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Ethnic School Segregation and Second-generation Immigrants' Human Capital*

by

Martin Nordin[†]

ABSTRACT

Recent research has shown that there is a substantial skill difference in Sweden between natives and second-generation immigrants. The objective of this study is to find out whether there exists a relationship between ethnic school segregation and the individual's human capital. The variation in ethnic concentration rate between cohorts *within a school* generally does not affect the individual's human capital outcome. However when estimating specific peer influences between different ethnic groups (first-generation immigrants, second generation immigrants with two foreign-born parent and second generation immigrants with one foreign-born parent) the study shows three major findings. First, for men (both natives and second-generation immigrants) there is a general negative effect of having a large share of first-generation immigrant schoolmates. Second, for both men and women a large share of schoolmates with a completely foreign background (non-native parents) has a negative influence on the Swedish grades of second-generation immigrants with two foreign-born parents. Third, for men there seem to exist specific and positive peer influences within the groups of second-generation immigrants with either one or two foreign-born parents.

JEL classification: J24, I21

Key words: Ethnic Segregation, second-generation immigrants, human capital test score gap

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INTRODUCTION

Nordin and Rooth (2009) found substantial cognitive skill differences in Sweden between male natives and male second-generation immigrants with a background in Southern Europe or outside Europe. This result raises the important question of what lies behind the observed gap.

Recent studies have found the skill gap between whites and blacks in the USA to be partly caused by racial segregation (Hanushek et al., 2009; Card and Rothstein, 2007; Cook and Evans, 2000). Moreover, because Nordin and Rooth (2009) show that the skill gap between natives and second-generation immigrants in Sweden is not a reflection of the socioeconomic position (income and education) of the parents, it appears vital to study whether school and neighborhood segregation in Sweden creates obstacles to acquiring productive skills for second-generation immigrants.

Against this background, the objective of this study is to find out whether ethnic school segregation affects the individual's human capital outcome. A special feature is that it is able to analyse and compare several different measures of human capital or skills, namely cognitive ability, educational attainment and compulsory school grades.

For the USA, Hanushek et al. (2009) explain parts of the black-white achievement gap with the share of black schoolmates. Card and Rothstein (2007) find a negative association between black test scores and neighborhood segregation (but not school segregation) in the USA. Cook and Evans (2000) attribute the substantial narrowing of the black-white achievement gap, which has occurred since 1970, to changes within schools. They show that only 25 per cent of the convergence can be attributed to changes in family background and changes in school quality between schools.¹

There are few similar studies performed on Swedish data. Dryler (2001), Szulkin and Jonsson (2004) and Szulkin (2006) primarily examine the relationship between

school grades achieved and ethnic school segregation, and find that school grades generally are lower in ethnically segregated schools. For immigrants, Grönqvist (2006) finds a negative association between the size of the ethnic enclave and the probability of graduating from higher education.

However, assuming that it is positive to have schoolmates with the same ethnic origin as oneself, ethnic school segregation does not have to be negative. Edin et al. (2003), who study the economic consequences of living in ethnic enclaves for immigrants in Sweden, report a positive externality. In Denmark the size of the ethnic enclave seems to increase the employment probabilities of refugees (Piil Damm, 2009.) Also, the ethnic share in a neighbourhood seems to be positively related to the compulsory school grade of immigrant children (Åslund et al., 2009). For more information on (positive) peer effects and social interactions see Manski (2000).

To handle selection (unobserved family factors affecting both the child's human capital and the choice of school district) we use an empirical strategy proposed by Hoxby (2000), who suggests that one should use the variation between cohorts *within a grade within a (public) school* as a source of idiosyncratic variation.² Therefore, to calculate an ethnic school segregation measure, we use the share of first- and second-generation immigrants among pupils graduating from a particular school (at age sixteen after nine years of compulsory schooling).

However, ethnic peer influences are likely to be complex. Entorf and Lauk (2008) have, for example, shown that native-to-native peer effect and migrant-to-migrant peer effects are strong. We therefore further examine whether the share of first-generation immigrants has differential effects compared to the share of second-generation immigrants, and whether the peer influences affect second-generation immigrants differently from native Swedes. For the second-generation immigrants, we also

distinguish whether one or both parents are foreign-born. That is, we analyse whether there are specific peer influences within the ethnic groups.

These group-specific peer influences are likely to be unbiased because the cohort change in, for instance, the share of first-generation immigrants graduating from a particular school is likely to be uncorrelated with unobserved family characteristics of, for example, second-generation immigrants with two foreign-born parents. On the other hand, cohort variation in children's human capital outcome within a school may be caused by a time trend in family characteristics (within a school district), but this potential time trend is addressed by controlling for family income and parental education.

The paper is structured in the following way. The next section presents the data and descriptive statistics. After describing and discussing the specification of the econometric model, the following section reports the results. The final section contains the conclusions.

DATA AND DESCRIPTIVE STATISTICS

Our empirical analysis uses data from Statistics Sweden. The basic data is a full sample of every individual in the age group 20-27, living in Sweden in the year 1999. However, the sample used in the analysis contains only Swedish-born individuals, i.e. it includes only second-generation immigrants and natives. Natives are defined as Swedish-born with two Swedish-born parents and second-generation immigrants are defined as born in Sweden and having at least one parent born abroad. The exclusion of first-generation immigrants implies that the analysis avoids possible problems with immigration effects.

Because some schools in the data changed name and/or identification number during the time period that we study, it is difficult to follow a particular school over

time. Therefore, to get a manageable number of schools it is necessary to restrict the sample in some way. A convenient restriction is to choose the metropolitan areas in Sweden (i.e. schools located in Stockholm, or some of its suburbs, Gothenburg or Malmö), since the *Commission on Metropolitan Areas in Sweden*³ considers that these cities contain the most socially disadvantaged areas in Sweden. The sample then contains of 100,586 individuals. Excluding individuals attending a private school reduces the sample with 2,229 individuals. When also excluding 2,721 individuals (2 per cent of the natives and 4 per cent of the second-generation immigrants) because information on either the individual's educational variable or grades is missing, we end up with a final sample of 95,636 individuals.

Thus, the data provides information on which compulsory school the individual has graduated from.⁴ After categorizing the individuals into different schools, each school's ethnic concentration rate is calculated. Our strategy for calculating the ethnic concentration rate is based on the concentration of first- and second-generation immigrants attending the school.⁵ More precisely, the concentration rate is the share of first- and second-generation immigrants graduating from the school a particular year. Thus, it is the cohort-specific ethnic concentration rate that we use,⁶ which leaves us with an average ethnic concentration rate of 31 per cent at the included schools. The specific concentration rates of first-generation immigrants, second-generation with two foreign-born parents and second-generation immigrants with one foreign-born parent are also calculated.

We divide the individuals into natives and eleven different groups of second-generation immigrants. The categorization of the second-generation immigrants is based on parental region of birth: Nordic countries, Western Europe (including North America and Oceania), Eastern Europe, Southern Europe and outside Europe. We also identify

whether one or both parents are foreign-born. Individuals with a mixed foreign background, i.e. where both parents are born abroad but in different countries, constitute a separate group named *Mixed*. Sample sizes for each group of second-generation immigrants are found in Table 1. A majority, 53 per cent, of the second-generation immigrants have a native Swede as their father/mother.

Our measure of cognitive ability is the test score from the Swedish Military Enlistment Battery test, which tries to measure cognitive ability⁷ and is taken by virtually every male Swedish citizen when he turns 18. For more information about the Swedish Military Enlistment Battery test see the Appendix. The test scores for women are lacking, and ten per cent of the men are not included due to missing values in the test⁸, i.e. when analyzing the Enlistment test score, the sample contains 44,111 men.

Our educational attainment measure, SUN 2000, is for the year 2003.⁹ The constructed educational attainment variable contains all potential years of schooling between eight and twenty, except for nineteen years of schooling. Since we want to study final educational attainment, we use data from 2003 when the individuals were aged 24 to 31. However, for 2003 we lack data (and therefore educational attainment) for the cohort aged 24, which reduces the sample used in the educational attainment analysis to 83,583 individuals.

The final grades in math and Swedish from compulsory school (at age 16) are the grades that are analysed. Since the students choose different math courses,¹⁰ either an advanced or a basic math course, but receive the same type of grades (from one to five), we have to calculate a common math grade. In our sample 61 per cent of the individuals have taken the advanced math course. A national assessment test of every student provides support and guideline for teachers in the grading of the students. Irrespective of the level of the math course, the students take the same assessment test. Since we

have this test result for a sample of individuals, we are able to use it to calculate a common grade for both math courses. By calculating the mean test result (also a scale varying from 1 to 5) of the national assessment for each grade and for each math course, a common math grade variable is arrived at. Students with a foreign home language are free to choose a Swedish course suited to their needs. In the same way as for the math grade, we use the national assessment to calculate a common Swedish grade for both groups.

Summary statistics for test score, educational attainment and math and Swedish grades are given in Table 1. The statistics are reported separately for natives and each ethnic group, and for each gender. The table also contains the mean school-specific ethnic concentration rate for each ethnic group. Table 1 reveals that second-generation immigrants with two foreign-born parents attend ethnically segregated schools more often than others, and that the average ethnic concentration rate is highest for those with both parents born in Southern Europe or outside Europe. We also find the human capital outcome to be lowest for second-generation immigrants with two parents born in the Nordic countries, Southern Europe or outside Europe. The Enlistment test score is particularly low for men with both parents born in Southern Europe or outside Europe.

¹¹ For second-generation immigrants with a background in Western or Eastern Europe the human capital outcome is similar to that of natives.

Table 1 about here

ECONOMETRIC SPECIFICATION

The econometric specification is based on Hoxby's (2000) model for identifying peer effects. The child's human capital outcome, HC , is explained as:

$$HC = \beta ER_{kc} + \sum_{k=1}^{139} \alpha_k S_k + \lambda y + \delta Educ_f + \rho Educ_m + \pi X + \varepsilon \quad (1)$$

where ER_{kc} indicates the concentration rate of first- and second-generation immigrants in the cohort c graduating from school k . β measures if the child's human capital outcome, HC , varies systematically with changes in the concentration rate of first- and second-generation immigrants of cohorts at a particular school. Using the 139 school-fixed effects, S_k , time invariant school (and neighbourhood) characteristics are controlled for. Thus, by adding the school-fixed effects, it is the cohort-to-cohort changes in the ethnic concentration rate *within a school* that identify the ethnic school effect. The cohort-to-cohort changes are assumed to be random and not correlated with unobserved (family) factors.

However, if the ethnic share increases over time, and the increase is correlated with family factors, one might estimate a time trend instead of an ethnic school effect. Since there may be a time trend in family characteristics in a school district, we control for family income, y , and father's and mother's education level, $Educ_f$ and $Educ_m$. The Appendix lists and describes the construction of the covariates. As to the individual characteristics, X , cohort dummies are used together with a set of dummy variables describing what part of the world the parent/parents were born in. When school-fixed effects are not included in the model, i.e. when estimating *between school* differences in ethnic concentration rate, we instead add fixed effects for municipality.

EMPIRICAL RESULTS

We begin by estimating the overall ethnic school effect, i.e. whether *within school* differences in the ethnic share explain the human capital outcome of the individual. The analysis is carried out separately for each human capital outcome and for each gender. In a next step we examine whether the share of first-generation immigrants has differential effects to the share of second-generation immigrants with two foreign-born

parents and the share of second-generation immigrants with one foreign-born parent. Finally, we analyse whether the ethnic school influences affect second-generation immigrants (with one or two foreign-born parents) differently from native Swedes.

THE ETHNIC SCHOOL EFFECT

Table 1 shows the ethnic school effects for the respective human capital outcomes. Column 1 reports the results when the Enlistment test score is our dependent variable. In column 2 we analyse the educational attainment variable. Columns 3 and 4 show the estimation results for the math grade and the Swedish grade, respectively. For each gender the upper row shows the *within school* ethnic effect. For comparative purposes (to see that the estimates are biased when not considering that there is selection in school attendance) we also show the *between school* effects of attending an ethnically segregated school.

Table 2 about here

It turns out that only for women's Swedish grades do we find a significantly negative effect of having a large share of ethnic schoolmates. For men there is actually a positive relationship between ethnic school segregation and the Enlistment test score and educational attainment. The effect is small and insignificant, though. The *between school* ethnic effects are significantly negative for all human capital outcomes and for both genders, indicating that family location is not random. Moreover, when controlling for parental background, the *between school* effects have already decreased by about 50 to 65 per cent.

DO THE ETHNIC EFFECTS VARY WITH PEERS' ETHNIC BACKGROUND?

In many aspects second-generation immigrants generally do better than first-generation immigrants. Therefore, the externality of having a large share of first-generation immigrant peers may differ compared to the externality of having a large share of second-generation immigrant peers. Furthermore, second-generation immigrants with one Swedish-born parent is likely to have relatively strong Swedish language skills, which might spillover to other ethnic schoolmates. Thus, in Table 3 we explore whether the ethnic peer influences vary with the peers' ethnic background, i.e. we include separate concentration rates of; first-generation immigrants, second-generation immigrants with two foreign-born parents, and second-generation immigrants with one foreign-born parent.

Table 3 about here

Table 3 shows that men are negatively influenced by having a large share of first-generation immigrant schoolmates. These ethnic school effects are significantly negative for men's Math and Swedish grades. However, having a large share of second-generation immigrant schoolmates with two foreign-born parents is positive for the test score and educational attainment of men. On the other hand, we find that it is the share of second-generation immigrant schoolmates with two foreign-born parents (and not the share of first-generation immigrant schoolmates) that has a significantly negative affect on the Math and Swedish grades of women.

DO THE ETHNIC EFFECTS ALSO VARY WITH OWN ETHNIC BACKGROUND?

To analyse if ethnic school segregation affects second-generation immigrants differently from native Swedes, we add separate ethnic concentration rate variables for natives and second-generation immigrants with one or two foreign-born parents. Thus, in Table 4 for men, and Table 5 for women, the ethnic school effects are reported for natives,

second-generation immigrants with two foreign-born parents and second-generation immigrants with one foreign-born parent. As in the earlier section, the ethnic school effects are estimated separately for the different ethnic concentration rates.

Table 4 confirms that the share of first-generation immigrant peers is negatively related to the human capital outcome of men. Even native men seem to be negatively affected (for native men's math grade the effect is significantly negative) by the share of first-generation immigrants. We somewhat surprisingly find that the largest negative influence is for male second-generation immigrants with *one* foreign-born parent. However, we find the "first-generation" ethnic effect on males' Swedish grades to be largest for second-generation immigrants with *two* foreign-born parents. The effect on the Swedish grade of increasing the share of first-generation immigrants by 10 per cent is as large as the effect of decreasing the family income by 15 per cent (relative to the mean family income).

Table 4 about here

Still focusing on the results for men in Table 4, we find that second-generation immigrants with one or two foreign-born parents are (particularly) positive influences within the groups. That is, for those with two foreign-born parents it is positive if the share of second-generation immigrants with two foreign-born parents is large, and for those with one foreign-born parent it is positive if the share of second-generation immigrants with one foreign-born parent is large. For those with one foreign-born parent, the within group effect on the test score is particularly large. However, for those with two foreign-born parents, the within group influence on their Swedish grade is significantly negative. Native men's test scores, and the educational attainment of male second-generation immigrants with one foreign-born parents are also positively related to the share of second-generation immigrants with two foreign-born parents.

We now turn to the results for women in Table 5. Contrary to the results for men (but in line with the results for women in the earlier section) we find no large negative influence of first-generation immigrant peers, or any strong influences within the second-generation immigrant groups (those with two or one foreign-born parents). However (and in line with the results for men), the Swedish grades of female second-generation immigrants with two foreign-born parents are sensitive to ethnic influences. Thus, for this group we find a significantly negative ethnic externality of having a large share of first- or second-generation (with two foreign-born parents) immigrant schoolmates. The effect on the Swedish grade of increasing the share of second-generation immigrants with two foreign-born parents by 10 per cent is approximately as large as the effect of decreasing the family income by 25 per cent (relative to the mean family income).

Table 5 about here

Table 5 shows other significant (sometimes negative and sometimes positive) ethnic influences on females as well. For example, natives' educational attainment and math grades are negatively affected by the share of second-generation immigrants with two foreign-born parents. We do not know how to explain these ethnic influences, though, and for some reason the results are more inconsistent for women than for men.

However, a plausible explanation for the somewhat inconsistent results could be related to ethnic influences within country-of-origin groups. Another explanation for the results could be related to the composition of second-generation immigrants with one or two foreign-born parents. For example, Table 1 shows that the share with a Nordic, or a Western or Eastern European origin is larger for the group with one foreign-born parent than the group with two foreign-born parent. To test if these explain the inconsistency in our results, we re-estimate the results excluding first those with a Nordic origin and then

those with a Western or Eastern European origin. These groups are generally seen as more culturally close to the natives, and differ most in the shares with one or two foreign-born parents (see Table 1). If the results are related to the composition of second-generation immigrants or specific influences within country-of-origin groups our results are expected to change. However, these results (available upon request) are similar to the results for the entire sample, indicating that these explanations are not the cause of the inconsistency of the results. We have, without success, also tried to use gender-specific ethnic concentration rates.

Finally, when estimating a joint specification, it might be that one estimates non-linearity in an overall ethnic effect instead of separate ethnic influences. Still, the results are basically the same (maybe somewhat larger) when estimating the ethnic influences separately; i.e. when adding each ethnic concentration rate in a separate model.

CONCLUSION

Our study analyses whether the variation in ethnic concentration rate between cohorts *within a school* affects the individuals' human capital outcome. The estimations show (except for women's Swedish grades) an insignificant ethnic school segregation effect.

However, when estimating separate ethnic influences of first-generation immigrants, second-generation immigrants with two foreign-born parents, and second-generation immigrants with one foreign-born parent, a somewhat different picture emerges. There are three major findings. First, for men there is a general negative effect of having a large share of first generation immigrant schoolmates. Second, for both men and women a large share of schoolmates with a completely foreign background (non-native parents) has a negative influence on the Swedish grades of second-generation immigrants with two foreign-born parents. Third, for men there seem to exist specific

and positive peer influences within the groups of second-generation immigrants with either one or two foreign-born parents.

All things considered, the results show that there are, indeed, ethnic externalities taking place at Swedish schools. The ethnic externalities are in some cases negative and in some cases positive, and they even affect natives (especially natives' Math grades). Some of these seem to be related to Swedish language skills (negative influences for both men and women) and some seem to be related to within-group influences (positive influences for men). But there are also ethnic externalities where the nature of influences is more uncertain.

Since the ethnic school effect for second-generation immigrants goes in different directions for different human capital outcomes and for different ethnic influences, a bias caused by a linear time trend in unobservable family characteristics is unlikely.

Although the sample sizes of second-generation immigrants are relatively small, we believe the results also stand for younger (and larger) cohorts of second-generation immigrants and for first-generation immigrants attending compulsory school in Sweden. The relevance of the findings also increases as the Swedish society becomes more ethnically and socially segregated

NOTES

* Other studies focusing on ethnic segregation are for example Borjas (1995) and Cutler and Gleaser (1997).

² Peer variation between schools and between classrooms within a school is, according to Hoxby, not a satisfactory type of variation. See Hoxby (2000) for a further discussion.

³ The Commission, whose task is to monitor and evaluate national metropolitan policy, is a drafting body in the Government Offices.

⁴ Since the academic year 1992/93 every Swedish pupil has had a right to choose to attend a school outside the local school district. This is after our cohorts started the senior level of compulsory school.

However, it is not true for those aged 20 in 1999, but since some time passed before people started choosing a school outside the local school district, it is practically also true for this group of individuals. Thus, since our cohorts had no right to choose to attend a school outside the local school district, school and school district are identical.

⁵ Information regarding home municipality and school attendance is missing for 8 per cent of the first-generation immigrants. By excluding these individuals, the actual concentration rate of first- and second-generation immigrants is in fact higher than that calculated by us, particularly because most first-generation immigrants decide to live in the metropolitan areas.

⁶ The average school-specific ethnic concentration rate for the entire time period 1988-1995 is also calculated.

⁷ Our cognitive measure is the general intelligence factor, G. For more information about the G factor, see Carroll (1993).

⁸ There are those who do not enlist because of legitimate health reasons. In 2000 (the latest year for which this information is available), 7 per cent of the cohort did not have to enlist because of health reasons. Of the second-generation immigrants we lose around 20 per cent, mostly because of foreign citizenship.

⁹ The measure is a revision of the former SUN classification adjusted to fit the International Standard Classification of Education (ISCED97).

^{*0} One per cent of the individuals attend a school with only one course in mathematics.

^{*1} The difference in test score results is even larger than in Nordin and Rooth (2009). This is mostly because we restrict the sample to the metropolitan areas and include younger cohorts (since they estimated income equations, they restricted the sample to those aged 28 or older). They also excluded the group (a relatively low-scoring group) with missing values for the separate test scores.

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APPENDIX

The Enlistment Battery has been used for the assessment of intelligence in the Swedish military since the middle of the forties. The test results from the Enlistment Battery principally measure a general ability, but to a certain extent also more specific abilities.

The information from the test is then used to allocate the individuals into different branches of the military, and to select those who are capable of performing more qualified jobs. The Enlistment Battery includes four tests, Instructions, Synonyms, Metal folding and Technical comprehension. The aim of the Instruction test is to measure the individual's ability to make inductions, while the Synonym test captures verbal ability. Verbal skills are also needed for performing well in the Instruction test. Metal Folding is a spatial test, and the fourth test measures Technical comprehension. Each test is normalised into a nine-point scale. The values are then, in accordance with the method of factor analysis, summed up and transformed into a new nine-point scale. Using the nine-point scale or the actual test score as our cognitive ability measure makes little difference to the results in this study. Since there are more missing values for the separate tests, we prefer the nine-point scale.

An estimate of average earnings, based on more than one year, is a less "noisy" measure than one based on a single year and therefore the mother's and father's average incomes for the years 1970, 1975 and 1980 (all earnings are in 1980 prices) are computed. If any of the incomes for the three years are zero, an average of the remaining positive incomes is computed. We then add the mother's and father's average incomes and obtain a measure for the family income.

The reported education level is the highest education attained by the parent. Five dummy variables indicate if the education levels of the mother and the father are upper secondary, short university, long university or a graduate degree. Missing values for the father's and the mother's education levels are reported in 9 per cent and 3 per cent of the cases, respectively. The reference group has missing values for the mother's and father's education level.

Tables

TABLE 1
SUMMARY STATISTICS

<i>Men</i>	<i>Ethnic conc. rate</i>	<i>Test score</i>	<i>Educational attainment</i>	<i>Math grade</i>	<i>Swedish grade</i>	<i>N</i>
Swedish	.28 (.00)	5.25 (.01)	12.48 (.01)	2.79 (.00)	2.98 (.00)	36,737
<i>Two foreign-born parents:</i>						
Nordic countries	.44 (.00)	4.42 (.06)	11.57 (.05)	2.45 (.02)	2.44 (.02)	1,537
Western Europe	.35 (.02)	5.56 (.39)	12.16 (.28)	2.67 (.14)	2.85 (.11)	50
Eastern Europe	.35 (.01)	5.12 (.10)	12.78 (.12)	2.85 (.04)	2.98 (.04)	361
Southern Europe	.47 (.00)	3.67 (.05)	11.93 (.05)	2.48 (.02)	2.56 (.02)	1,635
Outside Europe	.51 (.01)	3.63 (.06)	11.60 (.07)	2.41 (.03)	2.33 (.02)	1,142
Mixed	.41 (.01)	4.48 (.06)	12.20 (.06)	2.61 (.03)	2.73 (.02)	1,172
<i>One foreign-born parent:</i>						
Nordic countries	.31 (.00)	5.08 (.04)	12.16 (.04)	2.68 (.02)	2.88 (.01)	2,609
Western Europe	.29 (.00)	5.26 (.06)	12.56 (.06)	2.80 (.02)	2.99 (.02)	1,231
Eastern Europe	.32 (.01)	5.10 (.08)	12.64 (.08)	2.80 (.03)	2.97 (.03)	768
Southern Europe	.35 (.00)	4.67 (.06)	12.12 (.06)	2.54 (.03)	2.82 (.02)	1,073
Outside Europe	.34 (.01)	4.92 (.07)	12.27 (.07)	2.65 (.03)	2.89 (.02)	953
<i>Women</i>						
Swedish	.28 (.00)		12.88 (.01)	2.82 (.00)	3.34 (.00)	34,444
<i>Two foreign-born parents:</i>						
Nordic countries	.44 (.00)		12.02 (.05)	2.54 (.02)	2.87 (.02)	1,624
Western Europe	.37 (.03)		12.89 (.33)	2.74 (.14)	3.21 (.11)	41
Eastern Europe	.36 (.01)		13.12 (.14)	2.79 (.05)	3.30 (.04)	292
Southern Europe	.49 (.00)		12.19 (.05)	2.5 (.02)	2.89 (.02)	1,467
Outside Europe	.51 (.01)		11.87 (.06)	2.29 (.03)	2.53 (.02)	1,139
Mixed	.41 (.01)		12.56 (.07)	2.59 (.03)	3.10 (.02)	1,056
<i>One foreign-born parent:</i>						
Nordic countries	.32 (.00)		12.49 (.04)	2.68 (.02)	3.27 (.01)	2,523
Western Europe	.30 (.00)		12.97 (.06)	2.80 (.02)	3.38 (.02)	1,127
Eastern Europe	.31 (.01)		13.09 (.08)	2.87 (.03)	3.40 (.02)	703
Southern Europe	.35 (.00)		12.39 (.07)	2.54 (.03)	3.17 (.02)	1,022
Outside Europe	.33 (.01)		12.62 (.07)	2.67 (.03)	3.27 (.02)	930

Notes: For the Enlistment test the total sample contains 44,111 men, and for Educational attainment the total sample contains 43,020 men and 40,565 women. Standard errors in parentheses.

TABLE 2
RESULTS OF ESTIMATING THE WITHIN ETHNIC SCHOOL EFFECT AND
THE BETWEEN ETHNIC SCHOOL EFFECT.

<i>Men</i>	<i>Test Score</i>	<i>Years of Schooling</i>	<i>Math grade</i>	<i>Swedish grade</i>
Within school ethnic effect	.140 (.167)	.128 (.184)	-.081 (.071)	-.073 (.057)
Between school ethnic effect	-.808 (.059) ^{***}	-.770 (.062) ^{***}	-.284 (.025) ^{***}	-.241 (.020) ^{***}
Observations	44,111	43,020	49,268	49,268
<i>Women</i>				
Within school ethnic effect		-.031 (.187)	-.073 (.071)	-.122 (.054) ^{**}
Between school ethnic effect		-1.062 (.063) ^{***}	-.393 (.025) ^{***}	-.347 (.020) ^{***}
Observations		40,565	46,368	46,368

Notes: Each estimate comes from a separate regression. In all models we control for age (age dummies), ethnic origin (the ethnic groups in Table 1), family background (family income and father's and mother's education level), and school fixed effects (when estimating the between ethnic effect we add municipality fixed effects). Standard errors are shown below the coefficients.

TABLE 3
RESULTS WHEN INCLUDING SEPARATE ETHNIC CONCENTRATION RATES
FOR EACH ETHNIC GROUP.

<i>Men</i>	<i>Test Score</i>	<i>Years of Schooling</i>	<i>Math grade</i>	<i>Swedish grade</i>
Share of first -generation imm.	-0.277 (0.254)	-0.250 (0.288)	-0.371 (0.108) ^{***}	-0.175 (0.087) ^{**}
Share of second -generation imm. with two foreign parents	0.496 (0.225) ^{**}	0.529 (0.251) ^{**}	0.104 (0.095)	-0.110 (0.076)
Share of second -generation imm. with one foreign parent	0.091 (0.288)	-0.045 (0.306)	-0.015 (0.124)	0.140 (0.100)
<i>Women</i>				
Share of first -generation imm.		0.027 (0.293)	0.114 (0.108)	0.091 (0.083)
Share of second -generation imm. with two foreign parents		-0.169 (0.255)	-0.267 (0.094) ^{***}	-0.311 (0.072) ^{***}
Share of second -generation imm. with one foreign parent		0.109 (0.311)	0.020 (0.123)	-0.072 (0.094)

Notes: The results in each column come from a separate regression. In all models we control for age (age dummies), ethnic origin (the ethnic groups in Table 1), family background (family income and father's and mother's education level), and school fixed effects. Standard errors are shown below the coefficients.

TABLE 4
RESULTS OF ESTIMATING THE ETHNIC SCHOOL EFFECTS SEPARATELY FOR
NATIVES AND SECOND GENERATION IMMIGRANTS WITH ONE OR
TWO FOREIGN-BORN PARENTS. MEN.

<i>Men</i>	<i>Test Score</i>	<i>Years of Schooling</i>	<i>Math grade</i>	<i>Swedish grade</i>
<i>Share of first-generation imm. on:</i>				
Natives	-0.288 (0.273)	-0.203 (0.309)	-0.317 (0.118)***	-0.018 (0.095)
One foreign-born parent:	-0.480 (0.396)	-0.539 (0.439)	-0.620 (0.168)***	-0.343 (0.135)**
Two foreign-born parents:	-0.054 (0.359)	-0.180 (0.388)	-0.318 (0.145)**	-0.476 (0.116)***
<i>Share of second-gen. imm. (two foreign parents) on:</i>				
Natives	0.428 (0.248)*	0.423 (0.275)	-0.037 (0.107)	0.131 (0.086)
One foreign-born parent:	0.561 (0.370)	0.843 (0.406)**	0.199 (0.157)	0.184 (0.126)
Two foreign-born parents:	0.728 (0.317)**	0.568 (0.341)*	0.277 (0.126)**	-0.495 (0.101)***
<i>Share of second-gen. imm. (one foreign parent) on:</i>				
Natives	-0.267 (0.309)	-0.071 (0.331)	-0.064 (0.135)	0.097 (0.108)
One foreign-born parent:	1.550 (0.589)***	0.456 (0.625)	0.408 (0.250)	0.648 (0.201)***
Two foreign-born parents:	0.986 (0.720)	-0.446 (0.711)	-0.145 (0.284)	-0.126 (0.227)

Notes: The results in each column come from a separate regression. In all models we control for age (age dummies), ethnic origin (the ethnic groups in Table 1), family background (family income and father's and mother's education level), and school fixed effects. Standard errors in parentheses.

TABLE 5
RESULTS OF ESTIMATING THE ETHNIC SCHOOL EFFECTS SEPARATELY FOR
NATIVES AND SECOND GENERATION IMMIGRANTS WITH ONE OR
TWO FOREIGN-BORN PARENTS. WOMEN.

<i>Women</i>	<i>Years of Schooling</i>	<i>Math grade</i>	<i>Swedish grade</i>
<i>Share of first -generation imm.</i>			
Natives	0.059 (0.317)	0.132 (0.119)	0.193 (0.091)**
One foreign-born parent:	-0.309 (0.440)	-0.052 (0.166)	0.139 (0.127)
Two foreign-born parents:	0.229 (0.383)	0.170 (0.141)	-0.208 (0.108)*
<i>Share of second-gen. imm. (two foreign parents) on:</i>			
Natives	-0.480 (0.282)*	-0.402 (0.107)***	-0.053 (0.082)
One foreign-born parent:	0.464 (0.431)	-0.003 (0.163)	0.049 (0.125)
Two foreign-born parents:	0.234 (0.342)	-0.200 (0.123)	-0.713 (0.095)***
<i>Share of second-gen. imm. (one foreign parent) on:</i>			
Natives	-0.218 (0.338)	-0.016 (0.134)	-0.082 (0.103)
One foreign-born parent:	0.854 (0.626)	0.368 (0.243)	0.229 (0.186)
Two foreign-born parents:	1.243 (0.724)*	-0.204 (0.279)	-0.285 (0.214)

Notes: The results in each column come from a separate regression. In all models we control for age (age dummies), ethnic origin (the ethnic groups in Table 1), family background (family income and father's and mother's education level), and school fixed effects. Standard errors in parentheses.