively wide as far as male immigrants born in countries outside Europe are concerned.

The general picture that emerges from these analyses is that especially male immigrants from non-European countries meet serious obstacles in the Swedish labor market. The question that naturally follows is whether the low relative earnings of immigrants are a result of labor market discrimination or not. As in all empirical studies, it is difficult to unequivocally give an answer to such a question. Obviously, however, the wage gap cannot be explained in terms of differences between immigrants and natives in their acquisition of *general* human capital. Furthermore, for some groups of immigrants, a wage gap of non-trivial magnitude remains also when the accumulation of country-specific human capital is accounted for. We find it reasonable to argue that the latter finding mainly reflects the result of differential treatment of immigrants and natives in the labor market.

More specifically, the return to education tends to be relatively small for some groups of immigrants. Our interpretation of this is that Swedish employers consider educational credentials acquired by immigrants in countries outside the Western industrialized World as a much weaker signal of potential productivity compared to similar types of education acquired in Sweden. Such a kind of differential treatment is not necessarily based on prejudice against immigrants. When country-specific human capital is measured in terms of Swedish upper secondary education, the immigrant-native wage gap becomes substantially reduced. We see this as an indication that prejudice is not the main factor behind the observed earnings differentials. On the other hand, prejudice

may very well be one reason why the obstacles facing immigrants from non-European countries on the Swedish labor market is of a more or less permanent nature.

One striking result is that the immigrant-native earnings gap is much larger for men than for women. However, for two reasons it would be erroneous to regard this finding as evidence that female immigrant workers in general have a relatively favorable position in the labor market. First, the relative earnings of women – both those born in Sweden and abroad - are much lower than those of men. In other words, immigrant female workers always face the disadvantage of being women, in addition to being foreign-born. Second, female immigrants (especially those born outside Europe) face very poor employment opportunities in the Swedish labor market. For example, around two third of non-European women aged 16-65 years, compared to less than one fourth of Swedish-born women, had no employment. Thus, the obstacles for male and female immigrants seem, at least partially, be of a different nature.

In sum, our findings for Sweden suggest the presence of a relatively large degree of wage inequality based on ethnic background. In addition, some groups of immigrants have very high unemployment rates and low labor force participation rates. In our view, the implication of this is that those immigrants who held a job in 1995 were a selected group of especially resourceful individuals. If also the immigrants with low labor market resources had a job, the immigrant-native earnings would probably have been much larger. Our data is not well suited to empirically model such a selection bias since it does not contain representative data on the non-working population. We consider such analyses to be an important task for future research.

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Appendix. Occupational Distribution by Immigrant Group and Sex

	1	2	3	4	5	6	7	8
	<u>Men</u>				<u>Women</u>			
	Born in Sweden	Western countries	Rest of Europe	Rest of the World	Born in Sweden	Western countries	Rest of Europe	Rest of the World
Managers, senior officials	13.6	15.1	8.3	1.9	2.9	3.6	2.2	0.9
Professionals	25.3	29.0	35.3	32.2	14.7	14.7	24.5	16.5
Technicians etc.	39.9	36.8	32.9	20.8	37.1	32.6	30.8	25.7
Clerks	10.1	10.3	13.3	25.6	28.4	27.7	24.5	29.2
Service and shop sale workers	3.6	4.5	3.2	11.2	13.7	15.8	11.2	15.6
Skilled agricultural workers	0.1	0.1	0.0	0.0	0.1	0.0	0.1	0.1
Craft workers	3.0	1.8	3.9	2.0	0.5	0.3	1.4	0.3
Machine operators	1.8	1.2	1.3	1.7	0.2	0.2	0.0	0.2
Secondary occupations	0.8	0.7	1.4	4.5	2.4	5.1	5.2	11.6
Armed forces	1.9	0.5	0.3	0.1	0.0	0.0	0.0	0.0
Total	100	100	100	100	100	100	100	100
Dissimilarity index		0.062	0.147	0.334		0.055	0.136	0.136
N	131 039	6 128	2 265	3 241	175 054	10 569	3 104	2 273