The conditional returns to origin-country human capital among Turkish and Moroccan immigrants in Belgium

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ABSTRACT

This study extends the analysis of the economic returns to pre-migration human capital by examining the role of the receiving context, co-ethnic residential concentration, and post-migration investments in human capital. It uses large-scale survey data on Turkish and Moroccan immigrants in Belgium. The analysis demonstrates that regarding employment, Moroccan immigrants, that is, those originating from former French colonies receive larger returns to their origin-country education and work experience in French- vs. Dutch-speaking regions. Other than the positive interaction effect between co-ethnic residential concentration and work experience on employment, there is little evidence that co-ethnic concentration increases the returns to origin-country human capital. Speaking the host-country language facilitates economic returns to origin-country work experience. Conversely, immigrants who acquire host-country credentials and work experience receive lower returns to origin-country education and experience, suggesting that, at least among low-skilled immigrants, pre- and post-migration human capital substitute rather than complement each other.

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1. Introduction

In recent years, considerable attention has been devoted to the study of immigrant economic outcomes. The main finding from previous research is that immigrants in Western countries are at an economic disadvantage. After arrival in the host country, immigrants have difficulties finding jobs, and when they are employed, they often have low-status and low-paid jobs (e.g., Catanzarite, 2002; Chiswick et al., 2003; Duvander, 2001; Friedberg, 2000; Kogan, 2006; Slack and Jensen, 2007). To explain immigrants' disadvantage in Western countries, it has been argued that, on average, immigrants are less skilled than natives. Because many immigrants come from less-developed countries where less money is spent on education and training, they are often lower educated and less trained than native majority residents (Bratsberg and Ragan, 2002). Furthermore, it has been argued that human capital received in the country of origin is often less valued than human capital acquired in Western host countries because origin-country-specific skills are lower quality and difficult to transfer, and employers are often uncertain about these skills (Bratsberg and Ragan, 2002; Bratsberg and Terrell, 2002; Kanas and Van Tubergen, 2009; Zeng and Xie, 2004).

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Several studies have shown that immigrants who received their education and work experience in their country of origin have lower-status jobs and earn less than immigrants who received their education and work experience in the Western host country (Bratsberg and Ragan, 2002; Bratsberg and Terrell, 2002; Friedberg, 2000; Kanas and Van Tubergen, 2009; Li, 2001; Zeng and Xie, 2004). The differential returns to origin- and host-country education are less evident for immigrants' employment, however. To obtain a job, education acquired in the host country seems to be as important as origin-country education (Kanas and Van Tubergen, 2009), and may even be detrimental (Duvander, 2001).

The purpose of this study is to extend the analysis of the economic returns to origin-country-specific human capital among immigrants in Belgium. This study achieves this aim in three ways. First, we examine whether economic returns to origin-country schooling and origin-country work experience depend on the region of residence in the host country. Previous research has shown that immigrants who have some understanding of the host country's language at arrival and whose origin countries have similar education and labor market systems as the receiving society receive larger returns to their origin-country-specific schooling and work experience than those who have a dissimilar background (Bratsberg and Ragan, 2002; Bratsberg and Terrell, 2002; Friedberg, 2000; Kanas and Van Tubergen, 2009; Zeng and Xie, 2004). However, these studies compared immigrants from various origin countries; therefore, the group differences that were found in the returns to origin-country human capital may be due to unmeasured characteristics of immigrants' countries of origin. In this study, we adopt a design in which we compare the same groups in different destination contexts. Specifically, we focus on Moroccan and Turkish immigrants in Belgium, which is a multilingual country with a predominantly French-speaking region (Wallonia and Brussels) and a predominantly Dutch-speaking region (Flanders).

Because Morocco was a French colony, many Moroccan immigrants have been exposed to French language and culture in their origin country (Angrist and Lavy, 1997; Van Tubergen and Wierenga, 2011), leading to increased transferability and reduced uncertainty among employers toward Moroccan human capital in French-speaking Wallonia and Brussels.

In this study, we compare economic returns to origin-country schooling and work experience among Moroccan and Turkish immigrants who reside in more or less 'favorable' regions. We expect that Moroccan immigrants will receive higher returns to their human capital in French-speaking Wallonia and Brussels than Moroccan immigrants in Dutch-speaking Flanders.

Second, we study whether economic returns to origin-country education and work experience depend on residential co-ethnic concentration. A number of studies have examined the direct effects of residential co-ethnic concentration on immigrants' economic outcomes (e.g., Catanzarite and Aguilera, 2002; Chiswick and Miller, 2002, 2005; Kogan and Kalter, 2005). Recently, evidence has been found for indirect (negative) effects of co-ethnic concentration through the decreased acquisition of the host-country language (Bauer et al., 2005; Chiswick and Miller, 2002, 2005). As an explanation for this finding, researchers have argued that residing in co-ethnic concentrated areas enables immigrants to communicate in the origin-country language and makes the learning and use of the host country's language unnecessary (Van Tubergen and Kalmijn, 2005). However, little research has examined the presumed positive interaction between residential co-ethnic concentration and origin-country education and work experience. It could be argued that working among many co-ethnics facilitates the transferability and reduces the uncertainty of origin-country credentials and skills, thereby increasing economic returns to origin-country human capital. In this study, we examine whether the economic returns to origin-country education and work experience are larger in regions with a large concentration of co-ethnics as compared to the regions with few co-ethnics.

Third, this study extends prior theoretical work by hypothesizing and testing whether host-country human capital is a complement or a substitute for origin-country human capital. A few studies that have examined the interaction between origin- and host-country human capital have shown that the host country's language and credentials complement origin-country credentials (Bratsberg and Ragan, 2002; Friedberg, 2000). We contribute to the growing research on this issue by examining whether acquiring the host country's language, education, and work experience increases the economic returns to origin-country education and work experience.

Previous studies that have examined the differential returns to origin- and host-country human capital have predominantly focused on earnings and income (Bratsberg and Ragan, 2002; Bratsberg and Terrell, 2002; Chiswick and Miller, 2002, 2005; Friedberg, 2000; Zeng and Xie, 2004). Although income is a valid marker of socio-economic success, it is only one indicator. This study extends the existing work by considering employment and occupational status.

2. Belgian setting

Before formulating the hypotheses, we briefly discuss the two groups studied here and the Belgian context. Immigrants from Turkey and Morocco are the largest non-Western immigrant groups in Belgium, representing approximately 16% of the total immigrant population in Dutch-speaking Flanders and 7.5% of the total immigrant population in French-speaking Wallonia (Statistics Belgium, 2004). Many Turks and Moroccans came to Belgium in the 1960s as a part of the guest worker programs, which allowed immigrants to temporarily reside and work in industrial sector low-skilled jobs (Lesthaeghe, 2000a; Phalet and Swyngedouw, 2003). Although the migration of Turks and Moroccans was initially planned as a temporary government program, many immigrants settled permanently, and chain migration in the form of family reunification and family formation further increased immigration from these countries.

Turks and Moroccans are predominantly Muslim groups (Lesthaeghe, 2000a). Both groups have lower levels of education and higher unemployment rates than Belgium natives, and they are overrepresented in low-skilled and low-paid jobs (Lesthaeghe, 2000a; Phalet and Swyngedouw, 2003). For instance, according to the 1991 Census, depending on the region between 55% and 65% of first-generation Turks and between 50% and 70% of first-generation Moroccans had obtained none or primary school diplomas, compared to between 24% and 31% of Belgian nationals. In addition, although the labor force participation rates of Turks and Moroccans are similar to that of native Belgians, they have much higher unemployment rates (depending on the region, between 29% and 39% (Turks) and between 31% and 34% (Moroccans) vs. between 4% and 11% (Belgian nationals)). When they are employed, they are overrepresented in low-skilled jobs (Phalet and Swyngedouw, 2003: 10–14).

There are also differences in the economic disadvantage of Turks and Moroccans across regions. Despite Flanders' more developed service sector and overall low levels of unemployment, ethnic disparities in unemployment rates between Turks and Moroccan immigrants and Belgian natives are much higher in Flanders (34% and 31% vs. 4%, respectively) than in the less economically prosperous Wallonia (39% and 34% vs. 11%) (Phalet and Swyngedouw, 2003: 13). Ethnic disparities in unemployment rates are also lower in the metropolitan region of Brussels, which is ethnically diverse and has a developed service sector. Among the possible explanations for the relatively larger ethnic penalty in Flanders are public ethnocentrism, anti-immigrant attitudes among employers, and ineffective antidiscrimination policies and measures (Phalet and Swyngedouw, 2003). For instance, while the federal and Walloon authorities emphasize cultural diversity and the coexistence of different ethnic groups, Flemish authorities focus on the protection of the Flemish culture (i.e., the Dutch language) and have more exclusionary attitudes toward ethnic minorities (Billiet et al., 2003).

Despite many similarities between Turks and Moroccans in terms of religion, traditional family values, and socio-economic background, the two groups differ with respect to their socio-cultural integration. Coming from a former French colony has resulted in several advantages for Moroccan immigrants, including knowledge of the French language and familiarity with French culture as well as an extensive history of international migration to French-speaking countries. Moroccans have greater orientation toward Belgian society than do Turks, which results in higher levels of social integration (Lesthaeghe and Surkyn, 1997). For example, approximately 17% of Moroccans are married to native Belgians, compared to 6% of Turks (Lievens, 1998).

3. Conditional returns to origin-country human capital

3.1. The importance of the receiving context

It has been argued that human capital acquired in non-western origin countries is lower quality and more difficult to transfer and that employers are uncertain about these skills compared to the human capital acquired in (more economically developed) Western host countries (Bratsberg and Ragan, 2002; Bratsberg and Terrell, 2002; Zeng and Xie, 2004). With respect to Turkey and Morocco, there seems to be little difference in terms of the 'quality' of their education systems. For instance, in 1991, the two countries had the same number of compulsory education years (nine) and comparable primary school pupil-to-teacher ratios (Morocco: 27; Turkey: 30) (World Bank, 1991). However, Turkish and Moroccan immigrants are likely to differ in the transferability of and employers' uncertainty toward their origin-country human capital.

First, the two immigrant groups differ in their pre-migration exposure to the host-country language (Van Tubergen and Wierenga, 2011). There is no exposure to the Dutch language in Turkey or Morocco. Turkish immigrants are also not exposed to French before migration, except for a small (elite) group that attends internationally oriented high schools, but this group falls outside our focus. Because of the colonial past, however, Moroccans are exposed to French, which is an official language in Morocco, and children learn French in school. Until 1983, French was the main language of instruction for all subjects taught in post-primary education in Morocco, with the exception of subjects directly related to Arabic (such as Arabic literature or religion) (Angrist and Lavy, 1997: 51). It can be argued that this pre-migration exposure of Moroccans to the French language facilitated the transferability of their origin-country education and work experience in French-speaking Wallonia and Brussels.[1] In line with these arguments, studies have shown that in the United States, immigrants who came from countries where English was an official language received higher returns to their origin-country schooling compared to immigrants who came from countries where languages other than English were spoken (Bratsberg and Ragan, 2002; Bratsberg and Terrell, 2002; Zeng and Xie, 2004).

Second, education and training received in a former French colony may be more similar to education and training received in Wallonia and Brussels, resulting in greater transferability of Moroccan skills in these regions. For instance, long after independence in 1956, teachers in Morocco were either French citizens or natives trained in France, French textbooks were used, and many educated Moroccans found employment in French-trained civil service or trade with French-speaking countries (Angrist and Lavy, 1997). Third, this exposure to French language and culture may affect employers in French-speaking regions of Belgium, who may be more able to recognize credentials and skills acquired in Morocco than in Turkey and may value them more than employers in Flanders. Based on the foregoing observations, we hypothesize that *Moroccan*

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[1] Approximately 85% of people used French in their daily conversations in Brussels in the 1990s, when the survey data were collected (Coffé, 2006).

immigrants in Wallonia or Brussels receive larger returns to their origin-country schooling and work experience than Moroccan immigrants in Flanders (H1).

3.2. The role of co-ethnic concentration

Returns to origin-country human capital may also depend on residential co-ethnic concentration. A number of studies have examined the direct effects of residential co-ethnic concentration on immigrants' economic outcomes. These studies have shown that, with a few exceptions (i.e., immigrant self-employers), living among many co-ethnics is associated with lower chances of finding a job and lower occupational status and earnings for those who are employed (Catanzarite and Aguilera, 2002; Chiswick and Miller, 2002; Kogan and Kalter, 2005). Recently, some evidence has demonstrated negative indirect effects of co-ethnic concentration on immigrants' economic outcomes. For instance, studies have shown that in the U.S., living among many co-ethnics reduced immigrants' English language proficiency (Bauer et al., 2005; Chiswick and Miller, 2002; McManus, 1990). Moreover, immigrants who lived among many co-ethnics received lower earning returns to their English language than those who lived among many natives (Chiswick and Miller, 2002).

However, for immigrants who do not speak the host-country language and do not have host-country credentials and experiences, living and working among co-ethnics may be better than living and working among natives (Bauer et al., 2005; Chiswick and Miller, 2002, 2005; McManus, 1990). One reason for this is that co-ethnic concentration may facilitate the transferability of origin-country human capital. Immigrants who live in areas with many co-ethnics can communicate in their origin-country language and benefit from the knowledge and skills acquired in their country of origin. An example where such knowledge and skills may be particularly important is immigrant self-employment, which may benefit from origin-country-specific knowledge of ethnic goods, consumer preferences, values, and norms (Kanas et al., 2009; Chiswick and Miller, 2002).

Another reason is that co-ethnic concentration may reduce employers' uncertainty toward origin-country credentials and experiences. Co-ethnic concentration increases the chances of working for co-ethnic employers who are more likely than native employers to recognize and value origin-country-specific diplomas and training. Moreover, native employers who live and work among many immigrants from a certain ethnic group may become more familiar with the quality and portability of their schooling and work experience than employers who live and work mainly among natives (Kanas and Van Tubergen, 2009). In line with these arguments, researchers have shown that in the U.S., living among many co-ethnics is not only more common but also more beneficial for immigrants with poor English language skills compared to those who are proficient in English because it expands immigrants' occupational opportunities (Bauer et al., 2005; McManus, 1990). Based on the foregoing observations, it is hypothesized that *immigrants who reside in regions with a high concentration of co-ethnics receive larger returns to their origin-country education and work experience compared to immigrants who reside in regions with few co-ethnics* (H2).

3.3. Additional investments in host-country human capital

Economic returns to origin-country schooling and work experience may also depend on (additional) investments in host-country human capital. Speaking the host-country language well can facilitate the transferability of origin-country education and work experience (Bratsberg and Ragan, 2002; Chiswick and Miller, 2002, 2003). Origin-country education and work experience may be of little, if any, value in the labor market if an immigrant has no knowledge of the host-country language (Chiswick and Miller, 2003). Host-country language proficiency can also facilitate immigrants' ability to explain their foreign credentials and experiences to native employers, thus reducing uncertainty toward their origin-country credentials and skills. In line with these arguments, Bratsberg and Ragan (2002) showed that among immigrants in the U.S, knowledge of the English language increased economic returns to origin-country schooling. Similarly, Chiswick and Miller (2002) found that the earning returns to origin-country schooling and work experience increased with the English language fluency of immigrants in the United States.

It has also been argued that post-migration investments in host-country schooling or post-migration work experience can upgrade and certify the credentials and work experience received in the origin country (Friedberg, 2000). In line with these arguments, Friedberg (2000) showed that among immigrants in Israel, investments in host-country education increased earning returns to origin-country education. However, her study did not find a significant interaction between additional investments in host-country work experience and origin-country education or work experience. Bratsberg and Ragan (2002) also showed that immigrants who obtained some of their education in the U.S. received larger earning returns to their origin-country education. Based on the foregoing observations, it is hypothesized that *immigrants who learn the host-country language and acquire education and work experience in the host country receive larger returns to the education and work experience acquired in the country of origin than immigrants who do not make such investments* (H3).

4. Data

For the purpose of this study, we use the Migration History and Social Mobility Survey (MHSM). This is a cross-sectional, immigrant-specific survey collected between 1994 and 1996 among Turkish and Moroccan men in Belgium. The survey is

based on cluster samples with a two-stage drawing procedure (Lesthaeghe, 2000b). First, a random sample of municipalities (clusters) with at least 100 Turkish or Moroccan nationals was selected. Second, a random sample of individuals was drawn from these municipalities. The data on Turkish men were collected from 47 municipalities, and the data on Moroccan men were gathered from 41 municipalities. The number of respondents was proportional to the share of Turkish and Moroccan populations in each cluster. The random sample is based on the list of foreign-born populations. Because before 1995 the number of Turks and Moroccans who acquired Belgian nationality was very small (Federal Institute for Population Research, 2000), there are few (3.3%) Turks and Moroccans with Belgian citizenship in the survey The late and diffuse implementation of official integration policy in Belgium, including complex naturalization process, which was only simplified in 2000, provides some of the explanation for low rates of Belgian citizenship among Turks and Moroccans (Phalet and Swyngedouw, 2003).

The unique feature of this dataset is that it contains precise measures of origin- and host-country human capital as well as immigrants in two language areas, which allows us to rigorously test hypotheses. Most previous research on the differential returns to origin- and host-country human capital relies on general population surveys (e.g., census data) that do not directly measure pre- and post-migration schooling and work experiences. For instance, to construct measures of years of education, researchers use information on immigrants' age at migration and total years of schooling (e.g., Friedberg, 2000; Bratsberg and Ragan, 2002; Bratsberg and Terrell, 2002; Jackson et al., 2010; Zeng and Xie, 2004). Such indirect measures may lead to biased results and erroneous conclusions (Chiswick and Miller, 1994). This survey contains direct measures of host-country language skills and origin- and host-country education and work experience.

Like all datasets, this survey has limitations. First, because of its cross-sectional character, the survey does not allow for a strong test of the causality of the relationships. This is especially true for the estimated effects of host-country human capital, which may be affected by reverse causality. For instance, although we expect that host-country language proficiency increases immigrants' chances for employment and higher occupational status, having a (higher-status) job can also lead to improved language proficiency among immigrants. Given that origin-country education and work experience were acquired before arrival in the host country, they cannot be affected by economic outcomes in Belgium. However, the returns to origin-country human capital may be biased due to unobserved characteristics of individual immigrants, such as IQ or ambition, which are likely to affect immigrants' educational investments and their labor market outcomes. Importantly, however, the focus of our study is how *contextual conditions* (e.g., Wallonia vs. Flanders; percentage of co-ethnics in the area of residence) moderate the returns to origin-country specific human capital, not the main relationship between origin-country human capital and labor market position.

The cross-sectional character of the data restricts also our ability to control for selective return migration. Previous research has shown that the level of return migration has been high in both U.S. and Europe (Dustmann, 1995; Jasso and Rosenzweig, 1982) and that unemployment is an important trigger for return (Bijwaard et al., 2013). This implies that immigrants who stayed have done better at the host country labor market than those who left, and not accounting for the selective return migration may bias our results (Bijwaard et al., 2013). That said, the return migration of Turkish and Moroccan immigrants is much lower compared to immigrants from other countries (De Haas, 2007; Lesthaeghe, 2000a). In addition, in a study concerned with return migration of immigrant guest workers in Germany, Constant and Massey (2003) have found no significant difference between guest workers who left and who stayed in Germany in terms of educational attainment and earnings assimilation pattern.

A second issue involves non-response. The non-response rate was 28% for Turks and 44% for Moroccans. The larger non-response rate for Moroccans compared to Turks is mainly due to more refusals (17% vs. 11%) and the absence of the Moroccan respondents for (up to three) scheduled revisits (27% vs. 17%) (Lesthaeghe, 2000b). Although the non-response rate of Moroccans was relatively high compared to other countries, it has also been found in other surveys within Belgium (see, for example, Phalet and Swyngedouw, 2003). Moreover, special measures were taken to include respondents who were less well integrated culturally and economically. The survey relied on Turkish and Moroccan interviewers, and the questionnaires were translated into four languages (Dutch, French, Turkish, and Arabic) (Lesthaeghe, 2000b). Non-response can be problematic when it is biased. Comparisons with the 1991 Census suggest that in the MHSM survey, respondents who are unemployed and have higher occupational status are somewhat overrepresented, although strict comparisons are hard to make due to differences in the sampling frame and the time period covered. We emphasize that the main aim of the paper is not to present descriptive data, for which representativeness of the data are crucial. Rather, the focus of the paper is to study the *relationships* between certain variables, and for this aim, the possible underrepresentativeness of certain social categories is generally regarded as less problematic.

A third limitation of the survey is that the data were collected more than 15 years ago. Although this is likely to affect the descriptive statistics of the populations under study, the data provide a unique opportunity to study the processes and mechanisms of differential returns to origin-specific human capital, which is the focus of our study. Therefore, we pay little attention to the descriptive data and focus on the results of the regression analyses.

The analyses are limited to male immigrants between ages 25 and 60. Men under the age of 25 and above 60 are excluded from the analysis based on the presumption that the former have not finished schooling and the latter have left the labor market as a consequence of the early retirement scheme. Immigrants are defined as individuals born outside of Belgium. In total, our sample includes 1727 respondents. The majority of the respondents (48%) had been in Belgium for approximately 20–30 years; approximately 21% had been in Belgium for less than 10 years, 28% had been in Belgium for 10–20 years, and less than 3% had been in Belgium for more than 30 years.

5. Methods

5.1. Dependent variables

Employment was measured by contrasting employed immigrants, including self-employed, with those who were without work (unemployed). Respondents who were not actively seeking work (i.e., students, homemakers) were excluded from the analyses.

Occupational status was measured in terms of the International Socio-Economic Index (ISEI). The ISEI scale measures the hierarchical position of an occupation. The scale is computed as weighted averages of standardized measures of the income and education of occupational groups, controlling for age effects. The scale ranges from 16 (agricultural workers, hotel, and restaurant cleaners) to 90 (judges). The mean occupational status in our sample was 33.3 points, which is equivalent to jobs as blacksmiths, plumbers, power production plant operators, and cabinet-makers (Ganzeboom et al., 1992).

5.2. Origin- and host-country human capital

Education: Respondents were asked about the highest level of completed education in their country of origin and in Belgium. Based on this information, 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 Belgium (using the International Standard Classification of Education ISCED-1997, OECD, 1999). Because the ISCED-1997 classification is not available for Morocco, we used the same coding as for Turkey.

Work experience was computed in years of work experience in Belgium and in the country of origin. Respondents were asked whether they had ever worked in Belgium and, if so, at what age they began working in Belgium and how many years (in total) they were unemployed in Belgium. Based on this information, we constructed the variable of work experience in Belgium. No such questions were included for work experience abroad. Instead, respondents were asked about the total number of years in their last job in the origin country. Approximately 75% of immigrants arrived in Belgium before the age of 25, so it is likely that the years of work experience acquired on their last job is equal to the total years of work experience in the country of origin. We constructed a variable of work experience in the origin country based on the number of years in the last employment position in the origin country.

Host-country language skills were measured by taking the maximum score on the self-reported ability to speak French (Wallonia), Dutch (Flanders), and French or Dutch (Brussels). The host-country language skills variable ranged from (1) "not at all" to (5) "very well" and was treated as a continuous variable.[2]

5.3. Other independent variables

Married contrasts married respondents with those who are single. *Economic migration motive* is measured by contrasting respondents who moved to Belgium for economic motives with those who moved for other reasons (e.g., family reasons). *Moroccan* contrasts respondents from Morocco with those from Turkey. *Years since migration* are measured by a variable with three categories: (1) YSM less than 10 years, (2) YSM between 10 and 20 years, and (3) YSM equal and higher than 20 years. *Ethnic concentration* is calculated by linking the postal code of respondents to the percentage of co-ethnics in the municipality. Data on ethnic composition were collected in 1991 by Statistics Belgium (2004). *Linguistic region* is measured by the dominant language of the region where the respondent currently lives. We distinguished between French (Wallonia) and Dutch (Flanders) regions and the bilingual city of Brussels. We checked for multicollinearity among the independent variables, but correlations did not exceed critical levels (VIF ⩽ 3.2). Note, however, that for this reason, we did not include additional controls such as "age" and "age at immigration".

5.4. Analysis

One important issue that should be discussed before we present the findings is the possible self-selection of immigrants into the linguistic regions. It could be argued that the choice of migration region by Moroccan immigrants is not random but is related to individual and regional characteristics. One may suspect, for example, that Moroccans who expect to benefit more from their pre-migration schooling and work experience in French-speaking Belgium would be more likely to move there and to receive larger returns to pre-migration human capital. These expectations are, of course, unobserved in our analysis. Furthermore, this unobserved expectation is likely to be (positively) correlated with the choice of French-speaking regions and thus is likely to (upwardly) bias the estimated returns to Moroccan education and work experience in these regions. To address the self-selection of Moroccan immigrants into Wallonia and Brussels, we estimate a Heckman sample selection model (Heckman, 1979; Dubin and Rivers, 1989).

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[2] Although an objective assessment of language skills would be more desirable than the self-reported measure of language skills reported in this research, research shows that these two measures of language proficiency highly correlate (Van Tubergen and Kalmijn, 2005).

Table 1

Descriptive statistics of dependent and independent variables. *Source:* Migration History and Social Mobility Survey (1994–1996).

	Range	Moroccans						Turks					
		Wallonia		Brussels		Flanders		Wallonia		Brussels		Flanders	
		Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
Dependent variables													
Employed	0/1	.46		.53		.60		.53		.55		.49	.50
Occupational status (ISEI)	16–85	37.17	12.20	33.99	12.38	32.12	8.43	32.82	10.77	32.47	12.25	33.46	9.97
Independent variables													
Education origin	0–17	5.18	4.81	6.60	4.88	5.07	4.92	8.08	4.28	8.18	4.12	7.98	3.98
Education in Belgium	0–19	4.87	6.92	4.17	6.54	4.21	6.46	5.11	6.48	3.29	5.65	4.02	6.04
Work experience origin	0–31	3.80	5.92	3.11	4.86	2.83	4.60	3.5	5.10	4.20	5.63	4.22	5.86
Work experience in Belgium	0–38	13.72	9.93	12.14	9.24	13.68	9.20	12.58	8.83	11.52	7.22	12.38	8.21
Destination language skills	1–5	3.85	1.14	3.73	1.09	3.13	1.18	3.20	1.12	3.01	1.08	2.87	.98
Married	0/1	.82		.89		.88		.97		.98		.98	
Economic migrants	0/1	.58		.53		.53		.42		.49		.46	
YSM < 10 yrs	0/1	.15		.22		.19		.18		.19		.19	
YSM ⩾ 10 and YSM < 20 yrs	0/1	.11		.19		.21		.23		.21		.24	
YSM ⩾ 20 yrs	0/1	.73		.59		.60		.60		.60		.58	
Ethnic concentration	0.3–20.5	1.81	.95	13.53	4.56	3.87	1.21	3.22	2.98	10.02	6.02	5.07	3.75
N	1727	79		481		209		204		244		510	

The Heckman sample selection model first estimates the probit model that relates the probability of a respondent moving to a French-speaking (vs. Dutch-speaking) region to a set of determinants and then uses these probit estimates to compute the inverse Mills ratio or the hazard rate variable. This variable is then used as a covariate in the outcome equation. In addition to the variables included in the outcome equation (i.e., employment), the selection equation includes a variable indicating the respondent's first linguistic region of settlement upon arrival to Belgium (i.e., Brussels, Wallonia, or Flanders). We assume that, conditional on the variables for which we already control, the original location choice of Moroccan immigrants should have no effect on their economic outcomes other than through its effect on current linguistic region. Thus, by including the first linguistic region variable in the selection model, we control for the unobserved characteristics (i.e., expectations of higher economic returns to their origin-country human capital) that influence Moroccan immigrants' choice of their current linguistic region.[3] Because the Heckman selection model requires that the outcome variable is only observed for a selected sample (i.e., Moroccans in French- vs. Dutch-speaking regions), a separate model was run for each immigrant group in French vs. Dutch linguistic regions. Because few Moroccans are employed and have valid occupational status in Wallonia (see Table 1), the first hypothesis, which requires the estimation of separate models by immigrant group, is tested for employment status only.

The results (available upon request) show no evidence of a selection bias regarding regional choice in estimating Moroccan immigrants' employment. Importantly, there are practically no large differences in the estimated effects between the models with and without the Heckman correction factor. Therefore, the results are based on the logit (employment; Tables 2 and 3) and the Heckman sample selection model (occupational status; Table 3), thus correcting for immigrants' selection into employment.[4]

6. Results

We begin by describing the main effects of origin- and destination-country human capital on employment status for Moroccans and Turks separately. Table 2, Model 1 clearly shows that for both Moroccans and Turks in our sample education received in the host-country more strongly increases the odds of employment than education obtained abroad, the difference being statistically significant in the Moroccan sample only ($b = .021$ vs. $b = .106$; $chi2(1)$: 8.67, $p = .003$).

Because speaking the host-country language and having host-country credentials are highly correlated, we also performed an analysis without host-country language, thereby separating these two effects. The results (not presented here) show that when host-country language skills are not included in the model, the returns to education obtained in Belgium are significantly higher than the returns to education acquired abroad also among Turkish immigrants. These results suggest that the larger benefits from host-country schooling than from origin-country schooling among Turkish immigrants are mainly due to greater language proficiency of these Turks who acquired host-country schooling. All in all, these results suggest that the higher economic returns to host-country schooling compared to origin-country schooling in previous research (Friedberg, 2000; Jackson et al., 2010) may be overestimated and may at least partly reflect the greater language proficiency of immigrants with host-country credentials.

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[3] The first-stage relationship between the first and current linguistic region is strong. For example, the first linguistic region alone explains almost 64% of the variation in the current linguistic region.

[4] Three identifying variables are included in the selection equation: the regional unemployment rate and two variables indicating whether the respondent's children and parents (including spouse's parents) are present in the household. The inverse Mills ratio is significant, indicating possible selectivity in the sample of employed immigrants. Therefore, we report findings for occupational status from the Heckman selection model.

Table 2
Logistic regression of immigrants' employment. The role of linguistic region in the returns to origin-country human capital. *Source:* Migration History and Social Mobility Survey (1994–1996).

	Moroccans		Turks	
	Model 1	Model 2	Model 1	Model 2
Education origin (centered)	0.021	−0.001	0.044	0.007
	(0.86)	(−0.02)	(1.87)	(0.20)
Education in Belgium (centered)	0.106***	0.107***	0.057***	0.058***
	(5.27)	(5.25)	(3.65)	(3.65)
Work experience origin (centered)	0.006	−0.066	−0.053**	−0.037
	(0.30)	(−1.65)	(−2.85)	(−1.60)
Work experience in Belgium (centered)	0.097***	0.098***	0.062***	0.061***
	(6.63)	(6.74)	(3.81)	(3.69)
Destination language skills (centered)	0.357***	0.354***	0.354***	0.355***
	(3.65)	(3.48)	(4.11)	(3.99)
Married	0.208	0.246	−0.023	−0.068
	(0.85)	(1.01)	(−0.06)	(−0.17)
Economic migrants	−0.128	−0.149	−0.347	−0.347
	(−0.91)	(−1.13)	(−1.81)	(−1.81)
YSM < 10 yrs (vs. YSM ⩾ 20 yrs)	2.652***	2.661***	2.205***	2.197***
	(6.39)	(6.54)	(6.27)	(6.15)
YSM ⩾ 10 and YSM < 20 yrs (vs. YSM ⩾ 20 yrs)	1.109***	1.097***	0.868***	0.885***
	(4.55)	(4.42)	(3.68)	(3.73)
Ethnic concentration (centered)	−0.038	−0.039	−0.070*	−0.071*
	(−1.22)	(−1.19)	(−2.43)	(−2.45)
Ethnic concentration squared (centered)	0.002	0.002	0.006*	0.006*
	(0.92)	(0.82)	(2.20)	(2.42)
Wallonia (vs. Flanders)	−0.916**	−0.599	−0.185	−0.246
	(−2.96)	(−1.60)	(−0.68)	(−0.90)
Brussels (vs. Flanders)	−0.209	−0.073	0.608*	0.533
	(−0.68)	(−0.20)	(2.03)	(1.79)
Education origin * Wallonia		0.130*		0.068
		(2.51)		(1.43)
Work experience origin * Wallonia		0.032		−0.020
		(0.41)		(−0.59)
Education origin * Brussels		0.021		0.086*
		(0.48)		(2.06)
Work experience origin * Brussels		0.108**		−0.055
		(2.58)		(−1.05)
Constant	−0.600	−0.728	−0.670	−0.610
	(−1.43)	(−1.65)	(−1.59)	(−1.45)
Cluster	70	70	80	80
N of observations	769	769	958	958

t Statistics in parentheses.
* $p < 0.05$.
** $p < 0.01$.
*** $p < 0.001$.

Table 2, Model 1 also reveals the importance of host-country work experience for immigrants' employment. Specifically, Moroccan and Turkish immigrants who acquired (additional) work experience in Belgium are more likely to be employed than Moroccans and Turks without host-country-specific work experience. Regarding work experience acquired in the country of origin, our results show that it does not affect (Moroccans) or even decreases (Turks) immigrants' chances of employment. We also find that speaking the host-country language (i.e., Dutch or French) is positively associated with increased odds of employment for both Turkish and Moroccan immigrants.

Our results also show a negative, nonlinear association between co-ethnic residential concentration and immigrants' odds of employment among Turkish immigrants. Specifically, Table 2, Model 1 shows that for those Turkish immigrants who live in regions with co-ethnic concentrations below 6% (i.e., $−(−.07)/(2 * .006) = 5.8$), residential co-ethnic concentration is associated with decreased odds of employment. However, when the residential co-ethnic concentration exceeds 6%, which is the case for 33% of Turks in our sample, living among co-ethnics is associated with increased odds of employment among immigrants. We lastly find that living in Wallonia compared to Flanders decreases the odds of employment among Moroccan immigrants.

We first hypothesized that Moroccan immigrants residing in Wallonia or Brussels would receive larger returns to their origin-country schooling and work experience than Moroccans residing in Flanders. Our results show some support for this hypothesis. Specifically, Table 2, Model 2 shows that Moroccan immigrants who live in Wallonia receive larger returns to their origin-country schooling than Moroccan immigrants living in Flanders. Furthermore, the returns to Moroccan work experience are larger in predominantly French-speaking Brussels than in Flanders.

Table 3

Logistic regression of immigrants' employment and Heckman selection model of immigrants' occupational status. The role of ethnic concentration and host-country human capital in the returns to origin-country human capital. *Source:* Migration History and Social Mobility Survey (1994–1996).

	Employment			Occupational status		
	M1	M2	M3	M1	M2	M3
Education origin (centered)	0.023	0.025	0.042[*]	0.396[***]	0.393[**]	0.607[***]
	(1.37)	(1.46)	(2.38)	(3.40)	(3.28)	(3.81)
Education in Belgium (centered)	0.077[***]	0.077[***]	0.107[***]	0.493[***]	0.494[***]	1.151[***]
	(5.81)	(5.94)	(7.95)	(5.09)	(4.95)	(6.77)
Work experience origin (centered)	−0.032[*]	−0.029[*]	−0.004	0.457[***]	0.439[***]	0.397[**]
	(−2.31)	(−2.18)	(−0.27)	(4.07)	(3.89)	(3.22)
Work experience in Belgium (centered)	0.079[***]	0.079[***]	0.093[***]	−0.151[*]	−0.147	0.529[***]
	(6.71)	(6.67)	(6.73)	(−1.98)	(−1.88)	(4.91)
Destination language skills (centered)	0.320[***]	0.325[***]	0.230[***]	0.424	0.549	1.498[***]
	(5.10)	(5.19)	(3.42)	(0.96)	(1.31)	(3.34)
Married	0.173	0.166	0.236	−2.265	−2.083	−0.790
	(0.84)	(0.80)	(1.16)	(−1.28)	(−1.18)	(−0.41)
Economic migrants	−0.276[*]	−0.272[*]	−0.104	2.495[***]	2.575[***]	2.158[*]
	(−2.15)	(−2.15)	(−0.76)	(3.62)	(3.84)	(2.06)
YSM < 10 yrs (vs. YSM ⩾ 20 yrs)	2.447[***]	2.449[***]	2.419[***]	−4.131[*]	−3.910[*]	11.605[***]
	(8.74)	(8.78)	(7.49)	(−2.43)	(−2.22)	(4.64)
YSM ⩾ 10 and YSM < 20 yrs (vs. YSM ⩾ 20 yrs)	1.032[***]	1.023[***]	1.215[***]	−1.586	−1.542	6.443[***]
	(5.70)	(5.55)	(6.12)	(−1.20)	(−1.15)	(4.11)
Moroccan (vs. Turkish)	−0.054	−0.064	0.074	0.655	0.698	1.029
	(−0.36)	(−0.43)	(0.49)	(0.83)	(0.88)	(1.06)
Ethnic concentration (centered)	−0.072[**]	−0.072[**]	−0.066[**]	−0.204	−0.189	−0.490[***]
	(−2.85)	(−2.85)	(−2.64)	(−1.83)	(−1.66)	(−3.37)
Ethnic concentration squared (centered)	0.004[*]	0.004[*]	0.004	0.014	0.012	0.031[**]
	(2.15)	(2.11)	(1.89)	(1.34)	(1.17)	(2.71)
Wallonia	−0.396	−0.404	−0.330	−0.711	−0.852	−1.984
	(−1.82)	(−1.82)	(−1.50)	(−0.72)	(−0.90)	(−1.83)
Brussels	0.404	0.411	0.415	1.333	1.166	2.471
	(1.58)	(1.59)	(1.63)	(1.04)	(0.88)	(1.32)
Education origin * Ethnic concentration		−0.000			−0.025	
		(−0.13)			(−1.55)	
Work experience origin * Ethnic concentration		0.003[*]			−0.007	
		(2.10)			(−0.61)	
Education origin * Education Belgium			−0.014[***]			−0.105[***]
			(−6.50)			(−4.39)
Work experience origin * Work experience Belgium			−0.004[***]			−0.026[**]
			(−3.37)			(−2.86)
Education origin * Work experience Belgium			−0.002			−0.012
			(−1.16)			(−0.92)
Education origin * Destination language			0.009			0.017
			(0.66)			(0.13)
Work experience origin * Destination language			0.014			0.226[*]
			(1.17)			(2.41)
Constant	−0.834[**]	−0.820[**]	−1.115[***]	35.727[***]	35.402[***]	16.288[***]
	(−2.69)	(−2.63)	(−3.39)	(15.70)	(14.93)	(5.73)
Cluster	110	110	110	110	110	110
N of observations	1727	1727	1727	896	896	896

t Statistics in parentheses.
[*] $p < 0.05$.
[**] $p < 0.01$.
[***] $p < 0.001$.

Although we do not expect differential returns to Turkish human capital between linguistic regions, these can be considered a sensitivity check for the previous results. It may be that rather than higher transferability and lower employer uncertainty toward Moroccan human capital in French-speaking regions, institutional differences (i.e., unemployment rates, occupational segmentation) between regions increase the returns to Moroccan qualifications and skills. The results for Turks suggest that this is not the case. We do not find a significant interaction between Turkish education and work experience and living in Wallonia among Turkish immigrants. There is also no evidence for a significant interaction effect between Turkish work experience and living in Brussels. However, Turks who live in Brussels receive significantly larger employment returns to their origin-country schooling than Turks who live in Flanders.[5]

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[5] We also ran additional models including unemployment rates in eleven provinces in Belgium to determine whether differences in employment opportunities between linguistic regions affected our results. However, this was not the case. Specifically, the unemployment rate did not have a significant effect on immigrants' employment and did not change our conclusions regarding the economic returns to origin-country human capital.

Table 3 presents the results for origin- and destination-country human capital on immigrants' employment and occupational status for the full sample. Model 1 clearly shows that education obtained in the country of destination more strongly increase the odds of employment and occupational status than education obtained abroad, the difference being statistically significant only for employment however ($chi2$ = 8.65; p = .00).

Table 3, Model 1 reveals also some differences in the importance of work experience for immigrants' employment and occupational status. Specifically, immigrants who acquired (additional) work experience in Belgium are more likely to be employed than those without host-country-specific work experience. Host-country work experience seems to be negatively related to immigrants' occupational status, however. Regarding work experience acquired in the country of origin, our results show that while it decreases the odds of immigrants' employment, it increases immigrants' occupational status. Overall, these results suggest that work experience acquired in the host country rather than in the country of origin is more beneficial for finding a job. Moreover, to the extent that origin-country-specific work experience is positively associated with immigrants' age and work tenure, it is negatively related to their employment but positively related to their occupational status. It should be noted that although we have a direct measure of total work experience in Belgium, work experience abroad is estimated indirectly and refers to years in the last job in the country of origin.

We further find that speaking host-country language (i.e., Dutch or French) is positively associated with increased odds of employment. There seem to be no significant association between speaking host-country language and immigrants' occupational status, however. An additional analysis, not presented here, shows that when years since migration are not included in the model, host-country language skills are significantly related to immigrants' occupational status. It could be argued that post-migration investments in host-country human capital provide an explanation why immigrants improve their occupational status with length of stay in the host country. That is, length of stay in the host country facilitates acquisition of host-country language, schooling and work experience, which in turn, affect the occupational status of immigrants.

Finally, there is again evidence for the negative association between co-ethnic residential concentration and immigrants' odds of employment and occupational status, the relationship between co-ethnic concentration and occupational status being marginally significant, however (Table 3, Model 1: b = −.204, p = .07).

Our second hypothesis was that immigrants who reside in regions with a high concentration of co-ethnics receive larger returns to their origin-country education and work experience compared to those who reside in regions with few co-ethnics. The results presented in Table 3, Model 2 provide rather weak support for this hypothesis. Specifically, we find a small positive interaction effect between co-ethnic residential concentration and origin-country work experience on the odds of immigrants' employment. However, we do not find a significant interaction between origin-country education and co-ethnic concentration on the employment and occupational status of immigrants. There is also no evidence that residential co-ethnic concentration significantly increases the occupational returns to origin-country work experience.

Third, it has been hypothesized that the additional investments in host-country language, education, and work experience increase the economic returns to origin-country education and work experiences. Our results (Table 3, Model 3) only partly confirm this hypothesis. In line with our expectation, we find that speaking the host-country language increases economic returns to origin-country work experience. That is, the (positive) effect of origin-country work experience on occupational status is stronger among immigrants who speak the Dutch or French language compared to those without (good) command of the host-country language. A similar result was shown by Chiswick and Miller (2002), who found that in the U.S., immigrants who spoke the English language fluently received larger returns to origin-country schooling and work experience compared to those with poor command of the English language.

Interestingly, our results also show that immigrants who acquired additional education and work experience in the host country received lower returns to their education and work experience acquired in the country of origin. Specifically, the positive effect of origin-country education on employment and occupational status becomes smaller for immigrants who acquired additional education in Belgium. Similarly, immigrants who acquired additional work experience in Belgium received lower returns to their work experience acquired in the country of origin.[6]

Lastly, the results presented above refer to a linear specification of years of education. To examine whether our results are sensitive to this specification, we examined alternative measures of education, i.e., dummy variables for each educational level, linear specification of ordered categories of educational levels, number of years of actual school attendance in the host country. Notably, using different specifications of origin- and host-country education leads to the same conclusions regarding immigrants' employment and occupational status (cf. Tables 2 and 3).[7]

7. Conclusion

A number of studies have shown that human capital acquired in the country of origin is less valued than human capital acquired in the host country (Bratsberg and Ragan, 2002; Bratsberg and Terrell, 2002; Kanas and Van Tubergen, 2009; Zeng

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[6] Our results may be affected by many interactions included in the models. Therefore, we re-ran the analyses with the interactions included one by one. The results were almost the same as those presented in Table 3, and our conclusions regarding the interaction effects did not change.

[7] Interestingly, the results from additional analyses show that using dummy variables for each educational level (i.e., none, primary, secondary, and tertiary) is preferable to the linear specification. That is, the rate of return to education varies substantially across levels of education, with the years spent in tertiary education having a much higher rate of return than years spent in lower levels of education (see Zeng and Xie, 2004 for a similar conclusion). Because of the many interactions included in the models, we continue to use the linear specification of education in the analyses.

and Xie, 2004). Given that the majority of immigrants rely on schooling and work experience acquired in the country of origin in the host country's labor market (Chiswick and Miller, 1994; Van Tubergen and Van de Werfhorst, 2007), studying the factors that affect the returns to origin-country human capital is of critical importance. This study extended our knowledge of the economic returns to immigrants' pre-migration human capital by examining the role of the receiving context, co-ethnic residential concentration, and additional investments in human capital acquired in the host country. We used unique data, including precise measures of origin and destination education and work experience as well as information on immigrants in two language areas, to allow us to test hypotheses more rigorously.

Three important conclusions can be drawn from this study. First, Moroccan immigrants, that is, those originating from former French colonies, receive larger employment returns to their origin-country education and work experience in French-speaking Wallonia and Brussels than in Dutch-speaking Flanders. These findings seem to be not affected by the possible selectivity of Moroccan immigrants into French-speaking regions compared to Dutch-speaking regions, for which we find no evidence. These results may be driven by the increased transferability of Moroccan credentials and skills or by increased familiarity of employers with these skills in Wallonia and Brussels compared to Flanders.

Taken together, our findings suggest that both the level and the portability of pre-migration credentials and skills are important for immigrants' economic outcomes. The difficulties with portability of origin-country-specific human capital may depend on whether these are low- or high-skilled immigrants and even on occupational requirements for host-country-specific skills (Chiswick and Miller, 2010). Policies that help to recognize and reduce uncertainty toward pre-migration credentials and skills can be important measures to facilitate immigrants' economic performance and their integration within the host country.

Second, our results show that immigrants who reside among co-ethnics are less likely to find jobs than those who reside mainly among natives. The separate analyses for each immigrant group indicate that this finding is mainly true for Turkish immigrants who reside among relatively few co-ethnics. For those who live in regions with larger proportion of co-ethnics, co-ethnic residential concentration is associated with increased odds of employment. The importance of co-ethnic concentration among Turkish immigrants is in line with previous studies, which showed a high level of activity and political organization among Turkish communities as well as higher reliance on co-ethnic communities among Turks compared to both Moroccans and native Belgians (Phalet and Swyngedouw, 2003; Reniers, 1999).

There is little evidence that co-ethnic concentration facilitates immigrants' economic outcomes by increasing the returns to origin-country human capital. It may be that living among many co-ethnics not only increases opportunities for working with co-ethnics but also increases competition for jobs outside ethnic enclaves, especially for the few high-status jobs that are available for immigrants (Catanzarite, 2002). In such a competitive environment, relying exclusively or even mainly on origin-country diplomas and experiences may provide more disadvantages than advantages to immigrants.

A potential limitation of this study is its focus on immigrants who have already spent some time in the host country. It could be argued that the role of co-ethnic communities in increasing transferability and reducing employers' uncertainty toward pre-migration human capital may be particularly important for recent immigrants who have not acquired post-migration credentials and experiences (Bauer et al., 2005; McManus, 1990; Mouw and Chavez, 2012). Future research is encouraged to study the effect of co-ethnic residential concentration on returns to origin-country human capital among more recent immigrants.

Third, our results indicate that investments in the host-country language facilitate transferability and reduce employers' uncertainty toward origin-country work experiences. Contrary to our expectations, origin- and host-country education and work experience seem to substitute rather than complement each other. This finding suggests that the acquisition of additional credentials and experiences in the host country is less important for finding (better) employment at the lower end of skills distribution. It could be that acquiring additional host-country education and work experience facilitates the returns to origin-country education and work experience only among those immigrants who are at the top of the occupational structure (Berman et al., 2003). Unfortunately, we could not examine this issue with a current sample consisting of (predominantly) low-skilled immigrants. Future research is needed to examine the differences in the relationship between pre- and post-migration human capital among more diverse immigrant populations, including low- and high-skilled immigrants.

Acknowledgement

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