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May 2001

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ABSTRACT

The Educational Attainment of Second Generation Immigrants in The Netherlands

Since the mid-1960's the Netherlands has had an immigration surplus, mainly because of manpower recruitment from Turkey and Morocco and immigration from the former Dutch colony of Surinam. Immigrants have a weak labor market position, which is related to their educational level and language skills. Children and grandchildren of immigrants are expected to have a better chance of integration into Dutch society. In this paper we investigate whether this is true with respect to the educational attainment of second generation immigrants from Turkey, Morocco, Surinam and the Dutch Antilles.

JEL Classification: J15, J61

Keywords: Immigration, ethnic minorities, immigrant workers

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1. INTRODUCTION

The Netherlands is among the few European countries that experienced a rapid decline of unemployment in the second half of the 1990's. Whereas in the beginning of the 1990's (registered) unemployment rate went up from 5.9% in 1990 to 7.0% in 1995, it went down to 4.0% in 1998. Not every group in the Dutch labor market experiences a low unemployment rate. Whereas native Dutch males had an unemployment rate of 3.3% in 1998, the unemployment rate among Surinamese and Antillean males was 8-9% while among Turkish and Moroccan males it was 17-19% (Table 1). Also for females, the level of the unemployment rates of immigrants is far above that of native Dutch people. Also in terms of labor market participation, the immigrant groups have a less favorable position. As shown in Table 1, labor market participation among native Dutch males was about 80% in 1998, whereas for Surinamese and Antillean males this was 70-75% and for Turkish and Moroccan males 60-65%. Labor market participation among Turkish and Moroccan females was as low as 25-30%.

Most immigrants have on average a disadvantaged socio-economic position. This is one of the reasons why these immigrant groups are considered to be ethnic minorities, who can be defined as "those groups who originally come from other countries with other cultures, and who on average have a disadvantaged socio-economic position for at least two generations" (Van Amersfoort, 1974, Penninx, 1988). A relatively unfavorable position of immigrants is exactly what one could expect, since the Netherlands is a rather young immigrant country. This implies that the general picture is largely determined by the first generation: those who actually migrated. At the moment of migration most of them lacked Dutch language proficiency and knowledge of Dutch society (Van Ours and Veenman (1999)). Moreover, they differed in culture and had hardly any contact with native Dutch people. Taken together, they have a typical 'starters position' in Dutch society which means that it is very difficult for them to acquire a favorable socio-economic position. In this respect, immigrants in the Netherlands do not differ from immigrants in many other countries.

As Table 1 indicates the educational level of immigrant groups is lower than that of native Dutch people. From a policy point of view an important question is whether – and if so, to what extent – the children of the first generation immigrants are capable of acquiring a better socio-economic position. Since educational attainments are a strong determinant of the labor market position and related variables like income, we focus on the educational

achievements of the second generation, that is immigrant children born in the Netherlands or those who immigrated into the Netherlands at a very young age. In particular we focus on the educational attainment of second generation immigrants in comparison with first generation immigrants and native Dutch people.

There is a long tradition of education studies in the Netherlands. In the 1960's and 1970's most of these studies focused on the disadvantageous position of native Dutch children from families with a low socio-economic status. In the last two decades research has focused on the unfavorable educational achievements of ethnic minority children. Both the analysis of survey data and more anthropological research methods were used to find out why immigrant children lagged behind native Dutch youngsters. Without going into detail now, we conclude from the results of the first kind of studies (mostly regression analyses on data from cohort studies) that socio-economic status, usually operationalised as the educational level of the parents, is an important determinant of educational arrears (Driessen, 1990, Ceders in de tuin, 1992; Van 't Hof en Dronkers, 1993; Hustinx, 1998). The second type of studies, based on in-depth interviews and participant observations at home and in the class room, emphasize the importance of other factors (e.g. Pels, 1991, Leseman et al., 1992, Hofman, 1993). Among these factors are: (a) problems related to the migration itself, such as inadequate language proficiency and lack of information on schooling opportunities, (b) cultural aspects, such as belief systems in relation to education and the labor market, pre-school informal teaching within the family, norms towards the relationship between parenting and formal education, and (c) school characteristics, such as the quality of the teaching program, the 'hidden' curriculum, and the adaptation of intercultural teaching methods. Since cultural characteristics, migration history and socio-economic status are mutually related, Veenman (1993) and Martens and Veenman (1998) pointed out that it is difficult to answer the question how important each of the aforementioned factors are for the educational achievements of immigrant children, as they themselves found out in a study on the educational achievements of second generation immigrants (Martens and Veenman, 1996), combining data analysis and in-depth interviews. Using data from a nationwide survey (SPVA-1994) they conclude that second generation youngsters have better educational achievements than first generation youngsters, but still lag behind their native Dutch contemporaries. The educational achievements of pupils and students between 12 and 25 years were regressed on their age, gender, whether or not they have their own room (to do homework), and their educational level. These factors explain about 75% of the difference in educational level between second generation Turks and

Moroccans on the one hand, and the native Dutch youth on the other, 90% of the difference between the second generation Surinamese and the indigenous youth, and almost the whole difference between the second generation Antilleans and the native Dutch contemporaries. In-depth interviews among immigrant and native youngsters in districts in Amsterdam and Rotterdam with high concentrations of ethnic minorities showed the significance of language proficiency, social contacts and cultural factors in the family, such as schooling ambitions, career planning and orientation on return migration. Since these factors strongly correlate with the educational level of the parents, it is difficult to reveal the separate meaning of socio-economic characteristics of the family and cultural characteristics.

In their overview of the determinants of children's attainments, Haveman and Wolfe (1995) conclude that the most fundamental factor describing children's educational attainment is the human capital of parents, typically measured by the number of years of schooling attained. The human capital of the mother is usually more closely related to the attainment of the child than is that of the father. Education of their children is also an important determinant of the labor market position for immigrants. Children of better-educated immigrants have higher education and earn higher wages. Card et al. (1998) indicates that in the US, children of immigrants tend to have noticeably higher education and wages than the children of native Dutch people, controlling for parental background. Borjas (1995) indicates that there is a correlation between parental skills and the skills of children but this correlation is not sufficiently high to remove ethnic skill differentials quickly. Borjas explains the slow rate of convergence by ethnic spillovers: the skills of ethnic children depend not only on the mean skills of the ethnic group but also on the mean skills of the ethnic group in the parents' generation (see also Borjas (1992)). In Europe there is research on intergenerational mobility and the relevance of educational attainment in this, but not so much in relation to immigrants. Couch and Dunn (1997) conclude that German children's education has very weak correlations with their mothers, whereas in the US the correlations are of the same magnitude as the correlations with fathers' education. Dearden, Machin and Reed (1997) find that the education of both parents has a strong impact on the education of their children but, whereas father's education is more important for sons, mother's education is more important for daughters. Gang (1997) concludes on the basis of an analysis of German, Hungarian and Soviet data that there are large differences in the human capital formation across ethnic groups and gender. While there is some assimilation across generations, it is far from complete.

A study which investigates the educational position of second generation European immigrants is Gang and Zimmermann (2000). They analyze a sample from a survey of second generation immigrants in Germany. They define second generation immigrants as children of first generation immigrants born in Germany or arriving in Germany before the age of 16 and who were at the time of the survey 17-38 years old. They investigate to what extent the parental human capital (defined as the educational attainment of parents) influences the educational attainment of children. They conclude that for foreign-born parental schooling plays no role in the educational choice of their children. Furthermore, they conclude that there is convergence in the acquisition of education taking place. However, ethnicity still has a strong effect on educational attainment, which indicates that social and cultural differences persist.

We conclude from previous studies that in terms of educational attainment, second generation immigrants do better than first generation immigrants but not as well as native Dutch people. On the basis of the latest version of the national survey among four immigrant groups (SPVA 1998), we will try to find out whether this is still the case in the Netherlands and if so, why. This article is set up as follows. In section 2 we describe the position of immigrants in the Netherlands in more detail. In section 3 we present our data and give the results of preliminary analysis. In section 4 we discuss the set-up of our statistical analysis. Section 5 presents the estimation results. Section 6 concludes.

2. IMMIGRANTS IN THE NETHERLANDS

Since the beginning of the 1960s the Netherlands has had an immigrant surplus. The immigration of the past decades originates from two rather different processes. The de-colonization caused peaks in immigration in specific years while the hiring of immigrant workers – because of cyclical labor shortages – turned out to have a structural character. Current labor market problems are to some extent related to the shift in immigration from a business cycle phenomenon to a structural process. In the 1960's immigrant workers were hired because the Dutch labor market was booming. The immigrant workers got jobs in industries with low paid labor. Since these industries were particularly hit by the economic recession of the 1980's, many immigrant workers lost their jobs to become long term unemployed.

Now, at the beginning of the new millennium about 2.7 million people live in the Netherlands, who by their own birthplace or that of at least one of their parents are considered to be immigrants. Together they comprise about 17% of

the total population. As counted in 1999, the largest groups of immigrants are Turkish (300,000), Surinamese (297,000), Moroccan (250,000), Antilleans (99,000) and people from (former) Yugoslavia (63,000). Immigrants from the southern European countries comprise about 90,000 people, who have different nationalities. Even more diversity of nationality is found among the political refugees, who comprise about 180,000 people. As far as immigrants are concerned we focus on Turks, Moroccans, Surinamese and Antilleans.

Until now, the second generation has been loosely defined. To adequately answer our central research question, we have to be more precise. For our analyses in this paper, we will define the second generation as (a) those who were born in the Netherlands from at least one parent who came there as an immigrant and (b) those who arrived as an immigrant in the Netherlands at a very young age. From previous research (Martens and Veenman (1996)) we know that a strong determinant of the educational careers of immigrant is the moment they start to participate in the educational system of the immigrant country. It was calculated that in the Netherlands the decisive age limit for significant drawbacks from migration, is 6 years. We therefore include those immigrants who arrived in the Netherlands at an age under 6 years in the second generation.

Figure 1 shows how in 1998 the share of second generation immigrants in the total group of immigrants declines rapidly with age. At the age of 10 about 95% are second generation, at age 20 this is 60% and at age 30 only 10% of the immigrants belong to the second generation. Figure 2 shows for the four immigrant groups the share of second generation immigrants in the age group 15-29, the age group that we study more closely. For Turks, Moroccans and Surinamese the decline of the share with age is about the same. Antilleans are clearly outliers. Their share is approximately the same in every age group, which has to do with the fact that many young Antilleans come to the Netherlands.

3. DATA AND PRELIMINARY ANALYSIS

3.1 Data

Our data is taken from a nationwide survey (SPVA-1998) among Turks, Moroccans, Surinamese, Antilleans (including Arubans) and native Dutch reference groups in 13 of the largest cities in the Netherlands. Given the presence of ethnic minorities in the largest cities, the survey may be considered to be representative for the four ethnic minorities. The same does not hold for the native Dutch population, since they are spread more evenly over the whole

country. This should not be considered to be a disadvantage, since the native Dutch sample is explicitly used as a reference group for the ethnic minorities in the largest cities. The response rates are comparable with those of other surveys in the largest Dutch cities, although special measures were taken to reach the lower educated ethnic minorities better (matching on ethnicity of interviewers and respondents, translation of questionnaires, et cetera). It seems that although these measures were successful in avoiding the exclusion of the lower educated, they were not successful in diminishing the general non-response rates.

In each household the head of household was asked to answer the general questions on the composition of the household and (if relevant) on its migration history. All members of the household being older than 11 years, were asked to answer the other questions, with the exception of a series of questions on cultural integration and social contacts. These questions were asked alternately in interviews with the head of household and his/her partner and in interviews with the eldest child present during the interview. In this way information was gathered among different numbers of respondents for each set of items.

The focus of this study is on educational attainment and a relevant indicator of the process by which people go through the educational system is whether, conditional on the age of the person involved, he or she goes to school or not. The upper part of Table 2 shows the percentage of people that were attending full-time education in 1998 distinguished by age group. Up to 15 years of age children have to attend full-time education. From 16 years onwards people can leave full-time education. As indicated, not many 16 and 17 year olds leave full-time education. Starting from age 18 onwards, the number of people in full-time education is rapidly declining. The differences between immigrant groups are substantial, but there is no clear difference between immigrant groups on the one hand and native Dutch people on the other hand, up to the age of 21. Then, for 21-23 years old, attendance of full-time education among Turks and Moroccans on the one hand and Surinamese, Antilleans and native Dutch people on the other hand is substantially different.

Figure 3a shows the relationship between age and the share of immigrants who go to school. From this figure it is clear that second generation immigrants go to school for longer than first generation immigrants, while native Dutch people go to school for longer than second generation immigrants. Figure 3b shows that, conditional on the age, within the group of immigrants there is hardly any difference between males and females.

The focus of our analysis is on the educational attainment in terms of level of education. Secondary education in the Netherlands is composed of two

main branches: general and vocational (see Oosterbeek (1992) from which we borrow this description). Within the secondary general branch, a number of different levels are distinguished each of which can be entered immediately after primary education. These levels involve differing numbers of years of education. The secondary vocational branch is divided into a lower and an intermediate level (each within different sectors). Only the lower level can be entered directly after primary education. Intermediate vocational education can be attended after graduation from lower vocational education, but some years of general secondary education may also suffice as a qualification. The top of the educational pyramid consists of higher vocational education and university. Virtually any pattern is permissible, but not every path through the educational system is equally efficient. Here, educational paths are not part of our analysis. Our focus is on educational level attained. We distinguish four levels of education (Note that the category level 0 (= no education) is only for the parents of immigrants a relevant category):

1 = Primary education

2 = Lower secondary education (lower vocational or lower general)

3 = Intermediate education (intermediate vocational, GCSE and A-levels)

4 = Higher education (higher vocational and academic).

For purposes of illustration, we calculate the average educational level based on this scale for the different groups in our dataset.

The lower part of Table 2 shows that the educational level of each of the groups of immigrants - as well as of the native Dutch people - increases until the age of 24. However, in the age group 15-17 years old there is already a difference in educational level of the school-leavers. Native Dutch people in this age group have a higher educational level than immigrant groups. Also, for people age 24 and older there is a difference in the level of education. Native Dutch people have the highest educational level, Turks and Moroccans the lowest, while Surinamese and Antilleans are in between. Averaged over all age groups from 15-29 years the pattern is similar. Figure 4a shows the relationship between age and educational level attained for first and second generation immigrants and native Dutch people. The educational level of second generation immigrants is higher than that of first generation immigrants while the level of native Dutch people is highest. Figure 4b shows that within the group of young immigrants' males have a somewhat higher educational level though the differences are small.

The stylized facts presented here are in line with results from previous research. It turns out that in primary education Surinamese pupils achieve better results in language and mathematics tests than Turkish, Moroccan and Antillean pupils. Nevertheless, they also lag behind native Dutch pupils. These

test results lead to ethnic minority youth ending up in lower forms of secondary education more than native Dutch youth. Moreover they achieve less favorable results there, which contributes to the fact that more than 20% of ethnic minority youths leave school without a certificate. For the Moroccan pupils this even applies to 30% as against 7% of all pupils (De Wit and Dekkers (1996)).

Using the intake level in secondary education as indicators, the educational level of school-goers, the drop-out rate (i.e. the share of those who leave school without a certificate), and educational level achieved, Martens and Veenman (1996) conclude that the second generation does indeed achieve a distinctly better educational position than their first generation contemporaries. Distinction by sex shows the same conclusion. Among the Antilleans there is hardly any difference between males and females. Among the Turks and Surinamese the second generation women do 'better better' than the second generation men. For the Moroccans on the other hand the differences among males are greater than among females (with the exception of the 'educational level achieved').

In comparison with indigenous Dutch youngsters on the basis of the same four indicators, the second generation youngsters are for all intents and purposes just as behindhand (Martens and Veenman (1996)). Distinguished by sex, the differences (to the disadvantage of the second generation) are mainly large for women. This does not mean that they achieve worse educational results than the men from the same population group, but that the indigenous women are 'better better' in comparison with indigenous men than ethnic minority women are in comparison with ethnic minority men. As for the different groups of immigrants, for the Turks and Moroccans the difference in the educational position between the second generation and their native Dutch contemporaries is still fairly considerable. For the Surinamese the differences are smaller. For the Antilleans the substantial differences only occur for the 'present level of education' indicator. For the other indicators, there are practically no differences between the Antillean second generation and their indigenous contemporaries. This means that these youngsters have succeeded in catching up to a great extent. They thus form the exception to a process, which can be termed 'the paradox of progress and retrogression'. Whilst ethnic minority youth in comparison with other minority cohorts manage to achieve a better level of education, the indigenous youngsters do the same but more so in comparison with other native Dutch cohorts (Veenman (1994, 1999)). The result is that the unfavorable situation in the education race gets bigger, though in the absolute sense there has been progress. However, the Antillean youngsters show that this is not necessarily always the case.

3.2 Preliminary analysis

To give a first idea about the information in our data we start with a preliminary analysis. Table 3 gives intergenerational differences between the first and the second generation immigrants distinguished by immigrant group. The table shows for example that the average educational level of Turkish women of the first generation immigrants is 1.60, while the average educational level of their parents was 0.93. From the table it is clear that education has increased over the generations. Parents of second generation children have a higher education than parents of first generation children. Second generation males and females have a higher education than first generation males and females. The difference in educational level between parents and children is quite substantial for Turks and Moroccans, while the differences for Surinamese, Antilleans and natives are small.

Table 4 shows the difference in educational attainment for young males and females between first and second generation immigrants and natives. The average educational level attained by first generation females is 1.77, by second generation females this is 2.27, while among native females it is 2.89. For males there is a similar ranking. For the first generation young males the average educational level is higher than for the first generation young females. This difference by sex is not present for second generation immigrants or for natives.

As discussed in the introduction an important determinant of the educational achievement of immigrant groups is the socio-economic status of the parents. As is customary in this kind of analysis, we use the educational level of the parents as an indicator of the socio-economic status of the family. Table 4 also shows the relationship between the average educational level of children and the educational level of their parents. If the parents have different educational levels, the highest educational level of either parent is used. If we lack information about the level of education of one of the parents we use the educational level of the other as an indicator.

Table 4 shows that irrespective of the group there is a positive relationship between the educational level of the parents and the educational level of the children. Furthermore, it appears that for young females the ranking in terms of educational attainment that is present at the aggregate level also holds conditional on the educational level of the parents. If for example the parents have educational level 2, their daughters have on average educational level 2.20 when first generation immigrants, 2.61 when second generation immigrants and 2.79 when they are natives. For young males this situation is

somewhat different. If for example the parents have educational level 2, their sons have on average educational level 2.03 when first generation immigrants, 2.58 when second generation immigrants and 2.66 when they are native Dutch people. So, there is not a lot of difference between second generation immigrants and natives. This does not hold for every educational level of the parents but it is clear that the educational position of second generation young males does not differ a lot from young natives. In general, this is due to the better position of native females.

Another way to compare the different groups is shown in Table 5. Here the educational levels are split-up in two categories: below level 3 and level 3 and higher. The table shows transition probabilities of children relative to their parents from one category to the other. For example: if the parents of a first generation immigrant son have a level of education below 3, there is a 73.5% probability that the son also has an educational level below 3 and a 26.5% probability that the son has an educational level of at least 3. These probabilities are quite different if the parents have a high level of education. Then the probability that the son has an educational level below 3 is only 25.8%. Such relationships also hold for second generation immigrant and native children. However, conditional on the educational level of the parents being low, the probability that a son or a daughter attains a high educational level is higher for second generation immigrants than it is for first generation immigrants, while this probability is highest for natives.

Table 6 summarizes the information in Table 5 by presenting odds ratios of intergenerational educational mobility (see for example Checchi, Ichino and Rustichini (1999)). It shows for example that for first generation young males the odds on obtaining a higher education are 8 times higher if the parent has had a higher education. For second generation young males having a parent with a higher education increases the odds only by 3 times, while for young natives this is just 2.6 times. So, the difference in these odds ratios for male second generation immigrants and natives are quite small, while for female second generation immigrants and natives the differences are substantial. First generation immigrants always have the highest odds ratios. Below we investigate this in more detail by using ordered probit models to analyze differences between the groups.

4. STATISTICAL MODELS AND EXPLANATORY VARIABLES

To explain the probability that an individual is still at school we use the traditional Probit-model, a binary choice model. Individual i is in one position (y_i

= 1) or in another ($y_i = 0$) and the relationship between the choice of the individual and his or her characteristics x_i is the following:

$$\begin{aligned}\text{Prob}(y_i = 1) &= \Phi(\mathbf{b}'x_i) \\ \text{Prob}(y_i = 0) &= 1 - \Phi(\mathbf{b}'x_i)\end{aligned}$$

where $\Phi(\mathbf{b}'x_i)$ is the standard normal distribution function and \mathbf{b} is a vector of coefficients.

For the indicators of level of education we use the ordered Probit-model. If y is a variable representing the level of educational attainment, x is a vector of explanatory variables including a group-specific dummy variable for first generation and a group-specific dummy variable for second generation, then the ordered Probit model can be written as:

$$y_i^* = \mathbf{b}'x_i + \mathbf{e}_i$$

where y_i^* is a latent variable for individual i and we observe:

$$\begin{aligned}y_i &= 1 \text{ if } y_i^* \leq 0, \\ y_i &= 2 \text{ if } 0 < y_i^* \leq \mathbf{m}_1, \\ y_i &= 3 \text{ if } \mathbf{m}_1 < y_i^* \leq \mathbf{m}_2, \\ y_i &= 4 \text{ if } \mathbf{m}_2 \leq y_i^* .\end{aligned}$$

The \mathbf{m}_s are unknown parameters, which are estimated jointly with the elements of vector \mathbf{b} . We estimate the ordered probit model on the subset of individuals aged 18-29 that already left formal education. Our explanatory variables are the following:

- Gender; we use a dummy variable with a value of 1 for females and a value of 0 for males.
- First generation immigrants; we use four dummy variables, one for each immigrant group.
- Second generation immigrants; we use four dummy variables, one for each immigrants group.
- Age: to account for the effect of age groups we use dummy variables to cover each age between 16 and 29. In combination with the dummy variables for first and second generation immigrants and for gender this means that native male Dutch age 15 are the reference group. To save space we do not report the values of the co-efficients that relate to the age dummies.

- Education of the father, which we use as a continuous variable with 0 = no education, 1 = primary education, 2 = lower secondary education, 3 = intermediate education and 4 = higher education.
- Education of the mother, specified in the same way as the education of the father.

The appendix gives more detailed information about the dataset that we use in the analysis. Table A1 presents averages of all variables.

5. ESTIMATION RESULTS

5.1 Parameter estimates

All estimations are done separately for males and females according to the same set-up. First we present results without the educational attainment of the parents. Then, we include the educational attainment of both mother and father, to illustrate the contribution of these variables in the explanation of differences between the groups.

The estimation results with respect to the probability that someone is still at school, are presented in Table 7. From the first column it appears that conditional on their age, first generation-Turkish and Moroccan females are less likely to attend school than all other groups of females we distinguish. Conditional on their age, first and second generation Antillean girls are more likely to go to school than other groups. The second column shows what happens if we introduce the educational level of the parents. It turns out that for native Dutch people only the educational level of the father matters. For the immigrant groups we find a separate contribution of mothers and fathers. Both are positively correlated with school attendance, the effect of the mother being stronger than the effect of the father. After introducing the educational level of the parents as explanatory variables we no longer find that first generation Turkish and Moroccan females are different from other females. Columns 3 and 4 show the estimation results for males. By and large these are similar to the ones for females. Here too, after introducing the educational level of the parents we do not find differences between the groups in terms of school attendance. Our conclusion therefore is that conditional on the education of the parents and the age of the child, there is no difference in school attendance between first generation immigrants, second generation immigrants and native Dutch people. Table 8 shows the estimation results with respect to the diplomas of school leavers. Because of the limited number of individuals that leave school at age 15-17 we limit the analysis to persons aged 18-29. The first column of Table 8 shows that for females in terms of educational attainment we can distinguish

three groups. The first are native Dutch people and second generation Surinamese and Antillean immigrants that have the highest diploma. The second group are the second generation Turkish and Moroccan females and the first generation Antillean and Surinamese female immigrants that do worse than the first group but better than the third group, which consists of first generation Turkish and Moroccan females. From the second column of Table 8 it appears that the educational level of parents is positively correlated with the educational level of their children. If we introduce the educational level of both father and mother as explanatory variables the relative position of the different immigrant groups changes. It is still the case that all first generation females do worse than native Dutch people females, but of the second generation only the Turkish females do worse than native Dutch people females. The estimation results for males are shown in the third and fourth column of Table 8. From the third column it appears that apart from Antillean males and second generation Surinamese males all immigrant groups perform worse than native males. The fourth column however shows that if we account for the level of education of the parents none of the groups perform worse as native Dutch people. So, for young immigrant males we may conclude that conditional on the education of their parents, their educational attainment is similar to that of native Dutch people.

5.2 Sensitivity analysis

To investigate the sensitivity of our estimation results we performed several types of sensitivity analysis. First, we investigated whether including two additional variables affected the estimation results. These variables are indicators of the contacts of parents with natives and of problems of the parents in speaking Dutch:

- Contacts of parents with natives, specified as a continuous variable where a low number represents more contacts: 0 = frequent, 1 = not that frequent, 2 = sometimes, 4 = none or hardly ever.
- Problems of the parents in speaking Dutch, specified as a continuous variable with a low number meaning few problems: 0 = never, 1 = sometimes, 2 = (almost) always.

Inclusion of neither one of the variables affected the results.

Second, we investigated to what extent the educational level of parents has a different effect for different groups. We did this by restricting the effects of the educational level to be the same for all groups involved. We could not reject the hypothesis that the effects are the same. Therefore, we conclude that the educational level of parents is equally important for the educational attainment of children irrespective of whether it concerns first generation immigrants,

second generation immigrants or native Dutch people. Furthermore, we investigated whether the level of education of the father is more or less important than the educational level of the mother, but we could find no difference. They are equally important.

Third, we investigated to what extent our results are driven by our specific definition of second generation immigrants. As an alternative we defined second generation as only those who were born in the Netherlands from at least one parent who came as an immigrant. This means that persons who came to the Netherlands at an age under 6 years are now considered to be first generation immigrants. The estimation results based on this alternative definition are shown in Table 9. The differences with previous results are small. For all immigrant groups we can still conclude that conditional on age and parents' education school attendance is the same as among native Dutch people. The results in terms of diplomas have improved somewhat for the immigrant groups. Now, both for males and females there is, again conditional on age and parental education, no difference between second generation immigrants and native Dutch people. The same conclusion holds for first generation males, but first generation females perform worse than native Dutch females.

Fourth, we included information about those who are still at school. The assumption underlying the model so far is that individuals who have left formal education do not return to the educational system. So, their current educational level is the final educational level they will ever attain. The age group 18-29 years contains a substantial number of individuals who are still at school. Since there are differences in school attainment between the groups in our analysis our estimation results may be biased. Furthermore, the level of education that people have already attained gives information about their eventual educational attainment, which we do not use in our analysis. If people are still at school, the level of their school gives information, although this information is incomplete. If a person is attending education at level 4 we are not certain that this person will finish at level 4, but we do know that this person has reached at least level 3. If a person is attending education at level 3, this person may proceed to level 4 and finish there, the person may finish at level 3 or he or she may drop-out so that the final educational level is 2. In the sensitivity analysis we exploit the information about the educational attainment of people who are still at school in the following way. First, we assume that people who attain education at a particular level will finish their education at least at that level. If z is a variable representing the level of educational attainment of people that are still at school, then we assume:

$$\begin{aligned}
y_i &\geq 1 \text{ if } z_i = 1, \\
y_i &\geq 2 \text{ if } z_i = 2, \\
y_i &\geq 3 \text{ if } z_i = 3, \\
y_i &= 4 \text{ if } z_i = 4.
\end{aligned}$$

Alternatively, we assume that people who attain education at a particular level may finish their education at at least that level or one level below:

$$\begin{aligned}
y_i &\geq 1 \text{ if } z_i = 1, \\
y_i &\geq 1 \text{ if } z_i = 2, \\
y_i &\geq 2 \text{ if } z_i = 3, \\
y_i &\geq 3 \text{ if } z_i = 4.
\end{aligned}$$

For both alternative specifications we use again an ordered Probit model specification. The new estimation results are shown in Table 10. The first two columns show the estimation results if we assume that those who are still in school will leave this school with at least their current level of education. If this would be the case the educational attainment of second generation females would be comparable to that of the native females, while for the males we find that conditional on age and parental education second generation individuals perform significantly better than native Dutch males. Column three and four of Table 10 show estimation results if we allow people to flow out of the educational system one level below their current education. The results are quite similar to those in columns one and two.

6. CONCLUSIONS

In the current article we focus on the position of second generation immigrants, that is immigrant children born in the Netherlands or people who immigrated to the Netherlands at a very young age. In particular we focus on the educational attainment of second generation immigrants in comparison to first generation immigrants and native Dutch people. In our analysis we use a unique dataset containing information about the four main immigrant groups of Turks, Moroccans, Surinamese, Antilleans (including Arubans) and about a native Dutch reference group. We focus on young individuals. For people aged 15-29 years we investigate to what extent the school attendance of immigrant groups is different from native Dutch people, conditional on age and education of the parents. We find that there are no differences. To the extent that there are differences between groups at the aggregate level these are related to

differences in education of the parents: the lower the education of the parents the lower school attendance of the children.

For individuals aged 18-29 we investigated to what extent there are differences in educational attainment between immigrant groups and native Dutch people. By and large we find that conditional on age and parental education with respect to males there are no differences between first generation, second generation immigrants and natives. For females we find that the first generation immigrants do worse than the second generation immigrants and native Dutch people.

Our main conclusion is the differences in educational level of the parents is driving the differences in educational attainment between second generation immigrants and native Dutch people. The second generation is worse off because their parents on average have a lower level of education. If we take these differences into account, the differences between second generation immigrants and native Dutch people vanish to a large extent. This does not mean that the gap between second generation immigrants and natives will close automatically. Educational decisions are also determined by factors such as language proficiency, social contacts schooling ambitions, career planning and orientation on return migration. Also, although the gap in educational attainment between native Dutch people and immigrants is vanishing, the speed at which this process occurs is measured in terms of generations. From a policy point of view a positive finding of our research is that second generation immigrants do not seem to be a group that is more problematic in terms of educational attainment than native Dutch people are. This means that if time goes by and the composition of the immigrant group changes in favor of the second generation current problems will fade away. A negative conclusion from our research is that first generation young immigrants are doing worse than native Dutch people are. Given that this group is still rather young this means that problems may persist for a long time in the future.

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Table 1 Labor market participation, unemployment rates and educational level by immigrant status; age group 15-64 years, 1998 (%)

	Unemployment rate		Labor market participation		Educational level	
	Males	Females	Males	Females	Males	Females
Turks	17.1	18.8	65	28	1.47	1.12
Moroccans	19.1	21.2	59	23	1.08	0.84
Surinamese	9.3	9.9	74	60	2.17	2.15
Antilleans	8.5	16.6	70	55	2.38	2.08
Natives	3.3	4.2	81	57	2.66	2.60

Source: Martens (1999)

Table 2 Percentage of people attending full-time education and average education attained ^{a)}; by age group, 1998

% of people	Turks	Moroccans	Surinamese	Antilleans	Natives
Age (years)					
15-17	93	93	77	96	95
18-20	56	67	70	58	71
21-23	23	31	47	65	54
24-26	8	10	23	39	23
27-29	<u>6</u>	<u>5</u>	<u>19</u>	<u>24</u>	<u>12</u>
Total	32	41	50	53	43
N	1358	1092	1049	613	575
Av. level					
Age (years)					
15-17	1.37	1.22	1.33	1.57	2.00
18-20	1.68	1.55	2.03	1.79	2.28
21-23	1.86	1.83	2.17	2.14	2.44
24-26	1.89	1.73	2.40	2.59	3.01
27-29	<u>1.84</u>	<u>1.74</u>	<u>2.44</u>	<u>2.66</u>	<u>2.96</u>
Total	1.83	1.72	2.30	2.42	2.80
N	946	646	585	324	371

^{a)} Educational level on a scale from 0 to 4; N is the number of observations.

Table 3 Average educational level of parents and children; by immigrant group, 1998

	Parent of female of 1 st gen	Female 1 st gen	Parent of female of 2 nd gen	Female 2 nd gen
Turks	0.93	1.60	1.10	1.82
Moroccans	0.40	1.56	0.51	2.11
Surinamese	1.99	2.13	2.27	2.57
Antilleans	2.05	2.17	2.80	2.93
Natives ^{a)}	-	-	2.69	2.87

	Parent of male of 1 st gen	Male 1 st gen	Parent of male of 2 nd gen	Male 2 nd gen
Turks	0.81	1.95	1.07	2.15
Moroccans	0.38	1.72	0.59	1.88
Surinamese	1.96	2.21	2.22	2.35
Antilleans	2.09	2.35	2.84	2.72
Natives ^{a)}	-	-	2.72	2.71

^{a)} For reasons of convenience the numbers for natives are located under 2nd generation.

Table 4 Average educational level children (age 15-29) distinguished by educational level of the parents, 1998 ^{a)}

Education of the parent	Females – generation			Males – generation		
	1 st	2 nd	natives	1 st	2 nd	natives
0	1.46	1.89	-	1.73	2.00	-
1	1.76	1.92	2.30	1.96	2.02	1.83
2	2.20	2.61	2.79	2.03	2.58	2.66
3	2.55	2.77	2.95	2.83	2.66	2.66
4	<u>2.67</u>	<u>3.19</u>	<u>3.38</u>	<u>3.10</u>	<u>2.74</u>	<u>3.31</u>
Average	1.77	2.27	2.87	1.97	2.26	2.71
N	864	409	289	685	226	143

^{a)} Educational level of the parents: if the parents have different educational levels the highest educational level is used; if the educational level of a parent is missing the educational level of the spouse is used; N is the number of observations.

Table 5 Transition probabilities from below educational level 3 to level 3 or more ^{a)}

<i>a. First generation immigrants</i>				
	Son (685)		Daughter (864)	
	Level<3	Level≥3	Level<3	Level≥3
Parent Level<3	73.5	26.5	76.0	24.0
Level≥3	25.8	74.2	33.3	66.7
<i>b. Second generation immigrants</i>				
	Son (352)		Daughter (409)	
	Level<3	Level≥3	Level<3	Level≥3
Parent Level<3	64.4	35.6	64.7	35.3
Level≥3	38.0	62.0	26.1	73.9
<i>c. Natives</i>				
	Son (147)		Daughter (180)	
	Level<3	Level≥3	Level<3	Level≥3
Parent Level<3	54.5	45.5	37.9	62.1
Level≥3	26.1	73.9	16.5	83.5

^{a)} In parentheses the number of observations. The table reads as follows: If the parent of a first generation immigrant son has a level of education below 3, there is a 73.5% probability that the son also has an educational level below 3 and a 26.5% probability that the son has an educational level of 3 or 4.

Table 6 Odds ratios of mobility for educational transition matrices ^{a)}

	Males	Females	Average
First generation	8.0	6.3	7.0
Second generation	3.0	5.2	4.0
Natives	2.6	3.1	2.7

^{a)} See Table 5

Table 7 Estimation results going to school (yes/no) conditional on age; age 15-29^{a)}

		Females		Males	
	Education mother	-	0.06 (0.5)	-	0.03 (0.3)
	Education father	-	0.28 (2.5)*	-	0.24 (2.2)*
1 st generation	Turks	-0.90 (6.4)*	-0.32 (1.0)	-0.66 (4.7)*	0.01 (0.0)
	Moroccans	-0.75 (5.2)*	0.01 (0.0)	-0.61 (4.3)*	0.08 (0.2)
	Surinamese	0.11 (0.8)	0.39 (1.2)	-0.05 (0.3)	0.37 (1.0)
	Antilleans	0.37 (2.5)*	0.58 (1.7)	0.60 (3.2)*	0.94 (2.4)*
	Education mother	-	0.22 (3.0)*	-	0.23 (2.7)*
	Education father	-	0.13 (2.2)*	-	-0.05 (0.6)
2 nd generation	Turks	-0.20 (1.5)	0.37 (1.2)	-0.46 (3.3)*	0.12 (0.3)
	Moroccans	-0.02 (0.1)	0.72 (2.3)*	-0.13 (0.8)	0.52 (1.6)
	Surinamese	0.21 (1.4)	0.35 (1.0)	-0.06 (0.4)	0.28 (0.7)
	Antilleans	0.42 (2.3)*	0.33 (0.9)	0.33 (1.5)	0.54 (1.2)
	Education mother	-	0.22 (3.0)*	-	0.12 (1.4)
	Education father	-	0.13 (2.1)*	-	0.06 (1.0)
	-loglikelihood	796.6	761.7	700.0	689.4
	Number of observations	1947		1636	

^{a)} Probit model; in every estimate dummy-variables included for every age-year from 16-29.

Table 8 Highest educational level schoolleavers; conditional on age, age 18-29^{a)}

		Females		Males	
	Education mother	-	0.21 (2.0)*	-	0.16 (1.3)
	Education father	-	0.25 (2.4)*	-	0.34 (3.2)*
1 st generation	Turks	-1.56 (13.8)*	-0.97 (3.8)*	-1.06 (8.7)*	-0.23 (0.7)
	Moroccans	-1.66 (13.7)*	-0.86 (3.4)*	-1.33 (10.2)*	-0.33 (1.0)
	Surinamese	-0.87 (6.6)*	-0.47 (1.7)	-0.59 (3.8)*	-0.04 (0.1)
	Antilleans	-0.85 (5.7)*	-0.66 (2.3)*	-0.05 (0.3)	0.11 (0.3)
	Education mother	-	0.14 (2.1)*	-	0.20 (2.6)*
	Education father	-	0.34 (6.1)*	-	0.25 (4.0)*
2 nd generation	Turks	-1.16 (8.5)*	-0.56 (2.1)*	-0.54 (3.8)*	0.41 (1.3)
	Moroccans	-0.82 (5.2)*	0.02 (0.1)	-0.71 (3.7)*	0.33 (0.9)
	Surinamese	-0.26 (1.8)	-0.14 (0.5)	-0.16 (1.0)	0.45 (1.2)
	Antilleans	0.07 (0.4)	-0.16 (0.4)	0.16 (0.7)	0.56 (1.3)
	Education mother	-	0.29 (3.6)*	-	0.14 (1.4)
	Education father	-	0.22 (3.2)*	-	0.14 (1.8)
	μ_1	0.59 (17.4)*	0.63 (17.4)*	0.81 (18.9)*	0.84 (18.9)*
	μ_2	1.83 (28.7)*	1.99 (28.4)*	1.77 (27.8)*	1.87 (27.6)*
	-loglikelihood	1419.3	1346.2	1224.4	1184.7
	Number of observations	1277		1005	

^{a)} Ordered probit model; in every estimate dummy-variables included for every age-year from 19-29.

Table 9 Going to school (yes/no) and highest educational level schoolleavers; conditional on age; sensitivity analysis alternative definition of second generation ^{a)}

	Going to school		Educational level	
	Females	Males	Females	Males
1 st generation				
Education mother	0.05 (0.5)	0.03 (0.2)	0.21 (2.0)*	0.16 (1.3)
Education father	0.28 (2.5)*	0.25 (2.3)*	0.25 (2.4)*	0.34 (3.3)*
Turks	-0.11 (0.4)	0.07 (0.2)	-0.92 (3.6)*	-0.10 (0.3)
Moroccans	0.18 (0.6)	0.20 (0.6)	-0.74 (2.9)*	-0.20 (0.6)
Surinamese	0.42 (1.3)	0.38 (1.0)	-0.36 (1.4)	0.07 (0.2)
Antilleans	0.66 (2.0)*	0.92 (2.4)*	-0.52 (1.9)	0.31 (0.8)
2 nd generation				
Education mother	0.19 (2.9)*	0.18 (2.5)*	0.31 (6.2)*	0.18 (2.7)*
Education father	0.15 (2.7)*	-0.02 (0.4)	0.15 (2.4)*	0.23 (4.2)*
Turks	0.27 (0.8)	0.03 (0.1)	-0.47 (1.6)	0.37 (1.1)
Moroccans	0.77 (2.3)*	0.48 (1.3)	0.26 (0.8)	-0.10 (0.2)
Surinamese	0.23 (0.6)	0.21 (0.5)	-0.29 (0.8)	0.43 (0.9)
Antilleans	-0.05 (0.1)	0.46 (0.9)	-0.47 (1.1)	0.20 (0.4)
Education mother	0.27 (3.1)*	0.08 (1.1)	0.22 (2.6)*	0.15 (1.2)
Education father	0.12 (1.6)	0.14 (1.4)	0.39 (3.7)*	0.16 (1.4)
μ_1	-	-	0.63 (17.4)*	0.83 (18.9)*
μ_2	-	-	1.99 (28.3)*	1.85 (27.6)*
-loglikelihood	771.2	693.6	1350.3	1195.3
Number of observations	1947	1636	1277	1005

^{a)} Going to school with probit model; educational level with partly right censored ordered probit model; in every probit estimate dummy-variables included for every age-year from 16-29; in every ordered probit estimate dummy-variables for every age-year from 19-29 are included.

Table 10 Highest educational level schoolleavers; conditional on age, age 18-29; sensitivity analysis upward and downward outflow ^{a)}

	Upward outflow		Upward & downward outflow	
	Females	Males	Females	Males
1 st generation				
Education mother	0.16 (1.6)	0.15 (1.4)	0.18 (1.8)	0.15 (1.3)
Education father	0.31 (3.4)*	0.45 (4.7)*	0.29 (3.0)*	0.43 (4.4)*
Turks	-0.95 (4.1)*	0.13 (0.4)	-1.02 (4.2)*	-0.03 (0.1)
Moroccans	-0.73 (3.1)*	0.14 (0.5)	-0.85 (3.5)*	-0.06(0.2)
Surinamese	-0.38 (1.5)	0.34 (1.1)	-0.48 (1.9)	0.18 (0.6)
Antilleans	-0.35 (1.4)	0.73 (2.2)*	-0.55 (2.1)*	0.68 (1.4)
2 nd generation				
Education mother	0.27 (4.6)*	0.30 (4.4)*	0.22 (3.7)*	0.27 (3.9)*
Education father	0.31 (6.3)*	0.16 (2.7)*	0.33 (6.4)*	0.20 (3.4)*
Turks	-0.26 (1.0)	0.64 (2.2)*	-0.40 (1.6)	0.57 (1.9)
Moroccans	0.31 (1.3)	0.86 (2.8)*	0.21 (1.8)	0.71 (2.3)*
Surinamese	-0.14 (0.5)	0.71 (2.2)*	-0.14 (0.5)	0.64 (1.9)
Antilleans	-0.18 (0.6)	0.87 (2.3)*	-0.17 (0.5)	0.78 (2.3)*
Education mother	0.32 (4.7)*	0.14 (2.2)*	0.30 (4.2)*	0.18 (2.2)*
Education father	0.24 (4.2)*	0.19 (2.4)*	0.23 (3.8)*	0.14 (2.1)*
μ_1	0.55 (17.3)*	0.71 (18.7)*	0.61 (17.6)*	0.79 (19.0)*
μ_2	1.58 (29.5)*	1.49 (27.7)*	2.06 (29.1)*	1.90 (27.9)*
-loglikelihood	1685.5	1498.1	1480.9	1332.4
Number of observations	1625	1296	1625	1296

^{a)} (partly) left and (partly) right censored ordered probit model; in every estimate dummy-variables included for every age-year from 19-29.

Appendix Information about the datasets used in the analysis

Table A1 shows the averages of variables used in the analysis for different subsamples of our dataset. Samples 1 and 4 concern the data on which the probit models for being at school (or not) are estimated. Samples 2 and 5 concern the data on which the ordered probit baseline models for the educational level are estimated. Finally, samples 3 and 6 concern the data on which the sensitivity estimates are based.

Table A1 Averages of variables used in the analysis

	Females				Males	
	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Sample 6
Natives	0.12	0.11	0.13	0.12	0.13	0.13
Turks-1	0.19	0.26	0.21	0.21	0.27	0.23
Maroccans-1	0.15	0.19	0.16	0.17	0.20	0.18
Surinamese-1	0.09	0.10	0.10	0.07	0.08	0.08
Antilleans-1	0.07	0.07	0.08	0.05	0.04	0.06
Turks-2	0.14	0.10	0.11	0.15	0.13	0.13
Maroccans-2	0.11	0.06	0.08	0.11	0.05	0.07
Surinamese-2	0.09	0.08	0.09	0.09	0.07	0.08
Antilleans-2	0.04	0.03	0.04	0.03	0.03	0.04
Education father	1.33	1.18	1.36	1.28	1.16	1.29
Education mother	1.12	0.95	1.12	1.02	0.88	1.03
N	1947	1277	1625	1636	1005	1296

Figure 1 Second generation immigrants (% of total)

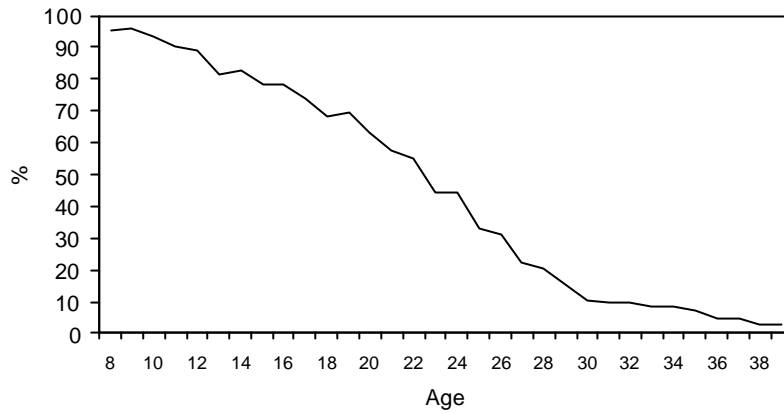


Figure 2 Second generation; 1998 (% of total)

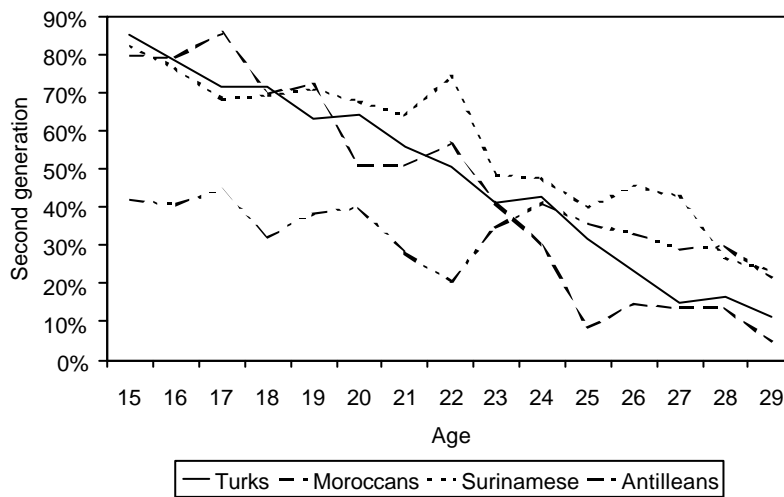


Figure 3a Going to school; 1998 (% of total)

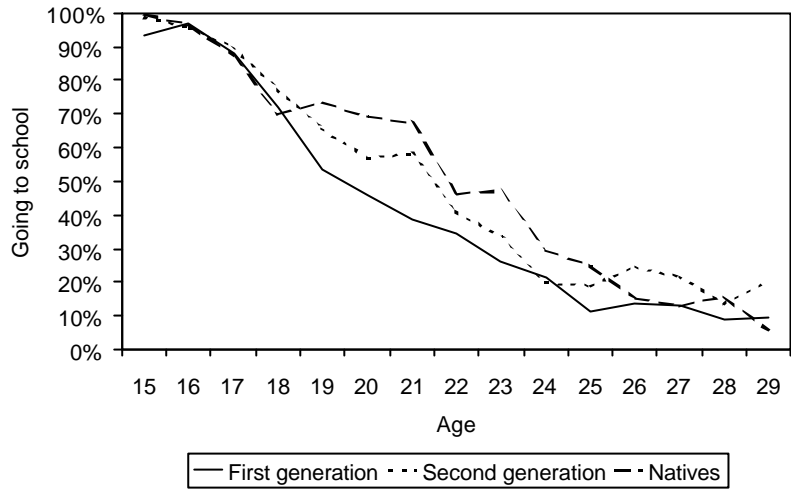


Figure 3b Going to school, immigrants; 1998

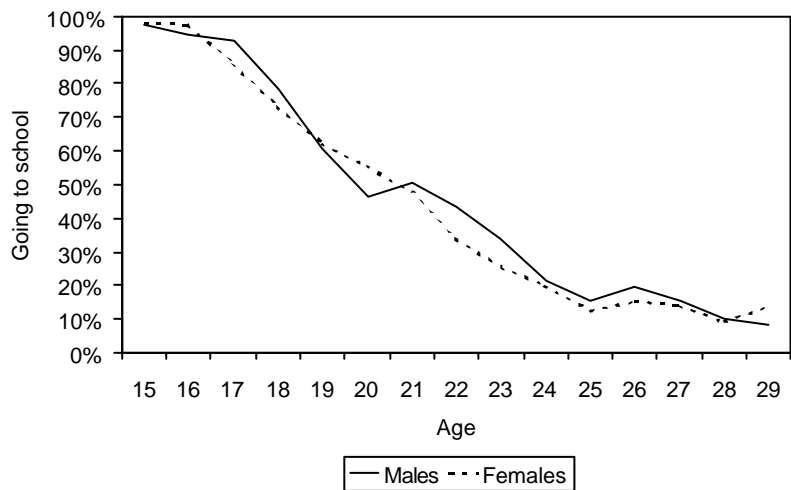


Figure 4a Educational level

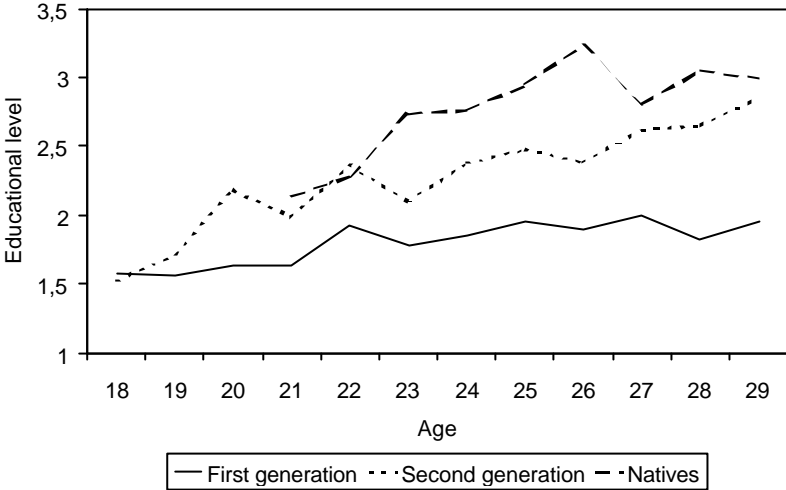
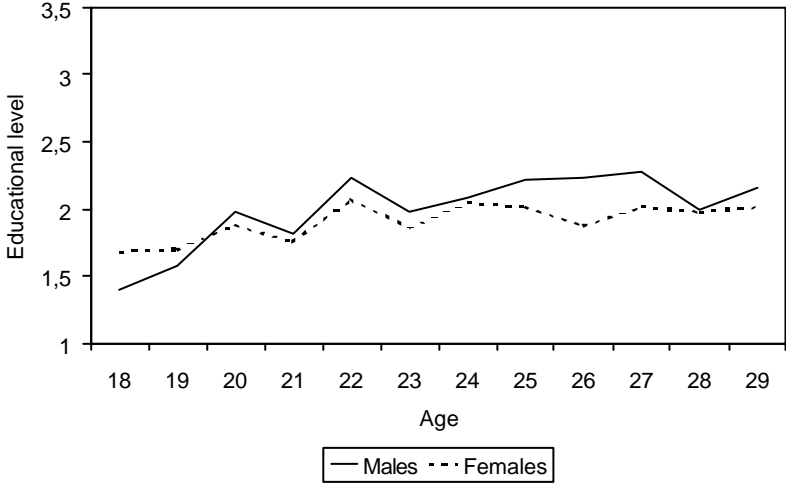


Figure 4b Educational level immigrants



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