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The Impact of Origin and Host Country Schooling on the Economic Performance of Immigrants

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This study examines the economic returns to schooling acquired in the country of origin and the country of destination. It uses large-scale survey data on Turkish, Moroccan, Surinamese and Antillean immigrants in the Netherlands, which contain direct measures of pre- and post-migration schooling. It is studied whether the returns to origin-country schooling depend on contextual factors: i.e., immigrant group and the region of living. Furthermore, we examine the importance of host-country schooling for labor market outcomes and if these can be partly explained by increasing contacts with natives. Results show that the returns to origin-country schooling are higher for Surinamese and Antillean immigrants (i.e., those originating from former Dutch colonies) than for immigrants from Turkey and Morocco. The returns to origin-country schooling are not affected by ethnic concentration in the region of living. Finally, it appears that the returns to host-country schooling are much larger than to origin-country schooling, and the higher returns to host-country schooling cannot be explained by increased social contacts with natives.

Introduction

It is widely known in the literature that many immigrants in Western countries are at a disadvantage in the labor market (Borjas 1994; Chiswick 1978; Portes and Rumbaut 1996). Immigrants have more difficulties finding a job, they have longer periods of unemployment, and if they do find work, they often have less prestigious jobs and lower earnings compared to natives (e.g., Alba and Nee 1999; Borjas 1994).

A well-known explanation of ethnic inequalities is that immigrants are less skilled and less productive than natives. Because many immigrants come from developing countries, they are often not as well educated as natives of Western countries. Furthermore, several authors have argued that the skills immigrants acquired in their countries of origin (*origin-country human capital*) are less valued than skills obtained in the host country (Borjas 1994; Duleep and Regets 1999; Friedberg 2000) because these initial skills are of lower quality, difficult to transfer, or employers are more uncertain about these skills. Language skills also come into play. Immigrants' proficiency in their native languages is of little use when the official language in the host country is different. Similarly, educational backgrounds

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and work experience obtained in the country of origin are not valued as equal to education and work experience acquired in the host country (Friedberg 2000). It is generally assumed that immigrants are particularly disadvantaged in the labor market upon arrival in the host country, but as they acquire *host-country human capital* they improve their economic position (Borjas 1994). Although many researchers have theorized about the importance of host-country skills, there is only sound empirical evidence for the role of language. There is ample support in the literature that immigrants who acquire the host-country language significantly improve their economic opportunities (e.g., Chiswick and Miller 1995, 2002).

Much less is known about the impact of returns to origin-country vis-à-vis destination-country education. Only a few studies have addressed this question. These studies were conducted among immigrants in Israel (Friedberg 2000), Canada (Li 2001), Sweden (Duvander 2001) and the United States (Bratsberg and Ragan 2002; Bratsberg and Terrell 2002; Zeng and Xie 2004). Although these studies generally support the presumed higher returns to host-country education, little is known as to whether these patterns hold for other countries – e.g., in communities of new immigrants to Western Europe. What is more problematic is that these studies rely on general population surveys (e.g., census data) that do not *directly* measure (in years) pre-migration and post-migration schooling. Instead, researchers have used information on people's age at the time of migration and total years of education to construct measures of (years of) education before and after migration. As argued by Chiswick and Miller (1994), such indirect measures may lead to substantial measurement error and erroneous conclusions.

To see how important this measurement error is, consider the following example (cf., Van Tubergen and Van de Werfhorst 2007). An immigrant who has five years of education in his country of origin (i.e., from age 6 to 10), who migrated at age 25 and then attended school for five more years in the host country (i.e., from age 25 to 30) is estimated to have 10 years of education in the country of origin and none after migration. Nevertheless, the majority of studies on the returns to origin and destination schooling rely on this indirect measure (Friedberg 2000; Bratsberg and Ragan 2002; Bratsberg and Terrell 2002; Zeng and Xie 2004). Furthermore, some studies (Duvander 2001; Li 2001) only include the level of education and a dummy variable indicating whether the highest level of education was (probably) obtained in the destination country. This means, however, that these studies also include people who received a substantial number of years of education in their countries of origin.

We make three contributions to the literature. First, we examine the returns to origin- and host-country schooling using *direct* measures. Only two studies have used direct measures of pre- and post-migration schooling (Constant and Massey 2003, 2005). These studies relied on different measures for pre- and post-migration schooling (in years and levels of education, respectively), thereby hampering comparisons between the returns to pre- and post-migration schooling.

Second, we examine whether the returns to pre-migration schooling differ between two *contexts*: the immigrant group and the region of living. It is argued in the literature that, because of transferability, quality and uncertainty, education acquired in some origin countries is valued more than education acquired in other origin countries. Our study contributes to the growing evidence on this issue (Bratsberg and Ragan 2002; Bratsberg and Terrell 2002; Friedberg 2000; Zeng and Xie 2004). The returns to origin-country schooling may also depend on immigrants' region of living in the host country. It can be argued that ethnic concentration increases the transferability and reduces the uncertainty of origin-country schooling; immigrants living in ethnic concentrations may therefore receive higher returns to their origin-country schooling than those living in regions with few immigrants. Although studies have been done on the impact of ethnic concentration on economic outcomes (e.g., Chiswick and Miller 2002, 2005; Kogan and Kalter 2005; Lewin-Epstein and Semyonov 1992; Tienda and Lii 1987; Tolnay 2001), few studies have specifically examined the cross-level interactions between ethnic concentration and the returns to origin-country schooling among immigrants.

Third, we provide an alternative explanation for the presumed (positive) effect of host-country schooling on immigrant economic outcomes. Rather than focusing on the common interpretation that emphasizes the lower uncertainty of employers, or the higher quality and transferability of skills (Bratsberg and Ragan 2002; Bratsberg and Terrell 2002; Friedberg 2000; Zeng and Xie 2004), it can be argued that *social contacts* play a major role. A long-standing and influential line of research in sociology, as well as in economics, considers the impact of social capital on people's economic attainment (Coleman 1990). The major insight is that having more (resourceful) contacts generally increases economic opportunities (Bourdieu 1986; Boxman, De Graaf and Flap 1991; Coleman 1990; Ioannides and Loury 2004; Lin 1999; Mouw 2002; Portes and Sensenbrenner 1993). Specific studies in the field of migration have equally shown that contacts with family and friends promote the economic performance of immigrants (Aguilera 2003; Aguilera and Massey 2003; Nee, Sanders and Sernau 1994; Sanders and Nee 1996; Sanders, Nee and Sernau 2002).

However, these earlier studies have focused predominantly on contacts within subjects' *own* ethnic groups. We label this *origin-country social capital*, as those contacts – maintained either in the country of origin or country of destination – remain within the same ethnic community. Although contacts with co-ethnics generally foster economic mobility, it could be argued that contacts with natives (*destination-country social capital*) may improve immigrants' economic performance. Immigrants predominately rely on contacts with members of their own ethnic group, who know the host country labor market less well and who have less information on job opportunities than natives.

Making this distinction between origin-country vis-à-vis destination-country social capital sheds new light on the presumed impact of origin-country vis-à-vis

destination-country schooling on the economic performance of immigrants. From the perspective of social capital theory, one could argue that immigrants who have more destination-country schooling benefit from such skills because acquiring them is associated with increasing contacts with the native population. For example, people who enroll in school in the host country are more likely to develop contacts with natives, which promote their economic opportunities. Thus, we *test an alternative mechanism* for the presumed positive effect of host-country schooling on immigrant economic outcomes.

We make use of an immigrant survey that has been collected in 1998 and 2002 among four large immigrant groups in the Netherlands: Turks, Moroccans, Surinamese and Dutch Antilleans. The surveys have been specifically designed to study these four ethnic minority groups. Sample sizes are large, bilingual interviewers are used, and extensive information on migration history, human capital, social capital and labor market outcomes is included.

Dutch Setting

Before formulating the hypotheses, we briefly discuss the four groups studied here. In 2000, immigrants from Turkey, Morocco, Suriname and Dutch Antilles represented about 66 percent of the non-Western, foreign-born population and about 41 percent of the total immigrant population in the Netherlands (Statistics Netherlands, Statline 2008). Turks and Moroccans mainly came to the Netherlands as part of the "guest worker" program in the 1960s and 1970s. Suriname and the Dutch Antilles were former colonies of the Netherlands, thus migration is common from these countries.

The four groups have a higher unemployment rate than Dutch natives, and they are overrepresented in lower-paid jobs. This is especially true for Turks and Moroccans, who have the highest rates of benefit dependence (Social and Cultural Planning Office of the Netherlands 2005). The groups also differ with respect to their socio-cultural integration. The longstanding connection between Surinam, Dutch Antilles and the Netherlands has resulted in several advantages for immigrants from these countries, including knowledge of the Dutch language, familiarity with the Dutch educational system and a long tradition of cultural exchange. Surinamese and Dutch Antilleans are rather well-integrated socially. For example, about 25 percent of the Surinamese and 48 percent of Antilleans are married to native Dutch, compared to less than 5 percent among the Turks and Moroccans (Kalmijn and Van Tubergen 2006). Immigrants from Turkey and Morocco were not exposed to the Dutch language before immigration, and virtually all Turks and Moroccans are Muslims. By contrast, Dutch natives and immigrants from Surinam and Dutch Antilles are predominantly Christian or not affiliated with a religion.

Theory and Hypotheses

Human capital theory has been used to explain immigrants' labor force participation (e.g., Bevelander and Veenman 2004; Sanders and Nee 1996), income (e.g., Chiswick 1978; Zeng and Xie 2004), occupational status (e.g., Raijman and Semyonov 1995), and job tenure (e.g., Aguilera 2003). Basically, human capital refers to the capability for productive work. According to the human capital theory, the more talented, skilled and capable people have more opportunity in the labor market. In empirical research, human capital is often measured in terms of education, labor market experience and health (e.g., Chiswick 1978). There is ample evidence that people with higher levels of education, work experience and better health excel in the job force.

In the field of immigration, however, an important distinction is made between origin and destination human capital. It is argued that human capital acquired in the country of origin is less valued by employers in host nations (Bratsberg and Ragan 2002; Chiswick 1978; Friedberg 2000; Zeng and Xie 2004). Although talents, motivation and health seem to be rather context independent (what one could label *general human capital*), knowledge and skills might be more or less specific to a certain context. This is certainly the case for language skills. Knowledge of the origin country's official language (*origin-country human capital*) is of little use when the official language of the host country is different. With the exception of a few jobs provided by co-ethnics, most occupations require knowledge of the host language (*host-country human capital*). There is ample empirical evidence that proficiency in the destination country's language has a strong positive effect on labor market outcomes. Immigrants who speak the official language of the host country are more likely to be employed and have higher earnings than those with less of a command of the language (Chiswick and Miller 1995, 2002).

Likewise, the returns to labor market experience obtained in the country of origin might be less strong than the returns to experience from the host country. Employers are less well-informed about the occupational career of immigrants before migration than about the experience immigrants obtained in the host country. Furthermore, the knowledge and skills immigrants acquire on the job in the country of origin are presumably less valuable for the labor market in the receiving country.

In this study, we focus on the returns to origin and destination schooling. It can be argued that education obtained in the country of origin is difficult to transfer to the host country and that it is generally of lower quality because many immigrants come from less developed nations (Friedberg 2000; Zeng and Xie 2004). Furthermore, employers may be reluctant to grant full recognition to foreign credentials as they are simply uncertain about the knowledge and skills that these credentials prove. By contrast, education obtained in the host country provides immigrants with credentials that are fully recognized in the host-country labor market. Employers are familiar with those diplomas, and

the education more strongly matches the needs of the labor market. Hence, we hypothesize that *the returns to host-country schooling are higher than the returns to origin-country schooling* (H1).

An important issue is the possible interplay between national origin and the value of origin-country schooling (Bratsberg and Terrell 2002; Friedberg 2000). Several studies have shown that the returns to pre-migration schooling vary between countries of origin. Bratsberg and Terrell (2002) studied the effect of educational quality on the returns to pre-migration schooling. They showed that the effect of origin-country education increases with the quality of education in the country of origin, as measured by lower pupil-teacher ratios and greater expenditures per pupil. Friedberg (2000) studied the transferability mechanism and showed that in Israel, immigrants from Western countries receive higher returns to pre-migration schooling than immigrants from Asia and Africa. However, both studies relied on indirect measures of pre-migration schooling.

We extend this line of research by comparing groups in the Netherlands. We assume that educational qualifications obtained in Suriname and the Dutch Antilles are valued more than qualifications obtained in Turkey and Morocco (cf., Van Tubergen and Van de Werfhorst 2007). After all, Suriname and the Dutch Antilles are more economically developed than Morocco and regions in Turkey the immigrants come from (i.e., difference in quality) and Suriname and the Dutch Antilles were former colonies of the Netherlands, making the educational system and the labor market more similar to that of the Netherlands (i.e., differences in transferability and uncertainty). It is therefore hypothesized that *the returns to origin-country schooling are higher among Surinamese and Antillean immigrants than among Turks and Moroccans* (H2).

The effect of origin-specific capital may also depend on ethnic concentration. Ethnic concentration is expected to increase the value and transferability of pre-migration knowledge and skills. Immigrants living in ethnically concentrated areas can rely on origin-specific knowledge about ethnic goods, consumer preferences and norms (Chiswick and Miller 2005). Living in areas of ethnic concentration also increases chances of working for co-ethnic employers who can better recognize and value origin-country schooling. Finally, ethnic concentration may also increase the knowledge and experience of native employers who may be better informed about the value and portability of origin-country schooling than native employers living in areas with few immigrants. Hence, we hypothesize that *ethnic concentration increases the returns to origin-schooling among immigrants* (H3).

Previous studies have argued that higher returns to host-country education might be explained by their better quality, transferability and employers' uncertainty towards origin-country credentials. In this article we provide an *alternative* explanation for the disparate returns to origin- and host-country schooling. It can be argued that higher returns to host-country schooling are due to immigrants' relationship with contacts with natives. The idea is that immigrants benefit from

host-country schooling as it is associated with increasing contacts with natives. Emerson, Kimbro and Yancey (2002) showed that the school context might be crucial for the formation of racially diverse relationships. Those who attended racially diverse schools were more likely to attend inter-ethnic as opposed to co-ethnic religious gatherings, and to have higher rates of inter-ethnic marriage. Thus, it can be argued that immigrants who are enrolled in education in the host country are more likely to have native friends, acquaintances and partners. These contacts with natives can provide valuable social capital that promotes the chances of immigrants in the labor market.

The idea that social capital facilitates immigrant economic integration is not new in the migration literature (Aguilera 2005; Aguilera and Massey 2003; Nee et al. 1994; Sanders et al. 2002). It is argued in the literature that immigrants profit from the resources of others, most notably information and influence. Within social networks, people may provide immigrants directly with information on a job that is available, and they can also provide information about where to look for jobs in general, how to present oneself to prospective employers, and how to behave on the job (Aguilera and Massey 2003; Fernandez-Kelly 1995). Furthermore, social contacts can influence the job-matching process by providing entry into desirable occupations (Lin 1999; Mouw 2003). Several studies conducted among immigrants in the United States indeed show the importance of social contacts for immigrants' economic integration (Aguilera 2002, 2003, 2005; Aguilera and Massey 2003; Nee et al. 1994; Sanders et al. 2002).

Moreover, several researchers have suggested that contacts with natives may be particularly important for information diffusion and influence (Drever and Hoffmeister 2008; Kazemipur 2006; Kahanec and Mendola 2007). It is argued that natives are better informed about specific job openings, they know better how to find jobs, and they know better how to present themselves to prospective employers than do immigrants. One reason for this difference in resources is that natives have been exposed for a longer time to the host-country labor market than immigrants, and for that reason they have superior information. Another reason is that natives are less often unemployed, higher educated and have more prestigious jobs than immigrants. Hence, contacts with natives may be helpful in finding a job and improving job quality. Empirically, however, less is known about the presumed positive impact of contacts with natives. Kahanec and Mendola (2007), in their study on immigrants in Great Britain, found that participation in mixed or non-ethnic clubs and voluntary organizations is positively associated with salaried employment. However, Drever and Hoffmeister (2008) found that having close German friends provided little advantage to immigrants in the job search process, and that having such cross-ethnic contacts was not associated with immigrants' improved employment position. We examine the influence of contacts with natives for the labor market position of immigrants in the Netherlands. In addition, despite important insights gained from previous studies, little attention has been

paid to the possible interplay between host-country human capital and contacts with natives. Based on the foregoing, we hypothesize that *contacts with natives explain part of the positive effect of host-country schooling* (H4).

Data and Methods

The data come from the Social Position and Use of Welfare Facilities by Immigrants survey (SPVA 1998, 2002). Two waves were combined in order to increase the number of cases. SPVA is a large-scale, cross-sectional, immigrant-specific survey (Van Ours and Veenman 2003). The data are unique in the sense that they contain information on pre- and post-migration human capital. They provide a wide range of information on the socio-economic and the socio-cultural position of four large ethnic minority groups in the Netherlands: Turks, Moroccans, Surinamese and Antilleans.

People in cities were overrepresented in the sample frame because most members of ethnic minorities live in cities. The sample frame consists of 10 to 13 cities (depending on the survey year), covering about 50 percent of the four minority groups within the Dutch population. This overrepresentation of immigrants in urban areas might bias descriptive figures on employment and occupational status (i.e., unemployment rates tend to be higher in the cities), but it is less likely to affect our multivariate results.

The data have some limitations too. One issue is the cross-sectional design. This makes it impossible to examine the causality between some – though not all – variables. For example, even if we hypothesize that social contacts with Dutch increase the odds of employment, it may also be the opposite; having a job may increase connections to natives. The issue of reversed causality is less problematic for the presumed effects of schooling, which is the main focus of this article. With respect to health and social contacts, we will keep the cautionary note in mind and talk about empirical associations. Another issue is non-response. The non-response rate for the 1998 and 2002 waves was lowest among the Turks (39 percent), and highest among the Surinamese (56 percent) (Groeneveld and Weijers-Martens 2003). These numbers are rather high when compared to surveys in other countries, but they are typical when compared to other surveys within the Netherlands (Van Ours and Veenman 2003). There are several reasons to believe that the low response rate is not of major concern to our conclusions. The non-response rates have been investigated and there is no evidence for systematic non-response in our survey with regard to core indicators such as gender and education (Groeneveld and Weijers-Martens 2003; Martens 1999). Moreover, special measures were taken to include respondents who are less well-integrated culturally and economically. This means that interviewers were from the same ethnic minority group as the respondent so interviews could by carried out in the ethnic language (Groeneveld and Weijers-Martens 2003; Martens 1999).

The analysis is restricted to male immigrants ages 25-60. The age category was chosen based on the presumption that individuals older than 24 years have

finished schooling and that individuals older than 60 have left the labor market as a consequence of (early) retirement (Bevelander and Veenman 2004). Immigrants are defined as individuals born outside the Netherlands. Because information was only available for the heads of households, our analysis is restricted to these members of the family.[1] The focus is on males, because mostly men and only a few women are heads of households among the Turks and Moroccans. All in all, our analysis includes 4,410 respondents.

Dependent Variables

We analyze the employment and the occupational status of immigrants. The dependent variables are measured as follows:

Employment: Respondents were asked about their employment status. Those who are employed, including self-employed, are contrasted with those who are without work (unemployed, currently available and seeking work, and inactive). By combining the labor force participation rates and unemployment rates among the active labor force we avoid the complicated boundary between inactivity and unemployment.

Occupational status: Employed respondents were asked about the status of their current jobs. Occupational status is measured in terms of the International Socio-Economic Index. The ISEI scale measures the hierarchical position of the occupation and is linked to education and income. To obtain ISEI scores for the occupations we use tools that convert the ISCO-92 classification into ISEI (Ganzeboom, De Graaf and Treiman 1992).

Independent Variables

We include measures of (origin and destination) human capital, (origin and destination) social capital, and (additional) controls. In order to obtain a parsimonious model, we tested each variable measured on an ordinal level if it may be entered into the model as a continuous variable. When likelihood ratio tests showed that dummy specification did not significantly improve the model, we chose the linear specification.

Human capital is measured by four indicators. *Education*: Respondents were asked about the highest level of completed education in their country of origin and in the Netherlands. In order to facilitate comparisons between education obtained in the country of origin and destination, we constructed five categories: (1. no education, (2. primary, (3. lower secondary, (4. higher secondary and (5. tertiary. We include both education abroad and education in the Netherlands as continuous variables.

Work experience: The survey provides a direct measure of work experience in the Netherlands and a more indirect measure of experience abroad. A separate question asks respondents to report the number of years of work in the Netherlands.

No such question is included for experience abroad. We therefore used information on age at immigration and the total years of schooling in the country of origin. Experience abroad is measured as: age at immigration – years of schooling abroad – 6 (years of age). Thus, the survey contains information on actual work experience in the Netherlands and potential work experience in the country of origin.

Health: Respondents were asked for the condition of their health. The possible answers were: (1. very bad, (2. bad, (3. neutral, (4. good and (5. excellent. Because very few people indicated that their health was very bad (3.1 percent) or bad (14.6 percent), we grouped categories 1 and 2 together. We used 5 as the reference category and included three dummy variables.

Dutch language proficiency: Respondents were asked whether they experience difficulties with speaking the Dutch language. We created a dummy variable contrasting those who speak Dutch fluently with those who experience problems with speaking Dutch.[2]

Ethnic concentration at the neighborhood level (four-digit zip codes) was calculated as the population percentage of first- or second-generation immigrants with a non-Western background. Non-Western minorities predominantly include immigrants from Turkey, Morocco and Suriname and Dutch Antilles (Statistics Netherlands 1998a, 1998b). We use figures for the year 1998. Information on group-specific measures at the neighborhood level is unavailable.

We included several measures of social capital. *Dutch contacts*: We combined two questions that measure immigrants' contacts with natives. Respondents were asked whether they ever received Dutch friends or neighbors as visitors and whether they sometimes associated with the Dutch in their free time. For both questions, respondents could choose between (1. never, (2. sometimes and (3. often. Answers to these questions are highly correlated (Spearman correlation .69; Cronbach's alpha .82), and we therefore combined them by adding up the scores on the two items and dividing them by two.

Ethnic composition: Next to an absolute measure of contacts with natives, we included a variable that measures the number of contacts with the Dutch in relation to that of co-ethnics. Respondents were asked about the ethnic composition of their social contacts, and we constructed a variable with three categories: (1. most contacts with ethnics, (2. equal contacts with Dutch and ethnics, (3. most contacts with Dutch. We used 1 as the reference category and included two dummy variables.

Membership organization: Respondents were asked whether they were a member of an organization and whether the organization was predominantly ethnic or Dutch. We constructed a variable with three categories: (1. no membership, (2.member of a predominantly ethnic organization and (3. member of a predominantly Dutch organization. We used 2 as the reference category and included two dummy variables.

Preferably, we would like to have additional measures of social capital, including information on network size, diversity and resources. Unfortunately, the SPVA survey does not include this information. At the same time, however, it should

Table 1: Descriptive Statistics of Independent and Dependent Variables

	Range	Mean	S.D.
Dependent Variables			
Employed	1/0	.67	
Occupational status	16-88	37.70	15.21
Independent Variables			
Education abroad	1-5	2.26	1.15
Education in the Netherlands	1-5	1.95	1.36
Work experience abroad	0-47	9.99	8.24
Work experience in the Netherlands	0-44	12.65	8.58
Good language skills	1/0	.46	
Health			
Bad or very bad	1/0	.18	
Neutral	1/0	.18	
Good	1/0	.44	
Excellent	1/0	.20	
Ethnic concentration	.84-79.94	32.29	20.92
Contacts with Dutch	0-2	.91	.67
Ethnic Composition Network			
More with ethnics	1/0	.60	
Equal	1/0	.26	
More with Dutch	1/0	.14	
Membership Organization			
Ethnic	1/0	.14	
Dutch	1/0	.13	
No membership	1/0	.73	
Married	1/0	.82	
Caribbean	1/0	.33	
Migration Motive			
Work	1/0	.34	
Family	1/0	.40	
Other	1/0	.26	
Survey 2002	1/0	.38	

be noted that none of the previous studies in the literature on the impact of post-migration schooling include measures such as interethnic contacts and ethnic composition of organizations.

Married: We constructed a dummy variable indicating those who are cohabitating/married as compared to single people.

Caribbean: We contrasted immigrants from Turkey and Morocco ("Mediterranean") with immigrants from Suriname and the Dutch Antilles ("Caribbean"). We combined immigrant groups to get a sufficiently large number of respondents (especially for the interactions), and because the groups are very homogeneous (e.g., language, religion, economic development).

Migration motive: Respondents were asked about their reasons for immigrating. We constructed three categories of the main reasons: (1. work, (2. family, (3. other. *SPVA 2002*: To control for survey effects, we included a dummy variable indicating the 2002 wave.

Table 1 presents descriptive statistics for the independent and dependent variables. We checked for high multicollinearity among the independent variables, but correlations did not exceed critical levels. Note, however, that for precisely this reason we did not include additional controls such as age, age at immigration or length of stay.

Methods

We used logistic regression for the analysis of employment and linear regression for the analysis of occupational status. To adjust for the fact that respondent's answers are correlated within neighborhoods, we used cluster correction within Stata 9. Because immigrants' occupational status was estimated for only those who were employed, we corrected for possible sample selection bias in our sample.[3]

Results

We will first discuss the results of the multivariate analyses of employment (Table 2) and occupational status (Table 3). Model 1 includes measures of human capital; Model 2 adds interactions between certain human capital variables and national origin and ethnic concentration; Model 3 includes only social capital variables; Model 4 includes human and social capital variables simultaneously.[4] We will compare the coefficients of Model 2 to that of Model 4, in order to see whether the role of host-country schooling persists when social capital is taken into account. We will compare the coefficients of these different models by a method proposed by Clogg, Petkova and Haritou (1995).

Human Capital

It was hypothesized that the returns to host-country schooling are higher than to origin-country schooling (H1). Both *education abroad* and *education in the Netherlands* are measured on a five-point scale, ranging from no education to tertiary education. Table 2, Model 1 clearly shows that higher diplomas obtained in the country of destination (b = .23) more strongly increase the odds of employment than higher qualifications obtained abroad (b = .16), the difference being not statistically significant however. With respect to occupational status, we find that the returns to education obtained in the Netherlands are significantly higher (chi2 = 34.60; p = .00). For each unit of increase in education, those who obtained their education in the Netherlands score (5.29 – 2.71 =) 2.58 status points higher than those who obtained a similar education abroad.

The results presented here refer to a linear specification of ordered categories of educational levels (ranging from no education to tertiary education). To examine whether our results are sensitive to this specification, we examined alternative measures of education. Using dummy variables for each *educational level* confirms our conclusions: the returns to education obtained in the host country are higher than

education obtained in the country of origin, for each level of education, and for both employment and occupational status. We have done several additional sensitivity checks using measures of *years of education*, and they are reported in Table 4.

First, we constructed measures of years of education on (recodes of) the ordinal measures of the maximum level of *obtained* education in the country of origin and in the Netherlands, using the International Classification of Education ISCED-97 schema (OECD 1999). The results show that, when measured in

Table 2: Logistic Regression of Immigrants' Employment in the Netherlands, 1998 and 2002 (log odds ratios)

	Model 1		Model 2		Model 3		Model 4	
	B	t-ratios	B	t-ratios	B	t-ratios	B	t-ratios
Education abroad (centered)	.16	3.64**	.14	2.79*			.13	2.56*
Education in the Netherlands (centered)	.23	5.72**	.24	5.86**			.23	5.64**
Work experience abroad (centered)	-.01	-.74	-.01	-1.63			-.01	-1.62
Work experience in the Netherlands (centered)	.07	11.20**	.07	11.25**			.07	11.23**
Good language skills	.20	1.95*	.18	1.66*			.15	1.41
Health								
Bad or very bad	-2.85	-21.53**	-2.87	-21.76**			-2.87	-21.60**
Neutral	-1.62	-11.78**	-1.63	-11.90**			-1.63	-11.83**
Good	-.26	-2.05*	-.26	-2.07*			-.26	-2.01*
Excellent (reference)	0		0				0	
Ethnic concentration	-.00	-.75	-.00	-1.14	-.00	-2.17*	-.00	-1.03
Contacts with Dutch					.17	2.30*	-.08	-1.01
Ethnic Composition Network								
More with ethnics (reference)					0		0	
Equal					.27	2.66*	.34	3.21**
More with Dutch					.06	.47	-.04	-.27
Membership Organization								
Ethnic (reference)					0		0	
Dutch					.42	2.47*	.16	.81
No membership					-.28	-2.36*	-.11	-.85
Married	.53	5.23**	.53	5.23**	.57	6.05**	.53	5.22**
Caribbean (vs. Mediterranean)	.37	3.14**	.36	3.10**	.79	7.51**	.36	3.01*
Caribbean*Education abroad			.05	.47			.04	.44
Caribbean*Experience abroad			.02	1.53			.02	1.40
Ethnic concentration*Education abroad			.00	-.19			.00	-.19
Ethnic concentration*Experience abroad			.00	1.55			.00	1.54
Migration Motive								
Work	-.82	-7.59**	-.80	-7.53**	-1.02	-12.30**	-.79	-7.45**

continued on the following page

this way, origin- and destination-country education positively and significantly affect employment and occupational status. With respect to occupational status, the returns to destination-country schooling are significantly stronger than to origin-country education. This is not so for employment.

Second, we examined the effect of the number of years people have actually *followed* education instead of the effect of their obtained diploma. It can be argued that the number of years people went to school in the host country can be important for developing contacts with natives, and for that reason, one might want to look at years of education followed instead of the years of education associated with the obtained educational qualifications. The results show that when education is measured as the total years of followed education, both origin- and host-country schooling significantly affect employment and occupational status. Again, the returns to host-country schooling are higher than to origin-country schooling for occupational status, but not for employment. These findings are based on direct measures of years of education in the origin and destination country.

Third, we examined the effect of the number of years people have followed education, but then using *indirect* measures. A common methodology in the literature is to construct measures of years of schooling followed in the origin and destination country with information on the age at migration and the total years of schooling of the respondent (e.g., Friedberg 2000). Separate measures of origin- and destination-country schooling are then constructed on the assumption that people go to school continuously from age 6. Our results show that when using these indirect measures of origin- and host-country schooling, one also finds a significant positive effect of origin- and host-country schooling on employment and occupational status. The magnitude of the effects is only slightly overestimated when compared to direct measures of years of followed schooling in the origin and destination countries. Again, the results show that for occupational status host-country schooling leads to significantly more returns than origin-country schooling, but this is not so for employment.

Table 2 *continued*

	Model 1		Model 2		Model 3		Model 4	
	B	t-ratios	B	t-ratios	B	t-ratios	B	t-ratios
Family (reference)	0		0		0		0	
Other	-.38	-3.10**	-.37	-3.08*	-.48	-4.93**	-.38	-3.15**
Survey 2002	.12	1.45	.11	1.30	.21	3.11**	.11	1.29
Constant	1.55	9.17**	1.58	9.19**	.37	2.36*	1.64	7.42**
Number of clusters	313		313		313		313	
Number of individuals	4410		4410		4410		4410	
Nagelkerke R^2	.28		.28		.10		.29	

**p < .001 *p ⩽ .05 (one-tailed test)

We further hypothesized (H2) that the returns to origin-country human capital would be larger among the former colonial or "Caribbean" groups (i.e., Surinamese, Antilleans) than among the "Mediterranean" groups (i.e., Turks, Moroccans). We test this hypothesis by looking at tables 2 and 3, Model 4. There is no significant interaction between national origin and origin-country schooling for employment. In line with this hypothesis, however, we do find a strong interaction among national origin and education abroad for occupational status (Table 3, Model 4).

Table 3: OLS Regression of Immigrants' Occupational Status in the Netherlands, 1998 and 2002, Unstandardized Coefficients

	Model 1		Model 2		Model 3		Model 4	
	B	t-ratios	B	t-ratios	B	t-ratios	B	t-ratios
Education abroad (centered)	2.71	8.35**	2.16	6.48**			2.01	5.87**
Education in the Netherlands (centered)	5.29	19.97**	5.26	20.00**			5.07	18.70**
Work experience abroad (centered)	-.05	-1.10	-.07	-1.35			-.06	-1.15
Work experience in the Netherlands (centered)	.29	7.83**	.29	7.83**			.28	7.64**
Good language skills	2.50	3.71**	2.28	3.49**			2.00	3.06*
Health								
Bad or very bad	-16.42	-15.16**	-16.53	-15.38**			-16.08	-14.76**
Neutral	-7.78	-8.20**	-7.84	-8.32**			-7.48	-7.91**
Good	-1.54	-2.19*	-1.60	-2.27*			-1.35	-1.91*
Excellent (reference)	0		0				0	
Ethnic concentration	-.02	-1.36	-.02	-1.50	-.04	-2.53*	-.01	-.62
Contacts with Dutch					3.54	5.04**	.59	.96
Ethnic Composition Network								
More with ethnics (reference)					0		0	
Equal					1.59	1.75*	1.09	1.48
More with Dutch					1.39	1.18	.13	.13
Membership Organization								
Ethnic (reference)					0		0	
Dutch					4.54	3.45**	1.77	1.59
No membership					-3.88	-3.73**	-1.78	-2.25*
Married	3.19	4.15**	3.23	4.23**	3.16	3.54**	3.19	4.17**
Caribbean (vs. Mediterranean)	3.60	4.41**	3.40	3.99**	9.26	10.44**	2.93	3.35**
Caribbean*Education abroad			1.67	2.91*			1.78	3.06*
Caribbean*Experience abroad			.02	.28			.02	.24
Ethnic concentration*Education abroad			.01	.81			.01	.85
Ethnic concentration*Experience abroad			.00	2.00*			.00	1.98*

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For every higher level of education obtained in Suriname or the Dutch Antilles, immigrants obtain 1.78 status points more than for every higher level of education obtained in Turkey or Morocco.

We also hypothesized that the returns to origin-country schooling are larger in ethnic concentration areas (H3). There is no evidence for this hypothesis in our study. The results show no such interaction for employment and occupational status.

Although we have not hypothesized about other human capital indicators, they are important to mention briefly. Our results also show that immigrants who speak Dutch language fluently have a higher occupational status, but proficiency in the Dutch language does not affect the odds of employment. There is a positive association between health and the odds of employment and occupational status. Work experience acquired in the country of origin has no significant effect on employment and occupational status of immigrants. By contrast, we find that years of work experience in the Netherlands positively affects immigrants' employment and occupational status. It should be remembered that whereas we have a direct measure of total work experience in the Netherlands, work experience abroad is estimated indirectly and actually refers to potential work experience (i.e., experience = age at immigration – years of schooling abroad – 6). Despite this difference in measurement, it seems legitimate to conclude that work experience in the Netherlands is more important than work experience abroad. There is no interaction between origin-country work experience and immigrant group. Interestingly, we do find a positive interaction between origin-country work experience and ethnic concentration on occupational status. That is, the effect of origin-country work experience on occupational status is higher in ethnically concentrated areas than in areas with fewer non-Western immigrants.

Table 3 *continued*

	Model 1		Model 2		Model 3		Model 4	
	B	t-ratios	B	t-ratios	B	t-ratios	B	t-ratios
Migration motive								
Work	-3.32	-4.64**	-3.52	-4.89**	-9.92	-13.02**	-3.42	-4.73*
Family (reference)	0		0		0		0	
Other	-.75	-0.97	-1.05	-1.28	-1.48	-1.74*	-1.08	-1.32
Survey 2002	1.73	3.14**	1.70	3.10**	4.00	6.42**	1.66	3.01*
Constant	26.99	24.74**	27.19	25.03**	20.75	16.23**	27.50	21.00**
Number of clusters	313		313		313		313	
Number of individuals	4410		4410		4410		4410	
Adjusted R^2	.37		.37		.18		.37	

Note: The results are based on the Heckman two-step procedure. **p < .001 *p ⩽ .05 (one-tailed test)

Host-Country Schooling and Social Contacts with Natives

Do we find any evidence that contacts with natives explain part of the positive effect of host-country schooling? As a start, Model 3 shows that the number of contacts with Dutch is significantly and positively associated with the odds of employment and the status of jobs. Immigrants who often have contacts with Dutch in their free time and who often receive visits by natives have about 1.4 (e^{17*2}) times higher odds of employment and score 7.08 (2 x 3.54) status points higher than those who have (almost) no contacts with natives. Similarly, our results show that having a mixed ethnic network is associated with increased odds of employ-

Table 4: The Effects of Origin- and Destination-Country Education with Different Measures of Education

	Employment				Occupational Status			
	Education Abroad		Education in the Netherlands		Education Abroad		Education in the Netherlands	
	B	t-ratios	B	t-ratios	B	t-ratios	B	t-ratios
Original Measure								
Education measured in five ordered categories and treated as a continuous variable, based on the maximum level of obtained education in the country of origin and the Netherlands tables 2 and 3	.16	3.64**	.23	5.72**	2.71	8.35**	5.29	19.97**
Alternative Measures								
Education measured in years, based on the maximum level of obtained education in the country of origin and the Netherlands	.04	4.11**	.05	5.76**	.46	7.39**	1.05	17.74**
Education measured in years, based on direct information on the total years of followed education in the country of origin and in the Netherlands	.06	5.91**	.06	5.36**	.81	9.46**	1.15	14.05**
Education measured in years, based on the total years of followed education and age at migration (cf., Friedberg 2000)	.06	6.54**	.06	3.97**	.88	11.29**	1.29	14.04**

Note: The results are based on logistic (employment) and linear (occupational status) regression models. Controlled are: work experience abroad, work experience in the Netherlands, language skills, health, ethnic concentration, marital status, ethnic origin (Caribbean vs. Mediterranean), migration motive and survey (cf. Model 1, tables 2 and 3); presented are unstandardized coefficients; **p < .001 *p ⩽ .05 (one-tailed test).

ment (Table 2) and occupational status (Table 3). Finally, we also find a positive association between organization membership and immigrant employment and occupational status. Being a member of a Dutch organization is associated with 1.5 times higher odds of employment and 4.54 higher status points. All in all, our results show a positive association between social capital and immigrant employment and occupational status.

We hypothesized that contacts with natives explain part of the positive effect of host-country schooling (H4). To see whether this is true, we compare Model 2 with human capital, interaction and control variables only with Model 4 where we included social capital variables. We find that the impact of host-country schooling is only slightly weaker when including measures of social capital. Specifically, education obtained in the Netherlands has a little stronger effect on occupational status in the model including only human capital variables (b = 5.26, Model 2) than when we control for social capital (b = 5.07, Model 4). The difference is even smaller with respect to employment. These findings suggest that destination-country schooling has a *direct* positive effect on employment and occupational status of immigrants (interpreted in terms of higher quality and transferability and reduced uncertainty), and that associated relations with social capital explain very little.

Conclusions and Discussion

There has been much discussion about the presumed positive effects of post-migration investments in the literature on the economic assimilation of immigrants. Besides the well-documented role of host-country language skills, little empirical evidence exists for host-country schooling. Earlier studies were restricted to a few nations, and these studies relied on indirect measures of education. The first contribution of this article is that it uses direct measures of pre- and post-migration schooling. It also examines whether the returns to pre-migration schooling depend on contextual factors: i.e., the immigrant group and the region of living. In addition, it relies on social capital theory as an alternative explanation of the positive role of host-country schooling. Using large-scale survey data that are specifically designed to study immigrants, we studied the employment chances and occupational status of foreign-born males from four ethnic minority groups in the Netherlands: Turks, Moroccans, Surinamese and Antilleans.

As hypothesized, we found that the returns to origin-country schooling are lower than to host-country schooling. There is some evidence that immigrants who have obtained their educations in the Netherlands have higher odds of being employed than immigrants who have obtained similar educations abroad. The evidence is more convincing for occupational status: host-country schooling has a much stronger positive effect on the status of the jobs immigrants occupy than origin-country schooling. Using alternative measures of education, including the indirect measures commonly used in the literature (e.g., Friedberg 2000), we arrive at the same conclusions. Our study thereby seems to validate earlier studies

that relied on these indirect measures of origin- and destination-schooling. Strong positive returns to host-country education has been found in studies that relied on indirect measures of pre- and post-migration schooling among immigrants in the United States (Akresh 2007; Bratsberg and Ragan 2002; Zeng and Xie 2004); Great Britain (Kahanec and Mendola 2007) and Israel (Friedberg 2000).

We also find that the lower returns to origin-country schooling are particularly pronounced for Turks and Moroccans. Diplomas acquired in former Dutch colonies (i.e., Suriname and the Dutch Antilles) are more valuable because they are more transferable, and of higher quality than diplomas acquired in Turkey and Morocco. This result contributes to the existing knowledge on ethnic differences in the returns to origin-country schooling. Friedberg (2000) showed that Western immigrants receive higher returns to origin-country schooling than immigrants who obtained their education in Asia or Africa. Bratsberg and Terrell (2002) found that the quality of schooling in the origin country, as measured by lower pupil-teacher ratios and greater expenditures per pupil, is directly related to the returns to origin-country education. Likewise, Bratsberg and Ragan (2002) found that the returns to origin-country schooling are higher for immigrants from more developed countries and countries in which English is an official language.

Our results also reveal that ethnic concentration, at least in the Netherlands, does not influence the returns to origin-country schooling. One possibility for not finding an effect is that the level of ethnic concentration is quite small in the Netherlands. There are no ethnic enclaves, such as the Cubans in Miami, and it could be that only above a certain threshold, one could see a positive effect of ethnic concentration on the returns to origin-country schooling.

The particularly strong positive outcomes of host-country schooling are for the most part direct and cannot be interpreted by increased contact with natives. Thus, the returns to host-country schooling are higher because immigrants acquire skills that are of higher quality, there are no problems of transferability, and employers are more certain about such skills, as compared to schooling acquired in the country of origin. In summary, the benefits of host-country schooling are, to a very small degree, related to an increasing number of ties to Dutch natives and to an overwhelming degree of increasing productivity and transferability of skills.

Notes

1. The overrepresentation of immigrants in urban areas and focus on heads of households only may bias our results. To see whether this is the case we performed an additional analysis using a nationally-representative survey of (all) respondents (i.e., Leefsituatie Allochtone Stedelingen 2004/2005). The LAS data include a random sample of immigrants from Turkey, Morocco, Suriname and Dutch Antilles. Because social capital variables present in LAS cannot be compared with those from the SPVA survey we replicated the models for human capital and control variables only. Our results, not presented here, show that the returns to host-country schooling are higher

than the returns to origin-country schooling on both employment and occupational status. Thus, our findings do not change qualitatively and our conclusions remain the same even when we use a nationally-representative sample.

2. Objective assessment of language skills would be more desirable than the self-reported measure of language skills reported in this research. There could also be a difference between self-reported and interviewer-reported measures of language skills. Research shows, however, that different measures of language proficiency highly correlate (Van Tubergen and Kalmijn 2005).

3. To compare the individual determinants of occupational status vs. labor market participation of immigrants, this study uses a Heckman model (Lee 1983). There are two identifying variables. (1. The region of living as represented by six dummy variables for region of living. We control for region of living because it is likely to influence the likelihood of immigrant's labor force participation but has no effect on occupational status. (2. The second identifying variable is the number of persons in the country of origin for whom the respondent cares. Again, we expect that having dependents in the country of origin influences the likelihood of immigrant labor force participation but is not related to occupational status. Both variables are indeed significantly and quite strongly correlated with employment status, but there is no (region of living) or only a weak (number of dependents in country of origin) correlation with occupational status. The rho is significant suggesting possible selectivity in our sample; therefore we report findings from the selection model.

4. Although it is beyond the scope of our study, it is important to mention that even when we control for human and social capital characteristics (Model 4), Turkish and Moroccan immigrants are more often unemployed and have lower-status jobs than the Caribbean groups, possibly suggesting stronger discrimination against these Mediterranean groups.

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