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*Research Article*

## **Occupational trajectories and occupational cost among Senegalese immigrants in Europe**

**Ognjen Obućina**

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# **Occupational trajectories and occupational cost among Senegalese immigrants in Europe**

Ognjen Obućina<sup>1</sup>

## **Abstract**

### **BACKGROUND**

Immigration from Africa to Europe has increased substantially in recent decades. The main goal of this paper is to contribute to a better understanding of contemporary international migration processes by analyzing the occupational trajectories and occupational costs of Senegalese immigrants in three major European destination countries (France, Italy, and Spain).

### **OBJECTIVE**

The first objective is to compare the occupational attainment of the Senegalese immigrants before and after migration to Europe, as well as to establish the determinants of the immigrants' occupational attainment and occupational mobility levels after migration. Another major goal is to estimate the occupational cost of migration from Senegal to Europe. The central question this study intends to answer is how much, in terms of occupational status, Senegalese immigrants renounce by migrating to Europe, in both the short and the long term.

### **METHODOLOGY**

The data stem from the Senegalese sample of the MAFE dataset. The standard OLS techniques are used in the analysis of occupational attainment, while discrete-time multinomial logit is used in the section on occupational mobility. The principal techniques for the estimation of occupational cost of migration are random effects with Mundlak correction and nearest-neighbor matching.

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<sup>1</sup> Demography Unit, Department of Sociology, Stockholm University, Sweden.  
E-mail: ognjen.obucina@sociology.su.se.

## **RESULTS**

There is a U-shaped pattern of occupational mobility among Senegalese immigrants in Europe: the average occupational status of this group drops just after arrival in Europe, and then slowly improves with the duration of stay. The multivariate analysis reveals that education acquired in Europe plays an especially important role in the successful participation of this immigrant group in the labor market. The results show that there is a statistically significant occupational cost of migration from Senegal to Europe, but that the cost decreases with the duration of stay in Europe.

### **1. Introduction**

After decades of empirical migration research, it has become clear that the migration decision-making process is affected by a complex and heterogeneous set of determinants. But most migration researchers agree that an individual's desire to maximize his or her economic well-being is one of the principal factors influencing the decision to migrate, and some have argued that it is the single most important factor. However, the empirical findings suggest that a large proportion of immigrants endure a significant degree of economic hardship and vulnerability in their respective destination countries. While an immigrant's absolute income usually rises as a result of migration, many immigrants do not seem to feel less deprived than they were in their country of origin. As this paper deals primarily with the experiences of Senegalese immigrants to Europe, it may be appropriate at this point to mention a study by Marfaing (2003), which revealed that a significant number of Senegalese immigrants residing in Germany say they would not choose to migrate to Europe if they had the chance to make the decision again, nor would they advise others to do so. Furthermore, the data used in this paper suggest that subjective poverty among immigrants is higher in the first few years in the destination country than in the last year prior to migration: for example, while 27.22% of immigrants reported that they were at least partly economically deprived in the last year prior to migration to Europe, 34.93% said they felt deprived in the first year after their arrival in Europe.

It is widely known that immigrants earn less than natives with similar characteristics. However, if the native-immigrant wage gap is broken down into its component parts, we find that the immigrant disadvantage in occupational attainment in contemporary Europe is a more important source of the wage gap than direct wage discrimination (see Constant and Massey 2005 and Brodmann and Polavieja 2011). In light of this finding, and given that African immigrants are one of the most disadvantaged groups in Europe's labor markets, the goal of this paper is to contribute

to a better understanding of the mechanisms of immigrant occupational trajectories by looking at the experiences of Senegalese immigrants in France, Italy, and Spain. Unless indicated otherwise, these three countries will be commonly referred to as “Europe” throughout the rest of the paper.

A number of previous studies on this issue have identified a so-called “U-shaped pattern” of occupational mobility among immigrants. More precisely, the evidence shows that immediately after landing in the destination country, the typical immigrant experiences some decline in occupational status. However it is expected that, with a longer duration of stay in the destination, most immigrants will see some improvement in their occupational status relative to their first job in the destination. The U-shaped pattern has been found in numerous studies carried out in various receiving countries: see Green (1999) for Canada; Bauer and Zimmermann (1999) for Germany; Chiswick, Lee, and Miller (2005) for Australia; Redstone Akresh (2006) for the USA; Rooth and Ekberg (2006) for Sweden; Simón et al. (2011) for Spain.

Most explanations for the U-shaped pattern of immigrant occupational trajectories are centered around the concept of country-specific skills: upon arrival, immigrants’ language skills are less than perfect, while their knowledge of the labor market and their access to information are more limited than among the natives. It is important to note that education acquired in the destination country is also considered a country-specific skill, and empirical findings suggest that it has a higher value on the labor market than education acquired in the country of origin (see Friedberg 2000). However, in addition to country-specific skills, some other factors may also facilitate or impede the process of immigrant occupational mobility. For example, immigrants may be particularly affected by the degree of segmentation of the labor market in the destination country (see Piore 1979). Furthermore, many immigrants (a large majority in the sample presented here) are required to obtain an appropriate work permit to access the labor market, which is seldom an easy task. In addition, educational credentials acquired abroad may not be recognized by the institutions of the destination country, and the practice of some occupations may require a license specific to the destination country (e.g., law, medicine, or dentistry). The subsequent upward mobility that a typical immigrant experiences is undoubtedly associated with the removal of the obstacles that were responsible for the initial decline in occupational status. As immigrants improve their language skills, they have easier access to labor market-related information, and many acquire additional education in the country of destination. Moreover, as the legal status of the average African immigrant in Europe improves with the duration of stay, institutional factors also become less of an obstacle<sup>2</sup>. Thus, with time, immigrants

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<sup>2</sup> To illustrate, more than half of the immigrants interviewed in the survey used in this paper did not have a work permit in their first year of stay in Europe, whereas less than a quarter of them did not have a work permit in 2008, at the time of the survey.

should have greater access to jobs than they did immediately after leaving their home countries.

Of course, the pattern described above is that of an average immigrant. In reality, not all immigrants experience downward mobility upon arrival. Among those who do, some experience only a minor occupational downgrading, while others suffer a more severe decline in job status. It has been documented that more educated immigrants in particular have a low degree of human capital transferability; i.e., they tend to experience a particularly sharp drop in their occupational status. However, they also tend to have the fastest upward mobility, partly because it is more profitable for them than for other immigrants to invest in additional human capital in the destination country (Duleep and Regets 1997). Moreover, different immigrant groups are faced with different contexts of reception (Portes and Böröcz 1989), and these differences are reflected in their treatment in the labor market in general and in the degree of transferability of their skills in particular. In their study of Spain, Simón et al. (2011) showed that the immigrants from developed countries will experience a “shallower U” than immigrants from developing countries.

The rest of the paper is organized as follows. The main research goals and hypotheses are presented in Section 2. The aim of Section 3 is to familiarize the reader with the social context of Senegalese migration to Europe. Section 4 describes the dataset, as well as the measures of occupational attainment. The descriptive statistics on the post-migration occupational trajectories of Senegalese migrants are presented in Section 5. Section 6 features a multivariate analysis of occupational attainment, while the results of the discrete-time analysis of occupational mobility are presented in Section 7. We then move on to the estimation of the occupational cost of migration from Senegal to Europe in Section 8. Concluding remarks are presented in Section 9.

## **2. Research goals and hypotheses**

The trajectory around which the empirical analysis will unfold in this paper is determined by three main research questions. The first question deals with the analysis of factors that affect the level of occupational attainment in the destination country. The second goal is to disentangle the patterns of upward and downward occupational mobility by applying appropriate discrete-time multinomial logit techniques. The final research question is whether there is an occupational cost associated with the act of migration. It is at this point that I attempt to go beyond the reach of similar previous research. To the best of my knowledge, previous studies have attempted to estimate only the short-term occupational cost of migration by comparing the last job in the

country of origin with the first job in the destination. The aim here is to estimate the occupational cost as a function of the duration of stay in Europe.

Based on the theoretical models and empirical findings of similar studies, and taking into account the extent of the information available in the MAFE dataset, a number of hypotheses are proposed and tested in this paper. First, since the theoretical principles that underlie the U-shaped occupational pattern also apply to Senegalese immigrants in Europe, it is expected that the average occupational status in this group in the first year after arrival will be lower than that in the last year prior to leaving the country of origin. A gradual improvement in occupational status is expected to take place with the duration of stay in Europe. The second hypothesis relies on Friedberg's findings on the transferability of skills, and predicts that education acquired in the destination country (or elsewhere in Europe) will have a stronger effect on upward mobility and occupational attainment than education obtained in Senegal (or elsewhere in Africa). The third hypothesis focuses on the legal status of immigrants in the labor market, and states that, due to limited access to the labor market in general, and to good jobs in particular, undocumented migrants will be disadvantaged in terms of occupational attainment. On the other hand, obtaining a work permit is expected to increase the chances of upward mobility.

Given the research previously done on this topic, the reader may assume that this study looks at the occupational mobility of immigrants from the reverse angle. While most other studies analyze several immigrant groups in a single destination country, I do the opposite in this paper by looking at the occupational trajectories of a single immigrant group in three different destination countries. It is thus very likely that some readers would expect this paper to include separate analyses for each destination country. However, the main limitation of this study is its relatively small sample size, which makes it difficult to break down the sample by education level or destination countries (which are only controlled for with country dummies). Nevertheless, the comparison of three destination countries is not the principal goal of the paper. Instead, the theoretical coordinates of the paper are centered around concepts such as the limited transferability of skills and the post-migration acquisition of skills specific to the destination country, both of which apply to Senegalese immigrants in all European countries. Some descriptive statistics also contain gender-specific patterns of occupational trajectories. Separate multivariate estimations for men and women show fairly similar results, and indicate that the processes of occupational attainment for both sexes are governed in a similar manner. To conserve space, separate estimations for men and women are not reported in tables, but the main differences that emerge from these estimations are briefly commented on in the text. The small sample size does, however, imply that the results of the gender-specific multivariate analyses should be accepted with some caution.

### 3. Social context of Senegalese emigration

The African continent, and especially Sub-Saharan Africa, has seen a sharp increase in population in recent decades, and this trend is expected to continue. According to the projections of the United Nations Population Division (2009), the population of the African continent is likely to grow substantially, especially in Sub-Saharan Africa, where the population is expected to increase 50% between 2010 and 2030, and to double between 2010 and 2050. The population projections for Senegal are practically the same as those for the whole of Sub-Saharan Africa. These demographic forecasts, in combination with the bleak economic prospects for the region, prompted Hatton and Williamson (2001) to conclude that “indeed, there is an excellent chance that by 2025 Africa will record far greater mass migrations than did nineteenth century Europe.” Migration flows from Africa to Europe and the USA have undoubtedly increased in recent years (for detailed evidence, see OECD, 2009 and Thomas, 2011), and in some European countries, such as France, Belgium, and Portugal, more than half of all immigrants from developing countries are African immigrants. However, at least as of 2013, the forecasts from the beginning of the century regarding the upcoming exodus from Africa now seem somewhat exaggerated. In fact, the bulk of African migration takes place within the continent (Spaan and van Moppes 2006).

While the ongoing population increase can arguably be considered a common feature of Sub-Saharan countries, these countries clearly differ in terms of most other socioeconomic parameters. The 2010 Human Development Report published by the United Nations Development Programme (UNDP) includes a set of indicators that may prove useful for gaining a better understanding of the socioeconomic circumstances in which around 13 million Senegalese live, as well as for comparing Senegal with other Sub-Saharan countries. Senegal’s Human Development Indicator (HDI) is slightly higher than that of the whole region. Life expectancy in Senegal is four years higher than the regional average, but, with a mean of only 3.5 years of schooling, Senegal is below the Sub-Saharan average in terms of education. The country’s income-based HDI (measured by GNI-PPP) is just below the regional average. Senegal can be considered a relatively stable country, with only some low-intensity conflicts occurring in the southern part of the country. At the same time, it is also a country with both a long emigration tradition and a high current rate of emigration. Ratha and Zhimei (2007) estimated that around 463,000 Senegalese lived abroad in 2005. According to another recent estimate, some 46% of Senegalese expatriates were living in Europe, while more than 40% were living in other African countries (cited in Gerdes 2007). Most of the expatriates in the former group were living in the countries studied in this paper: France (73,500 Senegalese-born in 2007, INSEE), Italy (72,600 Senegalese nationals in 2009,



ISTAT), and Spain (60,000 Senegalese-born in 2010, INE)<sup>3</sup>. While the sizes of the Senegalese-born population in these three countries seem to be very similar, the timing and the roots of the migration movements to each of three destinations are rather different. The link between Senegal and France emerged as a result of the colonial past and a strong French influence on the Senegalese administrative and educational systems. Thus, the migration of Senegalese to France can be considered an example of what Massey et al. (1993) labeled “ideological links” in their explanation of the mechanisms of international migrations. Thus, the Senegalese immigrants in France can be compared with the Indian or Pakistani community in Britain, the Indonesian immigrants in the Netherlands, or the Maghrebi population in France. These ideological and cultural links led to an uninterrupted migration flow toward the former colonial power even after Senegal gained its independence. In contrast, the migratory movements to the two other destination countries under study in this paper began more recently. Italy became an attractive destination during the 1990s when many Senegalese looked for work in tourism and industry in northern Italy. Several years later, at the turn of the century, labor demand in construction and agricultural sector made Spain a popular destination for the Senegalese immigrants (Gerdes 2007).

While the three destination countries differ substantially in terms of their immigration traditions and the origins of their immigrant populations, the process of the integration of immigrants into the labor force is similar in many important respects across these countries. Bernardi et al. (2011) and Fullin and Reyneri (2011) found in their studies of Spain and Italy, respectively, that, even after controlling for observable characteristics, immigrants are strongly and persistently disadvantaged in terms of access to skilled occupations. Meanwhile, an OECD (2008) report on the labor market integration of immigrants noted that the French labor market is not particularly welcoming for recent immigrants. The three destination countries are also similar in terms of the skill levels of their immigrant populations, as the shares of the low-skilled in the total immigrant population of each country are among the highest in the EU-25 countries (ranging from 36.3% in Spain to 44.9% in France), and are thus comparable only to those of Greece and Portugal (OECD 2010). All three countries are also characterized by a relatively high share of the foreign-born in the low-skilled labor force.

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<sup>3</sup> The French and Italian figures only include documented migrants, while the Spanish data also include undocumented Senegalese immigrants.

#### **4. Data and measurement procedures**

MAFE, an acronym for “Migrations between Africa and Europe,” is a project that brings together six European and three African universities to explain the mechanisms of migrations out of Africa, and to shed light on the socioeconomic standing of migrants in the destination countries. The data used in this paper stem from the “Senegalese sample” of MAFE. This dataset captures not only the life course trajectories of Senegalese immigrants to France, Italy, and Spain; but also, very importantly, those of non-migrants and migrants who had returned to Senegal before 2008. Around 600 immigrants from Senegal were interviewed in France, Italy, and Spain; while around 1,000 non-migrants and 70 return migrants were interviewed in Senegal. The survey in Europe only included those Senegalese immigrants who were between 25 and 65 years of age at the time of the survey, and who emigrated from Africa at ages 18 or older. The process of immigrant sampling tends to be very complicated (Groenewold and Bilsborrow 2008 and McKenzie and Mistiaen 2009), and the extent of the challenges involved became apparent during the work on the MAFE survey design. In Senegal, the point of origin, stratified random samples of households and individuals living in the area of the capital city Dakar were selected. The sample was thus representative of the population of this region rather than of the whole country. The dominant strategy for sampling Senegalese migrants in Europe, and the only one employed in all the three destinations, was the origin-based snowballing technique: the contacts established in the households previously surveyed in Senegal were used to reach the migrants at destination. However, other sampling strategies were used as well, since the objective was to choose the best available option in each country and to diversify the sources and directions of potential biases associated with each sampling strategy (see Beauchemin and González-Ferrer 2011 for a more detailed presentation of the survey methodology). In Spain, the probability sampling method was also used, and the Municipal Population Register (Padrón) served as a sampling frame to draw a random sample of Senegalese-born immigrants in Spain. However, as no suitable sampling frame existed in France and Italy, quota sampling techniques were applied in these countries, with the quotas being set by age and gender. In order to reach the target of 200 completed questionnaires per country, the respondents in these two countries were recruited in the selected public places, while in France the contact information supplied by migrants’ associations was also used. Sampling weights were constructed for the sample at origin, while post-stratification weights were used for the descriptive analysis of the Senegalese living in Europe. As the empirical evidence suggests that snowballing and other chain-referral techniques are unlikely to provide representative samples of populations (McKenzie and Mistiaen 2009), and that these techniques are less accurate than generally acknowledged (Goel and Salganik 2010), the

standard errors obtained in the multivariate analyses are not reported. However, while it is important to be aware of the drawbacks of the sampling methodology used to construct the MAFE dataset, in interpreting the results I assume that the standard errors obtained in the multivariate analyses approximate those of a simple random sample. The significance levels are therefore reported in the tables and are also referred to in the text.

The MAFE data refer to immigrants' experiences in different countries. Thus, in order to make comparisons of occupational status across countries, it is necessary to use an internationally comparable scale. In this paper, occupational status will be measured by the International Socio-Economic Index (henceforth referred to as ISEI), which was developed by Ganzeboom and Treiman (1996). The basis for the ISEI was the ISCO-88 occupational classification, which was adopted by the International Labor Organization (ILO). More precisely, each ISCO-88 occupational code is assigned an ISEI index on the metric scale between 16 and 90. However, the ILO has recently adopted a revised occupational classification, ISCO-08, which also prompted the development of a revised occupational status scale, ISEI-08. A more recent version of ISEI has been constructed using a new database that is more diverse cross-nationally. Moreover, unlike the previous version, the new database also considers women's earnings. I therefore decided that the more recent version of ISEI is more appropriate than the previous version for use in this paper.<sup>4</sup> In line with the approaches used in similar literature, all of the changes in job scores will be expressed as absolute differences rather than as percentages. Readers should also note that a somewhat generous definition of occupational mobility is applied in this paper: any positive change in ISEI, even if only by one point, is considered upward occupational mobility, while any negative change between two periods is considered downward mobility. Where appropriate, the European labor market history of the return migrants interviewed in Senegal is also included in the descriptive and multivariate analyses. The multivariate analyses of occupational mobility and occupational cost only refer to the years in which the survey respondents were aged 18 or older. Due to the nature of the research question, only immigrants with some African labor market experience are considered when analyzing whether the occupational trajectories have a U-shaped pattern. All of the other analyses of occupational status at destination also include the immigrants without pre-migration work experience. Around 4% of the employed immigrants surveyed in Europe can be considered circular migrants; i.e., migrants who returned to Africa at least once for at least one year after their initial arrival in Europe. The

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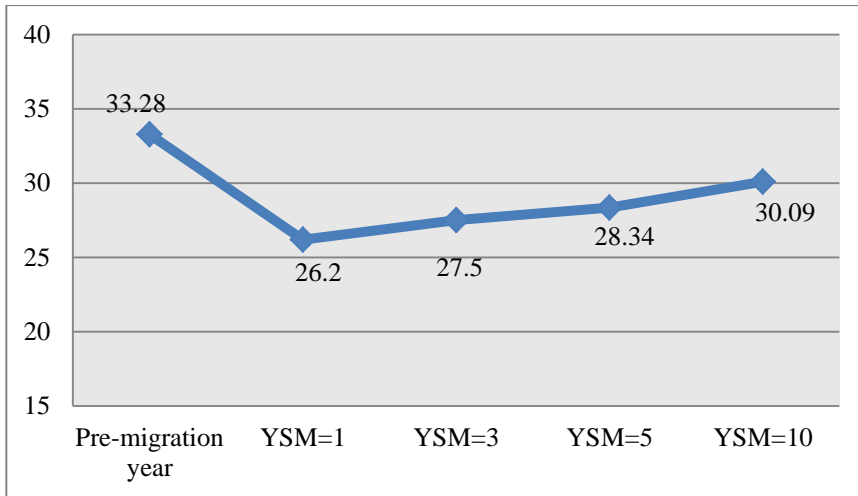
<sup>4</sup> The use of the new scale in this paper has been permitted by its author, Harry Ganzeboom. For details on how the new scale is related to the earlier one, see the author's website: <http://www.harryganzeboom.nl/isco08/index.htm>

information about circular migrants is censored at the time of the initial return from Europe in all of the analyses presented in this paper.

## 5. Descriptive statistics

This section investigates the question of whether there actually is a U-shaped pattern of occupational attainment among the Senegalese in Europe, and, if so, how deep it is. The depth of the U-shaped pattern is expected to be affected by two major factors, with each working in the opposite direction. The transferability of skills varies greatly among the immigrant groups, as their respective countries of origin are characterized by different degrees of similarity with the destination country in terms of culture, language, labor market structure, and the educational system. However, as immigrants from developed countries generally have a flatter U than immigrants from developing countries, we expect to find that African immigrants will be penalized more in European labor markets than immigrants from more developed regions of the world. Thus, in terms of the transferability of skills, we expect the Senegalese immigrants to have a deep U curve. On the other hand, a significant share of Senegalese immigrants were employed in elementary and other low-status occupations prior to migration (see Table 3). This fact is expected to flatten the U curve for the simple reason that it is very likely that any job these low-skilled immigrants find in Europe will score the same or higher as measured by ISEI.

Figure 1 shows the average level of occupational status before migration and at several points after landing in Europe. As expected, there is a U-shaped pattern for the Senegalese in Europe as well: while immigrants' occupational status drops just after arrival (by around seven points on average), it gradually improves with the duration of residence. Nevertheless, even after 10 years in the destination country, an immigrant's status is, on average, lower than it was in the last year before the migration.

**Figure 1: Occupational status before and after migration (ISEI)**

Source: MAFE (weighted).

The predictions of the average occupational attainment before and after migration have been fulfilled, as the figure above shows. But the figures presented above are averages, and thus mask substantial heterogeneity in immigrants' experiences in the process of integration into European labor markets. Table 1 reveals that only around one-half of the immigrants experience a drop in occupational status as a result of moving to Europe, while the occupational status of every fourth immigrant actually increases. Differences between men and women in terms of the change in occupational status after the migration to Europe seem to be of a rather modest magnitude.

**Table 1: Change in occupational status (in %): Comparison of occupations in the last year before migration and the first year after migration**

	All	Men	Women
Downward	49.52	49.45	49.94
Upward	23.44	22.92	26.52
No change	27.04	27.63	23.54

Source: MAFE (weighted).

When we compare immigrants' occupational attainment in the first year in Europe with that of subsequent years, two trends become evident, as can be seen in Table 2. First, in spite of the gradual improvement of average ISEI scores with the duration of stay in Europe, a significant share of African immigrants seem to be unable to move upward from their initial post-migration positions. Relative to the first post-migration job, only somewhat more than one-quarter of immigrants experience upward mobility by the end of the fifth year in Europe. Second, Senegalese women are less likely to experience upward mobility in their first five years in Europe, as only 15.68% manage to improve their positions.

Table 3 presents a distribution of occupational categories in the last year prior to migration, as well as in the first year in Europe<sup>5</sup>. The occupational categories are defined according to the ISCO classification, but a separate single category is added for those who are inactive, unemployed, or in education. It is noteworthy that, with the exception of four immigrants who worked as managers prior to migration, all of the other occupational categories show a relatively high rate of transition to elementary occupations in the initial years after migration: almost twice as many immigrants were employed in elementary occupations in the first year in the destination country as in the last year in the home country. This is undoubtedly an important source of the average decline in occupational status after migration.

<sup>5</sup> The totals represent absolute numbers, while the numbers in the inner cells of the table are expressed in percentage terms.

**Table 2: Change of occupational status (in %), compared to the first year after migration**

	All	Men	Women
Between 1st and 3rd years			
Upward	14.87	16.42	8.15
Downward	8.04	8.26	7.11
No change	77.09	75.32	84.74
Between 1st and 5th years			
Upward	27.26	29.96	15.68
Downward	15.15	15.54	13.45
No change	57.59	54.50	70.87
Between 1st year and 2008			
Upward	39.06	40.62	31.68
Downward	17.10	16.68	19.09
No change	43.84	42.71	49.23

Note: The comparison between the first and the third years, and the comparison between the first and the fifth years also consider the experiences of migrants who returned from Europe to Senegal before 2008. Excluding them does not affect the general conclusions.

Source: MAFE (weighted).

**Table 3: Distribution of occupational categories in the last pre-migration and the first post-migration year (ISCO categories and inactive/unemployed)**

Last pre-migration year \ First post-migration year											Total
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
(1)	25.00	0	0	0	25.00	0	0	0	0	50.00	4
(2)	0	22.58	0	0	16.13	0	0	3.23	22.58	35.48	31
(3)	0	7.69	7.69	0	7.69	0	0	7.69	38.46	30.77	13
(4)	0	0	4.76	0	9.52	4.76	4.76	4.76	38.10	33.33	21
(5)	0	1.83	0	0	35.78	0	0.92	1.83	35.78	23.85	109
(6)	0	0	0	0	0	12.50	0	0	75.00	12.50	8
(7)	0	0	0	0	5.66	0	22.64	5.66	37.74	28.30	53
(8)	0	0	0	0	0	0	16.67	25.00	50.00	8.33	12

**Table 3: (Continued)**

Last pre-migration year	First post-migration year										Total
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
(9)	0	0	0.74	0	11.76	1.47	2.94	0.74	67.65	14.71	136
(10)	0	1.81	0.72	0.36	6.88	0.72	1.45	0.72	25.72	61.59	276
<b>Total</b>	1	15	5	1	86	6	24	14	254	257	663

Notes: The totals represent absolute numbers, while the figures in the inner cells are expressed in percentage terms. Occupational categories are defined as follows: (1) managers, (2) professionals, (3) technicians, (4) clerical support workers, (5) service and sales workers, (6) skilled agricultural workers, (7) craft workers, (8) machine operators, (9) elementary occupations, and (10) inactive, unemployed or in education.

Source: MAFE.

## 6. Post-migration occupational attainment

Previous research has shown that the first occupation after arrival in the destination country is the single most important determinant of the subsequent occupational trajectories among migrants (see McAllister 1995). Therefore, in order to gain a better understanding of the process of occupational attainment among the Senegalese in Europe, it is necessary to perform adequate analyses of both the first occupation and the current occupation in Europe. The dependent variable is the ISEI index, while the independent variables can be classified into several groups. First, a set of standard socio-demographic characteristics are included. These variables—such as *gender*, *age* (and *age squared*), and *education level*—are also important predictors of occupational attainment among natives. Education level is measured on a continuous scale from zero to 20; details of what each value on the scale stands for can be found in Table A1 in the appendix. Whether the respondent has acquired European education credentials in order to attain the reported education level is indicated by a separate variable, *years of education in Europe*. The variable *network* controls for the possible effect of personal networks in the process of occupational attainment, and is equal to one if the respondent has at least one Senegalese-born friend or at least one member of the extended family living in the same country in the given year<sup>6</sup>. The latter group includes uncles, aunts, cousins, nephews and nieces. Unfortunately, there is no information in the dataset about the personal characteristics of the network members. Legal status in the labor market is indicated by a dummy for an immigrant without a valid work permit. Finally, a set of

<sup>6</sup> Separate models have been estimated with an indicator for each type of relationship with the network member. However, this produced no substantial difference from the model with the aggregate measure, which is reported here.



variables is constructed using information on the labor market history of the Senegalese immigrants. *Worked in Africa* indicates whether having at least some pre-migration work experience affects the current job score, and, if so, in what way. The role of the duration of stay in the destination is famously associated with research on immigrant labor market integration, but some researchers, such as Husted et al. (2001), have asserted that the length of labor market attachment in the destination country also matters in this context. This is why the variable *years spent inactive or unemployed in Europe* is also introduced into the model: it measures how many years after migration the immigrant spent out of the labor market and out of education. In addition to the variables mentioned above, which are included in both models, *years of stay in Europe* and *ISEI score at the first job in Europe* are included in the analysis of the current job score<sup>7</sup>. As all of the observations in the first regression refer to the first year of respondents' labor market experience in Europe, additional controls for the time period—i.e., decade dummies—are introduced into Model 1. In the second regression, all of the observations refer to the year 2008. Obviously, several explanatory variables are based on the experiences of immigrants across Europe, rather than only in the current country of residence. However, including two variables at the same time—one of which reflects immigrants' experiences in the whole of Europe, while the other only refers to his or her experiences in the current country of residence—would inevitably lead to collinearity problems. Therefore, I chose to keep only the first variable in the model, based on the assumption that a Senegalese immigrant who arrives in a European country after having spent a number of years in another European country has some advantages relative to an immigrant coming directly from Senegal. Why should we believe that this is the case? First, immigrants residing in other European countries should have easier access to information, all other things being equal. Second, while employers may discriminate against work experience and education abroad, the level of discrimination varies significantly with regard to the part of the world in which the experience was gained (see Friedberg 2000). In other words, most European employers will place a higher value on work experience and education acquired in another European country than in Senegal or elsewhere in Africa.

The characteristics of the sample of employed Senegalese at the time of survey are presented in Table A2 in Appendix.

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<sup>7</sup> Due to collinearity, years of stay in Europe cannot be included when analyzing the first occupation after migration: the value of the variable is equal to the sum of the years spent in education in Europe and the years spent inactive in the labor market in Europe.

## 6.1 Results

The first column of Table 4 (Model 1) presents the results of the analysis of the occupational score in the first job in Europe. Holding all other variables constant, men's occupational level is higher by around two points. Having a higher education level provides immigrants with access to better jobs, but gains from education are substantially more pronounced for immigrants who received some education in Europe prior to entering the labor market: all other things being equal (including education level), each year spent in education in Europe increases the occupational level in the first post-migration job by 1.67 points. Possessing the appropriate language skills prior to arrival appears to be an important asset, as the analysis suggests that having a solid grasp of the language of destination increases the first job score by almost 6.5 points relative to the average score of immigrants who arrive with no language skills. Interestingly, legal status is found to be a poor predictor of the first occupation, net of the other variables in the model. It may also seem surprising that personal networks do not affect the outcome when looking for the first job after migration. However, the interplay of networks and labor market performance is a separate research question, and a complex one at that. It should thus be given more attention in future research. Having some African work experience is positively associated with occupational status in the first job in Europe, but this finding does not reach the 10% significance level. Age, years spent inactive or unemployed in Europe, and interactions of destination and time period are not significant.

The second column of Table 4 (Model 2) shows the outcome of the OLS analysis of occupational status at the time of the survey, in 2008. As expected, occupational status in the first job in Europe is statistically significant, and the coefficient of 0.57 demonstrates the importance of the first job for subsequent occupational trajectories. In contrast, having African work experience is a poor predictor of occupational status at the time of the survey<sup>8</sup>. Each year of stay in Europe results in a job score increase of 0.16, net of other things, whereas each year in Europe the immigrant spent out of the labor market and out of education reduces the occupational status by 0.44 points. As in the analysis of the first job in Europe, education level, years of education in Europe, and language skills at arrival all have a positive impact on occupational status; but the effect of these variables is now somewhat weaker. There is no significant difference between men and women, while having no work permit reduces the occupational status by around three points on the ISEI scale. The outcomes for the other independent variables

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<sup>8</sup> Another way of looking at the effect of the African work experience on occupational trajectories in Europe is to exclude from the sample all of the immigrants with no pre-migration work experience, and to include the ISEI score of the last job in Africa as a covariate instead of the dummy for African work experience. This regression has also been performed (results not reported), and it turns out that the last job before migration to Europe is not a significant predictor of occupational status at the time of the survey.

are rather similar to those in Model 1, as there is no evidence that age, networks, or destination are significantly associated with occupational status at the time of the survey.

However, the analysis presented above does not take into account several processes that might affect the selection into employment at destination at the time of the survey. For instance, around one-fifth of the Senegalese surveyed in Europe were outside the labor market in 2008. Moreover, the selection into employment does not seem to be random: for example, descriptive statistics suggest that women are clearly more likely to choose to stay out of the labor market, and the mean age of the employed is higher than that of the non-employed. The Heckman selection model is therefore used in order to test whether the mechanisms responsible for selection into employment also have an influence on occupational attainment. Also included in the selection equation, along with several variables used in the main model, is the number of the respondent's children younger than 18 years of age, as well as the interaction of the female dummy and the number of children. The interaction variable is introduced because the number of children is not expected to have the same effect on the labor market participation decision for men and women. While coefficients in the selection equation are largely as expected (e.g., women are less likely to be employed and the number of children has different effects for men and women), there are no important changes in the main model relative to the OLS model presented in Table 4. Additionally, the parameters of the Heckman selection model suggest that selection bias is not statistically significant.<sup>9</sup> Return migration to Senegal, as well as circular migration, are additional potential sources of selection issues in the analysis of the occupational attainment. The prevailing view in the migration literature is that the mechanisms of return migration are affected by the circumstances at both destination and origin, while the empirical analysis by Borjas and Bratsberg (1996) also indicated that return migration accentuates the type of selection that generated the immigrant flow in the first place. Using the same dataset as in this paper, Mezger (2008) showed that there is some evidence of positive selection on education into return to Senegal from Europe, which implies that the results reported in the second column of Table 4 should be interpreted with this previous empirical evidence in mind. On the other hand, if circular migrants are included in the analysis (in which case their duration of stay is calculated as the total length of their migration spells in Europe), no substantial differences are identified relative to the results presented in Table 4.

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<sup>9</sup> The detailed results are not reported, but are available upon request.

**Table 4: Occupational status (ISEI) of Senegalese immigrants in Europe, OLS**

	<b>Model 1: First job in Europe</b>	<b>Model 2: Job in 2008</b>
Male	2.239**	1.045
Education level	0.315***	0.173*
Years of education in Europe	1.669***	0.833***
Years of stay in Europe		0.163**
First job in Europe (ISEI)		0.571***
Years inactive or unemployed in Europe	-0.027	-0.440**
Worked in Africa	1.782	0.401
Network	-0.995	-0.658
Age	-0.300	0.272
Age squared	0.004	-0.004
Language skills at landing:		
Good (ref.)		
Some	-4.211***	-2.464
None	-6.352***	-3.791**
Country of residence in 2008:		
France (ref.)		
Italy		2.373
Spain		0.318
Undocumented	-0.701	-2.976***
Constant	28.572***	8.038
Control for country*decade interaction	YES	
N	553	443
R <sup>2</sup>	0.232	0.547

Note: \*p<0.10; \*\*p<0.05; \*\*\*p<0.01.

Source: MAFE.

Separate regressions for men and women reveal that the general education level is a statistically significant predictor of occupational status in 2008 for women, but not for men. The negative association between occupational status and years spent as inactive or unemployed is also more pronounced among men than among women.

## 7. Correlates of post-migration occupational mobility

While the previous section focused on the occupational attainment in the first year of labor market participation in Europe and at the time of the survey, the goal in this section is to observe the complete labor market history after migration, and to examine the patterns of post-migration occupational mobility among the Senegalese migrants. The empirical specification is based on a discrete-time multinomial logit model of competing risks. Except when mobility is not possible due to having a job with a minimum or maximum ISEI index, each survey respondent with a job is at risk of experiencing upward or downward occupational mobility between any two consecutive years  $t$  and  $t+1$  that he or she spends in Europe. If an immigrant's job score increases, the dependent variable is assigned a value of one, while if an occupational downgrading between the two periods is observed, the dependent variable takes a value of two. In all other cases, the dependent variable is equal to zero, and this value is also taken as the base category in the estimation presented below. The dependent variable does not include the transition to unemployment due to the very small number of cases observed. All of the independent variables refer to their values at time  $t$ , except for the change in legal status in the labor market, which is assigned a value of one if an immigrant obtains a work permit between the periods  $t$  and  $t+1$ . It should be noted that the number of individuals in the analysis in this section is slightly bigger than in the previous analysis. This is due to two factors: 1) we now also consider the European labor market trajectories of those immigrants who returned to Senegal prior to 2008; and 2) we also include information on the occupational histories of those immigrants who were not employed in 2008, but who were employed at some point after migrating to Europe and before the time of the survey. We also know that some of the Senegalese immigrants studied moved from one European country to another. As this is a discrete-time analysis with information referring to all years after leaving Africa, a single "country dummy" was constructed that stands for all European countries other than France, Italy, and Spain. As in the previous section, the model controls for the interaction of the country dummies and the decade dummies.

Table 5 shows that men are more occupationally mobile, both upward and downward. A higher general education level increases the likelihood of experiencing upward occupational mobility, as does education received in Europe. More precisely, *ceteris paribus*, each year of education in Europe increases the likelihood of upward mobility by 17.2%. The results also indicate that education received in Europe impedes downward mobility, but this association fails to reach statistical significance. While the descriptive statistics in the fifth section suggest that a longer duration of stay in Europe increases the likelihood of having experienced at least some upward or downward mobility after arrival, the discrete-time estimation shows that the chance of

experiencing upward or downward mobility between two consecutive years actually decreases with the duration of stay in Europe. This result can be interpreted as evidence of cumulative inertia (McGinnis 1968): the longer an individual stays in a particular state (place of residence, occupation, etc.), the less likely he or she is to move out of that state in the immediate future. Not too surprisingly, we find that the number of years in Europe the respondent spent unemployed or inactive in the labor market is positively correlated with the likelihood of experiencing downward mobility between two consecutive years. The results further suggest that the higher the job score at time  $t$ , the lower the probability of upward mobility, and vice versa. This can be interpreted in the following way: the higher the score, the less room there is to rise; while the lower the score, the more room there is to move upward. The same logic can be applied in explaining the positive and statistically significant link between the number of previous moves downward and the likelihood of experiencing upward mobility. Age is a poor predictor of occupational mobility, while a lack of language skills at arrival substantially increases the likelihood of downward mobility: all other things being equal, an immigrant who arrived without any knowledge of the language of the destination country is more than twice as likely to have experienced downward mobility as an immigrant who arrived with good language skills. As expected, obtaining a work permit increases the chances of upward mobility; but, somewhat less expectedly, it also increases the likelihood of downward mobility. A possible explanation for this result is that obtaining legal status in the labor market increases the chances of job change substantially, and some immigrants may switch to jobs that score lower on the ISEI scale, but are perceived as more secure. An alternative explanation is that the immigrants may change to jobs that score lower on the ISEI scale, but which are not necessarily seen as inferior by them.<sup>10</sup> In line with the findings in the previous section, having some African work experience and network effects are not shown to be significant predictors of occupational mobility. Variables representing the interaction of destination and time period are, for the most part, not statistically significant, and are not reported in the table for the sake of space. The main difference which emerges from separate gender-specific analyses is that having language skills at arrival is a more powerful predictor of upward and downward mobility among women.

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<sup>10</sup> If the definition of occupational mobility is tightened in such a way that only the changes in ISEI of at least three (or five) points are considered mobility, the positive association between obtaining a work permit and downward mobility is no longer statistically significant, while the coefficient becomes twice smaller. Most of the other results reported in Table 5 are barely affected by tightening the conditions for what is to be considered occupational mobility.

**Table 5: Occupational mobility after arrival in Europe, discrete-time multinomial logit**

<b>Base outcome: No occupational change</b>	<b>Upward mobility</b>	<b>Downward mobility</b>
Male	0.759***	0.525**
Education level	0.059***	-0.000
Years of education in Europe	0.159***	-0.136
Years of stay in Europe	-0.052***	-0.123***
ISEI <sub>t</sub>	-0.091***	0.049***
Years inact. or unemp. in Europe	-0.043	0.122***
# of moves upward in Europe	-0.061	0.167
# of moves downward in Europe	0.444***	-0.160
Worked in Africa	0.116	-0.253
Network	0.104	0.247
Age	-0.022	-0.111
Age squared	-0.000	0.001
Language skills at landing:		
Good (ref.)		
Some	-0.197	0.627*
None	-0.323	0.901**
Obtained work permit	1.241***	0.981***
Control for country*decade interaction	YES	YES
Person-years		6,011
Persons		552
Log-pseudolikelihood		-1430.275

Notes: \*p<0.10; \*\*p<0.05; \*\*\*p<0.01. Significance levels adjusted for clustering by person.

Source: MAFE.

## 8. Occupational cost of migration

Our research aim in this section is to estimate the occupational cost of migration among Senegalese migrants in a more dynamic framework; i.e., as a function of the duration of stay in Europe. Put another way, the question is how much occupational status Senegalese immigrants sacrifice by migrating to Europe, in both the short and the long term. The concept of the occupational cost of migration has been addressed in Raijman and Semyonov (1995), but in their paper it was measured as the difference in occupational status in the first post-migration year and the last pre-migration year. However, this difference can only be considered a short-term occupational cost for two

reasons: 1) relative to their first post-migration job, most immigrants experience some upward or downward mobility in the subsequent years spent in the destination country; and, 2) had they not migrated, the Senegalese immigrants would have been exposed to the dynamics of labor market at origin, which would have resulted in rather different occupational trajectories for many migrants.

What leads us to believe that an analysis of the occupational cost of migration would contribute to a more nuanced understanding of international migration processes? In fact, within the framework of some of the most prominent migration theories, which view migration as an income-maximizing strategy (neoclassical economics) or a risk-minimizing collective strategy (the new economics of labor migration, see Stark and Bloom 1985), the occupational downgrading due to migration may not appear to be very important, especially if the principal goals of migration are achieved. Indeed, if the migration outcome is measured strictly in monetary terms, it is generally found that a substantial share of immigrants benefit from migration, and the Senegalese in Europe are no exception. However, some empirical evidence suggests that, at least for some immigrants, gains in subjective well-being generated by an income increase resulting from migration may be partly offset by the occupational downgrading due to migration. In other words, a substantial proportion of immigrants who experience downward mobility due to migration will undoubtedly perceive themselves as overqualified in their new jobs; a number of studies have confirmed that being overqualified, whether objectively or subjectively, has adverse effects on various indicators of subjective well-being (see Green and Zhu 2010, Vieira 2005, Johnson and Johnson 1996). More immigrant-specific evidence has been provided by Constant and Massey (2003), who found that immigrants with lower occupational prestige are more likely to leave the destination country (Germany, in this case). The adverse effect of the occupational cost on well-being may even intensify if the transnational nature of contemporary migrations is taken into account. In particular, modern immigrants tend to maintain their ties with the home country more often than their predecessors, and, as a consequence, non-migrants at home are an important reference group for the migrants (for the empirical evidence, see Akay, Bargain, and Zimmermann 2011). Some negative effects on well-being may therefore come from the immigrants comparing themselves with non-migrants in Senegal, a population who have not been exposed to the risk of the occupational cost of migration, and are, accordingly, expected to have a lower incidence of over-qualification than Senegalese migrants in Europe. The estimation of the occupational cost of migration is carried out by pooling the data on the labor market trajectories of non-migrants in Senegal with those of both the pre-migration and post-migration occupational histories of migrants. Given the different degrees of transferability of skills, it would undoubtedly be interesting to compare the occupational



costs for individuals at different education levels. However, because of the limited sample size, this issue must be left for future research.

### **8.1 Fixed effects and random effects**

Migration theory suggests that whenever comparisons are made between migrants and non-migrants, it is essential to take into account the issue of possible self-selection into migration. If this is not done in an appropriate way, we may be running a risk of obtaining biased results, because self-selection is thought to be taking place along with both observed (e.g., education) and unobserved characteristics, such as ability and motivation (see Chiswick 1978, Carliner 1980, Borjas 1991). The bias may emerge because it is commonly assumed that personal characteristics that are positively correlated with likelihood of migration also enhance the labor market performance in the destination country. If it is assumed that these unobserved characteristics are largely time-invariant, the most suitable approach may be the use of individual fixed effects. The dataset is organized as a panel, and the dependent variable is ISEI at the time  $t$ . The occupational cost of migration is then measured by introducing a categorical variable that indicates whether at time  $t$  the respondent lives in Senegal or in Europe; and, if the latter is the case, how long he or she has been living in Europe (up to five years, 6-10 years, 11-15 years, and more than 15 years). However, when using a fixed-effects approach, another source of bias could emerge as a result of excluding variable gender. Due to its nature, gender cannot be included in a fixed-effects estimation of occupational cost, even though it was identified as a statistically significant variable in some of the estimations in previous sections. Therefore, another model will be introduced that is based on a random-effects estimation with Mundlak correction. It has been demonstrated that a generalized least squares random-effects estimation can deliver results that largely correspond to those of a fixed-effects estimation, if the means of all time-varying variables are introduced into the regression as additional covariates (Mundlak 1978). Thus, in addition to generating results that are an approximation of those of fixed-effects estimations, this approach also allows us to keep time-invariant variables in the model. The other covariates in the model include age, the squared term of age, years of labor market experience since the age of 16, education level, and decade dummies. The model does not control for years spent in education in Europe; i.e., in this estimation educational attainment is treated equally regardless of where it was received. Similarly, the number of years of labor market experience refers to the total number of years the respondent spent employed since the

age of 16, regardless of where he or she lived during that time<sup>11</sup>. A certain number of respondents had accumulated some work experience in African countries other than Senegal, but, since the aim here is to estimate the occupational cost of migrating from Senegal to Europe, the information on occupational attainment in other African countries is excluded from the analysis. The findings are reported in Table 6.

**Table 6: Occupational cost of migration from Senegal to Europe**

Dependent variable: ISEI	Fixed effects	Random effects with Mundlak correction
Ref: working in Senegal		
0 – 5 years in Europe	-5.826***	-5.898***
6 – 10 years in Europe	-4.489***	-4.548***
11 – 15 years in Europe	-3.263***	-3.340***
> 15 years in Europe	-2.506***	-2.587***
R <sup>2</sup> within	0.0614	0.0609
R <sup>2</sup> between	0.3009	0.3379
R <sup>2</sup> overall	0.2530	0.3022
Person-years		22,690
Persons		1,414

*Notes:* \*p<0.10; \*\*p<0.05; \*\*\*p<0.01. The other controls are age, age squared, education level, time period, and years of labor market experience accumulated since the age of 16. Gender and person-level means of variables included in the first model are also controlled for in the second model. The significance levels are adjusted for clustering by person.

*Source:* MAFE.

The fixed-effects and random-effects estimations with Mundlak correction yield almost identical estimates of occupational cost of migration. The results indicate that there is a statistically significant occupational cost of migration which decreases with the duration of stay, but does not disappear completely even after more than 15 years in Europe. In contrast, the negative relationship between the occupational cost and the duration of stay suggests that, after the initial drop in the occupational score after arrival, immigrants have more opportunities for upward mobility in the destination than non-migrants with similar characteristics in the home country. Separate estimations for men and women (not reported in the table) reveal that the occupational cost of migration is slightly higher for women, but that this difference fades with the duration of stay. For example, during the first five years in Europe the average occupational cost for men is 5.53 points, while for women it is 1.20 points higher. On the other hand,

<sup>11</sup> An implicit assumption is that an immigrant who after migration spent a certain number of years in education (or outside the labor market) would have spent the same number of years in education (or outside the labor market) had he or she not left Senegal.

after more than 15 years in Europe, the corresponding figures for men and women are 2.60 and 2.90, respectively. In order to estimate the occupational cost on a more continuous scale, the specification presented above is modified so that non-migrants are assigned the value of 100 for duration of stay in Europe. Thus, in place of the categorical variable, the model now includes duration of stay in Europe and its squared term. Both variables are statistically significant. The occupational cost curve estimated in this way is presented in Figure 2, along with the results from Section 8.2. The conclusions remain largely unchanged when we compare them with the coefficients reported in Table 6.

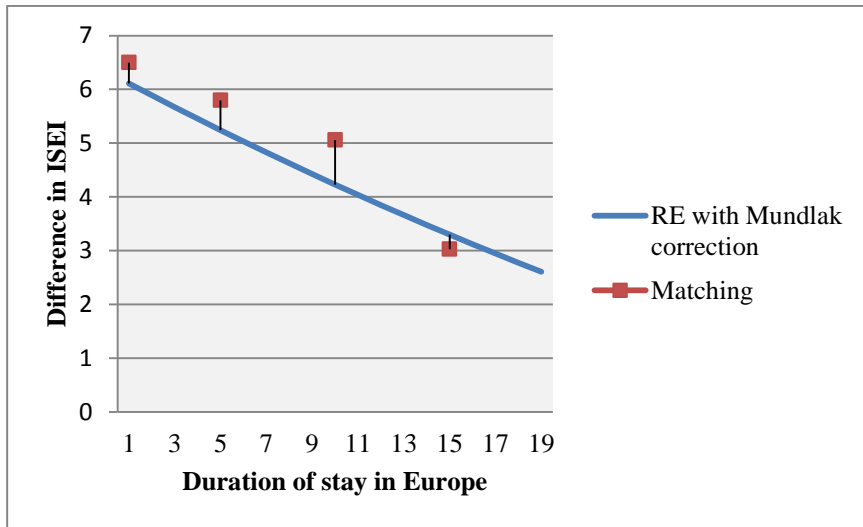
## 8.2 Matching estimation

To test for the sensitivity of the results to methodological choices, the average occupational cost of migration from Senegal to Europe has also been estimated by applying bias-adjusted nearest-neighbor matching techniques (as described in Abadie et al. 2004). The basic idea is to compare the ISEI score of Senegalese immigrants at four different  $n$  periods after migration ( $n = 1, 5, 10, \text{ and } 15$ ; whereby  $n$  stands for years after migration to Europe) with the hypothetical ISEI score the immigrant would have had after the same number of years if he or she had not left Senegal. Migration is considered treatment for the purposes of this analysis: immigrants are the treated group, while non-migrants make up the untreated group. The occupational cost of migration is estimated as the average treatment effect, and each observed individual is matched with four individuals of the opposite group (the procedure allows observations to be used as a match more than once in the same estimation). The dependent variable is occupational status in year  $t+n$  ( $ISEI_{t+n}$ ). For immigrants, the year  $t$  refers to the last year before migration to Europe, and, consequently, year  $t+n$  denotes the period  $n$  years after migration to Europe. For each non-migrant, the year  $t$  is chosen randomly in each estimation. The exact matching of migrants and non-migrants is done on two variables: gender and year interval (decade). The other covariates include age, education level, labor market experience accumulated since the age of 16, and an indicator for an employed person. All of these variables refer to their values in year  $t$ . As the sample size is relatively small, the procedure of random choice of year  $t$  for non-migrants and the subsequent estimation of occupational cost is repeated 10 times for each of  $n$  years after migration, in order to control for the robustness of findings. It is for this reason that the values in Figure 2 stand for the averages of 10 estimated coefficients for each year  $n$ .

Compared with the techniques applied in Section 8.1, a matching estimation is arguably less suitable for controlling for the possible unobservable characteristics

associated with the process of selection into migration. Nevertheless, all four points in Figure 2 lie close to the occupational cost curve estimated by the random-effects regression. In other words, both techniques suggest the same pattern of occupational cost: it is slightly above six points on the ISEI scale immediately after migration, it slowly decreases with the duration of stay at the destination, but it does not seem to disappear, even after 15 years in Europe.

**Figure 2: Occupational cost of migration**



## 9. Concluding remarks

Based on both prominent theories from migration research and the contextual characteristics of contemporary African migration to Europe, I attempted in this paper to answer research questions regarding the occupational attainment, occupational mobility, and occupational cost of Senegalese immigrants to Europe; as well as to develop and test appropriate hypotheses.

The empirical analysis confirmed all of the three hypotheses proposed in the second section. First, the data on pre-migration and post-migration occupational mobility confirmed the hypothesis on the U-shaped pattern of occupational mobility for the Senegalese immigrants in the sample. But the improvement in occupational status took place slowly: by the end of the fifth year in Europe, only one out of four

immigrants had experienced upward mobility relative to the first year after migration. Second, relative to education acquired in the home country, education acquired in Europe was a more powerful instrument of occupational upward mobility. Third, having no work permit was associated with lower occupational attainment at the time of the survey, while obtaining a work permit substantially increased the chances of occupational mobility. In addition to these three findings, a number of other interesting results were obtained. When differences by gender were analyzed, men were found to be more occupationally mobile than women, both upward and downward. While the duration of stay in Europe was shown to be positively associated with occupational attainment in 2008, the discrete-time analysis indicated that the probability of experiencing upward mobility actually decreased with each additional year of residence in Europe. Having some or good skills in the language of the destination country upon arrival was shown to facilitate access to better jobs. There was very little evidence of differences between the three destination countries when these were measured by destination country dummies. The fixed-effects, random-effects, and nearest-neighbor matching estimations all showed that there was a statistically significant occupational cost of migration from Senegal to Europe, but also that the cost decreased with the duration of stay. The occupational cost of migration was initially somewhat higher for women, but this difference was found to diminish with a longer duration of stay in European countries.

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## Appendix

**Table A1: Education attainment scale used in the multivariate analysis**

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0	None
1	Pre-school (nursery school)
2	Pre-school
3	First year primary
4	2nd year primary
5	3rd year primary
6	4th year primary
7	5th year primary
8	1st year secondary
9	2nd year secondary
10	3rd year secondary
11	4th year secondary
12	1st year high school
13	2nd year high school
14	Final year high school
15	1st year (DEUG1 or equivalent)/BTS1
16	2nd year (DEUG2 or equivalent)/BTS2
17	3rd year (BA or equivalent)
18	4th year (MA or equivalent)
19	5th year (DESS,DEA or equivalent)
20	6th year (PhD studies)

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Source: MAFE.

**Table A2: Mean values of selected variables, employed Senegalese in Europe, 2008 (N=443)**

<b>Variable</b>	<b>Mean Value</b>
ISEI	30.50
Male	0.61
Age	40.15
No schooling or some primary	0.28
Primary	0.12
Some secondary	0.33
Secondary	0.09
At least some postsecondary	0.18
Received some education in Europe	0.13
Years of stay in Europe	13.02
Years inactive in Europe	0.82
ISEI – first job in Europe	27.93
Worked in Africa prior to migrating	0.74
Network	0.40
Good language skills upon arrival	0.28
Some language skills upon arrival	0.29
No language skills upon arrival	0.43
Lives in France	0.34
Lives in Italy	0.33
Lives in Spain	0.33
Has no work permit	0.19
Number of children below 18 years of age	1.50

Source: MAFE.