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**Article**

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ORIGINAL ARTICLE

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# “Barcelona or die”: understanding illegal migration from Senegal

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## Abstract

Fatalities from illegal immigration from Africa to Europe are a grave reality. The phenomenon represents a major challenge for both home and host countries. Nonetheless, almost nothing is known about how the motivations of potentially illegally migrating individuals are formed. This paper aims to explain the factors behind the formation of the willingness to migrate illegally knowing that death might occur during the trip. I focus on the role of expectations, friends and relatives who have migrated and host countries policies. By using an original survey among Senegalese residing in Dakar in 2006–2007, I show that potential illegal migrants are willing to accept a substantial risk of death. I find that high expectations and migrant networks are positively related with illegal migration motivations. Surprisingly, I find that stricter immigration policies deter potential legal migrants much more than potential illegal migrants. Finally, I find that the price of illegal migration is negatively correlated with the willingness to migrate illegally.

**JEL Code:** F22, O15

**Keywords:** Illegal migration; Risk attitude; Sub-Saharan Africa; Senegal

## 1 Introduction

Illegal or undocumented migration from the developing world to rich countries raises many important issues at the political, economic and humanitarian level. Not only did the global economic crisis exacerbate migration, but globalization, widening economic gaps among the rich and poor countries and geopolitical shifts also trigger additional illegal migration. Furthermore, restrictions to legal migration imposed by receiving countries may increase the probability to take the illegal route.

Since the fall of 2005, people in Europe have regularly witnessed tragic events related to illegal migration from Africa, such as the Ceuta and Melilla tragedy<sup>1</sup>, as well as media images of people disembarking onto European coasts. Such events show how strongly migrants are motivated to leave their country at any cost with the hope of finding a better life. However, while massive waves of illegal migrants from Africa arrive in Europe on a regular basis and many more die on their way, illegal migration has mostly been studied in the context of Mexico and the United States (Gathmann 2008; Hanson 2006; Orrenius 2004; Orrenius and Zavodny 2005; Ryo 2013). Only few studies have examined illegal migration from Africa to Europe. For instance, Chiuri et al. (2007) document the

characteristics of illegal migrants by using a sample of individuals coming among others from African countries and entering Italy illegally during 2003. In the specific case of Senegal, Mbow and Tamba (2007) also provide a profile of the illegal migration candidates. Baizán et al. (2013) find in the context of the MAFE project<sup>2</sup> that the legal status is an important factor of Senegalese migration. Fall (2007) claims that illegal migration from sub-Saharan Africa to Europe and more specifically to the Canary Islands is probably linked to the enforcement of the border controls in the Spanish enclaves and transition countries.

In this paper, I aim to contribute to the scarce literature on African migration in general and the legal status of African migrants in particular. I examine the factors related to and mechanisms behind illegal migration from sub-Saharan Africa. From an empirical perspective, this is an important contribution and has the potential to participate in policy debates in light of the ongoing media coverage of African migrants arriving in Europe via boat. Therefore, I answer the question, “why people are willing to jeopardize their lives to go abroad and live in an underground economy?” More precisely, I compare potential legal and illegal migrants and focus on the role that expectations, migrant networks and migration policies have on the probability to take an illegal journey. Although these three determinants are well known as important drivers of migration, I argue that they are key factors of the willingness to migrate illegally. They can make the difference between the decision to migrate legally and the decision to migrate irrespective of the risks, including using an illegal method.

I use a tailor-made survey which I conducted in Dakar between November 2006 and April 2007. During extended personal and face-to-face interviews, I collected information about the characteristics and motivations of potential migrants. The survey also elicits information on individuals’ potential destinations and perceived financial cost of migration.

Whether or not potential migrants realize their migration goals, they provide a good indication of real guiding motivations. In the case of illegal migration, it is important to gain some evidence using subjective data. The willingness to migrate, and particularly to do so without proper authorization from the host country, is a good indicator of how frustrated people are with the living conditions in their country of origin. Illegal migrants who manage to arrive in the host country are not easily observable in the new country. Subjective pre-migration data are thus more valuable because they help elicit motivations, perceptions and expectations. They also allow a better understanding of illegal migration before migrants arrive in the host country and their motivations are contaminated by a new reality. Such a study can offer valuable insights to the home and host countries when they formulate and adapt pragmatic migration policies.

Through the descriptive data, I find that potential illegal migrants are willing to accept a substantial risk of death. This also suggests a large utility gap between migrating and remaining in Senegal and underscores the emergency these people feel to migrate in order to improve their well-being. Second, my findings show that biased and erroneous expectations of potential migrants play an important role in the willingness to migrate illegally, highlighting the fact that people may base a risky decision on incorrect information. Third, there is a positive relationship between migrant networks and illegal migration motivations. This may be due to the fact that friends and relatives (FARs) who have already migrated help reduce the costs associated with illegal migration. At the same time,

FARs can sometimes provide less than accurate information about their living conditions abroad, thus increasing the desire of potential migrants to undertake the move. Fourth, host countries' stricter immigration policies might not be effective and may backfire. While they may deter potential legal migrants from migrating, they may not halt illegal migration. Finally, as the prices of illegal migration increase, the likelihood of migrating illegally decreases. This suggests that the very poor are unable to pay to migrate illegally. However, it does not mean that the poor will not consider the illegal journey.

The remainder of this paper is organized as follows. The following section discusses the background about illegal migration in Senegal. Section 3 reviews the existing literature on the triggering factors of illegal migration such as expectations, networks and strict immigration policies. Section 4 presents the data and descriptive statistics obtained from the survey. The model specification and results are presented in Section 5 before Section 6 concludes.

## **2 Background on illegal migration from Senegal**

While the phenomenon of migrants landing in a host country without proper authorization is not new, new methods of illegal migration that push the envelope of safety are continually being developed as a means of side-stepping restrictive immigration policies. Prior to 1999, illegal migrants from sub-Saharan Africa used to go to the Maghreb via the desert to eventually reach Europe. After 2000, the intensification of the border controls at the Straits of Gibraltar have increasingly driven illegal migrants to use boats to reach European coasts such as Lampedusa, Sicily or the Canary Islands (Adepoju 2008; De Haas 2006). Many of these people are originally from Senegal, a country affected with the departure of many migrants illegally. The motto of thousands of Senegalese who try to migrate illegally is "Barsa wala Barsakh", which in Wolof<sup>3</sup> means "Barcelona<sup>4</sup> or Die": in other words, if people cannot migrate to Europe or to a rich country, they would rather die than stay in Senegal. To understand the scope of this phenomenon, half of the 30,000 illegal migrants who arrived in the Canary Islands in 2006 were Senegalese, while 1,000 out of 7,000 African illegal migrants who died during the crossings in the same year were Senegalese (Asociación Pro Derechos Humanos de Andalucía 2007). The determination of migrants and the magnitude that illegal migration took in Senegal is probably related to the economic conditions and huge differences between Senegal and the host countries. For instance, according to the Human Development Index, Senegal is ranked 166 out of 182 countries, while Spain is ranked fifteenth and France is placed eighth (United Nations Development Programme 2009). The comparison in terms of GDP per capita (Constant 2005 US\$) shows that the GDP per capita is evaluated at 790 US\$ for Senegal, 25,486 US\$ for Spain and 33,493 US\$ for France (World Bank 2009).

An illegal migration trip is well organized and involves different people with specific roles, such as the promoter who puts in place the project and is in charge of the logistics; the coordinator who is the main intermediary between the promoter and candidates; the secondary intermediaries who advertise the project and recruit people. The captain of the pirogue is often an experienced fisherman and is helped by some of his colleagues for the management of the GPS, for instance. Last but not least, parents can sometimes take an active part by helping their children find fundings for the trip (Mbow and Tamba 2007). The pirogue in which migrants take place costs about 8,000,000 Fcfa (12,180 Euros) and the total costs of the trip are evaluated around 15,000,000 Fcfa (22,833 Euros). Mbow

and Tamba (2007) also inform us that the typical illegal migration candidate is a young man between 20 and 29 years old, single, belonging to the Mouride brotherhood<sup>5</sup> and the Wolof ethnic group.

### **3 Conceptual framework: the role of expectations, migrant networks and migration policies in illegal migration**

Very few studies have offered theoretical evidence surrounding the willingness to migrate illegally. An interesting contribution is by Stark and Fan (2011) who show that there can be an equilibrium in which an individual will be voluntarily migrating illegally and take up degrading work in the host country such as prostitution rather than not migrating and having a decent job such as farming in the home country if there is a large number of people from the same origin place who believe that the others do the same. Ryo (2013) emphasizes how norms and values are important in the illegal migration decision from Mexico to the US. Arcand and Mbaye (2013) study both theoretically and empirically the determinants of illegal migration from Senegal. However, they focus on the role of risk and time preferences in the willingness to migrate illegally and to pay a smuggler. This paper focuses on the role of potential migrant expectations, networks and immigration policies considered in illegal migration.

#### **3.1 Expectations**

I argue that high expectations about living abroad increase the willingness to migrate illegally and risk one's life. Expectations of potential migrants are often based on the perceptions they have about the earnings of their FARs living abroad. It is shown within existing literature that the probability to migrate can be motivated by great expectations concerning the living standards at the destination (Dalen et al. 2005a). These high expectations are often unrealistic and can lead to a negative migration experience (Sabates-Wheeler et al. 2009). Nevertheless, there is no consensus in the literature about the role of expectations regarding migration. Some studies argue that the role of over-expectations on migration decisions needs to be put into perspective. For instance, McKenzie et al. (2012) find that contrary to the general understanding that over-expectations increase the pressure to migrate, potential male migrants from Tonga to New Zealand underestimate both their likelihood of finding a job and their earnings. It is very likely in the specific Senegalese context of this study that there are some over-expectations of returns to migration from potential migrants. This hypothesis can be explained by sociological and economic factors. Many households in Africa, and more specifically in Senegal, with good living conditions have one or many family members who have migrated. Such migrants invest in buildings, business and social services for the community (Beauchemin and Schoumaker 2009; Melly 2011), as well as they send remittances. These transfers and investments bestow them with an important economic power and signal, at the same time, a much better life abroad. This in turn affects the intentions and expectations of individuals who have non-migrant families in the local communities (Dalen et al. 2005b).

However, these studies do not necessarily explain the differential effect that expectations might have on legal and illegal migration. In this paper, I compare these two types of migration and argue that in the case of illegal migration, these over-expectations are exacerbated relative to legal migration. For people left behind, the apparent success of migrants and utility they bring to their family and community at home is all due to

migration. This creates and reinforces feelings of relative deprivation among other community members. The high social pressure, in turn, ignites as well as it perpetuates the aspiration to migrate, even illegally.

### **3.2 Migrant networks**

Studies on illegal migration from Mexico to the U.S. show that having relatives who have tried illegal migration matters (Ryo 2013). Networks assist individuals in finding a job more easily, learning information about how to cross borders illegally and meeting the financial cost of migration through informal credit mechanisms between individuals (Dolfin and Genicot 2010; Massey and Espinosa 1997; Orrenius and Zavodny 2005; Singer and Massey 1998). In the context of this study, I go a step further in the analysis of the role of networks. Related to the hypothesis about the role of expectations on the willingness to migrate illegally, I claim that the information about expected foreign wages of potential migrants often comes from the perceptions of relatives' earnings. FARs positively influence the willingness to migrate illegally through various channels. They can help reduce migration costs; they can also provide a certain standard of living to their family left behind. FARs can supply them with information about life abroad that may or may not be true and can lead them to believe that success is guaranteed with migration, especially if these FARs stand to benefit from the illegal migration of the individual. All these arguments are in favor of the assumption that FARs may have a positive relationship with the willingness to migrate illegally. Subsequently, I assume that migrant networks, and particularly family and friends of those who have already migrated legally or illegally, can be considered another trigger of illegal migration.

### **3.3 Migration policies**

Restrictive immigration policies mean that the conditions to enter host countries are made substantially difficult. This can relate to quotas of immigrants, their level of education and skills or stricter border controls of the host countries. By default, migration inflows should decrease under such regimes. However, empirical evidence on the role of migration policies is rather mixed in the literature. Restrictive immigration policies could decrease the willingness to migrate illegally, but they could also increase it. On the one hand, tight border enforcement increases the likelihood of being apprehended, which raises illegal migration prices, which in turn reduces the demand for smugglers' services (Gathmann 2008; Singer and Massey 1998). On the other hand, stricter immigration policies often have some pernicious effects on illegal migration. Orrenius (2004) and Gathmann (2008) show that border enforcement actually worsens the situation because smugglers take advantage of this to raise their prices. Consequently, these authors claim that only a small deterring effect is achieved by the enforcement of border controls between Mexico and the U.S. Ryo (2013) finds that the perception of being apprehended or the severity of the law are not related to the intention to migrate illegally. In fact, tougher border enforcement may push people to use more routes and die, as it often happens along the US-Mexico border. Therefore, the positive or negative relationship between restrictive immigration policies and illegal migration is a priori unclear. It is thus interesting to provide some new empirical evidence about this relationship, particularly in the context of sub-Saharan Africa.

## 4 Data

### 4.1 Design of the Survey

Given the scarcity of data about African illegal migrants, a survey that can capture the characteristics and propensity of individuals to exit even illegally is certainly warranted. Therefore, I conducted a survey in Dakar, the capital of Senegal, in order to examine the factors triggering illegal migration. Ethical approval for this study was granted by Université Gaston Berger of Saint Louis (Sénégal) and CERDI (Centre d'Etudes et de Recherches sur le Développement International, Université d'Auvergne, Clermont-Ferrand, France); informed consent was gained from all study participants. The original data set produced from this survey can help fill the gap in the literature and provide a unique opportunity to further understand this phenomenon.

The survey has four sections. The first section contains information about the socio-demographic and economic characteristics of the individuals. The willingness of individuals to migrate legally or illegally, including the motivations involved, are in the second section. Detailed information about the preferred destinations of potential migrants makes up the third section. The last section comprises the willingness of the individuals to risk their lives or take financial risks, for example, by paying a smuggler<sup>6</sup>.

I interviewed 400 individuals with a small team between November 2006 and April 2007. Prior to the main survey, we conducted a pilot study to test the feasibility of the study. Moreover, given that questions were asked with closed answers, the pilot also allowed adjusting the proposed answers.

To achieve our goal of explaining illegal migration motivations, we identified five major neighborhoods in Dakar in which people may have a high propensity to migrate. The first neighborhood was the University Campus and its surrounds, reflecting an area mostly inhabited by middle class families. The second neighborhood was Fass, Medina and Geule-Tapee; and the third was Guediawaye. The second and the third regions are mainly popular neighborhoods, in which various people from different walks of life reside. The fourth neighborhood was Sandaga which is one of the main areas for shopping in the city center. I select this region because many people coming from the rural areas work there. For some of them, Dakar is the final destination, but for many, the city is a temporary place while they are preparing their further migration by working in low-paying jobs. Finally, the fifth region was the main departure beaches for illegal migrants namely Kayar, Thiaroye, Yarakh and Yoff.

We administered the questionnaire to random people met on the street and explained to them the goal of the study. With illegal migration being such a sensitive issue, we assured the respondents that their anonymity would be preserved. After we obtained a climate of confidence, we conducted the interviews in Wolof, which is spoken by the majority of Senegalese. On a few occasions we administered the questionnaire in French.

To measure people's willingness to migrate, we directly asked them: "Are you willing to migrate?". Available answers were "Yes" or "No"<sup>7</sup>. Out of the 400 individuals, 367 individuals, representing 92% of the sample, responded positively to this question (Table 1). 33 individuals (8% of the sample) responded no to the same question. In the follow-up, we continued the questionnaire with only people who said yes, and we further asked them: "If you are not able to migrate legally, are you willing to migrate illegally?"<sup>8</sup> Out of the 367 individuals who wish to migrate, 222 report that they would only be willing to migrate legally, while 145 report that they would be willing to attempt illegal migration (Table 1).

**Table 1 Willingness to migrate**

Questions	Answer: Yes		
	N	Mean	S.D.
Are you willing to migrate?	367	0.92	0.28
If you are not able to migrate legally, are you willing to migrate illegally?	145	0.40	0.50

Note: The second question was asked only if respondents are willing to migrate illegally.

Before presenting the summary statistics, I would like to discuss the sampling and potential issues related to it. First, the survey only includes the capital city Dakar and not all of the Senegalese population. The choice of Dakar, however, is justified because of its accessibility and the variety of its population. I did not include rich regions in Dakar because it is very unlikely that people living in these neighborhoods would consider migration, and especially illegal migration. People in rich neighborhoods are highly educated in most cases, are much wealthier than the average population and have good living conditions in Senegal. Moreover, when they want to go abroad, they are able to provide reliable documents to consular officials and obtain legal visas. Second, the proportion of people who consider migration is high (92%) and warrants further discussion. While there was some variation across regions, the proportion of people who wish to migrate was high in all areas. In general, the willingness to migrate in Senegal is high and supported by other surveys. For instance, the Gallup polls suggest that 55% of Senegalese are willing to migrate (Gallup 2008). Although this figure from Gallup polls is much lower than the share of people willing to migrate in my survey, it is still much higher than in other countries. This can be explained by the sampling design, with the figure 92% reaching my goal of targeting the population with a high propensity to migrate. Furthermore this does not necessarily mean that all of these people will attempt migration, although some of them will do so. This high number is a very strong indication of the degree of frustration concerning the economic conditions these individuals face in Senegal and underlines the importance of push factors. It is worth noting that while expectations and other pull-factors may be over or underestimated, push factors are known. When it comes to risking one's life, push factors are extremely important.

I acknowledge that because the data are not nationally representative, my results cannot be generalized and applied to the entire population. I am also aware of the bias that my results may suffer due to the non randomness of the sample.

#### 4.2 Summary statistics

Table 2 presents the summary statistics, also disaggregated by legal status. Men represent 88% of the sample, this proportion is the same for both potential legal and illegal migrants. This is consistent with human capital theory that men are more likely to migrate.

The average age of potential illegal migrants is slightly lower (24 years) than that of potential legal migrants (27 years). The proportion of married people among potential legal migrants is almost double (32%) that among potential illegal migrants (17%). The proportions of dependent people are higher for potential legal migrants than for potential illegal migrants. The average education level in the sample is secondary, with 27% of people having reached this level. It is interesting to note that 55% of potential illegal migrants have a low level of education, whereas they represent 33% of potential legal migrants. Only 5% of potential illegal migrants have a university level, which is five times



**Table 2 Summary statistics**

Variables	Legal migration (N=222)		Illegal migration (N=145)		Total (N=367)	
	Mean	SD	Mean	SD	Mean	SD
<i>Characteristics</i>						
Male	0.88	0.33	0.88	0.32	0.88	0.33
Age	26.95	08.01	24.45	5.36	25.96	7.18
Married	0.32	0.47	0.17	0.37	0.26	0.44
Child is male	0.88	0.33	0.78	0.42	0.84	0.37
Child is female	0.89	0.31	0.78	0.42	0.85	0.36
Adult is male	0.79	0.41	0.70	0.46	0.75	0.43
Adult is female	0.84	0.37	0.84	0.37	0.84	0.37
Education level						
Low education level	0.33	0.47	0.55	0.50	0.42	0.49
Secondary level	0.27	0.45	0.26	0.44	0.27	0.44
University level	0.24	0.43	0.05	0.22	0.16	0.37
Koranic school	0.16	0.37	0.14	0.35	0.15	0.36
Home owner	0.57	0.50	0.54	0.50	0.56	0.50
Mouride	0.39	0.49	0.54	0.50	0.45	0.50
Ethnic dummies						
Wolof	0.36	0.48	0.30	0.46	0.34	0.47
Lebou	0.16	0.37	0.23	0.42	0.19	0.39
Hal Pular	0.14	0.34	0.08	0.27	0.11	0.32
Serere	0.22	0.41	0.24	0.43	0.23	0.42
Diola	0.05	0.23	0.06	0.23	0.05	0.23
Manjack	0.01	0.09	0.01	0.12	0.01	0.10
Bambara, Mandingue, Sub-region	0.06	0.24	0.08	0.28	0.07	0.26
Region dummies						
Campus	0.17	0.38	0.02	0.14	0.11	0.32
Fass, Medina and Geule tapée	0.11	0.32	0.10	0.31	0.11	0.31
Guédiawaye	0.34	0.48	0.39	0.49	0.36	0.48
Sandaga	0.10	0.30	0.16	0.37	0.12	0.33
Kayar, Thiaroye, Yarakh and Yoff	0.27	0.45	0.33	0.47	0.30	0.46
Expenditure in Senegal	77,684.68	66,006.94	73,604.35	62,840.70	76,054.93	64,698.93
Expenditure in Senegal per capita	20,678.40	15,647.79	22,690.14	18,800.45	21,481.92	16,979.35
<i>Motivations</i>						
Expected foreign wage	1,850,505	7,008,376	1,141,931	1,158,843	1,567,466	5,486,186
Expected foreign wage per capita	1,089,245	6,829,681	600,252.9	1,021,903	893,918	5,332,343
Restrictive immigration policies	0.62	0.49	0.79	0.41	0.68	0.47
Having relatives abroad	0.66	0.48	0.88	0.33	0.74	0.44
<i>Destination and Prices</i>						
Spain preferred	0.18	0.39	0.41	0.49	0.27	0.44
Italy preferred	0.15	0.36	0.26	0.44	0.19	0.39
US preferred	0.31	0.46	0.16	0.37	0.25	0.43
France preferred	0.15	0.36	0.03	0.16	0.10	0.31
United Kingdom preferred	0.06	0.24	0.03	0.18	0.05	0.22
Canada preferred	0.04	0.20	0.01	0.12	0.03	0.17
Anywhere preferred	0.11	0.31	0.10	0.31	0.11	0.31
Visa price					829,785.10	485,625.33
Pirogue price					419,089.91	43,049.96
Embassy price					3,071 603	935,445.5
Migration prices					2,220,254	1,756,592

Note: Amounts are presented in Fcfa and 1 Euro = 655.957 Fcfa.

less than in the population of potential legal migrants. People living in a house that they or their family own represent 56% of the sample, which does not greatly vary according to the legal or illegal consideration of migration. Interestingly, a larger percentage among the potential illegal migrants belong to the Mouride brotherhood<sup>9</sup> (54%) than among the potential legal migrants (39%).

Used as a proxy of monthly income, average monthly expenditure is estimated at 73,604 Fcfa (112 Euros) for potential illegal migrants, which is slightly lower than for potential legal migrants (77,685 Fcfa or 118 Euros)<sup>10</sup>. I measure income expectations from a direct question: "How much are you expecting to earn each month in the destination country?" As Table 2 shows, expected monthly wages are higher for potential legal migrants (1,850,505 Fcfa or 2,821 Euros) than potential illegal migrants (1,141,931 Fcfa, i.e. 1,739 Euros). Potential illegal migrants have more relatives who have migrated (88%) on average than potential legal migrants (66%). 79% of potential illegal migrants report that they will not give up on migration if there is a tightening of immigration policies in the destination countries, whereas this percentage is lower among potential legal migrants (62%). During the survey, I observed that there are three ways to migrate. I noted that three different prices could exist for one destination, which in fact corresponds with the various ways of migrating. Thus, I classified each price according to the way of migration. The first is called the "visa method", which involves migrating legally by applying directly for a legal visa and paying the airfare. The second method is the "pirogue method", which involves paying a fee to a smuggler and using boats or routes towards Maghreb countries in order to penetrate into various destination countries illegally, often including Spain, Italy or France. Finally, the third method is the "embassy method", which essentially means bribing someone who is linked to consular sections in Dakar to obtain legitimate documents. I consider the "pirogue" and "embassy" methods as illegal. For a given destination country, I also gained the responses concerning the prices of different migration methods. Table 2 presents the average price of all destinations together for each method of migration. Due to the nature of the type of journey offered by the "pirogue method", its probability of success is much lower than with the embassy method. Therefore, the price of this method is lower (419,090 Fcfa or 638 Euros), on average, for all destinations than the embassy method (3,071,603 Fcfa, i.e. 4,678 Euros). The latter has the same probability of success as the legal method. According to the answers of those interviewed, the visa method price is, on average, 829,785 Fcfa (1,264 Euros).

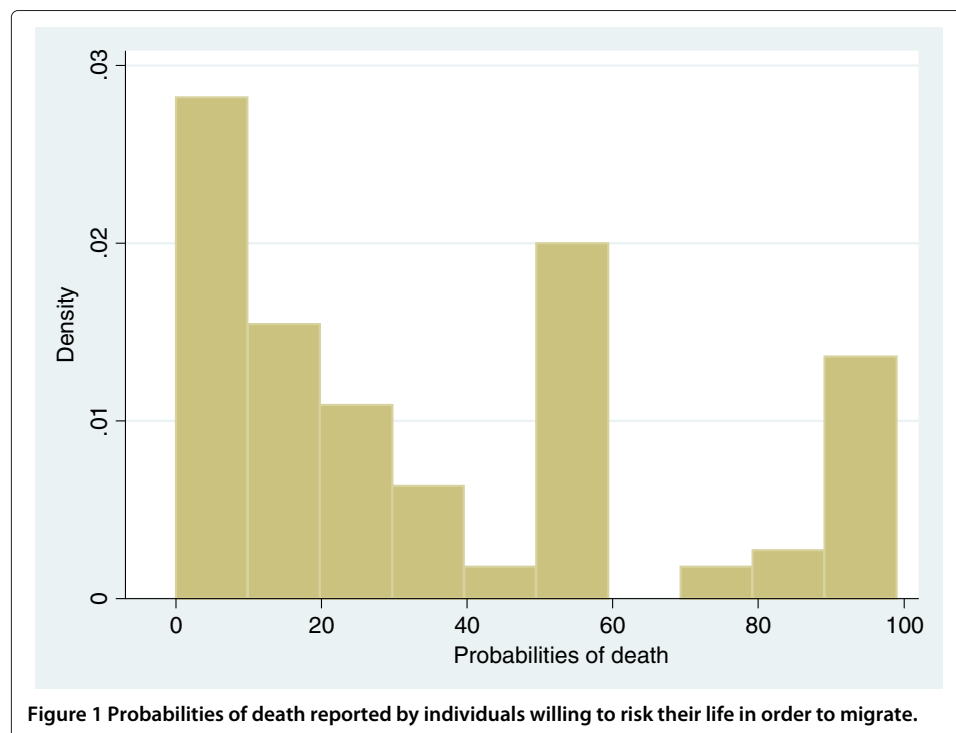
Table 3 presents the average prices for each method of migration and each destination country computed from the responses of potential migrants. To check the reliability of the answers of potential migrants, I compare the prices obtained from their declaration with those reported by press reports, discussions with some migrants, and people who have made some attempts. All match with the existing prices in the migration market except for the "visa method". In Table 3, the "visa method 1" corresponds to the response of potential migrants, while the "visa method 2" corresponds to the prices I approximated from the average cost of the airfare according to the destination country, in addition to the visa fees. The difference between "visa method 1" and "visa method 2" shows that potential migrants generally have good information on the current illegal migration prices but not on the legal migration prices. For most individuals, the likelihood of migrating legally is low, which implies that they can be misinformed about the legal market and do not necessarily know the price that corresponds to a legal migration<sup>11</sup>.

**Table 3 Average migration prices according to destination countries**

	Visa method 1	Visa method 2	Pirogue method	Embassy method
Spain	1,100,000	450,552	391,981	2,153,846
US	910,000	828,567	430,000	4,041,667
Italy	250,000	537,875	390,476	2,346,154
France	237,500	495,855	Unknown	2,952,381
United Kingdom	Unknown	543,390	Unknown	3,700,000
Canada	200,000	873,377	600,000	1,850,000
Other	1,750,000		462,500	4,585,715

Notes: Prices are expressed in Fcfa. 1 Euro=655.957 Fcfa. This table presents the average prices for each destination and each method of migration generated from the respondents answers (except for the "visa method 2"). The Visa method 1 price is unknown for the United Kingdom, and the Pirogue method price is unknown for both France and the United Kingdom because no respondent was able to give these prices.

Interestingly, the vast majority of the sample of potential illegal migrants (77%) reported that they are willing to risk their life in order to emigrate. Accordingly, Figure 1 shows the distribution of their probabilities of death. When we asked how likely they were to die if they tried to migrate illegally to their preferred destination, potential illegal migrants reported that they are willing to accept a 25% risk of death at the median. Put differently, it means that half of potential illegal migrants think there is a risk of death lower or equal to 25%; while another half think there is a risk of death higher or equal to 25%, which is substantial. This illustrates the strong attitudes illegal migrants have towards risk. It also shows that respondents are aware of the gravity of undertaking a trip as illegal migrants and illustrates the large gap in utility from remaining in Senegal and migrating, even at the risk of death.



## 5 Econometric analysis

### 5.1 Model specification

My main interest is to explore the relationship between expectations, migrant networks and migration policies and the likelihood of undertaking illegal migration. In order to empirically examine this, I estimate various simple probit models. The estimation function is specified as follows:

$$m_i = \begin{cases} 1 & \text{if } x_i\beta + z_i\theta + \alpha_r + \epsilon_i > 0 \\ 0 & \text{if } x_i\beta + z_i\theta + \alpha_r + \epsilon_i \leq 0 \end{cases} \quad (1)$$

Where  $m_i$  is the binary dependent variable, which equals one if individual  $i$  is willing to migrate illegally and 0 if he is willing to migrate only legally;  $x_i$  is the vector of interest variables that I use to investigate the hypotheses discussed in the conceptual framework. These variables are related to the expectations of migrants, migrant networks (proxied by the existing relatives of migrants abroad) and immigration policies.  $\beta$  is the vector of parameters to be estimated. Equation (1) also includes  $z_i$ , the vector of control variables. The latter are composed of the prices of migration, socio-demographic and economic characteristics such as the logarithm of the monthly expenditure proxy of the average monthly wage of the individuals divided by the number of dependents<sup>12</sup>, gender, age, marital status, education level, gender of dependent children (dummy equals one if the individual has male or female dependent child), gender of dependent adults (dummy equals one if the individual has a male or female dependent adult), home occupation status (dummy variable for the individual and family who own the house where they are living) and indicator variables for religion and ethnic groups. Mouride is the religious dummy equal to one if the individual belongs to the Mouride's brotherhood. The other brotherhoods are Tidiane, Layenne, Niass ène, (which are all Muslims), Catholic, Protestant, Muslim who does not belong to any particular group, Animist or without religion. Ethnic groups are Wolof, Lebou, Hal Pular, Serere, Diola, Manjack, Other (Bambara, Mandingue or come from the sub-region: Guinea, Mauritania, Côte d'Ivoire).  $\theta$  is the vector of parameters to be estimated for these variables. I include in equation (1) five regional dummies ( $\alpha_r$ ) in order to control for the unobserved regional characteristics. These dummies represent the five neighborhoods in the sample. Additionally, the error term  $\epsilon_i$  is assumed to be normally distributed with zero mean and unit variance.

## 5.2 Results

### 5.2.1 Expectations

Columns 1 and 4 of Table 4 present the role of expectations, measured by the logarithm of the expected monthly foreign wage, on the likelihood of migrating illegally. A higher expected wage in the destination country is positively correlated with the consideration of illegal migration, thus supporting the hypothesis that high expectations lead to an increased probability to migrate illegally. I argue that these expectations are generated from the perceptions of the earnings of relatives who have migrated.

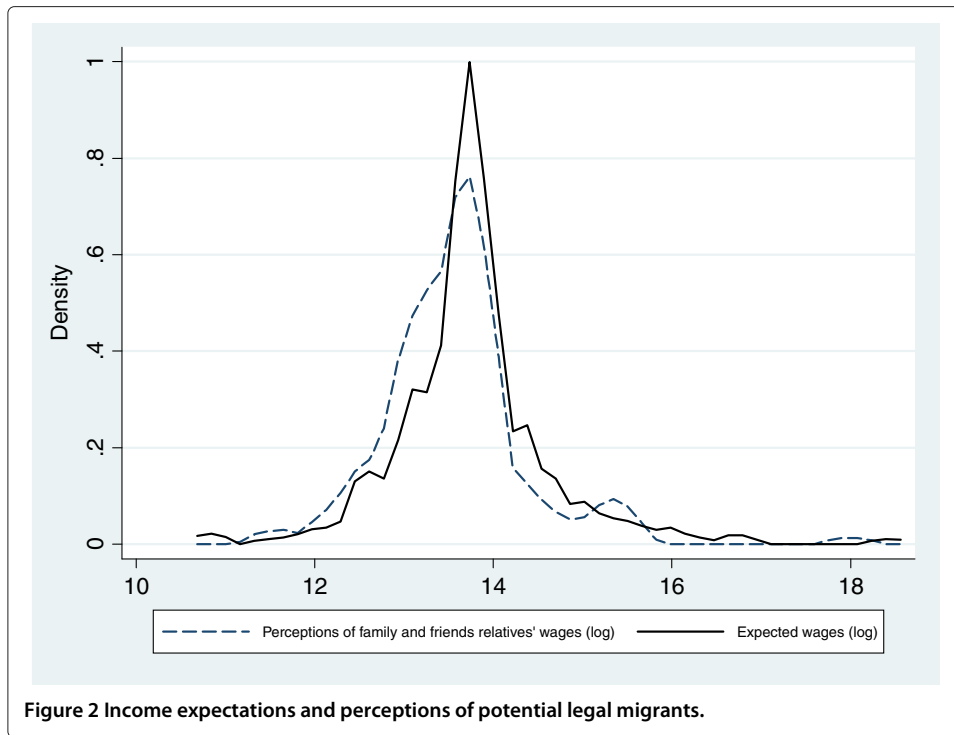
Figures 2 and 3 compare the distributions of expected monthly foreign wages and the perceptions of FARs' wages for the potential legal migrants and potential illegal migrants, respectively, with similar distributions in the two cases. On average, potential legal migrants expect to earn more than their relatives who have previously migrated

**Table 4 Results on the willingness to migrate illegally: the role of expectations, relatives and migration policies**

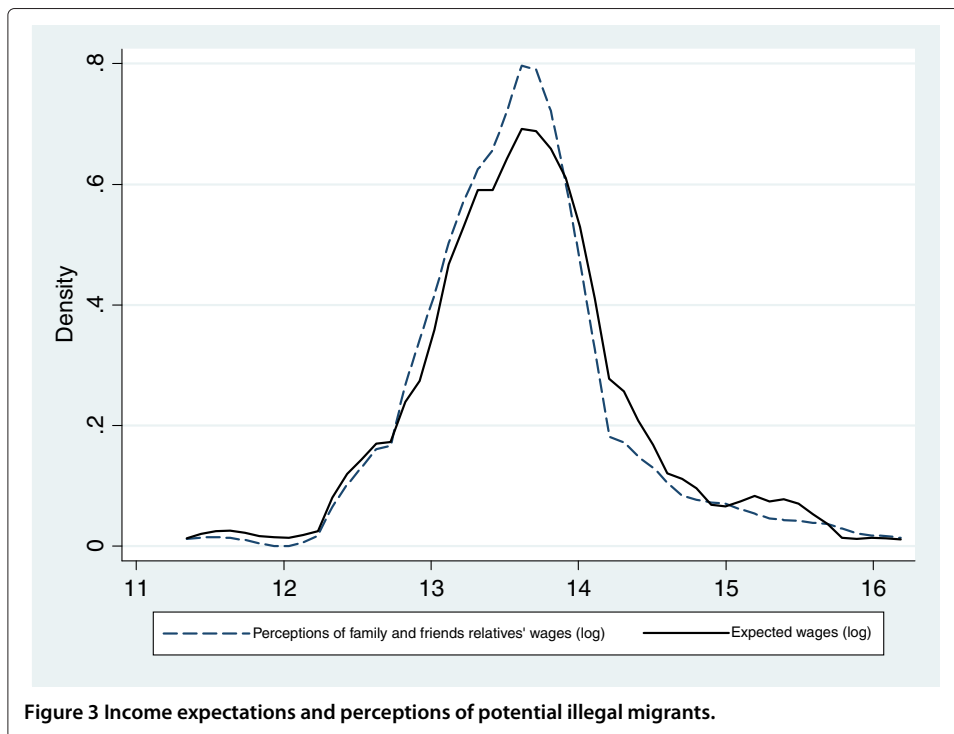
	Marginal effects			
	(1)	(2)	(3)	(4)
Log expected wage	0.075** (2.31)			0.078** (2.25)
Having relatives abroad		0.144* (1.86)		0.155* (1.94)
Restrictive immigration policies			0.206*** (3.33)	0.200*** (3.21)
Log migration prices	-0.340*** (8.62)	-0.314*** (8.73)	-0.333*** (8.96)	-0.345*** (8.76)
Log expenditure per capita	-0.013 (0.26)	0.023 (0.53)	0.033 (0.69)	-0.036 (0.70)
Education level				
Secondary level	-0.069 (0.91)	-0.071 (0.95)	-0.062 (0.82)	-0.066 (0.86)
University level	-0.338*** (5.09)	-0.312*** (4.42)	-0.345*** (4.76)	-0.352*** (5.66)
Koranic school	-0.024 (0.26)	-0.053 (0.62)	-0.034 (0.39)	-0.018 (0.20)
Male	0.059 (0.58)	0.066 (0.64)	0.100 (1.06)	0.015 (0.14)
Age	0.034 (1.03)	0.018 (0.57)	0.014 (0.46)	0.038 (1.17)
Age <sup>2</sup>	-0.001 (1.47)	-0.001 (1.11)	-0.001 (1.01)	-0.001 (1.60)
Married	-0.171** (2.28)	-0.184** (2.53)	-0.156** (2.02)	-0.143* (1.88)
Child is male	-0.129 (1.39)	-0.109 (1.22)	-0.139 (1.48)	-0.127 (1.37)
Child is female	-0.083 (0.81)	-0.047 (0.48)	-0.054 (0.53)	-0.048 (0.47)
Adult is male	0.002 (0.03)	-0.008 (0.10)	0.005 (0.06)	0.029 (0.39)
Adult is female	0.078 (0.95)	0.074 (0.90)	0.079 (0.97)	0.046 (0.53)
Home owner	-0.053 (0.78)	-0.056 (0.82)	-0.030 (0.44)	-0.061 (0.88)
Mouride	0.157** (2.21)	0.124* (1.76)	0.138* (1.96)	0.139* (1.91)
Observations	339	343	343	339

The dependent variable equals one if the individual is willing to migrate illegally and zero if he is willing to migrate only legally. The reference category of the variable education level is low education level. Robust z-statistics in parenthesis: \*significant at 10%; \*\*significant at 5%; \*\*\*significant at 1%. All estimations include ethnic and region dummies.

(Figure 2). When I compare the expected foreign wages of potential illegal migrants and their perceptions of FARs' wages (Figure 3), it appears that the expectations of potential illegal migrants are very close to their perceptions, even if they are lower. The average expected monthly wage of illegal migrants is equal to 1,141,931 Fcfa (1,740 Euros) and the median expected monthly wage is 800,000 Fcfa (1,218 Euros). The important point here is to discuss why these amounts are high. I take the example of Spain, which is



the preferred destination of potential illegal migrants in the sample. In 2007, the annual average income in Spain of an immigrant coming from outside the European Union was estimated at 9,319 Euros (777 Euros per month) per consumption unit and 5,792 Euros (483 Euros per month) per person (Instituto Nacional de Estadística of Spain 2007)<sup>13</sup>. I further consider the example of France, which is the main destination with the highest



living standards in Europe for Senegalese. According to the French National Institute of Statistics (Institut National de la Statistique et des Etudes Economiques 2006)<sup>14</sup>, the median living standards in France in 2006 were estimated at 1,470 Euros per month. The net median salary for a full-time job for immigrants from sub-Saharan African countries in France was estimated at 1,400 Euros in 2010, as opposed to 1,550 Euros for the group of non-immigrants (Institut National de la Statistique et des Etudes Economiques 2010). Because these amounts are related to immigrants with legal status, it is relevant to assume that illegal migrants earn less than the amounts expected above.

### **5.2.2 Networks and information**

Many respondents already have relatives in their preferred destination country and have an idea about the wages they earn. The variable *relatives* is a dummy equal to one if the individual has members of his family, close friends or relatives who have migrated. Relatives, and more widely migrant networks, increase a person's likelihood to migrate illegally (Table 4, Columns 2 and 4). This confirms the hypothesis that these networks are a source of information, whether true or not, that can trigger the desire to migrate illegally.

### **5.2.3 Migration policies**

The variable *restrictive immigration policies* is a dummy equal to one if the potential migrant does not give up on migration if the immigration policies in the host countries become tight. Contrary to what one might expect, this variable has a significant and positive sign (Table 4, Columns 3 and 4). This means that tighter immigration policies enforced by the host countries have a positive effect on the propensity to migrate illegally. These policies deter those who are willing to migrate legally more than potential illegal migrants. This result suggests that restrictive immigration policies may be less effective in staving off illegal migration and can incite potential migrants to turn to illegal methods, such as paying a smuggler or corrupting officials to obtain legal documents.

### **5.2.4 Other results**

The estimates in Table 4 also present some interesting results about some control variables. The variable *"married"* is significantly different from zero and negative in all specifications. Therefore, being married reduces the probability of migrating illegally compared with a non-married individual. The main reason is that married people have more familial responsibilities and ties at home and thus are less willing to take risks. The consequences of attempted illegal migration will not only affect them directly but will also have an impact on their spouses.

The coefficient on the dummy *"Mouride"* is positive and significant. Belonging to this brotherhood increases the propensity to migrate illegally relative to the other religious categories. There are two main explanations for this effect. First, historically and culturally, *"Mouride"* people identify with being great travelers. Moreover, work ethic is very high in their vision. According to their ideology, it is important to find a job wherever it is possible. Second, and probably more importantly, relatives are essential in Senegalese migrants' socialization (Fall 1998), with *"Mouride"* people constituting an important religious group with a large network abroad. This is therefore another illustration of the network effect on illegal migration.

Results concerning the level of education show that individuals with a university education have a lower willingness to migrate illegally, suggesting a negative selection in terms

of education. Educated people have more opportunities to find a good job, to get out of poverty and above all to obtain legitimate documents and migrate legally.

Finally, the variable migration prices represents the entirety for all the destinations and without any distinction concerning the method of migration. In all columns of Table 4, this variable has a strong negative effect on the willingness to migrate illegally. I provide a more detailed analysis about the relationship between the migration prices and the willingness to migrate illegally in Table 5.

**Table 5 Results on the willingness to migrate illegally: the role of the migration costs**

	Marginal effects				
	(1)	(2)	(3)	(4)	(5)
Log pirogue price (illegal)	-1.059** (2.53)			-0.595 (1.55)	
Log embassy price (illegal)		-0.345*** (3.41)		-0.299** (2.33)	
Log visa price (legal)			0.036 (0.89)	0.038 (0.68)	
Log migration prices					-0.321*** (8.83)
Wage per capita	0.024 (0.56)	0.013 (0.31)	0.030 (0.72)	0.029 (0.65)	0.038 (0.84)
Education level					
Secondary level	-0.095 (1.23)	-0.101 (1.53)	-0.131** (1.99)	-0.083 (1.08)	-0.067 (0.89)
University level	-0.314*** (3.57)	-0.327*** (4.99)	-0.346*** (5.26)	-0.310*** (3.46)	-0.322*** (4.48)
Koranic school	-0.144* (1.70)	-0.093 (1.19)	-0.121 (1.54)	-0.130 (1.50)	-0.047 (0.53)
Male	0.125 (1.21)	0.121 (1.40)	0.144* (1.75)	0.115 (1.08)	0.102 (1.06)
Age	0.032 (0.95)	0.043 (1.35)	0.039 (1.22)	0.044 (1.26)	0.015 (0.47)
Age square	-0.001 (1.33)	-0.001 (1.62)	-0.001 (1.51)	-0.001 (1.59)	-0.001 (1.01)
Married	-0.262*** (3.47)	-0.245*** (3.81)	-0.257*** (3.91)	-0.258*** (3.40)	-0.185*** (2.49)
Child is male	-0.201** (1.96)	-0.101 (1.15)	-0.148 (1.57)	-0.189* (1.90)	-0.125 (1.36)
Child is female	-0.087 (0.77)	-0.118 (1.17)	-0.090 (0.84)	-0.085 (0.77)	-0.068 (0.67)
Adult is male	-0.157* (1.74)	-0.057 (0.76)	-0.093 (1.19)	-0.147 (1.61)	-0.015 (0.19)
Adult is female	0.128 (1.30)	0.115 (1.42)	0.112 (1.32)	0.131 (1.34)	0.092 (1.16)
Home owner	-0.093 (1.34)	-0.063 (1.04)	-0.095 (1.49)	-0.083 (1.19)	-0.040 (0.59)
Mouride	0.059 (0.83)	0.129** (2.08)	0.103 (1.62)	0.063 (0.88)	0.138** (1.98)
Observations	290	343	327	290	343

Notes: The dependent variable equals one if the individual is willing to migrate illegally and zero if he is willing to migrate only legally. The reference category of the variable education level is low education level. Robust z-statistics in parenthesis: \*significant at 10%; \*\*significant at 5%; \*\*\*significant at 1%. All estimations include ethnic and region dummies.



Table 5 presents the estimates of the average price according to the destination country of visa method <sup>15</sup>, the pirogue method, the embassy method and all the prices without any distinction concerning the method of migration. To my knowledge, there is no previous empirical evidence in the African case about the effect of illegal and legal prices on the willingness to migrate illegally. The price of illegal migration methods, namely the pirogue method (Column 1) and embassy method (Column 2), are significant and negative. The variable log visa price (Column 3) is positive yet not significantly different from zero. For people who are willing to migrate illegally, the level of the price that they perceive they should pay will not influence their decision. It is very likely that these individuals know their low probability of obtaining legitimate documents due to their socio-economic characteristics and realize that their only option is illegal migration. Subsequently, a high or a low legal price would not reflect a key element in their willingness to migrate illegally.

However, when I put the respective prices together (Column 4), the variable log pirogue price remains negative yet not significant. One can assume that the price levels of one illegal method will influence the price of the other within the illegal migration market. The negative relationship between the price of illegal migration and the willingness to migrate illegally can be explained by the fact that migration, and illegal migration in particular, are expensive for people from the working class or even from the middle class. The price of the embassy method is highly expensive and very discouraging for the poorest illegal migration candidates. The result of migration prices without any distinction concerning the method of migration obtained in Table 4 is confirmed in Column 5 of Table 5<sup>16</sup>.

## 6 Conclusion

The aim of this paper is to provide a better understanding of the mechanisms behind illegal migration from sub-Saharan Africa. It investigates how people's motivations are formed regarding the decision to migrate illegally by using an original survey among potential migrants in Senegal. I show how the expected foreign wage, the potential migrant networks and restrictive immigration policies affect illegal migration probabilities. I later empirically estimate the effect of illegal and legal migration prices on the willingness to migrate illegally.

Results show that potential illegal migrants are willing to accept a substantial risk of death, which suggests a large utility gap between migrating and remaining in Senegal. Biased expectations towards the popular destination countries increase the likelihood of migrating illegally; consequently, people may base a risky decision on incorrect information. There is a positive relationship between migrant networks and the willingness to migrate illegally, which may be due to the fact that relatives who have already migrated provide a true or false picture of their living conditions, possibly increasing the desire of potential illegal migrants. I also find that contrary to the initial objectives, restrictive immigration policies for entering host countries deter potential legal migrants more than their illegal counterparts. Finally, I show that the price of illegal migration is negatively correlated with the willingness to illegally migrate, suggesting that the poorest are unable to migrate illegally.

Collecting data about illegal migration is not an easy task and some caution is warranted in the interpretation of the results. However, this study provides a good starting

point for future research avenues into understanding the motivations of illegal migration from Africa, which is widely reported by the media yet relatively unexplored in terms of academic research. As I report in this paper, illegal migration starts first with the belief that success is only possible abroad. Consequently, immigration policies should be more focused on the formation of motivations, which reflect the first step of an illegal migration project. In the Senegalese case, a radical change may be necessary in the way of thinking and viewing migration as the only measure of, and possibility of, success.

## Endnotes

<sup>1</sup>Ceuta and Melilla are two Spanish enclaves in Morocco. In 2001, the Spanish government constructed fences to stop illegal migrants from crossing these borders. During the fall of 2005, many illegal migrants mainly coming from sub-Saharan Africa and attempting to reach Spain were killed or injured by border controllers.

<sup>2</sup>The MAFE (Migration between Africa and Europe) project is a research initiative particularly interested in the migration issues between sub-Saharan Africa and Europe.

<sup>3</sup>While French is the official language in Senegal, Wolof is one the main languages spoken.

<sup>4</sup>Barcelona represents the European Eldorado here.

<sup>5</sup>Senegal is composed of 94% Muslims, 5% Christians and 1% Animists. Many Muslims are affiliated with different brotherhoods headed by a spiritual leader. Mouride is one of the most important Muslim brotherhoods in Senegal.

<sup>6</sup>See Additional file 1 for the details of the questionnaire.

<sup>7</sup>Although the “I do not know” or “I am not sure” options were not available in the questionnaire, none of the respondents raised this issue.

<sup>8</sup>The question is in this form because I assume that if people have the opportunity to migrate legally, they will naturally go towards this type of migration. In the Senegalese context, it is very likely that people attempting illegal migration know that obtaining legitimate documents would be difficult for them. This can be due to characteristics such as their low level of qualifications, or the instability or weakness of their professional situation. Attempting legal migration would be a waste of time and therefore they may restrict themselves from asking for legal documents.

<sup>9</sup>The variable Mouride is a dummy equal to 1 if people belong to this religious brotherhood.

<sup>10</sup>Expenditures are considered more reliable and less biased than the level of the actual labor income because people answer more easily about this variable.

<sup>11</sup>For the pirogue method for the U.S., I only saw one press report that detailed a case of people on boats trying to reach this country. For the case of Canada, only two respondents gave prices for this destination and this kind of migration.

<sup>12</sup>In the estimates, we use the average monthly expenditure and the foreign expected wage per capita, which means that we divided these variables by 1+ the number of dependents in order to consider the familial responsibilities of the individuals that may play a role on the way of migrating.

<sup>13</sup>INE: Instituto Nacional de Estadística of Spain.

<sup>14</sup>INSEE: Institut National de la Statistique et des Etudes Economiques.

<sup>15</sup>I use the average price of each destination of the visa method 1 in the estimates, rather than the visa method 2, because it is this price that individuals will consider in their decision.

<sup>16</sup>The variation of the number of observations in Table 5 is due first to the missing values in the monthly expenditure and second to the fact that the price of the visa method 1 and the pirogue method are unknown for United Kingdom and France, which explains the missing data for these variables.

## Additional file

**Additional file 1: Online appendix.**

### Competing interests

The IZA Journal of Migration is committed to the IZA Guiding Principles of Research Integrity. The author declares that she has observed these principles.

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