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The Colour of Your Skin? - Adopted Children and Second Generation Immigrants on the Labour Market

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Abstract

Detecting ethnic discrimination in the labor market using individual data is aggravated by individual ethnic-specific characteristics that are unobserved to the researcher. In an attempt to isolate the effect of skin-colour on the probability to be employed (vs. to be unemployed) we compare the labour market success of foreign-born adopted individuals and second generation immigrants, with one parent being a native Swede, to that of native Swedes. Specifically, using the Oaxaca-Blinder decomposition methodology we focus on the unexplained differences in the probability to be employed between native Swedes, adoptees and second generation immigrants.

We find that non-native individuals with dissimilar looks to native Swedes fare worse, measured as a lower probability of being employed, in the Swedish labour market compared to native Swedes and that these differences can be attributed to an unexplained difference rather than a difference in observable characteristics. Also, such large differences are not found for adoptees with similar looks as Swedes. Hence, there are strong indications of skin-colour discrimination on the Swedish labour market.

Key words: Adopted children, second generation immigrants, disccrimination, human capital formation
JEL: J15, J24, J61, J71

1 Introduction

Several Swedish studies (see for instance Husted et al, 2000) have found lower employment rates for immigrants than for comparable natives. To what extent these observed differences can be explained by ethnic discrimination or differences in unobserved characteristics of the two populations is an unresolved issue. As pointed out by Heckman (1998) immigrants often have an education obtained abroad and live in immigrant neighbourhoods, which gives rise to a lack of labour market networks. These variables, which often are unobserved in empirical studies on ethnic discrimination, could explain an important part of the differences in the probability to be employed between natives and immigrants. But instead the effects of these variables are, as they are not observed, misinterpreted as evidence of discrimination. This study attempts to shed some light on this issue by comparing native Swedes with (i) foreign-born individuals who were adopted as children and (ii) second-generation immigrants with one parent being a native Swede. Foreign-born children adopted by Swedish-born parents (from here on "adoptees") deviate from other foreign-born immigrants in that they most often have a Swedish sounding name, speak Swedish fluently, have a Swedish education, probably live in neighbourhoods and have social networks comparable to those of Swedes. The same is true for second generation immigrants, at least if the father is a native Swede. If the father is foreign born the last name of the child(ren) will probably be foreign sounding. Hence, from an employer perspective the only way these two "immigrant" groups deviate from native Swedes is in the colour of their skin.[1] In this respect, by selecting two very special groups of "immigrants", this study extends the results on discrimination from previous studies by controling for more unobservable characteristics. However, it is argued in the psychological literature that adoptees are a selective group on ability and that being left for adoption creates a "separation" effect having long run effects on emotional stability during adolescence. In the following we will argue that adoptees most likely are not negatively selected on such unobservable characteristics. Hence, if we find differences in the probability to be employed between adoptees, as well as second generation immigrants, and native Swedes, which are not explained by

[1] Which, of course, is not so for adopted children from the Nordic countries (and several other Western countries) and for second generation immigrants for whom the foreign born parent was born in the Nordic countries.

observed productivity-related characteristics, then we take this as indications of the existence of ethnic discrimination in the Swedish labour market.

This study analyses a special form of discrimination: that people are being treated differently on the labour market depending on the colour of their skin. For instance Holm (2000) did not find any evidence of ethnic discrimination in his study. He used experimental methods to detect whether people bargained or trusted other people differently on the basis of their name, i.e. he analysed a form of discrimination that implied that people are being treated differently on the basis of their Swedish or foreign-sounding name. However, the experimental situation was not located in the labour market arena.

Before we continue a few words on the occurence of adoption in Sweden is in its place. Sweden is the largest adoption country in Europe (measured as the share of adopted children in the population; Cederblad, 1982) and since 1969 approximately 30,000 foreign-born children have been adopted by Swedish parents.[2] As a comparison there are approximately 10,000 foreign-born adopted children in Denmark and 7,000 in Norway. To be continued....

[2] Adoption of foreign-born children has existed since the beginning of the 20^{th}century but statistics on the number of adoptions have not been adequately collected before 1969.

2 Selection on unobservables

2.1 Adoptees

In Sweden children are on average adopted by families that belong to a higher social class. This is found in two Swedish studies by Bresky (1976) and Gardell (1979).[3] They divide the population into three social classes, where one is the highest and three the lowest category, according to the classification used in the Swedish Level of Living Surveys (1975). Their studies include a randomised sample of individuals who were adopted to Sweden between 1950 and 1974.[4] Table I shows that adoptive parents constitute a more "well-off" population as regards social class. For example, in the Swedish population only nine percent belong to the highest social class. For those "parents" that adopted through a public (private) adopting agency eighteen (thirtyone) percent belonged to the highest social class. If we believe that having parents that belong to a higher social class, as compared to a lower social class, is associated/correlated with a more productive/effective labour market network and with having higher preferences for (higher) education, we would expect adoptees to have characteristics that are more positive, in a labour market perspective, than those for native Swedes in general.

Table I: Social class for the total Swedish population and adopted children's parents by the type of adopting agency used, 1950-1974. Percent.

	Social class I	Social class II	Social class III	No. of individuals
Swedish population	9	35	56	-
Adopting agencies:				
Public	18	48	34	2,227
Private	31	48	21	1,805

Source: Calculated from Bresky (1976), Gardell (1979) and SLLS (1975).

In our data we do not have any information on the adoptive parents (except for their country of birth) or on the quality of labour market networks. However, we do have information on the level of educational investments for the adoptees

[3] And is also confirmed in a study by Österberg (2000).

[4] 92 percent of the population of adopted children that we use in the empirical part were adopted between 1958 and 1974. Hence, it can be argued that the results on social class found in the studies by Bresky and Gardell also holds for the population being analysed in this study.

themselves. This information, which is found in Table II, reveals that adoptees have on average invested as much in education as natives.[5] Since we do not control for differences in the age-distribution between the groups it is possible that adoptees in fact invest more in education than native Swedes since they are on average younger (see Table II). A study by Österberg (2000) confirms this finding, i.e. that non-native adopted individuals invest at least as much as comparable native Swedes, but she also shows that when controlling for the level of education of the "parents" adoptees invest less in education than comparable native Swedes. Hence, her results show the importance of the "parents" background. To conclude, we find these results as strong indications of adoptees not being negatively selected on some specific important labour market characteristics; i.e. probably having a labour market network that is as least as effective/productive as the one for native Swedes and having average levels of schooling that are similar to those of native Swedes.

Table II: Some descriptives, 20-35 years old

Category[1]	**Years of schooling**	**Age**	**Married**	**Age at adoption**	**No. of individuals**
Native Swedes	11.91	28.30	0.18	-	18,728
Adoptees:					
Identical Swedes	12.11	28.34	0.16	2.29	353
Asia	11.91	24.75	0.06	1.74	2,000
Latin American	11.43	23.67	0.05	2.15	844
Mid-E/Africa[1]	11.83	25.62	0.05	1.73	275
2nd generation:					
Identical Swedes	11.65	28.38	0.17	-	36,391
Asia	12.39	26.68	0.16	-	879
Latin American	11.98	26.12	0.10	-	655
Mid-E/Africa	11.86	25.83	0.10	-	1,600

1) Middle East or Africa. See section 4 for further definitions of the categories.

Further, it has often been argued, and also been the focus of much psychological research, that adopted children have a hard time to adapt to the unfamiliar situation with a new family, new language and a new environment (adoption effect). However, the studies by Dery-Alfredsson and Kats (1986), Cederblad (1988) and Gardell (1979) indicate that the adjustment problems during adolescence to a large extent can be referred to individuals immigrating (being adopted) at an age

[5] That adoptees born in Latin America have a lower level of education is to a large extent explained by fewer people entering university studies (see Table XV in the appendix).

older than three years but that the long-run psychological effects even for this group are very unclear.[6] The study by Österberg (2000) indicates the presence of some unexplained difficulties since non-native adopted individuals do not achieve levels of education similar to native Swedes, controlling for parents education. Further, a study by Bohman and Sigvardsson (1990) shows that adopted children[7] were at a substantial risk of social maladjustment, compared to a control group of non-adopted individuals, in the early school years but that at age fifteen this high risk seemed to have disappeared. Also, social maladjustment in the early school years only weakly predicted maladjustment at age fifteen. Hence, there are no direct (or clear) evidence that adopted children should be expected to have more emotional problems, leading to a loss of self-confidence etc., than native Swedes in the long run. Also, the same amount of investments in education for the group of non-native adopted individuals as compared to natives (see Table II) could also be seen as an indication that the adjustment process was successful in the long run (even if it is strongly influenced by the educational background of their adoptive parents).

It is also sometimes argued that adopted children are a negatively selected group on ability. If ability is inherited from parents to the child this reasoning relies on the assumption that it is low-ability parents that are forced to leave their children. However, there could also exist a "Darwinian" effect (survival of the fittest) in the sense that only the strongest children survive in the orphanages - being head to head with the assumption of negative selection on ability. The study by Bohman and Sigvardsson (1990), mentioned above, included adopted children from various backgrounds, i.e. different levels of social background, as well as differences in the frequency of criminality and alcohol abuse of biological parents, but these factors had low power in explaining social maladjustment. However, there are also other factors that we are unable to control for that could affect the ability of these children. For instance, there might be a high probability of lack of fullfillment of basic nutritional needs (which are essential for the development of the brain) at the orphanages in different areas (countries) or in different years (hunger crises). Of course, all these factors are impossible to control for and to what extent they exist is very unclear.

[6] It should be mentioned that these studies are "clinical studies" including cases at the youth and children pshyciatric clinics. Hence, they use very few and special observations and it is not advisable to draw conclusions for the general population from their results.

[7] This is a sample of adopted children that were left for adoption in Sweden by Swedish-born parents.

What is certain is that their likely existence blurs the results on the existence of discrimination.

2.2 Second generation immigrants

It is not obviuos what unobserved variables that affect the labour market positions differently for second generation immigrants (with one parent being foreign-born) compared to native Swedes. It is possible that the family composition, with one parent being foreign born and one being a native Swede, could have an effect on school achievements, preferences for education etc.. However, there is no research that could guide us as regards the social positions, educational background or incomes of these parents compared to Swedes. Österberg (2000) report that the parents of second generation immigrants have approximately the same average incomes as Swedes. However, her population of second generation immigrants is very different from ours since it mainly includes second generation immigrants with both parents being foreign born. To be continued.....

Overall we expect the unobserved difference in the probability of employment between adoptees, second generation immigrants and native Swedes to consist of the following components (see Table III). The unexplained difference between adoptees and native Swedes is the total effect of a positive family effect and two negative effects, the adoption effect and the discrimination effect. The unexplained difference between second generation immigrants and native Swedes is the total effect of an uncertain family effect and a negative discrimination effect.

Table III: Expected direction ofunobserved effects

	Family effect	**Adoption effect**	**Discrimination effect**
Native Swedes	no	no	no
Adoptees	+	-	-
2nd Generation	-/+	no	-

2.3 Bias due to unobserved characteristics

Before we continue, a short remark is in its place on how relevant unobserved characteristics could bias our results and in what direction. For simplicity we only give the formula for the asymptotic bias in the OLS case. Consider the function

$$Y_i = X_i\beta + \alpha_i\gamma + \epsilon_i \tag{1}$$

where Y_i is the outcome variable, X_i a vector of observed characteristics, β the associated parameter vector, α_i is an error term reflecting left-out unobserved individual heterogeneity (in this case labour market networks or ability) and γ the associated parameter vector, while ϵ_i is an idiosyncratic error term. The asymptotic bias of the OLS estimator of β is given by

$$\text{plim}(\hat{\beta}_{OLS} - \beta) = \frac{\sigma_{X\alpha}}{\sigma_X^2} \times \hat{\gamma} \tag{2}$$

where $\sigma_{X\alpha}$ is the covariance between X and α, σ_X^2 the variance of X, and $\hat{\gamma}$ the estimated parameter vector . It is obvious from equation 2 that unobserved factors that are positively correlated with observed characteristics and have a positive effect on the outcome variable would produce a positive bias in the estimated β parameters.

To sum up, if we believe that there is no (aggregate) negative selection on unobservable characteristics between natives and adoptees (or second generation immigrants) not controlling for certain differences in unobserved characteristics, such as social networks and ability, would not bias the estimates of the parameters more unfavourably for adopted children than for natives[8], i.e. differences in parameter estimates are in this case instead being caused by differences in the return to certain observed characteristics (i.e. discrimination).[9]

[8] However, if one believes low ability to be especially pronounced for non-natives so as to overtake the positive effect from having adoptive parents that are favourably selected, then in fact a negative bias of the estimates of the parameters would be expected.

[9] A reservation is in its place. Since we do not directly observe the demand side of the labour market it could never be refuted that adopted children are themselves to blame, for instance that they behave as if they were discriminated against even if they in fact are not. However, we believe such an explanation to be far-fetched.

3 Methodology

As is conventional in research on labour market discrimination, a human capital approach is adopted and separate employment functions are estimated for each ethnic group. The difference in employment probabilities between these different ethnic groups can be broken down into an "explained" and an "unexplained" component using the so-called Blinder (1973) and Oaxaca (1973) decomposition methodology. This will show to what extent the difference in employment rates between two ethnic groups is due to differences in their observed characteristics (the "explained" part of the employment 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). Later research has attempted to relate the empirical measure of discrimination more closely to that proposed in the theoretical literature of Becker (1957) and Arrow (1972). Oaxaca and Ransom (1994) estimate the competitive wage structure that would exist in absence of discrimination and use this as weights in the decomposition of the wage gap. However, calculating the standard errors within this framework is a quite cumbersome task and therefore we have used the original set-up using native Swedes as the non-discriminatory norm (our benchmark).[10] For the case of a probit model the predicted percentage being employed is calculated as

$$\begin{aligned} \Pr(emp = 1 | X_{ij}, \hat{\beta}_j) = (1/n_j) \sum_{i=1}^{n_j} \Phi(X_{ij}\hat{\beta}_j); \\ j = natives, adoptees, \ \ second \ generation \end{aligned} \tag{3}$$

where X_{ij} is a vector of observed characteristics, $\hat{\beta}_j$ a vector of estimated parameters, and n_j the sample size. The predicted probability of employment for native Swedes is denoted $\Pr(X_N\hat{\beta}_N)$. For adoptees and second generation immigrants the predicted probability of employment is denoted $\Pr(X_I\hat{\beta}_I)$. We also introduce a third predicted probability of employment denoted $\Pr(X_I\hat{\beta}_N)$. It gives the predicted probability of employment for adoptees (or second generation immigrants)

[10] We calculated explained and unexplained differences using the non-discriminatory norm proposed by Oaxaca and Ransom (1994) without finding any "significant" changes in the results. These results can be obtained from the author upon request.

given the parameter estimates for native Swedes. We can then decompose the difference between employment probabilities for native Swedes and adoptees (or second generation immigrants) as follows:

$$\begin{aligned} \Pr(X_N\hat{\beta}_N) - \Pr(X_I\hat{\beta}_I) = &\{\Pr(X_N\hat{\beta}_N) - \Pr(X_I\hat{\beta}_N)\} \quad (E-part) \\ &+ \{\Pr(X_I\hat{\beta}_N) - \Pr(X_I\hat{\beta}_I)\} \quad (U-part) \end{aligned} \tag{4}$$

The first term (E-part) on the right side of (4) is an estimate of the part of the employment gap that is due to differences in observed characteristics between native Swedes and adoptees (or second generation immigrants), and the second term (U-part) is an estimate of the part due to differences in parameters (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.[11]

It is also possible to disentangle the contribution of individual characteristics following the strategy of Even and Macpherson (1993).[12] They propose a linear decomposition of the probit model where the contribution of any individual characteristic, k, explaining differences in employment between natives and adoptees (or second generation immigrants) is given by

$$Explained(k) = [\Pr(X_N\hat{\beta}_N) - \Pr(X_{AD}\hat{\beta}_N)] \left[\frac{(\bar{X}_{Nk} - \bar{X}_{ADk})\hat{\beta}_{Nk}}{(\bar{X}_N - \bar{X}_{AD})\hat{\beta}_N} \right] \tag{5}$$

This method assigns to each characteristic k a portion of the explained difference in employment equal to that characteristics share of the overall difference in expected employment propensities between natives and adoptees (or second generation immigrants), as estimated at the means of the data and the native Swedes employment structure.[13]

[11] The standard errors of each difference is calculated using the delta method.

[12] Nielsen (1997) proposes another strategy which also disentangles the contribution of individual characteristics of the unexplained difference.

[13] Variables are grouped into a single category, for example, the effect of education is captured by making $\bar{X}_j$ and $\hat{\beta}_j$ vectors that include means and parameters for all of the education dummies.

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.[14] The total data set contains information about 23,930 foreign-born individuals adopted as children[15], 86,172 second generation immigrants[16] and 62,274 native Swedes[17]. Adoptees are being identified in the registers as being born abroad and having adoptive parents that are born in Sweden.[18] The native Swedish sample is being identified as being born in Sweden by Swedish-born parents. Hence, second generation immigrants, i.e. individuals born in Sweden by foreign-born parents, are in this study not regarded as native Swedes. Neither do we include children that have been adopted by foreign-born parents. This selection strategy creates a population of native Swedes and adoptees that both have "parents" who are native Swedes. Table IV shows that the age-distribution for adoptees is skewed towards younger ages and towards more females than males. Also, we find that most adopted children arrived to Sweden before the age of five. The third category, second generation immigrants, are being identified in the registers as being born in Sweden and having one parent that is born abroad.

In the empirical section we use two subsets of the data for adoptees. The first includes men who are part of the labour force and who are 20 to 35 years old in 1998. Selecting only men reduces the data to 10,177 individuals. Further eliminating those being born in the US and Oceania[19] and selecting only those in the workforce who are between 20 to 35 years old and who have been adopted before being ten years

[14] 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 employment status and the other individual characteristics included in the regressions. The dataset also includes information on annual income, sector of employment, detailed information on unemployment activities (as being engaged in labour market training), and whether the individual is receiving social assistance, but this information is not used in this study.

[15] This is the total number of adopted individuals (both men and women) with Swedish-born adoptive parents and not a subsample.

[16] This is the total number of second generation male immigrants in the age group 20-35 who have one parent that is a native Swede and the other parent being born abroad.

[17] The native Swedish sample is a three percent randomised subsample of the total Swedish native male population in the ages 16 to 64.

[18] This identification could erroneously include children that are born outside Sweden by their biological Swedish-born parents. However, this category is, according to Statistics Sweden, negligible. In the age-group 25-40 only 131 persons belong to such a category.

[19] The skin colour is probably mixed for these individuals. They could be either black or white.

Table IV: Foreign-born adopted children with Swedish-born adoptive parents, 1998.

Age categories	No. of individuals	Percentage men	Percentage immigrating at age 4 or younger
16-24	13,221	43.4	91.1
25-40	7,683	38.4	75.8
41-64	3,026	49.2	18.1

Source: Statistics Sweden

old reduces the data to 3,683 individuals. This data includes many individuals who were 20 to 24 years old in 1998. It is likely that the youth labour market is different from the regular labour market and therefore we also constructed a second data set including only those individuals who were 25 to 32 years old in 1998, restricting the data set to 2,288 individuals. Thereby we restrict the possible existence of unknown youth labour market effects that might bias the parameters. A further advantage with this second subset of the data is that the age distribution is similar for the different subsets of non-native adopted individuals used in the regressions (see below). The second generation immigrants reduces to 39,525 when we restrict the data to include those in the labour force who were 20 to 35 years old in 1998. Further restricting the data to those being 25 to 32 years old in 1998 reduces the data to 20,818 individuals. The native Swedish population reduces to 18,537 when we restrict the data to include those in the labour force who were 20 to 35 years old in 1998. Further restricting the data to those being 25 to 28 years old in 1998 reduces the data to 4,826 individuals.

Several indicators of the individual's labour market status are possible. We have chosen to use labour force participation rates and employment rates. Labour force participation is measured as the share of the total population that was either employed or registered at the Swedish Employment Office in the third week of November 1998. Employment (or actually unemployment, which is just one minus the probability of employment) is similar to the definition used in the Swedish labour force surveys (AKU) conducted by Statistics Sweden each month, and is measured as the share of those in the labour force that were employed in the third week of November 1998.[20] A study by Björklund (1993) shows, on Swedish data, that the correlation between annual and lifetime income for those below the age of thirty is very low. Hence, using the probability of employment instead of annual income as an indicator

[20] Hence, we are not able to distinguish between being employed on a full-time or part-time basis.

of the individual's labour market status is therefore the best strategy for this data since the age distribution for adopted children is skewed towards younger ages.

We further divide the group of adoptees and second generation immigrants into "Identical Swedes", who are expected to have looks that are very similar to native born Swedes[21], "Western", including those being born in other Western, Eastern and Southern European countries, "Asia", including those being born (or have one parent that is born) in an Asian country (with Korea being the largest country of origin for adoptees [22]), "Latin America", including those being born (or have one parent that is born) in a Latin American country and last, being born (or have one parent that is born) in a Middle East or African country (refered to as "Mid-E/Africa" country).

Table V: Adoptees: Labour force particiption rates and employment rates. Percent.

Category	**Labour force participation rate**	**In education**[1]	**Employment rate**	**No. of individuals**[3]
Age20-35:				
Native Swedes	84.9	68.4	92.0	18,537
Id-Swede	76.9	67.0	89.8	362
Western	78.3	54.5	84.2	119
Asia	75.8	72.8	83.5	2,046
Latin American	73.3	65.0	75.2	870
Mid-E/African	69.9	64.2	82.9	286
Age25-32:				
Native Swedes[2]	86.3	70.3	91.6	4,826
Id-Swede	81.0	64.2	90.9	220
Western	81.3	64.7	86.1	72
Asia	82.1	68.0	86.9	1,594
Latin America	80.2	69.2	81.8	253
Mid-E/African	72.4	62.1	85.2	149

1) The share of those outside the labour force who are investing in education.

2) For native Swedes we only include those being 25 to 28 years old.

3) Refers to those in the labour force.

In Table V and VI a number of interesting facts about adopted children's and

[21] This includes for adoptess being born in Poland, Great Britain, Germany (East and West), Belgium, Denmark, Estonia, Finland, Lattvia, Lithuania, Holland and Norway, and for second generation immigrants to be born in the Scandinavian countries.

[22] 51 (29) percent of all foreign-born adopted females (males) aged 25 to 40 in 1998 are born in Korea.

Table VI: Second generation immigrants: Labour force participtions rates and employment rates. Percent.

Category	**Labour force participation rate**	**In education**[1]	**Employment rate**	**No. of individuals**[3]
Age20-35:				
Native Swedes	84.9	68.5	91.0	18,537
Id-Swede	84.2	62.5	87.0	36,391
Asia	67.1	68.2	85.4	879
Latin American	70.6	64.1	81.3	655
Mid-E/African	71.2	66.3	79.3	1,600
Age25-32:				
Native Swedes[2]	86.3	70.3	91.6	4,826
Id-Swede	87.7	56.9	88.7	19,322
Asia	75.6	61.4	91.5	435
Latin America	81.6	53.2	89.7	293
Mid-E/Africa	77.6	60.6	84.1	768

1) The share of those outside the labour force who are investing in education.

2) For native Swedes we only include those being 25 to 28 years old.

3) Refers to those in the labour force.

second generation immigrant's attachment to the labour market are revealed. The picture is the same for both subsets of the data. Exept for second generation "Identical Swedes" the labour force participation rates are much lower for adoptees and second generation immigrants than for native Swedes. This could reflect differences in the age distribution with adoptees and second generation immigrants from the other regions being on average younger than native Swedes and hence having a larger probability to still be in school and/or on parental leave. The employment rates in Table V and VI follow the same picture as the labour force participation rates - native Swedes have the highest probability to be employed (or the lowest probability to be unemployed). Within the group of adoptees "Identical Swedes" have a higher probability to be employed than the other categories. For second generation immigrants in the 25-32 age group the "Asia" category have the highest probability to be employed. At first glance one could view these descriptives as evidence of labour market discrimination. In the empirical section we will investigate to what extent these differences in employment probabilities could be explained by differences in observed characteristics or by differences in unobserved characteristics and/or discrimination.

Before we proceed further into the results we will give a short description of the state of the Swedish economy in 1998. During the early 1990s the Swedish labour market experienced a severe deterioration, compared to the late 1980s, with average unemployment rates increasing from 3 percent in 1991 to 8 percent in 1995 and then decreasing again to 5 percent in 1998. Hence, it is quite a "special" period of the Swedish economy that has preceded the year investigated in this study. This "pre-history" of the Swedish economy could lead to strong regional differences in labour market prospects in 1998. We will to some extent control for that by including unemployment rates on a municipality level (Sweden is divided into 286 different municiplaities) in the regressions.

5 Results

The determinants of the probability of being employed are analysed using probit regressions for cross-section data in 1998 (see Tables IX-XIV).[23] The regressions have been estimated separately for each ethnic group according to the decomposition methodology in section 3.[24] For the standard errors of the parameter estimates we have used White's heteroscedasticity-consistent covariance matrix (White, 1980). The empirical model that we estimate is a standard human capital function:

$$\Pr(\text{Emp}=1) = f(\text{Schooling, Age, Being married, Local unemployment rate}). \quad (6)$$

5.1 Adoptees

In section 2.1 we were somewhat worried that being adopted after the child's first year would have long-time scarring effects (psychological/emotional disturbances) on mental health, schooling, and possibly also on labour market outcomes. To test this hypothesis we ran regressions for each ethnic adoptee group with (Table X and XII) and without (Table IX and XI) including dummies for age at adoption. A likelihood ratio test (see the last row of Table X and XII) shows that age at adoption is an important variable except for the categories "Identical Swedes" and "Latin America".[25] However, including age at adoption does not alter the parameter estimates by much, i.e. the covariance with the other variables is low. Hence, following the discussion in section 2.3 on omitted variable bias for the OLS estimator it is possible to leave out age at adoption from the regressions when we come to the decompositions (since native Swedes have no age at adoption variable, the human capital model would otherwise not be the same for native Swedes and adoptees). Further, we also included the country of birth per capita real GNP for the year the adoptee was born into the regressions (see Summers et al., 1980). However, this variable had no effect on the probability to be employed and this variable is not included in the results that follow. This result can be interpreted in two ways;

[23] For an explanation of the probit model see Greene (1997), pp. 873-879.

[24] To reach more efficient parameter estimates one could do a pooled regression. However, native Swedes have different inclusion probabilities than adoptees and second generation immigrants and therefore appropriate weights have to be used. Hence, this approach is somewhat more cumbersome than in the general case (with equal inclusion probabilities) and is therefore not implemented here. Doing a pooled regression on adoptees shows that this strategy only slightly decreases the standard errors of the parameters.

[25] The critical value for being significant at the 5 percent level is 9.49 with 4 degrees of freedom.

either this measure is too rough to be a useful measure for the degree of poverty at the child's first year or the interpretation is that the adoption effect does not exist.

In this preliminary version we do not give in-depth comments on the individual characteristics, but we notice that the returns to having a higher education is positive and significant for all categories of adoptees, with the exception for "Identical Swedes" and Mid-E/Africa. We also find that, using this narrow bound of the age distribution, the variable "age" only has a minor, if any, effect on the probability to be employed. It should be kept in mind, when we come to the next section, that "Identical Swedes" and "Mid-E/Africa" have very few significant parameter estimates (i.e. the parameters are estimated with a low precision) and the results that follow for these groups should be treated with care. Further, the low precision of the parameter estimates for "Identical Swedes" eliminates the possibility to use them as the non-discriminatory norm (which would be an excellent strategy to isolate the adoption effect). We now turn to the focus of this study, the decompositions.

5.2 Decompositions - explained vs. unexplained difference

In this section we will focus on the results for the first data set for adoptees, i.e. those who were 20-35 years old in 1998. However, the results yield exactly the same conclusions for both sets of data, especially for the unexplained difference. The difference between the first (the 20-35 age group) and the second (the 25-32 age group) data set is made up by differences in observed characteristics. In fact, this difference is to 75 percent explained by differences in the age distribution, which we in particularly control for in the construction of the second data set.[26]

Clearly there is a significant difference, 9.8 percentage points, in the probability to be employed (or to be unemployed) between native Swedes and the category "All adopted" (see upper part of table VII).[27] If we turn to the different categories of adoptees we find that those who have very similar looks as native Swedes, i.e. "Identical Swedes", have a probability of employment that is not significantly different from that of native Swedes. However, for individuals born in Asia and Latin America there again is a large and significant difference in the probability to be employed

[26] The calculation for the contribution of individual characteristics have been made following the strategy proposed in section 3. The results are available from the author upon request.

[27] The category "All adopted" is constructed by pooling/aggregating the "Asia", "Latin America" and "Mid-E/Africa" categories.

as compared to native Swedes.[28]

Table VII: Adoptees: Decompositions. Predicted employment vs. unemployment, Men. Percent.

	Native Swedes	**Id-Swede**	**All Adopted**	**Asia**	**Latin America**	**Mid-E./ Africa**
Age 20-35:						
Prob(emp=1)	91.0	89.8	81.2	83.5	75.3	82.9
Total diff.	-	1.2	9.8***	7.5***	15.7***	8.1
		(4.99)	(1.97)	(2.41)	(3.97)	(6.28)
Explained diff.	-	-0.4	3.3***	2.5***	5.5***	1.9**
		(0.90)	(0.99)	(0.97)	(1.07)	(0.93)
Unexplained diff.	-	1.6	6.5***	5.0**	10.2***	6.2
		(4.99)	(2.02)	(2.44)	(4.02)	(6.29)
No. of individuals	18,728	353	3,233	2,000	844	275
Age 25-32:						
Prob(emp=1)	91.6	90.9	85.7	86.9	81.8	85.2
Total diff.	-	0.7	5.9**	4.7	9.8	6.4
		(6.28)	(2.91)	(3.41)	(6.69)	(8.34)
Explained diff.	-	-2.0	-1.4	-1.7	-0.4	-1.3
		(1.72)	(1.69)	(1.67)	(1.76)	(1.71)
Unexplained diff.	-	2.7	7.3**	6.4**	10.2	7.7
		(6.29)	(2.91)	(3.41)	(6.71)	(8.34)
No. of individuals	4,826	220	1,374	900	253	149

Standard errors in parentheses, ***indicate a <1 percent significans level, **<5 percent, *<10 percent.

How can these differences be explained? As we mentioned before two to five percent of the total difference could be explained by differences in the age distribution (the 20-35 age group). Controlling for differences in the age distribution (i.e using the 25-32 age group) this explained difference disappears. Hence, differences

[28] The employment difference for the group being adopted from Middle East and Africa has a too large standard error and therefore does not become significant.

in observed characteristics is not the main answer. Instead we find the unexplained differences to be both large, with a minimum difference of five percentage points, and significant for the aggregated group of adoptees as well as for the separate groups of "Asia" and "Latin America". Controlling for differences in the age distribution (i.e using 25-32 age group) this unexplained difference even increases somewhat for the categories "All adoptees" and "Asia". We also calculated the unexplained differences between different categories of adoptees, "Asia" as compared to "Latin America" and "Asia" as compared to "Mid-E/Africa". None of the unexplained differences were significantly different from zero at 1 percent significance level.[29]

It is clear from our results reported in this section that we have found employment probability differences between native Swedes and non-native adopted individuals that are exclusively caused by differences in unobservable characteristics and/or discrimination (given that we control for differences in the age distributions).

5.3 Second generation immigrants

As for adoptees we do not give in-depth comments on the individual characteristics, but we notice that the returns to having a higher education is positive and significant for all categories of second generation immigrants, with the exception for the category "Asia". We again find that, using this narrow bound of the age distribution, the variable "age" only has a minor, if any, effect on the probability to be employed. It should be kept in mind, when we come to the next section, that the category "Asia" has very few significant parameter estimates (i.e. the parameters are estimated with a low precision) and the results that follow for this group should be treated with care. We now turn to the decompositions.

5.4 Decompositions - explained vs. unexplained difference

As for adoptees we will focus on the results for the first data set, i.e. those who were 20-35 years old in 1998. Again, the results yield similar conclusions for both sets of data. Clearly there is a significant difference, 9.6 percentage points, in the probability to be employed (or to be unemployed) between native Swedes and the

[29] The unexplained difference (the 25-32 age group) between "Asia" and "Latin America" is 5.9 percentage points with a standard error of 6.5 and the difference between "Asia" and "Mid-E/Africa" is 0.8 percentage points with a standard error of 7.6.

category "All second generation" (see upper part of table VIII).[30] But also, as opposed to the results for adoptees, we find that also those who have very similar looks as native Swedes, i.e. "Identical Swedes", have a probability of employment that is significantly different (lower) from that of native Swedes. Perhaps this could be explained by that "Identical Swedes " in this case is a special group of second generation immigrants on behalf of the parents. Only forty percent of the fathers are native Swedes, as compared to at least sixty percent for the other categories. Also, 67 percent of the foreign born parents were born in Finland. Whether it is these facts that for some reason drives the results we do not know. For the categories "Asia", "Latin America" and "Mid-E/Africa" we also find large and significant differences in the probability to be employed as compared to native Swedes.

[30] The category "All second generation immigrants" is constructed by pooling/aggregating the "Asia", "Latin America" and "Mid-E/Africa" categories.

Table VIII: Second generation: Decompositions. Predicted employment vs. unemployment, Men. Percent.

	Native Swedes	**Id-Swede**	**All 2nd gen.**	**Asia**	**Latin America**	**Mid-E./ Africa**
Age 20-35:						
Prob(emp=1)	91.0	87.0	81.4	85.4	81.2	79.3
Total diff.	-	4.0***	9.6***	5.6*	9.8**	11.7***
		(0.82)	(2.00)	(3.41)	(4.20)	(2.81)
Explained diff.	-	0.9	2.4**	1.0	2.6***	3.1***
		(0.95)	(0.99)	(0.96)	(1.01)	(1.01)
Unexplained diff.	-	3.1***	7.2***	4.6	7.2*	8.6***
		(0.87)	(2.05)	(3.43)	(4.22)	(2.85)
No. of individuals	18,728	36,391	3,134	879	655	1600
Age 25-32:						
Prob(emp=1)	91.6	88.8	87.3	91.5	89.7	84.1
Total diff.	-	2.7**	4.3	0.1	1.9	7.5**
		(1.37)	(2.79)	(4.35)	(5.62)	(3.93)
Explained diff.	-	-3.3*	-2.7	-3.7**	-3.0*	-2.1
		(1.80)	(1.72)	(1.69)	(1.67)	(1.76)
Unexplained diff.	-	6.1***	7.0**	3.8	4.8	9.6**
		(1.50)	(2.81)	(4.35)	(5.62)	(3.96)
No. of individuals	4,826	19,322	1,496	435	293	768

Standard errors in parentheses, ***indicate a <1 percent significans level, **<5 percent, *<10 percent.

Again these differences certainly can not be explained by differences in observed characteristics. For all categories of second generation immigrants the explained difference is small, around three percentage points. Further, controlling for differences in the age distribution (i.e. using the 25-32 age group) this positive explained difference disappears and even becomes negative. The interpretation for this result is that second generation have more favourable oberserved characteristics. Again it

is the differences in the age distributions that drive/causes these results.[31] Hence, differences in observed characteristics is not the main explanation for the differences in the probability to be employed. Instead we find the unexplained differences to be both large, with a minimum difference of seven percentage points, and significant for the aggregated group of second generation immigrants as well as for the separate groups of "Latin America" and "Mid-E/Africa". Controlling for differences in the age distribution (i.e. using the 25-32 age group) this unexplained difference even increases somewhat for the categories "Identical Swedes" "Mid-E/Africa".

Even if the results are a little more "mixed" in this section we still find employment probability differences between native Swedes and and second generation immigrants (with one parent being a native Swede) that to a large extent are caused by differences in unobservable characteristics and/or discrimination.

[31] In Table XVIII we see that second generation immigrants are on average approximately two years older than native Swedes.

6 Conclusion

In an attempt to measure the degree of skin colour discrimination on the Swedish labour market we compared the probability of employment for native Swedes to that of foreign-born individuals adopted as children and second generation immigrants with one parent being a native Swede. Further, we decomposed this difference in employment rates into an explained and an unexplained difference using a strategy developed by Blinder (1973) and Oaxaca (1973). We also tried to make the two "immigrant" groups as comparable to native Swedes as possible. Hence, to avoid differences in the age distributions we only included individuals who were 20 to 35 years old. Also, for the case of adoptees a large majority of the individuals were adopted before the age of five. This being the case these individuals have Swedish schooling only. Also, we only included those individuals who were adopted by Swedish born "parents", i.e. in the case social and labour market networks are inherited from parents to children, these adopted individuals should have a network of the same capacity as native Swedes. The group of second generation immigrants deviate from the other two in this respect since they by construction only have one parent that is a native Swede. Further, other studies have found that adoptees to a large extent were adopted by families that belonged to a higher social class. Based on this we argue that non-native adopted individuals are positively selected on this unobservable characteristic. It could also be argued that adopted individuals are a selected group on "ability". Usually this argument refers to adopted children having a lower ability than children on average. For the group of second generation immigrants no such prior information is known to us. Even given these restrictions, we believe that our study could, to some extent, be seen as a social experiment varying the colour of skin while trying to hold all other variables constant.

In the analysis we find that both adoptees and second generation immigrants have a lower probability to be employed and that this cannot be explained by differences in observed characteristics. It is therefore a fact that the differences are caused by differences in unobservable characteristics and/or discrimination. To what extent it is unobservable characteristics or labour market discrimination that causes this difference is still an unresolved issue. However, we have argued that for adoptees the unexplained gap could be explained by the the following components; a positive family effect, a negative adoption effect and a negative discrimination effect. If this

is true the combined negative effect (adoption and discrimination) overcomes the positive family effect. Hence, what we find here is not even an upper or lower bound of discrimination. However, one could expect the adoption effect to depend on when in life the person was adopted and/or a measure of the degree of poverty at the adoptee's first year in life. Since, we do not find any strong such results we believe the adoption effect to be small. Then what is left in the unexplained component is the discrimination effect, net of the family effect.

However, we also have the results for second generation immigrants. For this group we have no adoption effect but an unknown family effect and a negative discrimination effect. If we believe that the family effect in this case is neutral we have isolated the discrimination effect, which is very similar in size to the unexplained difference for adoptees. On the contrary, if one believe that there is no discrimination effect then what we have is a negative effect of interracial marriages on the probability to be employed for children born in interracial marriages.

As a final remark, much is in favour of expecting that unobserved characteristics do not explain the difference in the probability to be employed between adopted children (or second generation immigrants) and natives. Instead, this study indicates the existence of discrimination on the Swedish labour market due to differences in skin colour alone. Future research on these groups should look for data that include grades in school (or some other variable that potentially could measure ability, i.e. the adoption effect) and to include more information on the parents. Then it hopefully would be possible to disentangle the three components of the unexplained differences in employment and hence get a measure of labour market discrimination due to skin colour. Future research could preferably also focus on other specific sorts of discrimination, for instance labour market discrimination due to having a foreign-sounding name in combination with and without a foreign look.

References

Arrow, K. (1972) "Some Mathematical Models of Race Discrimination in the Labour Market", in Pascal et al (eds) ,*Race Discrimination in Economic Life*, pp. 187-203.

Arrow, K. (1973) "Higher Education as a Filter", *Journal of Public Economics*, 2, pp.193-216.

Arrow, K. (1998) "What Has Economics to Say About Racial Discrimination", *Journal of Economic Perspectives*, 12, pp. 91-100.

Bevelander, P. & Nielsen, H.,S., (1998) "Declining Employment Assimilation of Immigrants in Sweden: Observed or Unobserved Characteristics?", paper presented at the ESPE conference in Amsterdam.

Becker, G.S., (1957) *The Economics of Discrimination*, Chicago: University of Chicago Press.

Becker, G.S., (1964), *Human Capital*, New York: National Bureau of Economic Research.

Björklund, A. (1993) "A Comparison Between Actual Distributions of Annual and Lifetime Income: Sweden 1951-89", *Review of Income and Wealth*, vol. 4, pp. 377-386.

Björklund, A. & Richardsson, K. (2000) "???", mimeo, SOFI, Stockholm university, Sweden.

Blinder, (1973) "Wage Discrimination: Reduced Form and Structural Estimates", *The Journal of Human Resources*, vol. 8, pp. 436-455.

Bohman, M. and Sigvardsson, S. (1990) "Outcome in Adoption: Lessons from Longitudinal Studies", in Brodzinsky et al (eds) , *The Psychology in Adoption*, pp. 93-106.

Borjas, G. J. (1994) "The Economics of Immigration", *Journal of Economic Literature*, 32, pp. 1667-1717.

Bresky, L. (1976) "Utländska adoptivbarns föräldrar", NIA; Statens nämnd för internationella adoptinonsfrågor (in Swedish).

Cederblad, M. (1982) "Utländska adoptivbarn som kommit till Sverige efter tre års ålder", NIA; Statens nämnd för internationella adoptinonsfrågor (in Swedish).

Cederblad, M. (1988) "Utländska adoptivbarn - anpassningsproblem i tonåren", mimeo, Department of Child and Youth Psychiatry, Lund university, Sweden

(in Swedish).

Chiswick, B., Cohen, Y. & Zach, T. (1997) "The Labor Market Status of Immigrants: Effects of the Unemployment Rate at Arrival and Duration of Residence", *Industrial and Labor Relations Review*, 50 (2), pp. 289-303.

Darity, W. & Mason, P. (1998) "Evidence on Discrimination in Employment: Codes of Color, Codes of Gender", *Journal of Economic Perspectives*, 12, pp. 63-90.

Dery-Alfredsson, L. & Kats, M. (1986) "Utländska adoptivbarn på PBU", mimeo, Adoptionscentrum, (in Swedish).

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

Gardell, I. (1979) "Internationella adoptioner", NIA; Statens nämnd för internationella adoptinonsfrågor (in Swedish).

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

Holm, H. (2000) "What's in a Name? - An ethnical discrimination experiment", mimeo, department of economics, Lund university.

Husted, L.,

Kee, P. (1994) "Native-Immigrant Employment Differentials in the Netherlands: The Role of Assimilation and Discrimination", *International Review of Applied Economics*, 8 (2), pp. 174-196

Heckman, J. (1998) "Detecting Discrimination", *Journal of Economic Perspectives*, 12, pp. 101-1116.

Lundahl, M. & Wadensjö, E. (1984) Unequal Treatment

LNU (1975) Level of the Living Surveys, SOFI, Stockholm university, Sweden.

Maddala, G. (1995) "Specification tests in limited dependent variable models", in Maddala et al. (eds). *Advances in Econometrics and Quantative Economics*, Blackwell publishers Inc., Cambridge, Massachusetts.

Nielsen, H. (1997) "Two notes on discrimination"

Oaxaca, R. (1973) "Male-Female Wage Differentials in Urban Labour Markets", *International Economic Review*, 14(3), pp. 693-709.

Oaxaca, R. & Ransom, M. (1994) "On Discrimination and the Decomposition of Wage Differentials", *Journal of Econometrics*, vol. 61, pp. 5-21.

Phelps, E. (1970) Microeconomic Foundations of Employment and Inflation Theory, New York: Norton.

Piore, (1979) *Birds of Passage: Migrant Labour and Industrial Societies*, Cambridge:

Cambridge University Press.

Spence, M. (1973) "Job Market Signalling", *Quarterly Journal of Economics*, 87, pp. 354-374.

Summers, R., Kravis, I. & Heston, A. (1980) "International Comparison of Real Product and its Composition", *The Review of Income and Wealth*, 26, pp. 19-66.

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

Österberg, T. (2000) *Economic Perspectives on Immigrants and Intergenerational transmissions*, dissertation, Department of economics, Gothenburg university.

Appendix

Definition of the explanatory variables:

(Edu_9, Edu_11, Edu_12, Edu_14) - Number of years of education. Edu_x is discrete with categories 9, 11, 12 and 14 years or more of education.

(YS) - Years of schooling. Continous, taking the values 9 to 16. The lowest and highest value, 9 and 16, are actually censored variables including those with less than 9 and those with more than 16 years of schooling.

(Age) - Age is a continous variable taking the values 20 to 35 and 24 to 32 respectively.

(Age2024) - Discrete age category being one for those 20 to 24 years old and zero otherwise.

(Age2529) - Discrete age category being one for those 25 to 29 years old and zero otherwise.

(Age3035) - Discrete age category being one for those 30 to 35 years old and zero otherwise.

(Immiage_0, Immiage_1, Immiage_2, Immiage34, Immiage59) - The age at adoption. Immiage_x is discrete with categories 0, 1, 2, 34, and being adopted between the ages of five and nine.

(Immiage) - The age at adoption. Continous variable taking the values 0 to 9.

(Married) - Being married or not. Discrete variable with not being married as the benchmark.

(Unemp-rate) - The local unemployment rate on a community level (kommunnivå). Continous variable.

(**Father Sw.**) **-** Discrete variable indicating whether the father is a native Swede. Only for second generation immigrants.

Table IX: Adoptees:Employment (Prob(emp=1)) vs. unemployment, 25-32 years old, Men.

Variable	**Native Swedes**	**Id-Swede**	**All Adopted**	**Asia**	**Latin America**	**Mid-E./ Africa**
Constant	-28.510*	-33.593**	13.397**	15.988*	0.5241	-10.753
	(18.89)	(18.71)	(8.351)	(10.667)	(20.71)	(25.55)
Edu_9	-0.9003***	-0.5623**	-0.7814***	-0.5823***	-1.2967***	-0.7999**
	(0.086)	(0.348)	(0.148)	(0.190)	(0.387)	(0.432)
Edu_11	-0.3448***	-0.0292	-0.5398***	-0.5020***	-0.9313***	-0.3673
	(0.075)	(0.301)	(0.116)	(0.139)	(0.354)	(0.363)
Edu_12	-0.2385***	-0.1663	-0.3113***	-0.3547**	-0.2199	-0.3994
	(0.089)	(0.379)	(0.139)	(0.163)	(0.413)	(0.479)
Age/10	-2.0664*	2.5201**	-0.7809*	-0.9722*	0.1750	-0.5183
	(1.429)	(1.318)	(0.599)	(0.766)	(1.496)	(1.810)
$Age^2/100$	4.0681*	-4.4215**	1.3474*	1.7101*	-0.4233	0.8007
	(2.698)	(2.316)	(1.071)	(1.373)	(2.699)	(3.180)
Married	0.3615***	-0.1660	0.7568***	0.6034***	1.0892**	3.5657***
	(0.121)	(0.311)	(0.225)	(0.255)	(0.504)	(0.274)
Unemp-rate	-0.1238***	-0.1087*	-0.1427***	-0.1576***	-0.1059*	-0.2221***
	(0.019)	(0.070)	(0.031)	(0.038)	(0.070)	(0.102)
No. ind.	4,826	220	1,374	900	253	149
Log-L.	-1,295,7	-63.1	-525.9	-329.1	-105.7	-56.6

Standard errors in parentheses, ***indicate a <1 percent significans level, **<5 percent, *<10 percent. Benchmark is having more than 14 years of education and not being married.

Table X: Adoptees: Employment (Prob(emp=1)) vs. unemployment, 25-32 years old, Men.

Variable	**Id-Swede**	**All Adopted**	**Asia**	**Latin-america**	**Mid-E./ Africa**
Constant	-35.065**	12.766*	14.397*	0.2258	-8.5558
	(20.54)	(8.389)	(10.72)	(21.28)	(29.910)
Edu_9	-0.5527*	-0.7443***	-0.5769***	-1.2006***	-0.3936
	(0.361)	(0.150)	(0.192)	(0.393)	(0.480)
Edu_11	-0.0840	-0.5184***	-0.4922***	-0.9100***	-0.1744
	(0.299)	(0.118)	(0.139)	(0.354)	(0.379)
Edu_12	-0.1842	-0.3009**	-0.3567**	-0.0698	-0.3789
	(0.368)	(0.142)	(0.166)	(0.422)	(0.495)
Age/10	2.6357**	-0.7293	-0.8442	0.1909	0.7835
	(1.449)	(0.604)	(0.772)	(1.539)	(2.144)
$Age^2/100$	-4.6380	1.2963	1.5018	-0.3772	-1.3316
	(2.546)	(1.079)	(1.384)	(2.776)	(3.772)
Married	-0.2164	0.7655***	0.5844**	1.0628**	3.8116***
	(0.308)	(0.231)	(0.259)	(0.505)	(0.314)
Unemp-rate	-0.0968	-0.1400***	-0.1497***	-0.1175**	-0.1631*
	(0.079)	(0.031)	(0.038)	(0.075)	(0.109)
Immiage_1	0.1824	-0.3938***	-0.3954**	-0.3129	-0.5418
	(0.350)	(0.162)	(0.217)	(0.362)	(0.547)
Immiage_2	-0.3235	-0.4913***	-0.6221***	0.3241	-0.2482
	(0.373)	(0.185)	(0.234)	(0.562)	(0.708)
Immiage_34	-0.3865	-0.4618***	-0.4256**	-0.5805**	-0.8542*
	(0.359)	(0.168)	(0.224)	(0.338)	(0.550)
Immiage_59	-0.5994	-0.6683***	-0.4016	-0.7503**	-1.5723***
	(0.504)	(0.202)	(0.260)	(0.369)	(0.701)
No. ind.	220	1,302	900	253	149
Log-L.	-59.1	-517.2	-324.8	-101.1	-49.5
LRT	8.0	17.3	8.6	9.2	14.2

Standard errors in parentheses, ***indicate a <1 percent significans level, **<5 percent, *<10 percent. Benchmark is having more than 14 years of education, not being married and being adopted within the first year of his life.

Table XI: Adoptees: Employment (Prob(emp=1)) vs. unemployment, 20-35 years old, Men.

Variable	**Native Swedes**	**Id-Swede**	**All Adopted**	**Asia**	**Latin America**	**Mid-E./ Africa**
Constant	-3.8680***	-1.4302	-4.5008***	-4.2922***	-3.5912*	-3.5429
	(0.581)	(3.984)	(1.319)	(1.821)	(2.361)	(5.225)
Edu_9	-0.8009***	-0.4767**	-0.8094***	-0.7457***	-1.1952***	-0.5603**
	(0.046)	(0.298)	(0.104)	(0.131)	(0.276)	(0.318)
Edu_11	-0.3301***	-0.0385	-0.5327***	-0.4984***	-0.8602***	-0.2536
	(0.041)	(0.260)	(0.094)	(0.116)	(0.267)	(0.279)
Edu_12	-0.1376***	-0.4972**	-0.2556***	-0.2409**	-0.5800***	0.0283
	(0.048)	(0.263)	(0.096)	(0.117)	(0.268)	(0.309)
Age/10	0.4141***	0.2441	0.4653***	0.4574***	0.4105***	0.4132
	(0.042)	(0.284)	(0.102)	(0.141)	(0.185)	(0.398)
$Age^2/100$	-0.6750***	-0.4099	-0.8178***	-0.8160***	-0.7170**	-0.7214
	(0.075)	(0.504)	(0.196)	(0.270)	(0.360)	(0.744)
Married	0.4921***	-0.2020	0.4852***	0.4069**	0.4413*	3.5154***
	(0.051)	(0.267)	(0.158)	(0.199)	(0.281)	(0.225)
Unemp-rate	-0.1315***	-0.1106**	-0.1231***	-0.1223***	-0.1200***	-0.2116***
	(0.010)	(0.055)	(0.019)	(0.024)	(0.034)	(0.074)
No. ind.	18,728	353	3,233	2,000	844	275
Log-L.	-5,131.4	-110.3	-1,459.8	-846.4	-440.0	-116.0

Standard errors in parentheses, ***indicate a <1 percent significans level, **<5 percent, *<10 percent. Benchmark is having more than 14 years of education and not being married.

Table XII: Adoptees: Employment (Prob(emp=1)) vs. unemployment, 20-35 years old, Men.

Variable	**Id-Swede**	**All Adopted**	**Asia**	**Latin America**	**Mid-E./ Africa**
Constant	-1.8249	-4.5161	-4.5072***	-4.6267**	-4.4640
	(4.140)	(1.329)	(1.831)	(2.454)	(5.750)
Edu_9	-0.4888*	-0.7843***	-0.7540***	-1.1489***	-0.3736
	(0.302)	(0.105)	(0.133)	(0.277)	(0.333)
Edu_11	-0.0613	-0.5204***	-0.5034***	-0.8209***	-0.1354
	(0.262)	(0.094)	(0.117)	(0.265)	(0.290)
Edu_12	-0.5187**	-0.2502***	-0.2514**	-0.5369**	0.0558
	(0.261)	(0.097)	(0.118)	(0.268)	(0.318)
Age/10	0.2675	0.4639	0.4741***	0.4827***	0.4320
	(0.295)	(0.103)	(0.142)	(0.192)	(0.445)
$Age^2/100$	-0.4546	-0.7934	-0.8323***	-0.8281**	-0.6345
	(0.525)	(0.198)	(0.273)	(0.374)	(0.841)
Married	-0.2845	0.4940***	0.4054**	0.4448*	3.8573***
	(0.268)	(0.158)	(0.200)	(0.278)	(0.353)
Unemp-rate	-0.1056**	-0.1209***	-0.1185***	-0.1179***	-0.1832***
	(0.056)	(0.019)	(0.025)	(0.034)	(0.075)
Immiage_1	0.3480	-0.1036**	-0.1116*	-0.0493	-0.2691
	(0.273)	(0.070)	(0.090)	(0.135)	(0.264)
Immiage_2	0.0791	-0.1422***	-0.2851***	0.1859	-0.2168
	(0.306)	(0.094)	(0.121)	(0.175)	(0.375)
Immiage_34	-0.1526	-0.2181***	-0.1986**	-0.2160*	-0.4722*
	(0.276)	(0.085)	(0.115)	(0.148)	(0.327)
Immiage_59	0.7436*	-0.3303***	-0.2566	-0.2623*	-0.8952*
	(0.479)	(0.123)	(0.238)	(0.169)	(0.700)
No. ind.	353	3,119	2000	844	275
Log-L.	-107.1	-1,453.0	-842.6	-436.1	-109.4
LRT	6.4	13.6	7.6	7.8	13.2

Standard errors in parentheses, ***indicate a <1 percent significans level, **<5 percent, *<10 percent. Benchmark is having more than 14 years of education, not being married and being adopted within the first year of his life.

Table XIII: Second generation: Employment (Prob(emp=1)) vs. unemployment, 25-32 years old, Men.

Variable	**Native Swedes**	**Id-Swede**	**All Second gen.**	**Asia**	**Latin America**	**Mid-E./ Africa**
Constant	-28.510*	-3.7202***	0.3490	0.0802	10.363	-0.9464
	(18.89)	(2.225)	(7.637)	(16.80)	(17.11)	(10.07)
Edu_9	-0.9003***	-1.0088***	-1.1023***	-0.8943***	-1.5035***	-1.0916***
	(0.086)	(0.041)	(0.126)	(0.267)	(0.374)	(0.162)
Edu_11	-0.3448***	-0.4521***	-0.4025***	-0.2453	-0.8101***	-0.3907***
	(0.075)	(0.037)	(0.114)	(0.225)	(0.348)	(0.151)
Edu_12	-0.2385***	-0.2676***	-0.3170***	0.0330	-0.9464***	-0.3227**
	(0.089)	(0.048)	(0.135)	(0.269)	(0.373)	(0.184)
Age/10	-2.0664*	0.4117***	0.0994	0.0851	-0.5109	0.1880
	(1.429)	(0.157)	(0.542)	(1.189)	(1.2055)	(0.7190)
$Age^2/100$	4.0681*	-0.6888***	-0.1328	-0.0570	0.8562	-0.2936
	(2.698)	(0.273)	(0.959)	(2.096)	(2.113)	(1.275)
Married	0.3615***	0.4484***	0.4992***	0.7816***	0.2597	0.4159**
	(0.121)	(0.042)	(0.160)	(0.319)	(0.361)	(0.215)
Unemp-rate	-0.1238***	-0.1409***	-0.1120***	-0.1021**	-0.1459***	-0.1170***
	(0.019)	(0.008)	(0.029)	(0.061)	(0.067)	(0.039)
No. ind.	4,826	19,322	1,496	435	293	768
Log-L.	-1,295,7	-6,202.9	-510.3	-113.8	-84.6	-303.5

Standard errors in parentheses, ***indicate a <1 percent significans level, **<5 percent, *<10 percent. Benchmark is having more than 14 years of education and not being married.

Table XIV: Second generation: Employment (Prob(emp=1)) vs. unemployment, 20-35 years old, Men.

Variable	**Native Swedes**	**Id-Swede**	**All Second gen.**	**Asia**	**Latin America**	**Mid-E./ Africa**
Constant	-3.8680***	-2.3184***	-2.4545***	-5.0631***	-3.3459*	-0.8364
	(0.581)	(0.379)	(1.171)	(2.2916)	(2.611)	(1.645)
Edu_9	-0.8009***	-0.9951***	-1.0831***	-0.8138***	-1.4022***	-1.1259***
	(0.046)	(0.031)	(0.092)	(0.183)	(0.229)	(0.125)
Edu_11	-0.3301***	-0.5047***	-0.4619***	-0.2781**	-0.7061***	-0.5061***
	(0.041)	(0.030)	(0.091)	(0.174)	(0.227)	(0.126)
Edu_12	-0.1376***	-0.3027***	-0.2857***	-0.0834	-0.5573***	-0.3341***
	(0.048)	(0.034)	(0.092)	(0.166)	(0.226)	(0.128)
Age/10	0.4141***	0.3048***	0.2884***	0.4405***	0.4027**	0.1792*
	(0.042)	(0.027)	(0.089)	(0.171)	(0.200)	(0.124)
$Age^2/100$	-0.6750***	-0.4870***	0.4277***	-0.6871***	-0.6031**	-0.2514
	(0.075)	(0.049)	(0.165)	(0.314)	(0.375)	(0.234)
Married	0.4921***	0.4627***	0.4460***	0.9416***	-0.2359	0.4776***
	(0.051)	(0.031)	(0.125)	(0.297)	(0.258)	(0.177)
Unemp-rate	-0.1315***	-0.1364***	-0.1409***	-0.0731**	-0.2433***	-0.1444***
	(0.010)	(0.006)	(0.019)	(0.041)	(0.043)	(0.027)
No. ind.	18,728	36,391	3,134	879	655	1,600
Log-L.	-5,131.4	-12,664.3	-1,294.4	-312.6	-254.2	-712.8

Standard errors in parentheses, ***indicate a <1 percent significans level, **<5 percent, *<10 percent. Benchmark is having more than 14 years of education and not being married.

Table XV: Adoptees: Descriptive statistics, Men, 20-35 years old. Means

Variable	**Native Swedes**	**Id-Swede**	**Asia**	**Latin America**	**Mid-E./ Africa**
Age2024	0.24	0.20	0.53	0.67	0.44
Age2529	0.32	0.38	0.38	0.26	0.41
Age3035	0.44	0.42	0.09	0.07	0.15
Age	28.30	28.34	24.75	23.67	25.62
Edu_9	0.12	0.13	0.11	0.19	0.14
Edu_11	0.38	0.33	0.23	0.24	0.31
Edu_12	0.25	0.24	0.45	0.49	0.33
Edu_14	0.16	0.17	0.16	0.06	0.16
Edu_16	0.09	0.13	0.05	0.02	0.06
YS	11.91	12.11	11.91	11.43	11.83
Immiage_0	-	0.20	0.29	0.30	0.24
Immiage_1	-	0.31	0.33	0.23	0.39
Immiage_2	-	0.14	0.12	0.12	0.12
Immiage_34	-	0.20	0.16	0.17	0.17
Immiage_56	-	0.08	0.08	0.12	0.06
Immiage_79	-	0.07	0.02	0.06	0.02
Immiage	-	2.29	1.74	2.15	1.73
Married	0.18	0.16	0.06	0.05	0.05
Unem_rate	5.12	5.13	5.08	5.02	5.17
Employed	0.91	0.90	0.84	0.75	0.83
GDP per capita	-	3,038	553	1,265	627
No. ind.	18,728	353	2,000	844	275

Table XVI: Second generation: Descriptive statistics, Men, 20-35 years old. Means

Variable	**Native Swedes**	**Id-Swede**	**Asia**	**Latin America**	**Mid-E./ Africa**
Age2024	0.24	0.29	0.43	0.50	0.53
Age2529	0.32	0.33	0.32	0.28	0.31
Age3035	0.44	0.38	0.25	0.22	0.16
Age	28.30	28.38	26.68	26.12	25.83
Edu_9	0.12	0.17	0.13	0.17	0.20
Edu_11	0.38	0.39	0.19	0.22	0.23
Edu_12	0.25	0.24	0.33	0.36	0.33
Edu_14	0.16	0.14	0.22	0.15	0.16
Edu_16	0.09	0.07	0.13	0.10	0.09
YS	11.91	11.65	12.39	11.98	11.86
Married	0.18	0.17	0.16	0.10	0.10
Unem_rate	5.12	5.18	5.08	5.04	5.11
Employed	0.91	0.87	0.85	0.81	0.79
No. ind.	18,728	36,391	879	655	1,600

Table XVII: Adoptees: Descriptive statistics, Men, 25-32 years old. Means

Variable	**Native Swedes**[1]	**Id-Swede**	**Asia**	**Latin America**	**Mid-E./ Africa**
Age	26.54	28.59	27.33	26.94	27.67
Edu_9	0.13	0.13	0.11	0.16	0.13
Edu_11	0.41	0.37	0.34	0.45	0.46
Edu_12	0.19	0.14	0.22	0.22	0.13
Edu_14	0.19	0.20	0.24	0.13	0.19
Edu_16	0.08	0.16	0.09	0.04	0.09
YS	11.93	12.30	12.17	11.45	11.87
Immiage_0	-	0.23	0.14	0.16	0.18
Immiage_1	-	0.35	0.32	0.18	0.32
Immiage_2	-	0.14	0.14	0.10	0.13
Immiage_34	-	0.17	0.26	0.21	0.22
Immiage_56	-	0.06	0.12	0.21	0.12
Immiage_79	-	0.05	0.02	0.14	0.03
Immiage	-	1.93	2.33	3.32	2.21
Married	0.08	0.17	0.10	0.11	0.06
Unem_rate	5.16	5.14	5.15	4.95	5.29
Employed	0.92	0.91	0.87	0.82	0.85
GDP per capita	-	3,049	531	1,072	451
No. ind.	4,826	220	900	253	149

1) "Native Swedes" only include those who are 25 to 28 years old

Table XVIII: Second generation: Descriptive statistics, Men, 25-32 years old. Means

Variable	**Native Swedes**[1]	**Id-Swede**	**Asia**	**Latin America**	**Mid-E./ Africa**
Age	26.54	28.72	28.30	28.16	27.90
Edu_9	0.13	0.16	0.10	0.12	0.17
Edu_11	0.41	0.46	0.26	0.31	0.32
Edu_12	0.19	0.14	0.19	0.22	0.17
Edu_14	0.19	0.16	0.28	0.19	0.22
Edu_16	0.08	0.08	0.18	0.16	0.13
YS	11.93	11.71	12.73	12.34	12.14
Married	0.08	0.16	0.21	0.12	0.13
Unem_rate	5.16	5.19	5.15	5.12	5.14
Employed	0.92	0.89	0.91	0.90	0.84
Father Sw.	1.00	0.42	0.68	0.58	0.88
No. ind.	4,826	19,322	435	293	768

1) "Native Swedes" only include those who are 25 to 28 years old