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Unemployment and earnings for second generation immigrants in Sweden. Ethnic background and parent composition

Dan-Olof Rooth[1], **Jan Ekberg**[2]

[1] Department of Economics, Kalmar University College, 39182 Kalmar, Sweden
(Fax: +46-480446475; e-mail: dan-olof.rooth@hik.se)
[2] Center for Labour Market Policy Research (CAFO), Department of Economics,
Växjö University, 35195 Växjö, Sweden (Fax: +46-47082478; e-mail: jan.ekberg@ehv.vxu.se)

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Abstract. This study sheds light on the labour market outcomes of children born to immigrants in the destination country, i.e. second generation immigrants. The study has the advantage of being able to (i) identify several different ethnic backgrounds and (ii) identify the parent composition, i.e. whether one or both parents of the individual are foreign born. The labour market outcomes of second generation immigrants mirror those of first generation immigrants in that we find heterogeneity in labour market outcomes to be associated with ethnic background. Moreover, these outcomes, especially for Southern and non-European backgrounds, are much worse than those for native-born with a Swedish background. Finally, the outcome is more favourable if one parent is born in Sweden compared to having both parents foreign born, especially if the mother is native born.

JEL classification: J15, J24, J61, J71

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1. Introduction

During the post-war years the number of immigrants in Sweden has increased rapidly amounting to about 970 000 individuals in 1998 (see for instance

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Ekberg 1994, 1999, for a description of immigration to Sweden). In addition, there is a growing group of so-called second-generation immigrants; that is, children born in Sweden but with at least one parent born abroad. In 1998 this group consisted of about 778 000 individuals of all ages, approximately nine percent of the population. For about 65% one parent was born in Sweden. One important reason for the high proportion with one parent born in Sweden is probably that many immigrants in the 50s and 60s were single when they arrived. Further, according to the 1998 census a growing share of the second generation immigrants had a non-European background. Thirty-three percent in the ages up to 24 years old were of non-European origin while the corresponding figure was only about three percent in the ages 25–55.

A great many studies have been conducted in Sweden about labour market outcomes for first generation immigrants. The conclusion from these studies is that the employment situation for immigrants in Sweden was good up to the mid-1970s but has since then deteriorated. During the last decade the unemployment rate has been especially high for immigrants born outside Europe (see e.g., Ekberg 1999; Rooth 1999). It has to be noted that a similar development occurred in many other immigrant countries. In countries like Australia, Canada, Germany and the USA the labour market performance was considerably worse for foreign-born persons in the 80s compared to earlier periods, see Strömback (1986), Richmond (1992), Ulrich (1994) and Borjas (1991) for details on the countries in question.

For a long time there were only a few corresponding studies of second-generation immigrants. For the US Borjas (1994b, pp. 1708) wrote: ''In contrast to the voluminous literature analyzing the economic status of immigrants, few studies document the skills and labour market performance of their American-born children.'' Given their large population shares, this implies a lack of insight on considerable fractions of the population. However, recently, the labour market performance of second-generation immigrants has been a topic for economic research in many European countries.

The subject of this article is an empirical investigation of the labour market performance for second-generation immigrants in Sweden compared to native Swedes. The present study differs from others in the following important respects. First, by matching income and population registers, a unique database including all second-generation immigrants living in Sweden in 1998 is used. Achieving representative data about the second-generation immigrants seems hitherto to have been problematic in many countries, see Jensen (1994). Second, labour market performance for disparate groups of second-generation immigrants can be studied. Since this ''immigrant'' group has lived their whole life in the destination country of their parents, – in this case Sweden – we can focus on ethnic differences as measured by their parents' country of origin and the parent composition. For instance, is the labour market situation different when one of the parents is native compared to if both parents are foreign born?

The main findings are that having a non-European background, and to some extent also a Southern European background, is correlated with a much higher probability of being unemployed and of having much lower annual earnings compared to native Swedes. But for the other ethnic backgrounds the study only finds small differences in these outcomes compared to natives. This implies that the ethnic backgrounds that do badly in the parent generation are also the ethnic backgrounds that do badly in the second generation.

Hence, these groups have a low level of intergenerational economic mobility. Also, when we compare labour market outcomes when one parent is a native compared to when both parents are foreign-born, but within the same ethnic background, we find that these are more favourable for those having one native parent. Hence, this result points at the importance of "Swedish-specific" human capital for labour market success.

The article proceeds in the following way: Sect. 2 presents some hypotheses about second-generation immigrants on the labour market. Section 3 gives a brief overview of previous research. Sections 4, 5 and 6 present the data, the methodology and the empirical investigation. Section 7 summarises the results.

2. Some hypotheses – ethnic background and parent composition

Much of the literature concerning the labour market status of second-generation immigrants has focused on intergenerational economic mobility (see Solon 1999). To what extent do the differentials in labour market status between natives and immigrants in the first generation transfer to the second generation? Will there be a convergence tendency in earnings (or unemployment) towards the native mean in the second generation? Unfortunately our data do not include any parental characteristics (other than country of birth) that enable us to answer such questions. However, the character of the data allows us to formulate two hypotheses: how important is ethnic background for labour market success? And, given that a person has a certain ethnic background, how important is it to have one native parent for labour market success?

Success in the labour market is largely determined by the individual's human capital, access to networks that are relevant to such success and the existence of discrimination. Being a part of a network could reduce the search costs and increase the probability of finding a job and finding a job with a higher wage. Since the creation of networks is expected mainly to be made within the labour market, immigrant groups with a poor attachment to the labour market are expected to have a smaller network (see Granovetter 1973). Further, the transfer of human capital to children is achieved mainly through the education system and the family. Haveman and Wolfe (1995) identify parental human capital as the main determinant for a child's educational attainment. However, for many years Swedish authorities have pursued a policy of equal opportunity by striving to provide free education of equal quality in public schools, which probably weakens the parental link. Perhaps this could explain the larger intergenerational economic mobility found in studies for Sweden compared with similar studies for the US as suggested by Björklund et al. (2000).

Österberg (2000) analysed intergenerational earnings mobility for second-generation immigrants (in her study 98% had a European background) and found that the mobility was almost the same as among natives. One important factor for such a finding is probably that the human capital of second-generation immigrants is better adapted to the Swedish labour market than that of their parents, thus allowing them to change position in the earnings distribution relative to their parents' position. But, since Österberg's study makes no attempt to distinguish between different ethnic backgrounds it is

not advisable to neglect the results from US studies showing persistence in labour market differences within generations. Poor labour market assimilation of the parent generation could lead to a lack of role models and create a negative "ethnic" capital effect as discussed in the studies by Borjas (1992, 1993 and 1994a).

An obvious first step in the empirical process of finding out whether ethnic background matters for labour market success for the second generation is to find out whether there are differences in the labour market outcomes/indicators among the first generation. We adopt the approach by Borjas (1993) in that we try to find a "synthetic" parent cohort. The second-generation immigrants in this study are 25 to 40 years old in 1998. The youngest one is then born in 1973, which means that the parents must have immigrated to Sweden prior to, or in, 1973. In addition, we make the assumption that the parents were 25 to 44 years old in 1975 and 35 to 54 years old in 1985. Using these selection criteria in the Swedish censuses in 1975 and 1985, the employment rates for immigrants who immigrated up to 1975, by country of origin, probably gives a good picture of parental position on the labour market when the second generation immigrants grew up.[1]

Table 1 shows that men of the parent generation that were born in the Nordic countries or Western Europe had employment rates (index) that were nearly the same as natives both in 1975 and 1985. Immigrants born in Eastern Europe had employment rates that were approximately ten percent lower than for natives. For immigrants from Southern Europe the labour market situation deteriorated between 1975 and 1985. The employment rate was in 1985 sixteen percent lower than the employment rate for natives. Immigrants

Table 1. Descriptives of men in the parent generation who immigrated to Sweden prior to 1976. Age-adjusted index of employment rates 1975 and 1985 and years of education

	Years of education	Share immigrated prior to 1968 (%)	Employment rate index 1975	Employment rate index 1985
Men:				
Native Swede	10.7	–	100	100
Finland	9.8	62	96	94
Other Nordic country	10.7	78	98	94
Western Europe	11.7	80	100	98
Eastern Europe	12.3	72	90	90
Southern Europe	11.0	55	95	84
Non-European country	12.2	52	83	85

Note: The interpretation of the employment rate index can be expressed as follows: In 1975 the index was 96 for those born in Finland. That means that the employment rate was 4% lower than the employment rate among natives. The information about the portion that immigrated before 1968 comprises everyone in each group respectively in the year 1985. The variables are age-adjusted using the age distribution for natives. In the 1975 and 1985 censuses there was no information on education. Instead the information about years of education is taken from the 1992 Labour Force Surveys for immigrants in the age 45–64 who immigrated up to 1975. Individuals in the age 45–64 in 1992 are mostly the same as those in the age 35–54 in 1985.
Sources: Processed data from 1975 and 1985 Swedish censuses and from 1992 Labour Force Surveys.

from non-European countries show a very weak attachment to the labour market both in 1975 and 1985. This is the case even though the non-European parent generation is well educated. In fact, all immigrant groups, except for those born in the Nordic countries, have an average number of years of education that is higher than that of natives.

Years since migration may also be an approximation of labour market assimilation (as well as other kinds of assimilation). From the censuses there is information on the fraction that immigrated before 1968. A high fraction indicates (on average) more years since migration and thereby a higher degree of assimilation. The fraction is high for immigrants from the Nordic countries, for immigrants from Western Europe and for Immigrants from Eastern Europe while the fraction is low for immigrants from Southern Europe and from non-European countries.

A child's human capital is also affected by the parents' ability to transfer human capital specific to the immigrant country, for example the Swedish language. The lack of such an ability is a disadvantage to second-generation immigrants. This ability may be assumed to depend on the parents' own position in the labour market and their access to specific immigration country knowledge. Such ability and such specific knowledge may be assumed to be greater if the parents have lived for a long time in Sweden, if one parent was born in Sweden or if the parents were born in Denmark and Norway, since the Danish and Norwegian languages are closely related to the Swedish language. Other languages are less closely related to Swedish. This is specifically the case with non-European languages. The study by Myrberg et al. (2000) shows that immigrants from the Nordic countries have the best knowledge of Swedish followed by other European immigrants. Non-European immigrants have the poorest knowledge of Swedish.

Finally, the risk for being discriminated against based on ethnic background is probably very small for second-generation immigrants with Nordic, Western or Eastern European backgrounds. But the risk for discrimination is expected to be higher for second-generation immigrants with a Southern European background, and even higher for those with a non-European background.[2]

In the empirical section we are unable to separately identify these different factors that are expected to lead to differences in labour market outcomes. Hence, a reduced form is estimated and then the aggregate "effect" of these factors will be captured by ethnic background and parent composition fixed effects.

3. Previous studies of second-generation immigrants

Early investigations of second-generation immigrants were carried out by Chiswick (1977) and Carliner (1980). With the help of data from the 1970 US census they found that the relative wages for both first and second-generation male immigrants were higher than for native Americans. Furthermore, there was no tendency to convergence toward the native mean wage in the second generation. Chiswick and Carliner concluded that the high capacity among the first generation immigrants was inherited by their American born descendants.

These results were questioned by Borjas (1993 and 1994b) since they were based on cross-sectional data and links among the generations were not established. In his data there were no direct individual links between parents and children either. However, Borjas compared the wage level for second-generation male immigrants in the 1970 census with the wage level for first-generation male immigrants in the 1940 census. He assumed that these two groups had a children-parent relation to each other. Using this approach Borjas found support for convergence toward the native mean wage in the second generation. This was also found by Trejo (2001) for second-generation immigrants in the US with a Mexican background.

For Australia, Chiswick and Miller (1985) reported that sons of immigrants earned four percent more than native Australians of the same age. However, Maani (1994) presented a darker picture. Both the number of unemployment spells and their duration exceeded those of native Australians. In Europe there has been increasing interest in recent years in the labour market performance of second-generation immigrants. However, most of the research has focused on human capital formation (see Gang and Zimmermann 2000, and Riphahn 2001, for Germany, Van Ours and Veeneman 2001, for the Netherlands and Nielsen et al. 2001, for Denmark).

In Sweden some studies have been conducted. The first was made by Ekberg (1997). He found that the unemployment rate for second-generation immigrants born in Sweden before 1970 was nearly the same as among native Swedes of the same age. The second investigation was conducted by Schröder and Vilhelmsson (1998), see also Vilhelmsson (2000). According to this study, second generation immigrants born after 1970 run a higher risk of being unemployed than native Swedes of the same age, with the same educational level, the same family background and the same region of residence. Månsson and Ekberg (2000) found a similar result. Second generation immigrants born prior to 1970 seem to have a better labour market position than those who are born later. The reason may be a different composition as regards ethnic background of the two groups. None of the studies above divide second-generation immigrants into different subgroups in the way done in this study.

4. Data

The empirical analysis is based on a data set constructed by integrating records from the National Labour Market Board (AMS) and Statistics Sweden (SCB), which identify individuals by their social security numbers. The data from the National Labour Market Board contains information on individual unemployment, i.e., whether the individual is registered as unemployed at the local labour market agency or is engaged in labour market training. The data from Statistics Sweden contains information on unemployment status, earnings, and the other individual characteristics included in the regressions. The total data set contains information on about 460,272 second-generation immigrants that were 16 to 64 years old in 1998 (this is the total number of second generation immigrants, both men and women, and not a sub-sample). The native Swedish sample is a three percent random sub-sample of the total Swedish native population between 16 and 64

years old in 1998. A native Swede is identified as being born in Sweden to Swedish-born parents.

Second generation immigrants are identified in the registers as being born in Sweden and having at least one parent born abroad. We are able to divide the group of second-generation immigrants in two ways. First, we identify whether one or both parents were foreign born. Second, we categorise them according to parental place of birth: Finland, Other Nordic country, Western, Eastern, Southern and non-European (excluding the US and Oceania).[3] Even though the non-European category constitutes a very heterogeneous population, it is not meaningful to divide the category further since there would be too few individuals in each cell. All other possible "cross-heritage" categories where both parents are foreign born, for example a father born in Germany (Europe) and a mother born in Iran (non-European), have been excluded due to their very mixed ethnic background.[4] We are then certain that individuals that belong to a specific second generation immigrant category have parents that belong to the same ethnic group.

In the empirical section two subsets of the data are used depending on the choice of outcome variable. The first data set, focusing on the probability of being unemployed, includes individuals who are part of the labour force and who were 25 to 40 years old in 1998. A person is defined as unemployed if he/she was part of the labour force and was registered as unemployed in the third week of November 1998. Selecting only those about whom we have information on all the included characteristics, and eliminating those having one or two parents born in the US or Oceania or parents that with different ethnic backgrounds, reduces the data to 165,817 second generation immigrants.[5] Approximately 73% have one parent born in Sweden and 53% are male. The native Swedish population is reduced to 37,665 individuals when we restrict the data to include those in the labour force that were 25 to 40 years old in 1998. 53% are male.

The second data set includes individuals who had annual earnings greater than 36,300 SEK (approximately 4000 euros) and who were 25 to 40 years old in 1998. These earnings do not include self-employed earnings. The reason for using this threshold for earnings, instead of simply using positive earnings, is an attempt to delete shorter employment spells and part-time jobs with low pay. Using such a threshold should give an estimate that comes closer to the one expected for (log) hourly wages (if such data was available), since higher earnings are more likely to be based on similar amounts of time worked (hours and weeks). Antelius and Björklund (2000) show that, when evaluating the return to education, using this threshold yields similar results as one would get from analysing hourly wage data. Again selecting only those for whom we have information on all the included characteristics, and eliminating those having one or two parents born in the US or Oceania or parents that have different ethnic backgrounds, reduces the data to 145,891 second generation immigrants. Approximately 73% have one parent born in Sweden and 54% are male. The native Swedish population is reduced to 33,816 individuals when we restrict the data to include those with annual earnings greater than 36,300 SEK and who were 25 to 40 years old in 1998. 54% are male.

Second generation immigrants with one or two parents born in a non-European country are relatively young since immigration from non-European countries started late. Therefore, the second-generation immigrants with one

or both parents born in non-European countries found in our data primarily include individuals who were 25–30 years old in 1998. It is likely that the labour market during this age interval is different from the regular labour market and we therefore constructed a separate sample of native Swedes and second-generation immigrants with a non-European background. This data set includes only those who were 25–30 years old in 1998, restricting the data set to 13,551 native Swedes in the first case and 12,196 native Swedes in the second.

The number of individuals in the different categories of second-generation immigrants in Table 2 varies very much. The largest group is second-generation immigrants with a Finnish background. The smallest group is second-generation immigrants with a non-European background. The second-generation categories are also very heterogeneous as regards age distributions (see Table A1a,b and A2a,b in Appendix). In order to make the categories more comparable they have been weighted according to the age distribution of the native population (in one-year intervals). Let us first look at second-generation groups with both parents who are foreign born. Almost all categories of second-generation immigrants have higher unemployment rates than natives. However there are large differences between the groups. Those whose parents are born in a Western or Eastern European country have unemployment rates that are quite similar to those for natives (less than a three percentage point difference), while those whose parents are born in a Nordic or in a Southern European country have unemployment rates that are three to seven percentage points higher than that of natives. Finally, those whose parents are born in a non-European country have unemployment rates that are approximately ten percentage points higher than for natives. The differences in unemployment rates do not seem to reflect differences in years of education, since these are quite similar (at the most half a year's difference) across second-generation categories.

Looking at differences in (logarithmic) annual earnings (for those with annual earnings greater than 36 300 SEK) gives a somewhat different picture. Native Swedes have some of the highest earnings, but higher earnings are found for both male and female second-generation immigrants whose parents are born in a Western or Eastern European country. For women, those whose parents are born in a Southern European country are found to have higher earnings, while those women whose parents are born in a Nordic or non-European country are found to have lower average annual earnings than native Swedish women. Further, we find that men whose parents are born in a Nordic, Southern European or non-European country have lower annual earnings than native men. This is especially the case for those with a non-European background who are found to have almost twenty percent lower earnings than natives. Hence, the non-European group has both the highest unemployment rate and the lowest annual earnings.

What happens if we instead look at the outcomes for second-generation immigrants when one parent is a native Swede? Clearly the large differences in unemployment rates found for some ethnic groups are reduced, for both men and women. The unemployment rates are also lower than for corresponding groups with both parents born abroad. The unemployment rate is again lowest for those individuals with one parent born in a Western or Eastern European country. Individuals with a non-European background still have the highest unemployment rate. Many second-generation immigrant groups

Table 2. Descriptives. Age-adjusted (weighted)

	Years of education	Married (%)	Unemployment rate	No. of ind.	Log earnings	No. of ind.
Men:						
Native Swede	12.0	30.4	6.5	19,942	12.23 (0.50)	18,330
Native Swede 25–30	11.9	13.2	8.0	7,206	12.10 (0.50)	6,737
Both parents born in:						
Finland	11.5	25.7	11.0	13,682	12.19 (0.49)	12,203
Other Nordic country	11.5	30.3	10.5	2,870	12.19 (0.51)	2,532
Western Europe	12.3	31.9	5.8	1,792	12.27 (0.53)	1,655
Eastern Europe	12.7	29.6	9.0	1,737	12.26 (0.59)	1,551
Southern Europe	11.8	36.3	13.9	3,508	12.17 (0.54)	2,889
Non-European country	11.7	36.0	17.7	331	11.92 (0.61)	262
*One parent born in**:						
Finland	11.8	26.9	9.1	24,935	12.20 (0.50)	22,523
Other Nordic country	11.7	29.5	8.8	14,266	12.20 (0.51)	12,857
Western Europe	12.4	30.5	6.6	13,185	12.25 (0.54)	12,151
Eastern Europe	12.3	28.9	7.1	6,604	12.25 (0.54)	6,034
Southern Europe	12.1	27.9	9.9	3,903	12.21 (0.56)	3,456
Non-European country	12.3	13.3	11.3	1,177	12.00 (0.60)	1,081
Women:						
Native Swede	12.3	38.7	8.6	17,723	11.85 (0.51)	15,486
Native Swede 25–30	12.4	21.6	10.2	6,345	11.79 (0.52)	5,459
Both parents born in:						
Finland	11.7	36.2	11.8	12,287	11.83 (0.51)	10,932
Other Nordic country	11.7	37.5	13.0	2,428	11.84 (0.51)	2,045
Western Europe	12.3	37.1	9.5	1,503	11.88 (0.53)	1,322
Eastern Europe	12.8	39.2	10.0	1,539	11.93 (0.54)	1,354
Southern Europe	12.0	46.8	13.1	2,992	11.90 (0.51)	2,387
Non-European country	11.8	53.7	20.7	252	11.72 (0.59)	185
*One parent born in**:						
Finland	12.0	35.5	10.5	22,104	11.84 (0.51)	19,034
Other Nordic country	11.9	36.5	11.3	12,578	11.81 (0.52)	10,672
Western Europe	12.5	37.4	9.0	11,556	11.87 (0.54)	10,109
Eastern Europe	12.5	37.1	8.4	6,130	11.88 (0.53)	5,386
Southern Europe	12.2	34.3	11.9	3,462	11.85 (0.54)	2,952
Non-European country	12.6	21.0	13.9	996	11.75 (0.58)	859

* The other parent is born in Sweden. Cross-heritage categories with both parents born abroad are excluded. There are only a small number of individuals in these categories.
Note: Standard deviations are in parentheses. The means of the variables "Years of education" and "Married" are taken from the "unemployment" sample. The variables for the second generation have been weighted according to the age distribution of natives. For unweighted descriptives for all of the variables see Appendix, Table A1a,b and A2a,b.

with one native parent have average years of education that exceed that for native Swedes. Still, they are found to have higher unemployment rates than native Swedes.

Higher earnings compared to natives are found for both male and female second generation immigrants whose foreign-born parent is born in a Western or Eastern European country. For those with one parent born in other European countries the average annual earnings are nearly the same as for native Swedes. However for those with one parent born in a non-European country the earnings are lower than for natives.

The descriptives in this section tend to support our hypotheses on the importance of ethnic background and having one native parent for labour market success that were formulated in Sect. 2. In the next section we will investigate to what extent these differences in unemployment rates and earnings remain when we include/control for a number of other individual characteristics.

5. Methodology

Section 2 stated a number of characteristics that are expected to lead to differences in labour market outcomes for second-generation immigrants. However, empirically we are unable to separately identify the effect of these different factors. Instead the aggregate effect of them will be captured by ethnic background and parent composition fixed effects. Providing an explanation for the strategy to estimate these ethnic differences in outcomes is the focus of this section.

Separate earnings and unemployment functions are estimated for each ethnic group. The difference in average annual earnings, or in unemployment probabilities, between these different groups can be decomposed into an "explained" and an "unexplained" component (see Oaxaca and Ransom 1994). This will show to what extent the difference in earnings, or unemployment rates, between two ethnic groups is due to differences in their observed characteristics (the "explained" part of the earnings/unemployment gap), or to differences in their respective parameter estimates (the "unexplained" part, reflecting differences in discrimination and/or differences in unobserved characteristics between the two groups). The "and/or" statement in the last sentence should be interpreted as meaning that we do not try to distinguish between whether it is discrimination or differences in unobserved characteristics, as preferences or unobserved productivity related skills, that lead to different parameter estimates for some ethnic groups compared to native Swedes.[6] Even the "explained" part in the decompositions could be a realisation of ethnic discrimination. For instance, if parents believe that their children will be discriminated against in certain parts of the labour market they may influence the choice, or amount, of education of their children.

5.1. Decompositions

In the following we will use the native earnings/unemployment structure as the benchmark.[7] For earnings the difference between natives and different second-generation immigrant groups is calculated as

$$\begin{aligned} \ln E^{N} - \ln E^{SG} &= (X^{N}\hat{\beta}^{N} - X^{SG}\hat{\beta}^{SG}) \\ &= (X^{N}\hat{\beta}^{N} - X^{SG}\hat{\beta}^{N}) + (X^{SG}\hat{\beta}^{N} - X^{SG}\hat{\beta}^{SG}) \end{aligned} \quad (1)$$

where $\ln E^{\mathrm{N}}$ and $\ln E^{\mathrm{SG}}$ are the respective averages of (log) earnings for natives and second-generation immigrants, X^{N} and X^{SG} the respective vector of explanatory variables for natives and second generation immigrants, and $\hat{\beta}^{N}$ and $\hat{\beta}^{SG}$ the respective vector of estimated model parameters for natives and second-generation immigrants. $X^{N}\hat{\beta}^{N}$ is the average (log) earnings for natives,

$X^{SG}\hat{\beta}^{SG}$ is the average (log) earnings for second generation immigrants, while $X^{S}G\hat{\beta}^{N}$ is the average (log) earnings for second generation immigrants when using the returns of natives on observed characteristics. The first term in the third expression is then an estimate of the part of the (log) earnings gap that is due to differences in observed characteristics between the two groups. The remaining term is an estimate of the part due to differences in coefficients. We can then interpret the decomposition as an explained and unexplained part, where the unexplained part reflects discrimination differences and/or differences in unobserved individual characteristics between the two groups.

For the case of a probit model the mean of the individual predicted unemployment probabilities is calculated as

$$\Pr(X^{j},\hat{\beta}^{j}) = (1/n_{j})\sum_{i=1}^{n_{j}} \Phi(X_{i}^{j}\hat{\beta}^{j}); \mathrm{j} = N, SG \tag{2}$$

where X^{N}, X^{SG}, $\hat{\beta}^{N}$, and $\hat{\beta}^{SG}$ are defined as above, and n is the sample size for each group.[8] The predicted probability of unemployment for native Swedes is denoted $\Pr(X^{N}\hat{\beta}^{N})$. For second-generation immigrants the predicted probability of unemployment is denoted $\Pr(X^{SG}\hat{\beta}^{SG})$. A third prediction, denoted by $\Pr(X^{SG}\hat{\beta}^{N})$, gives the predicted probability of unemployment for second-generation immigrants given the parameter estimates for native Swedes. The difference between unemployment probabilities for native Swedes and second-generation immigrants can then be calculated as

$$U^{N} - U^{SG} = \Pr(X^{N}\hat{\beta}^{N}) - \Pr(X^{SG}\hat{\beta}^{SG}) = [\Pr(X^{N}\hat{\beta}^{N}) - \Pr(X^{SG}\hat{\beta}^{N})] + [\Pr(X^{SG}\hat{\beta}^{N}) - \Pr(X^{SG}\hat{\beta}^{SG})] \tag{3}$$

The first square bracket term is an estimate of the part of the unemployment gap that is due to differences in observed characteristics between the two groups. The remaining term is an estimate of the part due to differences in coefficients. We can then again interpret the decomposition as an explained and unexplained part, where the unexplained part reflects discrimination differences and/or differences in unobserved individual characteristics between the two groups.

5.2. Labour force participation

It should be emphasised that the two labour market outcomes that we analyse, the probability of being unemployed and (log) annual earnings, are likely to be affected by overall labour force participation rates. If there are group differences in labour force participation (see Table A1a,b and Table A2a,b in the Appendix), as is especially found for the groups with one or both parents born in a Southern European or in a non-European country, then these selection effects could contaminate the estimates of ethnic differences in unemployment rates and (log) annual earnings. Non labour force participants are likely to have relatively low wage/earnings offers and a high probability of unemployment since a large share only have primary education (see again Table A1a,b and Table A2a,b in the Appendix), this results in the estimated ethnic differences in (log) earnings and the probability

of being unemployed probably being biased towards zero. One way to address this selection problem is to model the participation decision explicitly and estimate a structural model. However, identification of such a model hinges on having access to a variable that affects participation but not unemployment and earnings. No such variable exists in the data. Hence, our estimates of the ethnic differences in (log) earnings and the probability of being unemployed for those with a non-European background and possibly also those with a Southern European background might possibly be smaller than they would be if selection/participation was taken into account.

6. Results

To explore the differences in labour market outcomes between different second-generation categories and native Swedes (i.e., the ethnic difference) a number of regressions with different specifications are estimated. We start out by estimating unadjusted ethnic differences in the probability of being unemployed and (log) annual earnings – that is the partial effect of ethnic background/parent composition in regressions including only ethnic background/parent composition fixed effects and an intercept, using native Swedes as the benchmark category.[9] In a second step we control for differences in the age distributions across ethnic groups, using either age as a control variable or weighting the data according to the age distribution of natives (see Model I in Table 3a,b and 4a,b). In a third step we control for four additional, possibly endogenous, variables – the level of education (fixed effects for primary and university education, respectively, using secondary education as the benchmark), marital status (a fixed effect being one if married), local unemployment rate on a municipality level (continuous variable) and region of residence (measured on a county level with eighteen regional fixed effects).[10] Due to space limitations we will not comment on the estimates for these characteristics. Instead we have calculated the way in which aggregate ''differences'' in parameter estimates affect outcomes between second-generation categories and native Swedes. This is the focus of the decompositions, added as a fourth step in the analysis for exploring ethnic differences in labour market outcomes. For the standard errors of the parameter estimates we have used White's heteroscedasticity-consistent covariance matrix (White 1980). It should also be mentioned that the study analyses men and women separately. Hence, we do not analyse the issue of gender differences in the labour market for the various ethnic groups. Before proceeding it should be clear to the reader that we are only commenting on the results from Model II; the fourth column in Table 3a,b and 4a,b.

6.1. Unemployment

As shown in Sect. 2 the labour market outcomes for first generation immigrants vary according to the region they emigrated from. Based on this finding and an expected intergenerational persistence in labour market outcomes, we also expect to find a similar order in the success on the labour market between different second-generation immigrant categories. This was also what was found in Sect. 4 when the ethnic differences were adjusted for

differences in the age distributions across groups. So it seems as if the negative labour market outcomes for first generation immigrants have been transferred to the second-generation immigrants of the same foreign background. Can these differences be explained by our observed characteristics? As is evident in the fourth and fifth column of Table 3a and b, the difference in the probability of being unemployed between individuals with different ethnic backgrounds disappear, for most of the categories, when we control for observed differences in education, marital status and choice of residential location. The exception is for those with a Southern or non-European background.

Males with both parents born in Nordic and Eastern European countries have a probability of being unemployed that is approximately four percentage points higher than native males, while men who have only one parent born in these countries have a probability of being unemployed that is approximately two percentage points higher, than that of comparable native men. The same picture is found for women, where approximately a two to three percentage point higher probability of being unemployed is found, compared to native women, when both parents are born in Nordic, Western and Eastern European countries, and approximately a one percentage point higher probability of being unemployed when only one parent is born in these countries. For men with a Western European background we find no difference in the probability of being unemployed, compared to natives, when both parents are born in that region, but approximately a one percentage point higher probability of being unemployed if one parent is a native Swede.

Hence, much of the variation in the unadjusted unemployment rates, and to some extent also the age-adjusted unemployment rates, between these second generation immigrants with different ethnic backgrounds are explained by observed characteristics such as the amount of investment in education and which local labour market they have decided to live in. However, the remaining difference (after controlling for observed characteristics) in the probability to be unemployed compared to native Swedes is then caused by "unexplained" differences (see the decompositions in the last two columns of Table 3a and b). To explain this finding there must either exist unobserved group differences in some productive characteristics that affect hiring decisions, in preferences and/or in barriers to becoming employed.

While the difference in the probability of being unemployed compared to natives is rather modest for the above-mentioned second-generation immigrants (when we control for a number of observed characteristics) that is not the case for those with a Southern or non-European background. Men with both parents born in a Southern European country have a probability of being unemployed that is nine percentage points higher than that of comparable natives, while those who have only one parent born in this region have a probability of being unemployed that is approximately four percentage points higher, than that of comparable natives. The same picture is found for women, where a five percentage point higher probability of unemployment is found, compared to native women, when both parents are born in a Southern European country, and a four percentage point higher probability of unemployment when only one parent is born in this area.

The situation on the labour market is even worse for men with a non-European background. When both their parents are born in a non-European country they have a probability of being unemployed that is eleven percentage

Table 3a. Differences in the probability of being unemployed: 25–40 years old. Men. Percentage points

	Unadjusted difference:	Model I:		Model II:		Mother Swedish	Decomposition:	
		Weight	Control	Weight	Control		Explained difference	Unexplained difference
Both parents born in:								
Finland	5.08* (0.32)	4.52* (0.33)	4.67* (0.32)	4.40* (0.35)	4.38* (0.33)	–	0.92 (0.91)	4.16* (1.00)
Other Nordic country	3.53* (0.59)	4.04* (0.61)	3.95* (0.60)	3.58* (0.63)	3.48* (0.59)	–	0.27 (0.94)	3.26* (1.13)
Western Europe	−0.61 (0.58)	−0.62 (0.62)	−0.10 (0.62)	0.72 (0.71)	1.35* (0.70)	–	−1.57 (0.82)	0.96 (0.93)
Eastern Europe	2.40* (0.70)	2.51* (0.72)	2.52* (0.71)	4.51* (0.83)	4.67* (0.82)	–	−1.00 (0.89)	3.40* (1.57)
Southern Europe	9.27* (0.67)	7.45* (0.63)	7.54* (0.64)	8.71* (0.66)	8.73* (0.66)	–	1.32 (1.03)	7.95* (2.43)
Non-European country	13.43* (2.28)	9.67* (2.23)	12.0* (2.19)	10.84* (2.62)	15.22* (2.43)	–	0.40 (1.85)	13.03* (5.37)
One parent born in:								
Finland	2.60* (0.25)	2.59* (0.25)	2.59* (0.25)	2.33* (0.26)	2.34* (0.25)	−0.01 (0.04)	0.48 (0.91)	2.12* (0.91)
Other Nordic country	2.24* (0.29)	2.37* (0.29)	2.42* (0.29)	1.88* (0.29)	1.94* (0.29)	−0.06 (0.04)	0.35 (0.93)	1.89 (1.06)
Western Europe	0.10 (0.28)	0.12 (0.28)	0.14 (0.28)	1.41* (0.29)	1.43* (0.29)	−0.98* (0.40)	−0.95 (0.85)	1.05 (0.96)
Eastern Europe	0.57 (0.36)	0.66 (0.38)	0.71* (0.36)	1.90* (0.38)	1.96* (0.39)	−1.22* (0.54)	−0.80 (0.86)	1.37 (1.30)
Southern Europe	4.29* (0.53)	3.45* (0.51)	3.53* (0.51)	4.50* (0.53)	4.38* (0.53)	−1.17* (0.86)	0.41 (0.94)	3.88* (1.84)
Non-European country	3.45* (0.98)	3.25* (0.98)	3.16* (0.97)	5.96* (1.12)	5.88* (1.11)	−4.82* (1.11)	−0.95 (1.58)	4.57 (3.03)

Note: The column "Unadjusted difference" is the "raw" difference in the probability of being unemployed between the group of second-generation immigrants and native Swedes. The columns "Model I" show the difference in the probability of being unemployed between the group of second-generation immigrants and native Swedes after having adjusted the estimate for differences in the age distribution (either by weighting the sample or by adding age as a control variable). The columns "Model II" show the difference in the probability of being unemployed between the group of second generation immigrants and native Swedes after having adjusted the estimate for differences in age distribution (either by weighting the sample or by adding age as a control variable) and controlling for differences in the level of education, marital status, local unemployment rate on a municipality level and, region of residence. The column "Mother Swedish" is an estimate of the difference in the probability of being unemployed for having a Swedish-born mother and a foreign-born father rather than vice versa. The last two columns show how much of the raw differential in column one is attributed to differences in characteristics and how much is attributed to differences in parameter estimates, using the specification in Model II (with age as a control variable). The signs of the estimates of the decompositions are switched, a negative estimate is switched into a positive one and vice versa, from the specification in Eq. 3 in Sect. 5 in order to fit the sign of the other results/estimates. The difference in the probability of being unemployed is the calculated marginal effect of being a second-generation immigrant (compared to being a native Swede) after a nonlinear probit regression, taking into account the discrete character of the variable. Standard errors in parentheses.

* Indicates a $< 5\%$ significance level.

Table 3b. Differences in the probability of being unemployed: 25–40 years old. Women. Percentage points

	Unadjusted difference:	Model I:		Model II:		Mother Swedish	Decomposition:	
		Weight	Control	Weight	Control		Explained difference	Unexplained difference
Both parents born in:								
Finland	3.73* (0.36)	3.20* (0.36)	3.30* (0.36)	2.68* (0.38)	2.59* (0.38)	–	1.04 (1.09)	2.69* (1.12)
Other Nordic country	3.56* (0.70)	4.38* (0.71)	4.09* (0.72)	2.49* (0.67)	2.37* (0.66)	–	0.99 (1.13)	2.57* (1.24)
Western Europe	−0.54 (0.73)	0.90 (0.78)	0.09 (0.77)	2.18* (0.84)	1.38* (0.84)	–	−1.68 (0.98)	1.14 (1.11)
Eastern Europe	1.61* (0.80)	1.41 (0.81)	1.91* (0.71)	3.26* (0.92)	4.14* (0.92)	–	−1.69 (1.01)	3.30 (1.74)
Southern Europe	7.05* (0.70)	4.48* (0.69)	5.31* (0.69)	4.75* (0.70)	5.70* (0.70)	–	1.55 (1.19)	5.50* (2.44)
Non-European country	13.20* (2.69)	10.53* (2.63)	12.06* (2.63)	13.03* (2.94)	16.45* (2.94)	–	−1.64 (1.92)	14.84* (5.20)
One parent born in:								
Finland	1.93* (0.28)	1.87* (0.29)	1.88* (0.29)	1.64* (0.28)	1.64* (0.29)	0.16 (0.40)	0.34 (1.05)	1.59 (1.04)
Other Nordic country	2.35* (0.35)	2.66* (0.35)	2.64* (0.35)	1.56* (0.35)	1.56* (0.35)	1.04 (0.50)	0.84* (1.10)	1.51 (1.24)
Western Europe	0.29 (0.34)	0.37 (0.35)	0.38 (0.34)	1.51* (0.35)	1.53* (0.35)	−0.72 (0.50)	−1.05 (1.01)	1.34 (1.15)
Eastern Europe	−0.30 (0.41)	−0.15 (0.40)	−0.13 (0.40)	0.91* (0.43)	0.95* (0.43)	−0.94 (0.73)	−1.12 (1.01)	0.82 (1.44)
Southern Europe	3.71 (0.60)	3.30* (0.60)	2.93* (0.59)	3.76* (0.60)	3.26* (0.59)	1.73 (1.28)	0.70 (1.11)	3.01 (2.06)
Non-European country	3.94* (1.17)	3.70* (1.15)	3.70* (1.15)	5.75* (1.29)	6.27* (1.28)	−1.70 (2.17)	1.48 (1.82)	4.65 (3.43)

Note: See the specification under Table 3a.

Table 4a. Differences in logarithmic earnings: 25–40 years old. Men. Percent

	Unadjusted difference:	Model I:		Model II:		Mother Swedish	Decomposition:	
		Weight	Control	Weight	Control		Explained difference	unexplained difference
Both parents born in:								
Finland	−6.07* (0.59)	−4.11* (0.58)	−3.89* (0.57)	−2.70* (0.59)	−2.63* (0.59)	–	−3.76* (1.50)	−2.31 (1.41)
Other Nordic country	−1.37* (1.08)	−3.74* (1.09)	−4.21* (1.08)	−1.24* (1.07)	−2.16* (1.04)	–	0.57 (1.57)	−1.94 (1.77)
Western Europe	8.21* (1.34)	3.60* (1.33)	3.63* (1.34)	0.29 (1.26)	0.01 (1.25)	–	7.83* (1.56)	0.38 (1.83)
Eastern Europe	4.80* (1.53)	3.13* (1.48)	3.22* (1.49)	−2.85* (1.36)	−3.22* (1.39)	–	7.22* (1.59)	−2.42 (2.41)
Southern Europe	−16.72* (1.08)	−6.32* (1.09)	−7.05* (1.09)	−8.76* (1.09)	−9.25* (1.10)	–	−9.34* (1.58)	−7.38* (3.06)
Non-European country	−24.56* (3.75)	−18.71* (3.45)	−20.73* (3.67)	−16.93* (3.43)	−23.02* (3.73)	–	−6.46 (8.82)	−18.10* (9.83)
One parent born in:								
Finland	−3.29* (0.49)	−3.19* (0.48)	−3.20* (0.48)	−2.36* (0.48)	−2.58* (0.48)	−1.79* (0.69)	−0.70 (1.51)	−2.59 (1.46)
Other Nordic country	−2.12* (0.58)	−3.51* (0.59)	−3.52* (0.57)	−2.35* (0.55)	−2.32* (0.55)	−0.24 (0.84)	0.02 (1.55)	−2.14 (1.74)
Western Europe	2.48* (0.61)	2.02* (0.58)	2.07* (0.58)	−2.43 (0.57)	−2.39 (0.57)	0.10 (0.90)	4.33* (1.55)	−1.85 (1.81)
Eastern Europe	3.46* (0.78)	2.25* (0.76)	2.40* (0.75)	−1.64* (0.75)	−1.73* (0.73)	2.49* (1.27)	4.54* (1.54)	−1.08 (2.29)
Southern Europe	−8.04* (1.00)	−2.22* (0.99)	−3.34* (0.99)	−5.21* (0.98)	−6.08* (0.97)	−2.31 (2.45)	−2.88 (1.54)	−5.16 (3.00)
Non-European country	−13.89* (1.93)	−10.52* (1.90)	−11.86* (1.89)	−14.88* (1.89)	−14.97* (1.90)	−0.24 (0.46)	0.99 (2.72)	−14.88* (5.33)

Note: The column "Unadjusted difference" is the "raw" difference in log earnings between the group of second-generation immigrants and native Swedes. The columns "Model I" show the difference in the average log earnings between the group of second generation immigrants and native Swedes after having adjusted the estimate for differences in the age distribution (either by weighting the sample or by adding age as a control variable). The columns "Model II" show the difference in the average log earnings between the group of second generation immigrants and native Swedes after having adjusted the estimate for differences in the age distribution (either by weighting the sample or by adding age as a control variable) and controlling for differences in the level of education, marital status, local unemployment rate on a municipality level and, region of residence. The column "Mother Swedish" is an estimate of the difference in the average log earnings for having a Swedish-born mother and a foreign-born father rather than vice versa. The last two columns show how much of the raw differential in column one is attributed to differences in characteristics and how much is attributed to differences in parameter estimates, using the specification in Model II (with age as a control variable). The signs of the estimates of the decompositions are switched, a negative estimate is switched to a positive one and vice versa, from the specification in Eq. 1 in Sect. 5 in order to fit the sign of the other results/estimates. The difference in the average log earnings is the parameter estimate for being a second-generation immigrant (compared to being a native Swede) in an ordinary linear regression. Standard errors in parentheses.
* Indicates a $< 5\%$ significance level.

Table 4b. Differences in logarithmic earnings: 25–40 years old. Women. Percent

	Unadjusted difference:	Model I:		Model II:		Mother Swedish	Decomposition:	
		Weight	Control	Weight	Control		Explained difference	Unexplained difference
Both parents born in:								
Finland	−3.03* (0.64)	−1.40* (0.65)	−1.61* (0.64)	−1.21 (0.67)	−1.24 (0.67)	–	−1.98 (1.74)	−1.05 (1.65)
Other Nordic country	1.99 (1.19)	−0.11 (1.19)	0.32 (1.19)	2.26 (1.19)	2.35* (1.17)	–	−0.34 (1.81)	2.33 (2.02)
Western Europe	6.05* (1.48)	3.02* (1.48)	3.71* (1.48)	0.86 (1.45)	0.75 (1.45)	–	4.64* (1.77)	1.41 (2.04)
Eastern Europe	8.51* (1.53)	8.08* (1.52)	7.45* (1.52)	2.46 (1.46)	2.03 (1.46)	–	6.11* (1.81)	2.40 (2.62)
Southern Europe	−3.66* (1.14)	5.85* (1.18)	1.54 (1.18)	5.24* (1.19)	2.73* (1.19)	–	−6.53* (1.84)	2.87 (3.39)
Non-European country	−9.33* (4.29)	−6.79 (4.29)	−7.00 (4.29)	−10.28* (4.25)	−8.61* (4.24)	–	−1.85 (3.20)	−7.48 (6.08)
One parent born in:								
Finland	−1.24* (0.55)	−0.96 (0.55)	−1.01 (0.55)	−1.19* (0.54)	−1.39* (0.54)	0.17 (0.76)	0.17 (1.75)	−1.41 (1.67)
Other Nordic country	−2.20* (0.65)	−3.62* (0.65)	−3.41* (0.64)	−2.31* (0.63)	−2.16* (0.63)	0.37 (0.96)	−0.30 (1.79)	−1.90 (1.99)
Western Europe	3.25* (0.67)	2.84* (0.66)	3.00* (0.67)	−0.53 (0.66)	−0.64 (0.67)	0.79 (1.03)	3.59* (1.78)	−0.34 (2.06)
Eastern Europe	4.37* (0.83)	3.56* (0.83)	3.70* (0.82)	−0.04 (0.80)	−0.06 (0.80)	1.72 (1.46)	4.01* (1.77)	0.36 (2.51)
Southern Europe	−2.95* (1.02)	0.35 (1.01)	0.01 (1.02)	−2.19* (1.00)	−1.77 (1.10)	4.30 (2.82)	−1.33 (1.78)	−1.62 (3.29)
Non-European country	−4.85* (0.21)	−3.98* (0.21)	−4.34* (0.21)	−8.87* (0.21)	−9.62* (0.21)	3.91 (4.55)	5.59 (3.08)	−9.25* (5.76)

Note: See the specification under Table 4a.

points higher than comparable native Swedes, while when only one parent is born in this area they have a probability of being unemployed that is approximately six percentage points higher, than that of comparable natives. Again the same picture emerges for women, where a thirteen percentage point higher probability of being unemployed is found, compared to native women, when both parents are born in a non-European country, and a six percentage point higher probability of being unemployed when only one parent is born in this area.

Hence, very small amounts of the unadjusted differences in the probability of being unemployed between those with a Southern or non-European background and native Swedes are explained by our observed characteristics. Instead it is the "unexplained" differences (see also the results from the decompositions in the last two columns of Table 3a and b) that cause these quite large differences in the probability of being unemployed. To explain this finding the unobserved differences in labour market skills/preferences and/or the barriers to being employed must be much larger than those found for second generation immigrants with other ethnic backgrounds. Further, these large differences in unemployment rates (compared to natives) found for those with a Southern or non-European background are more likely to be underestimated in the absence of controls for labour force participation (see the discussion on selection effects in Sect. 4) than is the case for the other categories.

One question we posed in Sect. 2 was – how important is the "Swedish-specific" human capital – added to an individual's human capital through having a native parent – for the probability to find a job? One way to answer such a question is to compare the regression adjusted outcome (relative to natives) when one parent is foreign born to when both parents are foreign born, within the same ethnic background. The results above clearly show that having one native parent really helps in the process of finding a job. Possibly this finding is a result of the native parent helping in the production of "Swedish-specific" human capital such as language skills or labour market networks.

We also tested, within the group with only one foreign-born parent, whether there is a difference in the probability of being unemployed between having a foreign-born mother or father (see the sixth column of Table 3a and b). In other words, does a native mother add different attributes than a native father to "Swedish specific" skills? A lower probability of being unemployed is found for men having a Swedish mother and a father that is born in either a Western, Eastern, Southern or non-European country. This could reflect that having a native mother is important (or more effective) in the production of human capital during childhood. However, it should be emphasised that the estimates are only significant for men. For women similar magnitudes of the parameter estimates are found, but these are not significantly different from zero.

6.2. Earnings

In Sect. 4, when taking into account differences in the age distributions, quite large differences in average (log) annual earnings were found between different groups of second-generation immigrants. Can these differences be

explained by our observed characteristics? As is evident in the fourth and fifth column of Table 4a and b much of the difference in unadjusted, as well as age-adjusted, differences in annual earnings between individuals with different ethnic backgrounds disappears when we condition on observed differences in education, marital status and choice of residential location, except for men with a Southern European background and both men and women with a non-European background.

Men with both parents born in the Nordic and Eastern European countries have annual earnings that are between one and three percent lower, while men who have only one parent born in these countries have annual earnings that are approximately two percent lower, than that of comparable native men. For those with a Western European background we find no difference compared to natives when both parents are born in that region, but a two percent lower annual earnings if one parent is a native Swede. As was found for the probability to be unemployed, the difference in annual earnings compared to natives is rather modest for the above-mentioned second-generation immigrants (when we condition on a number of observed characteristics).

However, this is not the case for men with a Southern or non-European background. When both parents are born in a Southern European country their annual earnings are nine percent lower, while when one parent is born in this region they are five percent lower, than that of comparable native men. The results are even worse for men with a non-European background. When both their parents are born in a non-European country they have earnings that are seventeen percent lower, while when only one parent is born in this area (and the other is a native Swede) they have earnings that are fifteen percent lower, than that of comparable natives. Hence, only a very small part of the differences in annual earnings between those with a Southern or non-European background and native Swedes are explained by our observed characteristics. Instead it is "unexplained" differences (see also the results from the decompositions in the last two columns of Table 4a) that cause these quite large differences in annual earnings.

As in the previous discussion on unemployment, to explain this finding either unobserved group differences in some important productive characteristics (or preferences) must exist and/or there must be barriers to certain well-paid jobs. One important variable that we are unable to control for is group differences in occupation. However, introducing such a variable (if available) is likely to hide some of the "unexplained" differences in earnings if occupational barriers exist in the labour market. It should again be mentioned that the labour market situation for these final categories of second-generation men is more alarming than our results suggest. These large differences in annual earnings, compared to natives, are likely to be underestimated in the absence of controls for labour force participation since we only include cases with annual earnings greater than 36,300 SEK (see the discussion on selection effects in Sect. 4).

A somewhat different picture emerges for women. Women with both parents born in the Nordic countries have annual earnings that are similar to those of natives, while those who have only one parent born in these countries have annual earnings that are approximately one to two percent lower. For those with a Western and Eastern European background, irrespective of parent composition, no difference is found compared to natives. Hence, the

difference in annual earnings compared to natives is even more modest for the above mentioned second-generation immigrant women than for men.

A different situation is found for women with Southern or non-European parents, but these cases diverge in opposite directions. When both parents are born in a Southern European country annual earnings are five percent higher, while when one parent is born in this region they are two percent lower, than that of comparable native women. For women with a non-European background annual earnings are ten percent lower than that of comparable native women when both parents are born in a non-European country and nine percent lower when only one parent is born in this area (and the other is a native Swede). Hence, very small amounts of the differences in annual earnings between those with a non-European background and native Swedes are explained by our observed characteristics. Instead it is "unexplained" differences (see also the results from the decompositions in the last two columns of Table 4b) that cause these results.

So how important is the "Swedish-specific" human capital, added to an individual's human capital through having a native parent, for finding a job with good pay? As in the previous section we compare the regression-adjusted outcome (relative to natives) when one parent is foreign born to when both parents are foreign born, within the same ethnic background. In contrast to what was found in the previous section on unemployment, the results for annual earnings do not provide any evidence that having one native parent helps in the process of finding a better-paid job. Again, the choice of, or barriers to, certain occupations for some ethnic groups might explain these findings.

Further, within the group with only one foreign-born parent, we find no difference in annual earnings between those having a foreign-born mother or father (see the sixth column of Table 4a and b). So having a native mother only seems to be important for finding a job (for men), not for the level of earnings.

To conclude, in this final section we have found a similar picture for the different categories of second-generation immigrants as that found in the section on unemployment. On the whole, most of the second generation immigrants do very well in the labour market, i.e., they have labour market outcomes that are approximately the same as for comparable natives. However, when the second-generation immigrant has a non-European, or to some extent also a Southern European, background, labour market positions are much worse than for natives.

7. Conclusion

Using an extensive data set including all second generation immigrants living in Sweden in 1998 we are able to address two issues that are expected to be important for labour market outcomes – ethnic background and parent composition. To be more specific we are able to (i) identify several groups of second-generation immigrants with different ethnic backgrounds and (ii) identify the parent composition, i.e., whether one or both parents of the individual are foreign born. By estimating a set of regressions controlling for differences in (i) the age distributions, (ii) education, marital status and choice of local labour market to live in, and (iii) decomposing the difference into

explained and unexplained differences we find that our hypotheses agree quite well with the empirical results.

First, there is a difference depending on the origin of the parents. As found in previous studies on second generation immigrants, those with a Nordic, Western or Eastern European background have labour market positions that are similar to native Swedes. However, when both parents have a Southern or non-European background they fare worse, measured as a higher probability of being unemployed in the Swedish labour market compared to native Swedes. These groups are also found to have low earnings. These differences can be attributed to an unexplained difference rather than a difference in observable characteristics. This result is also in line with what could be expected from observing the labour market outcomes of their parents' generation. The ethnic backgrounds that do badly on the labour market in the first generation are also the ethnic backgrounds that do badly in the second generation.

Second-generation immigrants of working age with a non-European background are at present a relatively small group. This is due to the later start for immigration from these countries. There are, however, large numbers of second-generation immigrants with a non-European background who are of school and pre-school age. Over the next 10–15 years a large number of second-generation immigrants with a non-European background will therefore enter the job market in Sweden. The chances for success for this group will, to a large extent, depend on how well their parents are integrated into the job market, and whether they themselves succeed in the Swedish school system. This is a formidable challenge facing integration policy and the school system in Sweden.

Second, we find that parent composition has a considerable effect on the probability of being unemployed. In almost all cases, second generation immigrants with one native parent have a lower probability of being unemployed than when both parents are foreign born, within the same ethnic background (this holds both for the full model and the age-adjusted model). No such strong results are found using annual earnings as the outcome variable. However, it helps to have a native parent in order to get better-paid jobs for ethnic backgrounds that do badly, i.e., non-Europeans.

Hence, this study shows that it is not enough for some of the second-generation immigrant groups to be born and raised in Sweden to reach native levels of labour market success. Unfortunately, the study does not show why this is the case. However, we have pointed out an important avenue for future research. Bringing in a native in the family composition clearly improves labour market success. But is this just a spurious effect arising from; selection (interracial marriages are selective in some sense), differences in the effectiveness of human capital production (which give differences in grades, rather than in the level of schooling, which is what we observe), differences in language skills and networks, or just plain discrimination? Being able to answer any of these questions would be very helpful in constructing future integration policies.

Endnotes

[1] In the 1975 and 1985 censuses it is not possible to identify and exclude those who immigrated in 1974 and 1975. Therefore the information in Table 1 also includes those who immigrated in

these years. However these individuals are a very small group compared to those immigrants already living in Sweden at the end of 1973.

[2] See Rooth (2002) for a study on the extent of ethnic discrimination in the Swedish labour market.

[3] The reason to exclude second generation immigrants with a US background is that their parents probably, at least to some extent, are Swedes emigrating back to Sweden. The second generation group with an Oceanic background is too small to carry out a meaningful analysis.

[4] There are only a small number of individuals in this "cross-heritage" category, amounting to approximately three percent of the second generation population.

[5] The selection on age (25–40) reduces the data from 460,272 to 211,133 individuals, the selection on being part of the labour force reduces the data further to 174,170 individuals, while the selection on not having a US, Oceanic or mixed background finally reduces the data to the 165,817 included individuals.

[6] For an overview of how unobserved characteristics could affect the parameters of the observed variables see Griliches (1977) for linear regression models and Yatchew and Griliches (1985) for non-linear regression models.

[7] The study by Oaxaca and Ransom (1994) shows that it is more advisable to estimate the competitive wage structure that would exist in the absence of discrimination and use these as weights in the decomposition of the wage gap. However, since we are comparing a multiple number of second generation immigrant groups (compared to, for instance, the single male-female wage gap comparison) it is preferable to have one single wage (unemployment) structure as the benchmark rather than a different one for each native second generation immigrant comparison.

[8] See for instance Even and Macpherson (1993) and Nielsen (1997) for decompositions in non-linear models.

[9] The partial effect in the unemployment specification is the calculated marginal effect of being a second generation immigrant (compared to being a native Swede) after a non-linear probit regression, taking into account the discrete character of the variable. The standard errors of the marginal effects are calculated according to the delta method, see for instance Greene (1997).

[10] The county regions with the smallest number of inhabitants were merged into one category. See also the appendix Table A1a,b and Table A2a,b for descriptions of these variables.

Appendix

Definition of the explanatory variables:
(*Age*) – is a continuous variable taking the values 25–40, 25–30.
(25–29, 30–34, 35–40) – dummy for belonging to each age category.
(*Yrs. of ed.*) – is a continuous variable taking the values 7, 9, 11, 12, 14, 16, 18.
(*Primary, Secondary and University education*) – dummy for type of education.
(*Married*) – dummy taking the value one if married and zero otherwise.
(Unemployment) – unemployment rate on the municipality level.
(*Stockholm, Gothenburg, Malmoe, Other*) – the share living in these counties.
(*Unemployed*) – share of those in the labour force that are unemployed.
(Log(E)) – average log annual earnings.
(Labour supply) – share of the total population participating in the labour force.
(Earn > 36,300) – share of the total population having annual earnings greater than 36,300 SEK.
(Share with pri.) – share with only a primary education.

Table A1a. Descriptive statistics: Probability of being unemployed. Men. 25–40 years old. Means

	SWE1	SWE2	Both:						One:					
			FIN	ONO	WEU	EEU	SEU	NEU	FIN	ONO	WEU	EEU	SEU	NEU
Age	32.5	27.6	31.4	33.7	34.3	33.4	28.8	26.7	32.4	33.1	32.6	32.8	30.5	27.2
25–29	0.29	–	0.39	0.20	0.15	0.29	0.64	–	0.30	0.25	0.29	0.26	0.46	–
30–34	0.35	–	0.34	0.33	0.33	0.24	0.30	–	0.36	0.35	0.35	0.35	0.38	–
35–40	0.36	–	0.27	0.47	0.52	0.47	0.06	–	0.34	0.40	0.36	0.39	0.16	–
Yrs. of ed.	12.0	11.9	11.5	11.5	12.3	12.7	11.8	11.4	11.8	11.7	12.4	12.3	12.0	12.3
Primary ed.	0.14	0.12	0.18	0.22	0.12	0.11	0.14	0.27	0.16	0.19	0.12	0.13	0.15	0.14
Secondary ed.	0.57	0.60	0.63	0.57	0.52	0.45	0.61	0.52	0.59	0.57	0.50	0.50	0.56	0.50
University ed.	0.29	0.28	0.19	0.21	0.36	0.44	0.25	0.21	0.25	0.24	0.38	0.37	0.29	0.36
Married	0.30	0.12	0.23	0.34	0.38	0.32	0.25	0.31	0.26	0.31	0.31	0.30	0.21	0.12
Unemployment	5.1	5.2	5.1	5.2	4.9	5.2	5.7	5.3	5.2	5.2	5.0	5.0	5.2	5.1
Stockholm	0.20	0.20	0.33	0.18	0.34	0.34	0.25	0.55	0.28	0.19	0.34	0.33	35	0.47
Gothenburg	0.12	0.12	0.03	0.25	0.14	0.18	0.28	0.11	0.06	0.17	0.14	0.12	15	0.10
Malmoe	0.17	0.16	0.16	0.24	0.17	0.20	0.23	0.21	0.14	0.22	0.18	0.18	21	0.17
Other	0.51	0.52	0.48	0.33	0.35	0.28	0.24	0.13	0.52	0.42	0.34	0.37	0.29	0.26
Unemployed	6.5	8.0	11.5	10.0	5.9	8.9	15.7	21.5	9.1	8.7	6.6	7.0	10.8	11.5
Labour supply	90.5	87.4	86.9	87.4	90.2	83.8	79.2	71.6	88.4	87.9	87.1	86.9	82.1	77.4
Age	31.0	27.0	30.9	33.2	33.1	30.5	28.3	26.8	31.4	32.0	31.0	31.4	29.4	26.9
Yrs. of ed.	11.6	12.2	11.0	11.1	12.1	12.0	11.2	11.0	11.4	11.2	11.9	11.9	11.6	12.1
Share with pri.	0.25	0.19	0.33	0.32	0.17	0.25	0.31	0.43	0.29	0.32	0.23	0.23	0.28	0.24

Note: SWE1 is native Swedes that are 25–40 years old, SWE2 is native Swedes that are 25–30 years old. "Both" indicates that both parents are foreign born, while "One" indicates that only one parent is foreign born. "Fin" is having parent(s) from Finland, "ONO" is having parent(s) from other Nordic countries, "WEU" is having parent(s) from Western European countries, "EEU" is having parent(s) from Eastern European countries, "SEU" is having parent(s) from Southern European countries, "NEU" is having parent(s) from non-European countries (except the US and Oceania). The last three rows are descriptives of the population that are not participating in the labour force.

Table A1b. Descriptive statistics: Probability of being unemployed. Women. 25–40 years old. Means

	SWE1	SWE2	Both:						One:					
			FIN	ONO	WEU	EEU	SEU	NEU	FIN	ONO	WEU	EEU	SEU	NEU
Age	32.6	27.5	31.6	33.7	34.3	33.5	28.9	26.7	32.4	33.3	32.7	33.1	30.5	27.3
25–29	0.30	–	0.37	0.20	0.14	0.28	0.64	–	0.30	0.24	0.27	0.25	0.45	–
30–34	0.34	–	0.35	0.32	0.34	0.23	0.29	–	0.35	0.32	0.36	0.34	0.38	–
35–40	0.36	–	0.28	0.48	0.52	0.49	0.07	–	0.35	0.44	0.37	0.41	0.18	–
Yrs. of ed.	12.3	12.4	11.7	11.7	12.3	12.8	12.0	11.7	12.0	11.9	12.5	12.5	12.1	12.6
Primary ed.	0.10	0.10	0.17	0.19	0.10	0.09	0.12	0.21	0.13	0.16	0.10	0.11	0.14	0.12
Secondary ed.	0.55	0.55	0.60	0.56	0.56	0.47	0.60	0.57	0.57	0.57	0.51	0.50	0.55	0.47
University ed.	0.35	0.35	0.23	0.25	0.34	0.44	0.28	0.22	0.30	0.27	0.39	0.39	0.31	0.41
Married	0.39	0.22	0.34	0.41	0.44	0.42	0.39	0.54	0.35	0.38	0.38	0.39	0.29	0.20
Unemployment	5.1	5.1	5.1	5.1	4.9	5.1	5.7	5.0	5.1	5.2	5.0	5.0	5.2	5.1
Stockholm	0.21	0.23	0.34	0.21	0.35	0.35	0.25	0.60	0.29	0.20	0.34	0.34	0.34	0.48
Gothenburg	0.12	0.12	0.03	0.22	0.14	0.18	0.29	0.08	0.07	0.17	0.15	0.12	0.15	0.11
Malmoe	0.17	0.17	0.17	0.24	0.18	0.21	0.22	0.18	0.15	0.23	0.18	0.19	0.20	0.17
Other	0.50	0.48	0.46	0.33	0.33	0.26	0.24	0.14	0.49	0.40	0.33	0.35	0.31	0.24
Unemployed	8.6	10.2	12.3	12.1	8.1	10.2	15.6	23.4	10.5	10.9	8.9	8.3	12.3	14.2
Labour supply	85.2	81.6	81.5	80.7	83.9	79.5	73.6	64.3	82.9	82.8	81.8	83.7	77.2	68.4
Age	31.5	27.2	30.6	32.6	33.1	30.8	28.4	26.7	31.3	32.1	31.4	31.4	29.5	26.8
Yrs. of ed.	11.6	11.9	11.1	11.1	11.8	11.9	11.6	11.1	11.4	11.4	12.0	11.9	11.8	12.2
Share with pri.	0.22	0.17	0.31	0.36	0.17	0.23	0.26	0.33	0.25	0.28	0.20	0.19	0.24	0.20

Note: See Table A1a for definitions.

Table A2a. Descriptive statistics: Annual earnings. Men. 25–40 years old. Means

	SWE1	SWE2	Both:						One:					
			FIN	ONO	WEU	EEU	SEU	NEU	FIN	ONO	WEU	EEU	SEU	NEU
Age	32.4	27.6	31.4	33.6	34.2	33.4	28.8	26.9	32.3	33.0	32.5	32.7	30.5	27.2
25–29	0.30	–	0.39	0.20	0.16	0.28	0.64	–	0.30	0.26	0.29	0.27	0.45	–
30–34	0.35	–	0.35	0.34	0.34	0.24	0.30	–	0.36	0.33	0.35	0.35	0.38	–
35–40	0.35	–	0.26	0.46	0.50	0.48	0.06	–	0.34	0.41	0.36	0.38	0.17	–
Yrs. of ed.	12.1	12.0	11.6	11.6	12.3	12.8	11.9	11.6	11.9	11.8	12.5	12.4	12.1	12.5
Primary ed.	0.13	0.10	0.16	0.20	0.12	0.10	0.12	0.22	0.14	0.18	0.12	0.12	0.13	0.11
Secondary ed.	0.56	0.60	0.63	0.56	0.51	0.42	0.60	0.52	0.58	0.56	0.49	0.50	0.56	0.49
University ed.	0.31	0.30	0.21	0.24	0.37	0.48	0.28	0.26	0.28	0.26	0.39	0.38	0.31	0.40
Married	0.31	0.14	0.24	0.35	0.39	0.34	0.26	0.30	0.27	0.32	0.32	0.31	0.23	0.13
Unemployment	5.1	5.2	5.0	5.2	4.9	5.1	5.6	5.1	5.1	5.2	5.0	5.0	5.1	5.1
Stockholm	0.20	0.20	0.34	0.18	0.34	0.36	0.27	0.57	0.29	0.20	0.35	0.34	0.36	0.49
Gothenburg	0.12	0.12	0.03	0.25	0.14	0.17	0.25	0.09	0.06	0.17	0.14	0.11	0.14	0.10
Malmoe	0.17	0.17	0.16	0.24	0.17	0.21	0.24	0.20	0.14	0.22	0.17	0.19	0.20	0.16
Other	0.51	0.51	0.47	0.33	0.35	0.26	0.24	0.24	0.51	0.41	0.34	0.36	0.30	0.25
Log(E)	12.23	12.10	12.17	12.22	12.31	12.28	12.06	11.86	12.20	12.21	12.26	12.27	12.15	11.96
Earn>36,300	83.2	81.7	77.5	77.1	83.3	74.9	65.3	56.7	79.8	79.2	80.3	79.4	72.7	68.4
Age	32.0	27.2	31.1	33.5	34.0	31.5	28.5	26.5	32.0	32.7	31.7	32.2	29.7	27.0
Yrs. of ed.	11.3	11.7	10.8	11.0	11.8	11.7	11.2	10.8	11.2	11.0	11.7	11.6	11.4	11.8
Share with pri.	0.26	0.23	0.33	0.32	0.17	0.24	0.28	0.44	0.28	0.32	0.23	0.25	0.30	0.26

Note: SWE1 is native Swedes that are 25–40 years old, SWE2 is native Swedes that are 25–30 years old. "Both" indicates that both parents are foreign born, while "One" indicates that only one parent is foreign born. "Fin" is having parent(s) from Finland, "ONO" is having parent(s) from other Nordic countries, "WEU" is having parent(s) from Western European countries, "EEU" is having parent(s) from Eastern European countries, "SEU" is having parent(s) from Southern European countries, "NEU" is having parent(s) from non-European countries (except the US and Oceania). The last three rows are descriptives of the population that have annual earnings less than, or equal to, 36,300 SEK.

Table A2b. Descriptive statistics: Annual earnings. Women. 25–40 years old. Means

	SWE1	SWE2	Both:						One:					
			FIN	ONO	WEU	EEU	SEU	NEU	FIN	ONO	WEU	EEU	SEU	NEU
Age	32.6	27.5	31.7	33.9	34.4	33.4	28.9	26.7	32.5	33.4	32.8	33.1	30.5	27.3
25–29	0.29	–	0.37	0.19	0.14	0.28	0.63	–	0.29	0.24	0.27	0.25	0.45	–
30–34	0.33	–	0.35	0.32	0.34	0.23	0.30	–	0.35	0.31	0.35	0.33	0.37	–
35–40	0.38	–	0.28	0.49	0.52	0.49	0.07	–	0.36	0.45	0.38	0.42	0.18	–
Yrs. of ed.	12.4	12.5	11.8	11.8	12.4	12.9	12.2	12.0	12.5	12.0	12.6	12.6	12.3	12.8
Primary ed.	0.09	0.08	0.14	0.17	0.09	0.08	0.11	0.16	0.11	0.14	0.09	0.10	0.12	0.09
Secondary ed.	0.54	0.54	0.60	0.56	0.55	0.46	0.58	0.57	0.57	0.57	0.50	0.49	0.55	0.46
University ed.	0.37	0.38	0.26	0.27	0.36	0.46	0.31	0.27	0.32	0.29	0.41	0.41	0.33	0.45
Married	0.39	0.21	0.34	0.42	0.44	0.42	0.38	0.44	0.35	0.39	0.38	0.39	0.29	0.19
Unemployment	5.1	5.1	5.0	5.1	4.9	5.1	5.6	4.9	5.1	5.1	5.0	5.0	5.2	5.1
Stockholm	0.22	0.24	0.36	0.22	0.36	0.37	0.26	0.64	0.31	0.22	0.36	0.35	0.37	0.51
Gothenburg	0.12	0.12	0.03	0.22	0.14	0.16	0.27	0.06	0.06	0.17	0.15	0.11	0.15	0.11
Malmoe	0.16	0.17	0.16	0.23	0.18	0.20	0.22	0.18	0.15	0.23	0.17	0.19	0.20	0.15
Other	0.50	0.47	0.45	0.33	0.32	0.27	0.25	0.22	0.48	0.38	0.32	0.35	0.28	0.23
Log(E)	11.85	11.79	11.82	11.87	11.91	11.93	11.81	11.69	11.83	11.82	11.88	11.89	11.82	11.74
Earn > 36,300	74.4	70.2	68.9	68.0	73.8	70.0	58.7	47.2	71.4	70.3	71.5	73.5	65.9	59.0
Age	31.7	27.4	30.9	32.8	33.6	31.8	28.5	26.6	31.6	32.3	31.8	32.0	29.8	26.9
Yrs of ed.	11.6	11.7	11.0	11.0	11.8	11.9	11.5	11.0	11.4	11.2	11.9	11.8	11.6	12.0
Share with pri.	0.20	0.19	0.30	0.34	0.16	0.21	0.23	0.33	0.25	0.28	0.19	0.19	0.25	0.22

Note: See Table A2a for definitions.

References

Antelius J, Björklund A (2000) How Reliable are Register Data for Studies of the Return on Schooling? An examination of Swedish Data. *Scandinavian Journal of Educational Research* 44(4):341–355

Björklund A, Eriksson T, Jäntti M, Raaum O, Österbacka E (2000) Brother Correlations in Earnings in Denmark, Finland, Norway and Sweden Compared to the United States. Discussion Paper No 158. The Institute for the Study of Labour (IZA), Bonn

Borjas G (1991) Immigrants in the US Labour Market: 1940–1980. *American Economic Review: Papers and Proceedings* 81:287–291

Borjas G (1992) Ethnic Capital and Intergenerational Mobility. *The Quarterly Journal of Economics* 107(428):124–150

Borjas G (1993) The Intergenerational Mobility of Immigrants. *Journal of Labour Economics* 11:113–35

Borjas G (1994a) The Long-Run Convergence of Ethnic Skill Differentials: The Children and Grandchildren of the Great Migration. *Industrial and Labor Relations Review* 47(4):553–573

Borjas G (1994b) The Economics of Immigration. *Journal of Economic Literature* 32:1667–1717

Carliner G (1980) Wages, Earnings and Hours of First, Second and Third Generation American Males. *Economic Inquiry* 18:87–102

Chiswick BR (1977) Sons of Immigrants. Are they at an Earning Disadvantage? *The American Economic Review* 67:376–380

Chiswick BR, Miller PW (1985) Immigration Generation and Income in Australia. *Economic Record* 61:540–543

Ekberg J (1994) Economic Progress among Immigrants in Sweden. *Scandinavian Journal of Social Welfare of Social Welfare* 3:148–157

Ekberg J (1997) Hur är arbetsmarknaden för den andra generationens invandrare? (How is the labour market situation among second generation immigrants?). *Arbetsmarknad och arbetsliv* 3:5–16

Ekberg J (1999) Immigration and the Public Sector: Income Effects for the Native Population in Sweden. *Journal of Population Economics* 12:411–430

Even W, Macpherson D (1993) The Decline of Private-Sector Unionism and the Gender Wage Gap. *The Journal of Human Resources* 28:279–296

Gang I, Zimmermann K (2000) Is child like parents? Educational attainment and ethnic origin. *Journal of Human Resources* 35:550–569

Greene W (1997) Econometric Analysis. Prentice-Hall International, London

Granovetter M (1973) The Strength of Weak Ties. *American Journal of Sociology* 78:1360–1380

Griliches Z (1977) Estimating the Returns to Schooling: Some Econometric Problems. *Econometrica* 45(1):1–22

Haveman R, Wolfe B (1995) The Determinants of Children's Attainments: A Review of Methods and Findings. *Journal of Economic Literature* 33(4):1829–1878

Jensen M (1994) Today's Second Generation: Evidence from the 1990 US Census. *International Migration Review* 28:714–735

Maani S (1994) Are Young First and Second Generation Immigrants at an Disadvantage in the Australian Labour Market. *American Economic Review* 73:340–347

Myrberg M, Gustavsson A, Ericsson Å (2000) Invandrares läs, skriv- och räkneförmåga på svenska (Immigrants' knowledge of the Swedish language). International Adult Literacy Survey, Report. University of Linköping, Linköping

Månsson J, Ekberg J (2000) Second Generation Immigrants in the Swedish Labour Market. Working Paper Series No 4. School of Management and Economics. Växjö University, Växjö

Nielsen H (1997) Two notes on discrimination. WP 98-1. Centre For Labour Market and Social Research, University of Aarhus, Aarhus

Nielsen H, Rosholm M, Smith N, Husted L (2001) Intergenerational Transmissions and the School-to-Work Transition of Second Generation Immigrants. Discussion Paper No 296. The Institute for the Study of Labour (IZA), Bonn

Oaxaca R, Ransom M (1994) On Discrimination and the Decomposition of Wage Differentials. *Journal of Econometrics* 61:5–21

Österberg. T (2000) Economic Perspectives on Immigrants and Intergenerational Transmissions (Economic Studies 102) Thesis. School of Management and Economics. The University of Gothenburg, Gothenburg

Richmond A (1992) Immigration and Structural Change. The Canadian Experience 1971–86. *International Migration Review* 26:1200–1221

Riphahn R (2001) Cohort Effects in the Educational Attainment of Second generation Immigrants in Germany: An Analysis of Census Data. Discussion Paper No 291. The Institute for the Study of Labour (IZA), Bonn

Rooth D (1999) Refugee Immigrants in Sweden: Educational Investments and Labour Market Integration (Lund Economic Studies 84), Thesis. Department of Economics. Lund University Lund

Rooth D (2002) Adopted Children in the Labour Market: Discrimination or Unobserved Characteristics? *International Migration Quarterly Review* 40 (1):71–98

Schröder L, Vilhelmsson R (1998) Sverigespecifikt humankapital och ungdomars etablering på arbetsmarknaden (Sweden Specific Human Capital and Youth Establishment in the Labour Market). *Ekonomisk Debatt* 8:595–601

Solon G (1999) Intergenerational Mobility in the Labour Market. In: Ashenfelter O, Card D (eds) *Handbook of Labor Economics* vol 3. Elsevier, Amsterdam

Strömback T (1986) Migrant Workers in the Australian Labour Market. Report. Bureau of Labour Market Research, Canberra

Trejo S (2001) Intergenerational Progress of Mexican-Origin Workers in the US Labour Market. Discussion Paper No 377. The Institute for the Study of Labour, Bonn

Ulrich R (1994) The Impact of Foreigners on Public Purse. In: Spencer S (ed) *Immigration as an Economic Asset*. Trentaham Books, Staffordshire

Van Ours J, Veeneman J (2001) The Educational Attainment of Second Generation Immigrants in the Netherlands, Discussion Paper No 297. The Institute for the Study of Labour (IZA), Bonn

Vilhelmsson R (2000) Etnic Differences in the Swedish Youth Labor Market. Institute of Social Research, Stockholm University, Stockholm

White H (1980) A Heteroscedasticity-Consistent Covariance Matrix Estimator and a Direct Test for Heteroscedasticity. *Econometrica* 48:817–838

Yatchew A, Griliches Z (1985) Specification Error in Probit Models. The *Review of Economic and Statistics* 67(1): 134–139